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August 1962
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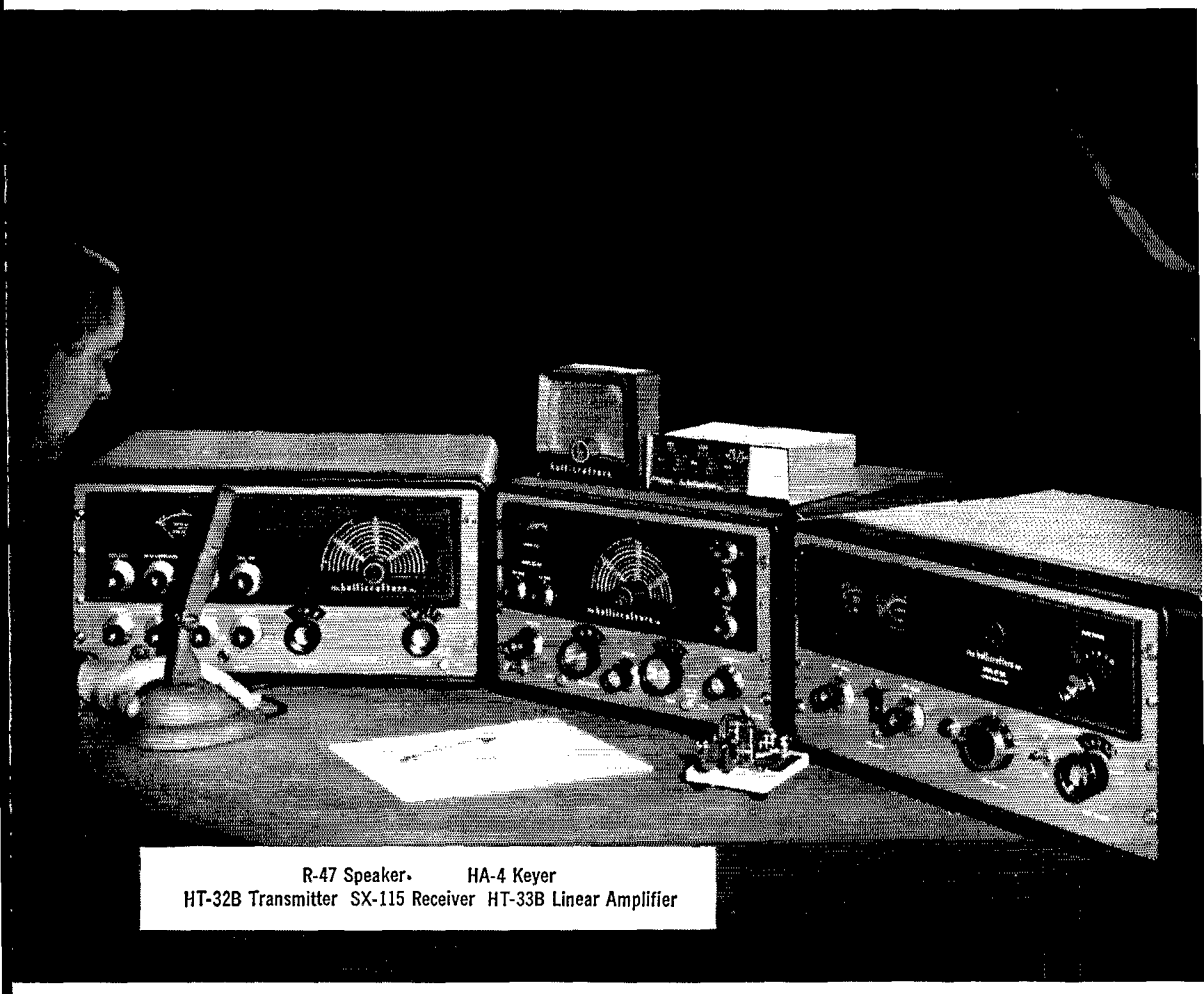

R-47 Speaker. HA-4 Keyer
HT-32B Transmitter SX-115 Receiver HT-33B Linear Amplifier

The time-proven excellence of hallicrafters' HT-32B and HT-33B . . . the incomparable performance of the new SX-115 . . . the HA-2 and HA-6 transverters . . . and the fully transistorized HA-4 electronic keyer . . . now team up to bring you maximum flexibility and full coverage of 80 through 2 meters on SSB, CW and AM.

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FEATURES: Beam-deflection, high level sideband modulator for low-noise, high-stability signal, Hallicrafters' exclusive 5.0 Mc. quartz crystal filter with sideband rejection of 50 db. or more; CTO direct reading in kilocycles to within 1 kc.; 144 watts plate input (P.E.P. two-tone). Five band output (80, 40, 20, 15, 10 meters). All modes of transmission—CW, AM, SSB. Unwanted sideband down 50 db. or more. Both sidebands transmitted on AM Precision gear driven CTO. Exclusive Hallicrafters patented sideband selection. Logarithmic meter for accurately tuning and carrier level adjustment. Ideal CW keying and break-in operation, push-to-talk and full voice control system built in. Keying circuit brought out for teletype keyer.

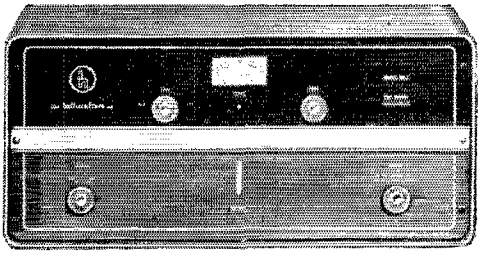
HT-33B LINEAR AMPLIFIER.
FEATURES: Rated conservatively at the maximum legal input. Third and fifth order distortion products down in excess of 30 db. Built-in R.F. output meter greatly simplifies tune-up. All important circuits metered. Maximum harmonic suppression obtained through pi-network. Variable output loading. Protection of power supply assured by circuit breaker. HT-33B is a perfect match to Hallicrafters' famous HT-32B in size, appearance and drive requirements. *CIRCUIT DETAILS:* This power amplifier utilizes a PL-172 high efficiency pentode operating in class AB1. The tube is grid-driven across a non-inductive resistor, thus assuring the maximum stability under all possible conditions. Band switching is accomplished by one knob which selects the proper inductance value for each band. The output circuit is a pi-network with an adjustable output capacitor, accommodating loads from 40 to 80 ohms. 2 panel meters are provided: one is circuit switched to measure grid current, screen current, plate voltage and R.F. output voltage. A second meter continuously monitors cathode current of the PL-172.

SX-115 RECEIVER.
FEATURES: High order of mechanical and electrical stability; linear tuning; constant tuning rate; separate noise limiters for SSB/CW/AM; amplified dual loop AVC with fast attack-slow release; spurious signal and image rejection better than 60 db. 1 kc calibration marks; transmitter-type VFO with differential TC; 100 kc crystal calibrator; crystal controlled 1st and 3rd conversion oscillators; selectable sidebands; selectivity variable in five steps from 500 to 5000 cycles; product detector for SSB/CW envelope detector for AM; I.F. type noise limiter for SSB/CW automatic threshold series type for AM; band gain equalization; audio inverse feedbacks; "S" meter functions with AVC off. *SENSITIVITY:* Less than 1 microvolt on AM—less than ½ microvolt on SSB/CW. *FREQUENCY COVERAGE:* Nine 500 kc segments covering 3.5-4.0 Mc.; 7.0-7.5 Mc.; 14.0-14.5 Mc.; 21-21.5 Mc.; 28.0-30.0 Mc.; (4 segments); and WWV.

HA-2—HA-6 TRANSVERTERS. A sensible, new approach to VHF operation! Engineered with the usual Hallicrafters precision, these transverters will convert your present 10-meter station to VHF . . . AM, CW, SSB, RTTY, FM capability. All modes of transmission and reception on your present equipment are useable with these units. A nuvistor front end in the receiver section provides excellent sensitivity and noise figure.

FEATURES: Converts received VHF signals down to 10 meters for reception. Converts 10-meter signal to VHF for transmission. 5894 tube in transmitter final amplifier can be driven up to 120 watts input. Can be driven by exciters with 10 to 100 watt capability. Built-in coaxial antenna relay.

HA-4 "T.O." KEYER. Compact design, employs digital techniques. Fully transistorized. **R-47 SPEAKER.** Designed for communications. Flat response from 300 to 2850 cps. Input impedance: 3.2 ohms.



HA-2—HA-6

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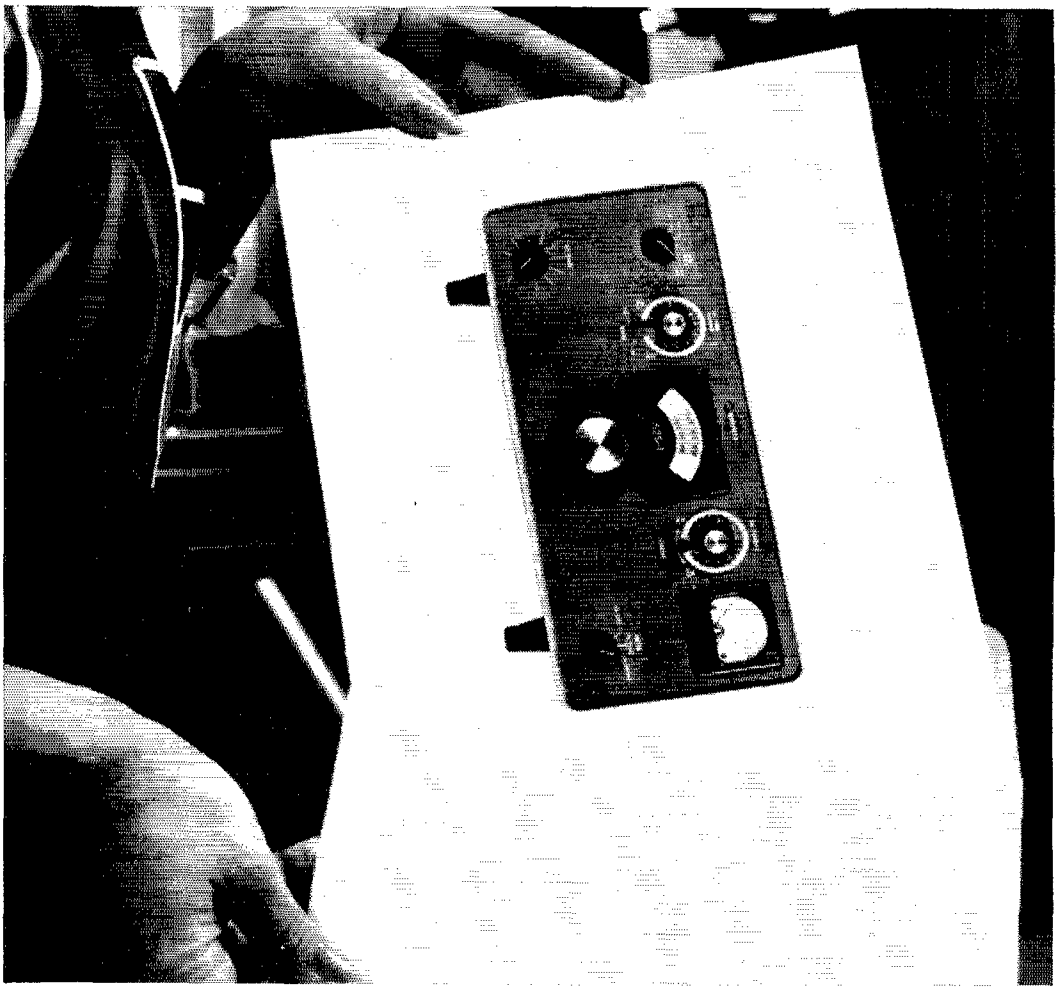

OUT OF THE LAB . . .

AND READY FOR PUBLICATION! Collins new 62S-1 VHF Converter is *almost* ready for your inspection. ☐ The Converter will more than double your present frequency coverage by giving you full 6 and 2 meter operation. ☐ Priced at $895, the 62S-1 will be available for delivery in December. ☐ The Converter, which may be used to cover 49.6 to 54.2 mc and 143.6 to 148.2 mc (crystals for amateur bands furnished), provides transmit and receive functions in the 14.0-14.2 mc range with the 32S, 75S, and KWM series. ☐ There is no cable changing (you flick a switch) when moving from HF to VHF. ☐ The self-contained (using exciter's high voltage) unit supplies a 3 to 5 db noise figure on receive and 160 watts PEP on transmit. ☐ Crystal switching from the front panel tuning knob provides a choice of any one of twenty-three 200 kc bands in the 6 and 2 meter range. ☐ Keep in touch with your distributor for date of display.

COLLINS

QST

AUGUST 1962

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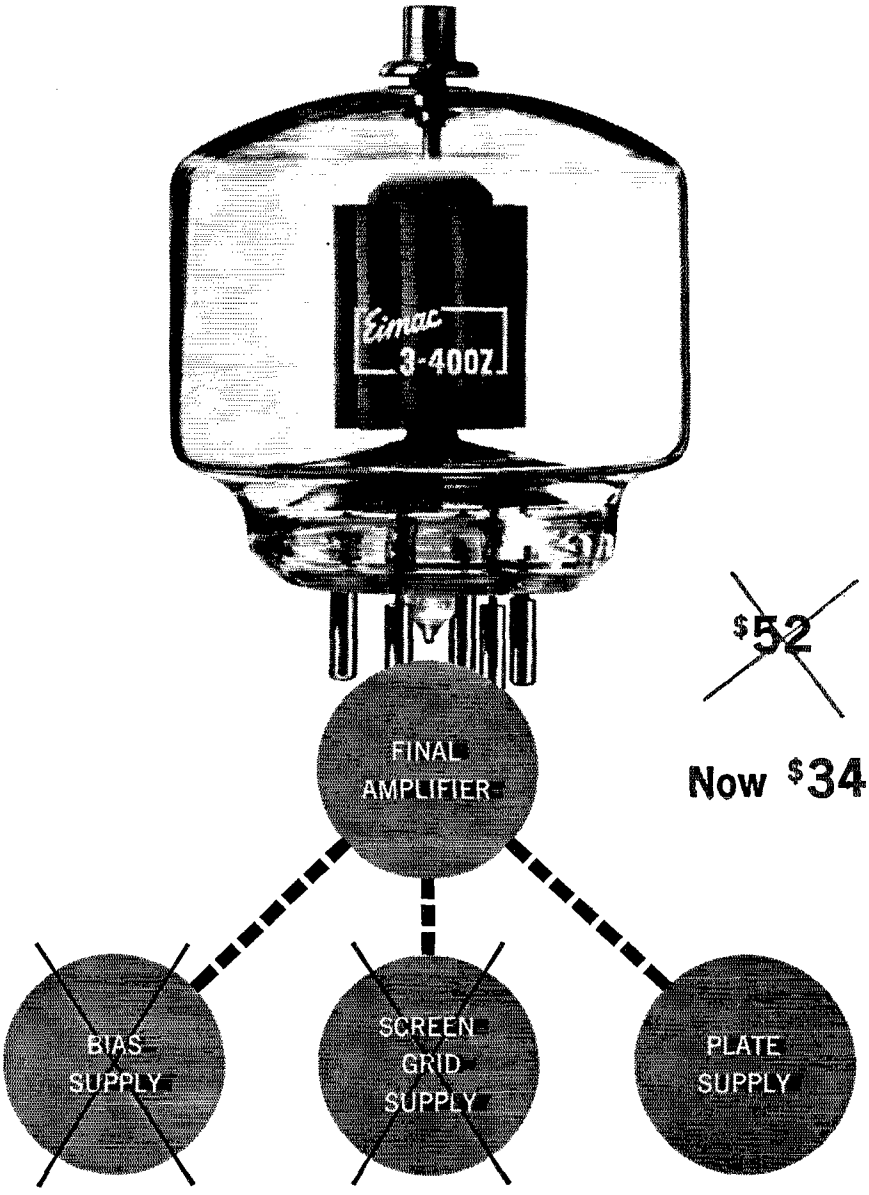

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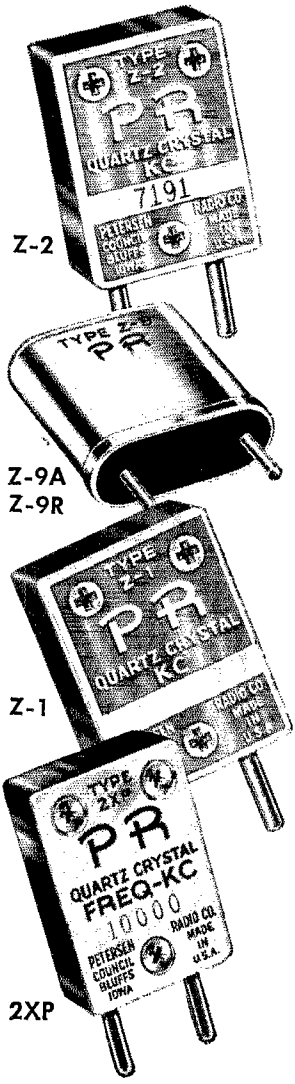

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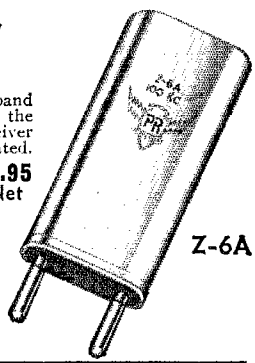

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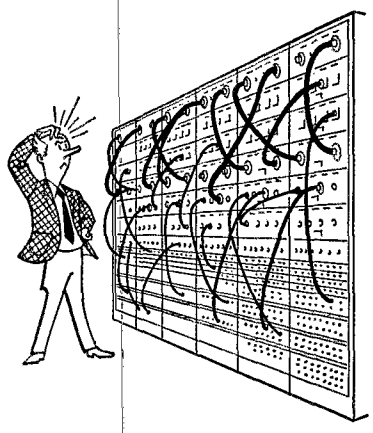

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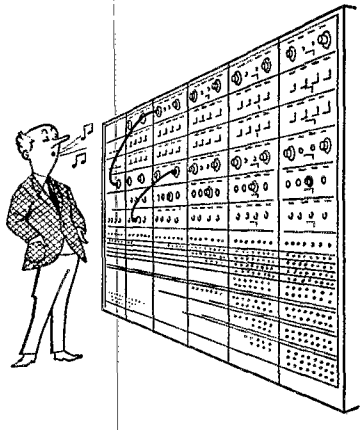

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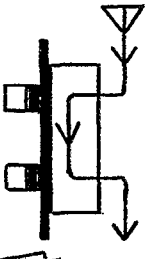

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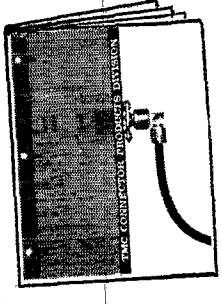

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It is an incorporated association without capital stock, chartered under the laws of Connecticut. Its affairs are governed by a Board of Directors, elected every two years by the general membership. The officers are elected or appointed by the Directors. 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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7700 31st Ave. N.E., Seattle 15, Wash.

Pacific Division

HARRY M. ENGWICHT W6HC
770 Chapman, San Jose 26, Calif

Vice-Director: Ronald G. Martin W6ZF
1573 Baywood Lane, Napa, Calif.

Roanoke Division

P. LANIER ANDERSON, JR. W4MWH
428 Maple Lane, Danville, Va.

Vice-Director: Joseph F. Abernethy W4AKC
768 Colonial Drive, Rock Hill, S. C.

Rocky Mountain Division

CARL L. SMITH . . . . . WØBWJ
1070 Locust St., Denver 20, Colo.

Vice-Director: John H. Sampson, jr. W7OCX
3618 Mount Ogden Drive, Ogden, Utah

Southeastern Division

JAMES P. BORN, JR. W4ZD
25 First Ave., N.E., Atlanta 17, Ga.

Vice-Director: Thomas M. Moss W4HYW
P.O. Box 20644, Municipal Airport Branch,
Atlanta 20, Ga.

Southwestern Division

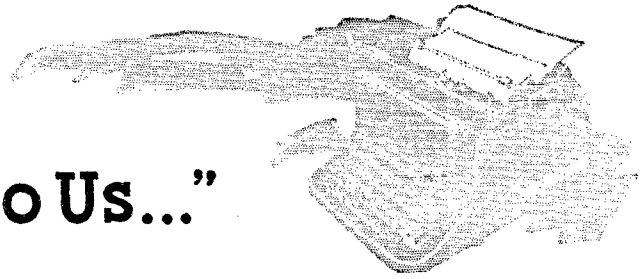
RAYMOND E. MEYERS W6MLZ
Box R, San Gabriel, Calif.

Vice-Director: Howard F. Shepherd, jr. . . . W6QJW
127 South Citrus, Los Angeles 36, Calif.

West Gulf Division

ROEMER O. BEST W5QKF
P.O Box 1656, Corpus Christi, Texas

Vice-Director: Ray K. Bryan W5UYQ
2117 S.W 61st Terrace, Oklahoma City 19, Okla.



"It Seems to Us..."

USE YOUR BANDSWITCH

TECHNICAL progress in amateur radio over the years has been nothing short of phenomenal. For example, once we had ham signals each many hundreds of kilocycles wide; now we have come to 100-cycle c.w. and 2-kc. voice bandwidths. Like most progress, these developments were of necessity — to permit reasonable accommodation of a growing number of hams within limited frequency allocations.

We can be proud of such accomplishments. But can we take similar pride in the practical use we make of these modern tools, in intelligent application of good operating techniques? Do we have good over-all communications efficiency?

That word "efficiency" is a red flag to some hams. "It's only a hobby," they say; "we don't want sermons and regimentation." But the continuing growth of the amateur body (245,000 at last count in the U. S.) forces a serious look at some of our habits.

Cross- or neighboring-town conversations on long-distance frequencies are a case in point. A 20-meter Sunday morning ragchew between two hams separated by hardly more than line-of-sight is frightful misuse of amateur privileges. Yet it happens too often — usually with an excess of power for the communications furnished, and more often than not by old timers who should know better. It causes disruptive interference to others — wholly unnecessary. It is a throwback to ancient-style amateur techniques, a kick-in-the-teeth to our record of technical progress.

We know there's no law prescribing a choice of frequency. Individual freedom of choice is a cherished right, but it must also be weighed against its effect on others, and that effect becomes greater as our numbers grow. Can we continue to afford the luxury of freedom without *any* regard for what it does to our over-all operations?

The extended ranges of lower-frequency bands during this portion of the sunspot cycle accent the problem currently. The 75-meter band, long a haven for comparatively local contacts, now provides us with several-hundred-mile communication at minimum. It is a DX band at times. Yet many of us still use it for local ragchews purely out of habit.

What to do about it?

Well, nearly 20 years ago *QST* said:

"We must make a more effective use of our frequencies, do a more sensible job of using each band for its best purpose, or there won't be enough to go around. One rule that we must adopt is that short-range work shall be done only on bands not useful for longer distances. This means that every amateur ought to have an auxiliary (v.h.f.) rig which he will use for all communications at less than some minimum distance, which we can establish by experience and which, we believe, will quickly become a matter of good operating practice having the force of an unwritten law."

The principle is still good, and admittedly some amateurs observe it. But at present, the auxiliary doesn't *have* to be a separate v.h.f. rig. Propagation conditions are such that 10 meters, except for occasional openings, is primarily a local-coverage band.

Nearly every "low-frequency" amateur transmitter and receiver has a 10-meter band position, permitting use of that portion of the spectrum by the simple turning of a knob. There's been too much dust gathering on the 10-meter contact positions the last year or two. The expense of modern amateur equipment is in no small measure due to bandswitching conveniences; yet how many of us acquire new gear, set the switch for our favorite band, and leave it there almost permanently while the potentialities — and the efficiencies — of other ranges go to waste?

When a nearby ham calls you on 75, 40 or 20, immediately suggest a 10-meter channel and reach for the bandswitch. It isn't there just for decoration! You'll find little or no QRM, and have a solid contact, without disrupting the longer-distance activities of others. Let's keep longer-distance frequencies in use for the best communications they can provide us, and not burden them with our local small talk. QST

COMING A.R.R.L. CONVENTIONS

August 3-5 — West Gulf Division, Corpus Christi, Texas.
September 1-3 — ARRL National, Portland, Oregon.
September 1-3 — Delta Division, New Orleans, Louisiana.
September 15 — Kentucky State, Lexington, Kentucky.
October 13 — Hudson Division, New York, N. Y.
October 19-20 — Ontario Province, Toronto.

DELTA DIVISION CONVENTION
New Orleans, Louisiana — September 1-2

Radio clubs of the Greater New Orleans area are hosts to the 1962 Delta Division Convention on Saturday and Sunday, September 1-2, to be held at the Jung Hotel on Canal Street in New Orleans.

A full slate of technical subjects and speakers have been arranged, with special topics concerning MARS, CD and related subjects included. An interesting lady's program has been outlined with tours, river boat trips, luncheons, fashion shows and other functions.

To honor the Delta Division Convention, New Orleans Mayor Victor H. Schiro has proclaimed the week of August 27–September 3 as Amateur Radio Week. In addition, the City of New Orleans plans to present operating achievement awards to the first 1,000 applicants who contact five amateurs in the Greater New Orleans area during the Amateur Radio Week. (Only one required for stations outside continental U. S.)

Pre-registration (before August 15) is $3.00 per person, and $4.50 thereafter. The banquet-dance is $8.00 per person. Some of the selective special events will have a nominal cost. Top New Orleans entertainment is planned. Requests for additional information or pre-registrations should be sent to Mrs. Helen Thompson, 1013 Elmeer Place, Metairie, Louisiana. Convention chairman is Marvin B. Farmer, K5USO with F. L. Arceneaux, K5SGK, co-chairman.

August 1937

. . . The lead story was about Andrew Young and his radio work on Pitcairn Island.

. . . Announcement was made of the 1936 Hiram Percy Maxim Award, which went to W6KFC (who is now W4KFC) for his outstanding performance in all phases of amateur radio.

. . . Technical articles included dope on how to get battery performance from an a.c. supply, a complete portable station, a high-stability 56-Mc. converter, how to use some of the new beam power tubes, a deluxe phone transmitter, modulator design, and the usual hints and kinks. Also included were some ideas on 50-foot antenna masts.

. . . In the DX column it was recommended that perhaps some of the brethren should give consideration to revamping their transmitters so that they could change frequency within the band more easily — such as having several crystals that could be readily switched.

. . . The League announced a low-power contest for August — *25 watts maximum. It was like having a second* Field Day. QST

Alabama — The North Alabama Hamfest and Space Electronics exhibit will be held on Aug. 19 at the Community Center, Big Spring Park, Huntsville, Ala. For further info contact Jack W. Nelson, W4NFK, Box 423, Huntsville, Ala.

California — The Madera Radio Club is sponsoring the SJVN picnic at Bass Lake, Recreation Point, on Aug. 12. No other info available.

California — The Marin Amateur Radio Club will hold its annual family picnic on Aug. 26 at Paradise Park in Marin County. No admission charge and all amateurs in the San Francisco Bay Region and elsewhere are invited. Picnic begins at 11:00 A.M. and will run until dark. Contact Hugh Cassidy, WA6AUD, 712 Fifth Ave., San Rafael, Calif., for further info.

Delaware — The first annual Delaware hamfest-picnic will be held Aug. 12 at Dover Air Force Base, Dover, Del., beginning at *1300 EDT*. Contact George Rambo, *W3LQE*, 17 No. Avon Drive, Ashburn Hills, Wilmington, Del., for further info.

Illinois — The Hamfester Radio Club's 28th Annual Hamfest will be held Sunday, Aug. 12, at Santa Fe Park, near Chicago. Tickets are *$1.00 in advance and $1.55 at the* gate. Contact Larry Finnan, K9EEC, 1209 W. 74th St., Chicago 36, Ill. for further info.

Indiana — The Delaware County Amateur Radio Association will hold its annual hamfest on Aug. 19 from 10:00 A.M. to 4:00 P.M., at the fairgrounds in Muncie, Ind. For further info contact Vera Skinner, 317 Janney Ave., Muncie, Ind.

Indiana — The Tri-State Amateur Radio Society Hamfest will be held on Aug. 26, in Ecco Valley on the Vanderburgh-Posey County Line, Indiana Highway 66, west of Evansville, Ind. Registration $2.00, Dinner $1.35. Contact Charles R. Greene, K9JQY, 2021 East Franklin St., Evansville 11, Ind., for further info.

Indiana — The *10th annual Big Bull Hamfest sponsored* by the Kokomo Amateur Radio Club will be held Sunday, Aug. 12, in Highland Park, Kokomo, Ind., from 10:00 A.M. to 4:00 P.M. Bingo for the ladies, rides for the children, eyeball QSOs for the OMs. Hidden 6-meter transmitter hunt. Bring a picnic lunch. Registration $1.50. For further info contact W. J. West, W9MJM, Kokomo Amateur Radio Club, P.O. Box 200, Kokomo, Ind.

Indiana — The Tri-State College Amateur Radio Club will sponsor its Third Annual Wide-Band FM Picnic Saturday, August 4, from 10:00 A.M. to 6:00 P.M., at the Steuben County 4-H Park. The park is located on Crooked Lake, 2½ miles north of Angola, Ind., on Route 27, then 1¾ miles west on County Road 200-N. Included in the program are technical talks on ham-band f.m., sale of used commercial f.m. radio equipment, swap and shop, and auction. There will be a chicken dinner, served picnic style, at 1:00 P.M., *adults $1.25, children under 12, 75¢. Money for the picnic* dinner must be received by July 28. Hot dogs and drinks will also be available at the refreshment stand. For the XYLs and children there is a public beach just ¼ mile from the main building. Mobile check-ins on 50.525 Mc. and 146.94 Mc. (wide-band f.m.) and on 50.25 Mc. (a.m.). Admission is by donation of $1.00 in advance or $1.50 at the door. XYLs and children free. The deadline for advance registration is July 28, and advance registration tickets will

be retained at the registration desk. For registration and further info, contact Tri-State College Amateur Radio Club, W9BF, Angola, Indiana.

Michigan — Western Michigan VHF Hamfest will be held Sunday, Aug. 5, at Allegan State Park. Contact Harold J. Fausnaugh, W8JUU, RFD 2, Lawrence, Mich. for further info.

New Jersey — The Gloucester County Amateur Radio Club will hold its annual hamfest Sunday, Aug. 12, at the Algonkin Gun Club, 5 miles south of Mullica Hill on Route 581. Site also convenient to hams from Del., Pa., and points south via Delaware Memorial Bridge. Watch for GCARC signs. 1100 EDT until dark. Refreshments available. Games, xmtr hunt, radio-controlled model airplanes, swapshop. For further info contact Della M. Parker, 305 E. Olive St., Westville, N. J.

New Mexico — The Amateur Radio Caravan Club of New Mexico, Albuquerque Chapter, is holding its annual hamfest and picnic Aug. 26, in the zoo area of the Rio Grande Park. Gates open at 8:00 A.M. Bring your own picnic lunch, free soft drinks available. Program includes transmitter hunt on 29.6 Mc., mobile judging, treasure hunt and c.w. contest. No registration fee. Monitoring stations at the site on 29.6 Mc., 3993 kc., and 3838 kc., starting about 6:00 A.M. For further info contact Kenneth D. Mills, W5WZK, Amateur Radio Caravan Club of New Mexico, Inc., Albuquerque Chapter, 3813 Los Arboles, N.E., Albuquerque, N.M.

Ohio — The 5th annual hamfest of the Warren Amateur Radio Association will be held Sunday, Aug. 26, at the Trumbull County Fairgrounds from 12 noon to 5:00 P.M. Picnic space available. Registration $1.50. Auction, swapshop, talk-in station for mobiles. For advance registrations or further info contact Imogene Kalman, 112 Shirley Lane N.W., Warren, Ohio.

Ohio — The Findlay Radio Club will hold its annual Hamfest at Riverside Park, Findlay, Ohio, on Sept. 9. Bring the family — excellent playgrounds and picnic facilities. Indoor facilities available in case of bad weather. Mobile talk-in on 3812 kc. and 50.490 Mc. Registration $1.00 in advance or $1.50 at the park. Tickets and info from James A. Silverling, K8HDZ, McComb, Ohio.

Pennsylvania — The South Hills Brass Pounders and Modulators will hold their 25th "Silver Anniversary" hamfest at the Museum Building, South Park Fairgrounds, in Pittsburgh, on Aug. 12. The hamfest area is about 8 miles south of Pittsburgh off Pa. Rt. 88. Program includes swap and shop, manufacturers' displays, snacks and refreshments. Club station W3PIQ will be 10 and 6 meters to talk in mobiles. Registration begins at 12 noon, and will be $1.50 in advance or $2.00 at the door. For further info contact Roy Melvin, W3LYC, 1609 Blossom Hill Rd., Pittsburgh 34, Pa., or Dave Imhoff, W3HND, 2283 Spokane Ave., Pittsburgh 10, Pa.

Pennsylvania — The 7th annual hamfest of the four York County amateur radio clubs, Pen-Mar Radio Club, Inc., of Hanover, Hilltop Transmitting Society of Red Lion, York Amateur Club of York, and the Keystone VHF Club, Inc., of York, will be held Aug. 26, at the Dover Fire Hall, one block north of the square of Dover, Pa., beginning at 9:00 A.M., rain or shine. Plenty of free parking. Program includes sale and auction, games for the entire family, treats and movies for the children, and two- and six-meter transmitter hunts starting at 1:00 P.M. Hot sandwiches, baked potatoes and soft drinks. Talk-in rigs on 50.62 Mc., and 145.59 Mc. Tickets $1.25 per ham, including family or guest. For tickets or further info contact John A. Zett, W3FLD, 2740 Grandview Ave., York, Pa.

Pennsylvania — The Mt. Airy V.H.F. Radio Club, Inc., will hold a family day and picnic Sunday, Aug. 12, at Fort Washington State Park, Flourtown, Pa. In case of rain, the picnic will be held on Aug. 19. Games for the entire family, eyeball QSOs. Free soft drinks are available, but bring your own picnic lunch. Registration $1.00 per family. Talk-in frequencies, 50.2 and 144.2; call, W3CCX. For further info contact Helen Brick, XYL, W3SAO 829 W. Fishers Ave., Philadelphia 41, Pa.

South Carolina — The DX Amateur Radio Club of Camden will hold its annual ham picnic on Aug. 26 at the Kershaw County Park. All hams, their families and friends are invited. Bring your own lunch and swapping junk. For further info contact James A. Monarch, K4JPX, DX Amateur Radio Club, Camden, S. C.

Tennessee — The Delta Radio Club of Whitehaven, Tenn., will hold its annual hamfest at Harbin's Picnic Grounds, 4000 Hiway 51 south, across from Whitehaven shopping center, on Aug. 4 and 5. Aug. 4 activities include open house at W&W Distributing Co., 644 Madison, and dutch treat dinner at Piccadilly cafeteria in Whitehaven shopping center at 7 P.M. Registration on Sunday begins at 8:00 A.M. The day's activities include contests and games during the morning hours, 3rd Army MARS meeting at 11 A.M., presided over by MARS Director Wade Nelms, and a barbecue dinner, $1 per place, at noon. There will also be a talk on ARRL activities by Delta Division Director Floyd Teetson, W5MUG. Mobile frequencies 3885, 28.9, and 50.5 Mc. For overnight accommodations and further info, contact the Delta Radio Club, P.O. Box 11013, Whitehaven 16, Tenn.

Tennessee — The 2nd annual Lonesome Pine Hamfest, sponsored by the Bristol Amateur Radio Club, will be held at the Southwest Virginia 4-H Center, 2 miles east of Abingdon, Va., on Saturday and Sunday, Aug. 18 and 19. Sleeping accommodations, meals and swimming facilities available. Contact the Bristol Amateur Radio Club, Inc., P.O. Box 3162, Bristol, Tenn., for further info.

Texas — The 7th annual Hamfest of the Central Texas Amateur Radio Club of Waco, Texas, will be held Sept. 2, in the air-conditioned mall of the Lake Air Shopping Center. Unlimited entertainment. Registration fee $1.50. For further info contact Ken Herring, P.O. Box 1032, Waco, Tex.

Washington — The annual 75-meter Western Washington Hidden Transmitter Hunt will be held on Aug. 19. The hunt will start at 8:30 A.M. from Volunteer Park in Seattle, and since this is a family affair, it will terminate at a suitable picnic spot. The transmitter may be hidden anywhere in the western half of the state. Hunters from anywhere are invited to participate. All hunters will register at the starting point and the participation fee is $1.00. For further info contact T. A. Rommel, K7DBO, 8040 Jones N.W., Seattle 7, Wash.

Manitoba — The Manitoba hamfest will be held at Dauphin, September 1 and 2. No other info at hand.

British Columbia — The BCARA annual picnic will be held at Bear Creek Park on Aug. 19. No other info at hand.

Strays

K4VXE has sent us an official 1962 Florida State Road Department map which prominently displays the amateur radio state-wide mobile calling and emergency frequency.

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Looking for rare Vinton county in Ohio? Then listen for W8IBX/8 and K8MTI/8 on Saturday, August 11, from 1500 to 2355 GMT. On c.w. the frequencies will be 3580, 7036, and 14,072 kc., while 3860 kc. will be used for a.m. phone.

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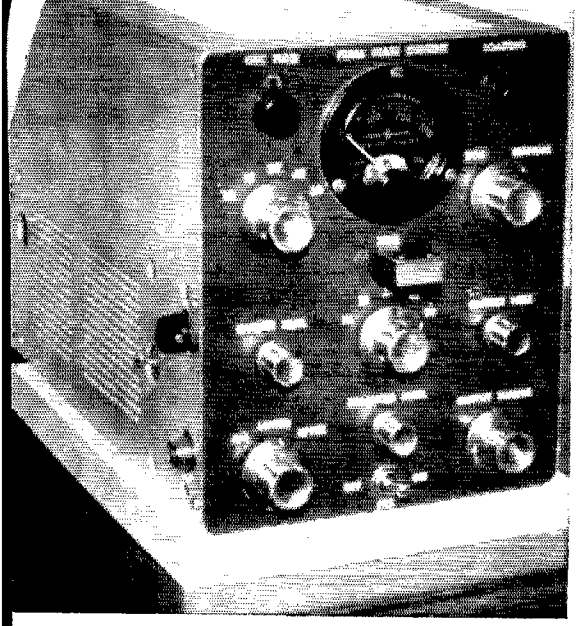
Unlike many states, in South Dakota a Novice may obtain call letter license plates for his auto.

—•••—

A taped greeting in c.w. was put on the entrance public address system at Disneyland during the Southwestern Division Convention (excellent code by W6WY). The first morning more than 50 employees reported "something wrong with the p.a. system — it is broadcasting in morse code." — *W6WY*

—•••—

"Am I the tallest ham? Six foot six." —*K5FJZ*



W3CT has managed not only to add a 5-band driver and replace the output tube of his SB-10 s.s.b. adapter with a 6146, but to reduce the over-all dimensions into the bargain. A new pi-network output circuit permits feeding low-impedance loads.

The SB-10 has been fitted with a new panel and cabinet. With mobile operation in mind, the over-all height has been reduced by moving the chassis to the bottom of the panel.

Complete Transmitter from an SB-10 Adapter

Built-In Driver and 90-Watt P.E.P. Final

BY KLINE L. MENGLE,* W3CT

With relatively few modifications, the popular Heath SB-10 can be converted from a single-sideband adapter to a complete s.s.b. transmitter with its own built-in driving source. A few additional alterations will adapt the unit to mobile operation in a car with excellent results.

Circuit Modification

Figs. 1, 2 and 3 show various circuit changes. Alterations exclusive of those made to facilitate mobile operation will be discussed first. The self-contained driving source is the 5763 oscillator/multiplier diagrammed in Fig. 1. Using 80-meter crystals for the lower frequencies, and 40-meter crystals for the higher-frequency bands, this circuit will furnish adequate drive on all bands, including 10 meters. Although this source is crystal-controlled, the stage itself can be driven by an external v.f.o. or VXO. I have been using a stable home-brew v.f.o. with 80-meter output for 75- and 40-meter mobile work. On the higher bands, crystal control is used, and it seems to be no great handicap.

A sizable increase in power output is obtained by substituting a 6146 for the 6BQ5 in the output stage, as shown in Fig. 2. With this change, the final can be run at a good 90 watts of p.e.p. input. An output loading capacitor has been added to permit feeding low-impedance loads. Also included are provisions for neutralizing and biasing the final for AB_1 operation. A separate metered 600-volt lead (Figs. 2 and 3) is provided for the 6146 plate.

Minor changes have been made in the driver stage to increase drive to the final. In Fig. 2, R_1 is installed as a means of adjusting the 6146 screen voltage for proper idling current.

Fig. 2 also shows an optional modification to include a built-in change-over relay. Although this was installed primarily for mobile use, it will work equally well in fixed-station operation. The coil of the relay K_1 is energized from the +B line to the driver and is actuated whenever driver power is applied.

Most of the circuit revisions indicated in Fig. 3 apply to mobile operation. However, an optional change is the inclusion of a low-pass filter between the audio driver and the phase-shift network. This filter attenuates frequencies above 3000 cycles.

Modifications for Mobile

Alterations for mobile operation consist chiefly of changes in the control circuitry to suit the special requirements imposed by a mobile power supply. Normally it is necessary to maintain the power supply in constant operation to keep the VOX system alive. Since this is quite undesirable

* 11205 Markwood Drive, Silver Spring, Maryland.

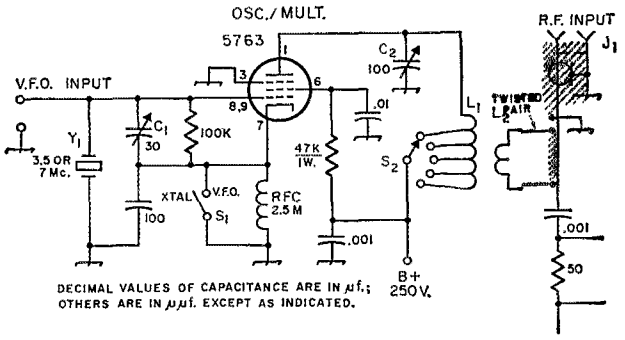


Fig. 1—Circuit of the crystal-controlled oscillator/multiplier used as the r.f. driver for the modified SB-10. Red markings indicate changes in original SB-10 wiring. Resistances are in ohms and resistors are ½ watt unless indicated otherwise. Fixed capacitors of less than 0.001-μf. value are mica; others are disk ceramic.

C_1—Mica or ceramic trimmer.
C_2—Miniature variable (Hammarlund APC-100B).
L_1—65 turns No. 24 enam., close-wound on ⅝-inch polystyrene form, tapped at 6, 10, 18 and 34 turns from C_2 end.
L_2—5-turn link of plastic-covered hookup wire wound around L_1 near tap at 6th turn.
S_1—S.p.s.t. toggle switch.
S_2—Single-pole 5-position ceramic rotary switch.
Y_1—80- or 40-meter crystal (see text).

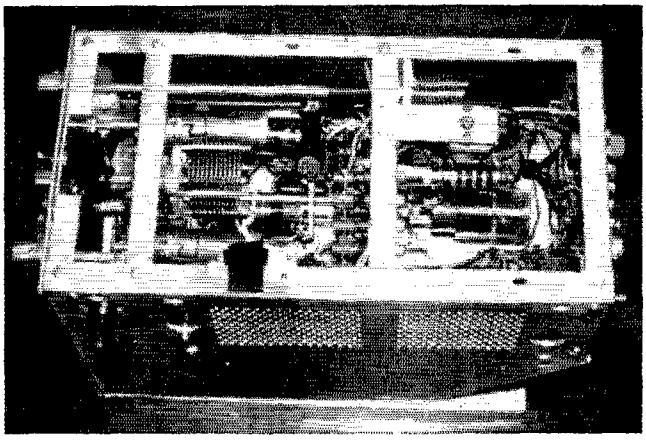
in mobile operation, the +B line to the VOX circuit has been separated from the main line so that the VOX circuit can be operated independently from the receiver supply which normally runs continuously. This change is shown in Fig. 3, which also includes a convenient method of providing for 12-volt filament operation, and a switch to cut the filaments when the transmitter is not in use. The heaters of the two new tubes (the 6146 final and the 5763 oscillator) are simply connected in parallel with a 10-ohm resistor, this group then being connected in series with the original filament bus. Fig. 3 also shows the wiring by which the antenna relay, if used, is controlled by the VOX relay.

Panel and Cabinet

Before attempting this job, locate your instruction manual and associated information. This will be referred to repeatedly. Also, it would be advisable to see that all factory-recommended SB-10 modifications have been incorporated. I will not attempt to include these changes here, since they have been covered in various publications from time to time over the past few years.

To accommodate the new controls which have been added, it was necessary to make a new panel. With mobile operation in mind, I reduced the size of the panel and cabinet by moving the chassis to the bottom of the panel. This resulted in a saving of about 2 inches in height. Sketches of the new panel and cabinet, which are made of ⅛-inch aluminum sheet, are shown in Figs. 4 and 5. In drilling the new panel, the old one can be used as a template for some of the holes.

The original microphone connector and audio gain control were shifted from the front panel to a small panel attached to the left side of the chassis with sheet metal screws, as shown in the photographs. The CRYSTAL/V.F.O. switch was also mounted here. The VOX/MANUAL switch was moved to the right side of the meter. The original leads were long enough to reach the new locations without extension. Any exposed terminals that



Bottom view of the modified SB-10. The 6146 is hidden by the bracket on which the neutralizing capacitor is mounted. The output tank coil, with a heavier 80-meter section, is visible below the bracket. The added antenna relay is in the lower right-hand corner of the chassis.

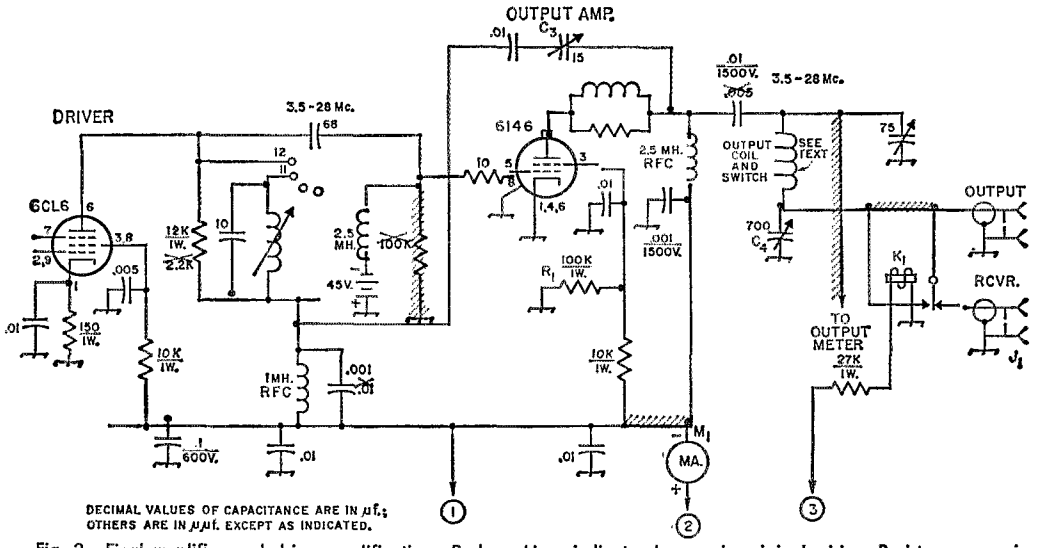


Fig. 2—Final-amplifier and driver modifications. Red markings indicate changes in original wiring. Resistances are in ohms and resistors are ½ watt unless indicated otherwise. Fixed capacitors of less than 0.001-μf. value should be mica; others are disk ceramic.

C_3—*Air trimmer, insulating mounting* (Hammarlund APC-15 with plates removed if necessary.)
C_4—Dual air variable, approx. 350 μμf. per section, sections in parallel (broadcast-replacement type).
J_1—Original r.f. input connector.
K_1—*Miniature double-pole or single-pole sensitive relay,* coil resistance approx. 7000 ohms (Sigma 4F-8000S-SIL or equivalent).
M_1—0–300 ma.
R_1 — Nominal value; see text.

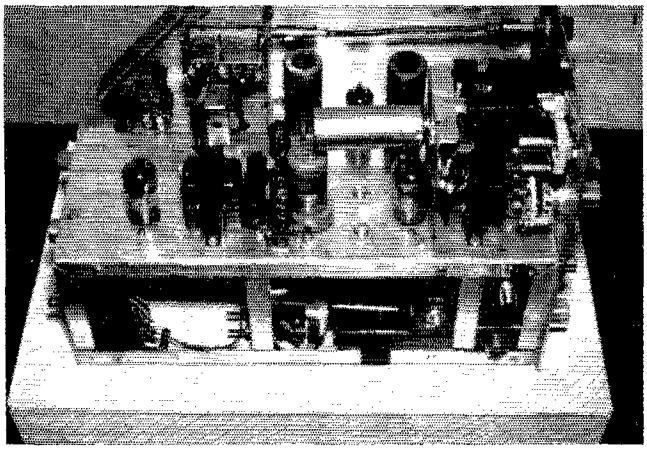
are brought in close proximity by these changes should be covered with electrical tape.

The power-output indicator assembly was removed, and a 0–300-ma. meter was substituted for the original unit. The functions of the output indicator can be performed by an external field-strength meter, grid-dip oscillator or s.w.r. bridge. If the original meter is not used in building one of these external indicators, it can be shunted to give a 300-ma. full-scale reading.

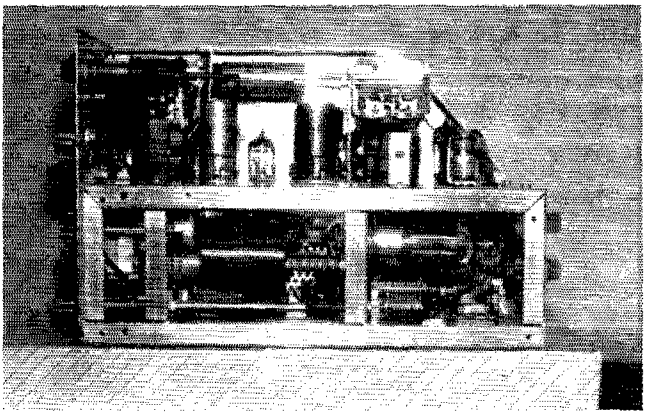
The oscillator band switch and tuning-capacitor controls are to the left of the meter, balanced by the relocated VOX/MANUAL and new loading-capacitor controls to the right of the meter. The crystal socket is centered immediately below the meter. The remaining controls are in their original relative positions, but appear lower on the panel because of the lower position of the chassis. A smaller knob is used for the balanced-modulator control so that the filament switch can be mounted below it.

Installing the Oscillator

As mentioned previously, the oscillator tuning capacitor and band switch are mounted on the panel, just to the left of the meter. The 5763 socket and a 5-lug terminal strip that supports the smaller oscillator components are mounted on an aluminum bracket 3 inches wide and 3⅝ inches high, fastened to the top of the chassis as shown in one of the photographs. The coil L_1 is wound on a 2¼-inch length of ⅝-inch polysty-



This view of the left-hand side of the revamped SB-10 shows the microphone connector, audio gain control and crystal/v.f.o. switch mounted on small panels in the lower right-hand corner. Above are the new oscillator band switch and tuning capacitor, and the 5763 and its plate coil on opposite sides of an aluminum bracket. The output loading capacitor (with long flexible control shaft) is in the upper left-hand corner.



Looking into the right-hand side of the SB-10, the 6146 can be seen below chassis, just above the original output tuning capacitor.

rene tubing. The form is mounted horizontally from the panel by means of a metal bushing fitted into one end of the form. The bushing is tapped for a mounting screw.

The input coaxial connector is disconnected, and the length of cable running from the connector to terminal board *EE* is removed. If the change-over relay is not installed, the connector can be used for feeding in a v.f.o. if desired. Otherwise, a phono jack or terminal for v.f.o. input can be added at the rear of the chassis. A 5-inch length of twisted pair (plastic hookup wire) is run from Terminals 1 and 2 on the terminal board to the output link on L_1 through a hole drilled in the chassis, just to the left of the meter. Filament connections will be as shown in Fig. 2 if 12-volt mobile operation is contemplated.

Final Amplifier Modification

Because of the extremely fine wire used on the 80-meter section of the output tank coil, considerable heating occurred at the higher output level of the 6146 when operating on this band. This difficulty was remedied by removing the coil and rewinding the 80-meter section with 17 turns of No. 24 enameled wire, close-spaced. This is one of the most ticklish jobs of the whole conversion. Extreme care should be observed in removing the original connections so that the delicate wafer switch will not be damaged. Be sure to make careful note of the connections to the switch so that they may be replaced in correct sequence. Also, take care of the various nuts, washers and bushings so that none will be lost.

The new output loading capacitor is mounted just above the antitrip transformer T_2. It is supported on an aluminum bracket secured to the chassis. When mounting this capacitor, be sure to allow adequate cabinet clearance for the swing of the rotor plates. The shaft is coupled to a panel-bearing unit through a 6-inch flexible shaft. A short length of RG-59/U coax cable is used to connect the capacitor to the tank coil through a hole in the chassis. The shield of the cable should be grounded at both ends.

To install the 6146, the 6BQ5 socket should be removed and the connecting leads pushed clear. The output plate tuning capacitor, plate r.f. choke and parasitic suppressor should also be removed temporarily. Then proceed as follows:

Remove the 3.3-$\mu\mu$f. disk capacitor and the shielded lead connected to the terminal board *DD*. This lead will no longer be needed, so it

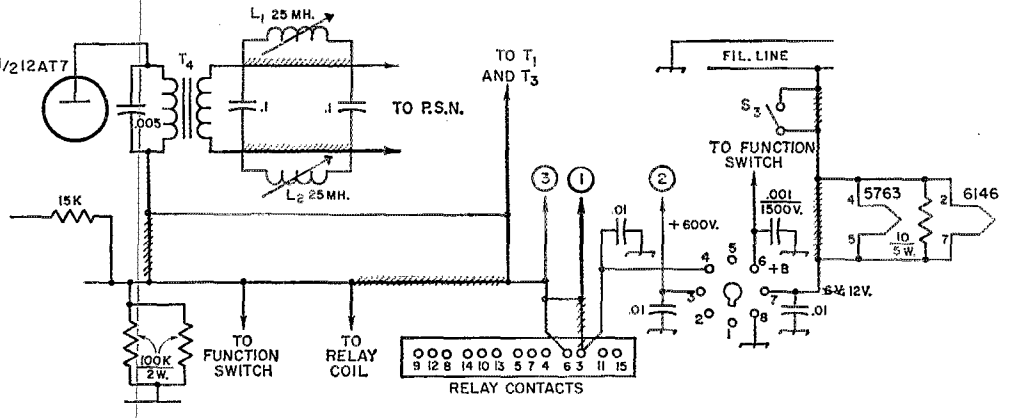


Fig. 3—Low-pass filter and mobile power-control circuitry. Red markings indicate changes in original wiring. Capacitances are in μf. Capacitors in low-pass filter are 600-volt tubular; others are disk ceramic. Resistances are in ohms. L_1 and L_2 are TV width coils (Miller 6315). S_3 is a s.p.s.t. toggle switch.

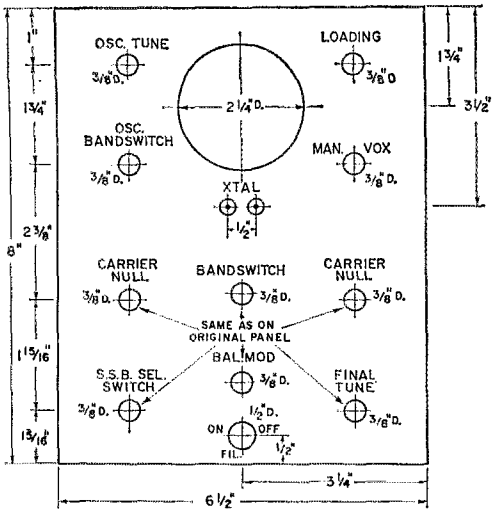
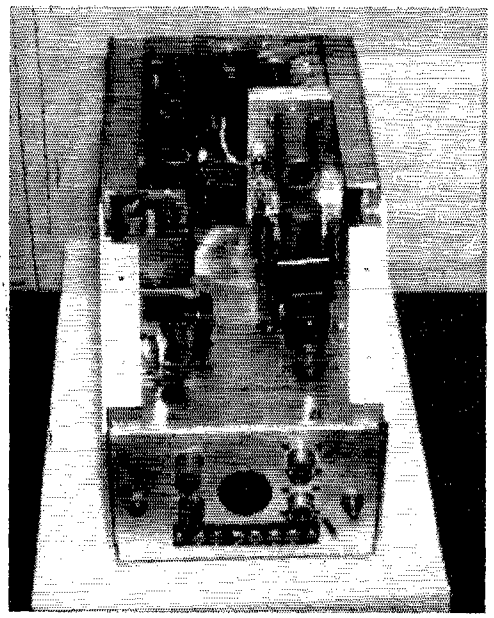


Fig. 4—Sketch of new panel for the SB-10. Material is ⅛-inch aluminum. Large hole should be cut to fit meter used.

can be cut off at the point where it enters the wiring harness.

Determine the position of the 6146 that will provide maximum clearance from adjacent components, such as the tuning capacitor and r.f. choke which have just been removed. If necessary, the terminal board DD can be bent down to provide more room. With the position of the socket hole marked, use a punch of the correct size to cut the hole in the partition. In making the connections to the socket, as shown in Fig. 2, locate the new 100K 1-watt resistor R_1 in such a position that it can be reached easily for replacement if necessary in setting the idling plate current to the correct value. For 12-volt operation, use the filament connections shown in Fig. 3.



Rear view showing the aluminum-angle supports for the cabinet cover.

Now replace the tuning capacitor and the r.f. choke. This choke will now be used as the grid choke shown in Fig. 2. A new choke for the plate circuit is mounted between the 6146 socket and the plate tank coil, and a 0.001-μf. 1500-volt disk ceramic bypass is installed at its base. Run a new plate-supply line from the choke, through the meter to vacant Terminal 3 on the power connector. The parasitic suppressor is installed between the top end of the new plate r.f. choke and the plate cap of the 6146. Replace the 0.005-μf. plate blocking capacitor with a 0.01-μf. 1500-volt unit.

Mount the neutralizing capacitor on a bracket adjacent to the 6146. Connect the *stator* of this capacitor to the stator of the plate tuning capacitor. Replace the 0.01-μf. bypass connected to the driver coil bank with a 0.001-μf. unit; then connect the 0.01-μf. unit between the ungrounded side of the 0.001-μf. capacitor and the *rotor* of the neutralizing capacitor. The 0.01-μf. capacitor connected in series with the neutralizing capacitor will reduce the hazard of accidental contact with the neutralizing-capacitor shaft. The capacitor should always be adjusted with an insulated screwdriver, of course, for accuracy in adjustment as well as safety to the operator.

A small 45-volt hearing-aid battery taped to the chassis, and connected as shown in Fig. 2, provides the necessary fixed bias for AB_1 operation.

Driver Alterations

The following changes were made to obtain adequate drive for the 6146: The value of the swamping resistor from the 6CL6 plate to +B was increased from 2200 to 12,000 ohms. A 0.01-μf. bypass capacitor was connected across the 6CL6 cathode resistor. A 0.1-μf. 600-volt disk capacitor was added in parallel with the 0.01-μf. unit from the bottom end of the driver-plate r.f. choke to ground.

Reduction of the driver plate bypass capacitance (to permit neutralizing as described earlier) reduced the effective driver-circuit capacitance sufficiently to make it necessary to readjust the slugs of the driver coils to obtain maximum drive to the final. In addition, it was found necessary to add a 10-μμf. mica capacitor across the 80-meter driver coil.

Low-Pass Filter

The components of the low-pass filter shown in Fig. 3 are mounted above the chassis, between the driver transformer and the phase-shift-network socket. The slugs should be adjusted to provide an inductance of 25 mh. as described in the sideband chapter of the current ARRL *Handbook*.

Antenna Relay

The antenna relay is mounted in the rear compartment, adjacent to the coax connectors. A

sensitive (7500-ohm) miniature-size relay was used. With the 27K resistor in series, the drain is only a matter of about 8 ma. As indicated in Figs. 2 and 3, one side of the relay coil is grounded to the chassis. If the mobile modification described in the following section is not made, the other side of the relay coil goes through the 27K resistor to Terminal 3 on the VOX relay stack.

Mobile Control Modification

To separate the VOX +B line, remove the connection to Terminal 6 on the VOX relay stack. Disconnect the red lead of T_4 at FF1 and the red leads of T_1 and T_3 at AA2. Wire these loose red leads together and then to Terminal 6 on the VOX relay. Transfer the +B connection at Terminal 3 on the VOX relay stack to Terminal 6. Connect Terminal 3 of the relay stack to Terminal 4 on the power socket. Connect the +B line to the antenna relay to Terminal 6 on the VOX relay stack. The receiver +B is fed in at Terminal 6 on the power connector, while normal +B is fed in at Terminal 4. The original +B system can be restored for fixed-station operation by placing a jumper between Terminals 4 and 6 on the power socket. The relay controlling the mobile power-supply unit can be controlled through either the bias terminal on the power socket, or through the antenna-relay terminals on the terminal strip at the rear of the SB-10 chassis.

Adjustment

To restrict heating and achieve more stable operation, the low-voltage supply should deliver a maximum of about 250 volts. In fixed-station operation, I use a supply that furnishes 250 volts regulated and 600 volts unregulated. For mobile operation, a Honeywell transistor supply that furnishes 500 volts and 250 volts is used with excellent results.

Neutralizing procedure and adjustment for AB_1 s.s.b. operation are covered in the ARRL *Handbook* and in the SB-10 instruction manual, and will not be repeated here. However, if one does not possess an oscilloscope, a very good job can be done in adjusting sideband suppression with the aid of a good selectable-sideband receiver in conjunction with an audio oscillator and audio output meter.

With the proper plate and screen voltages applied, and the carrier nulled, the 6146 idling plate current should be approximately 25 ma.

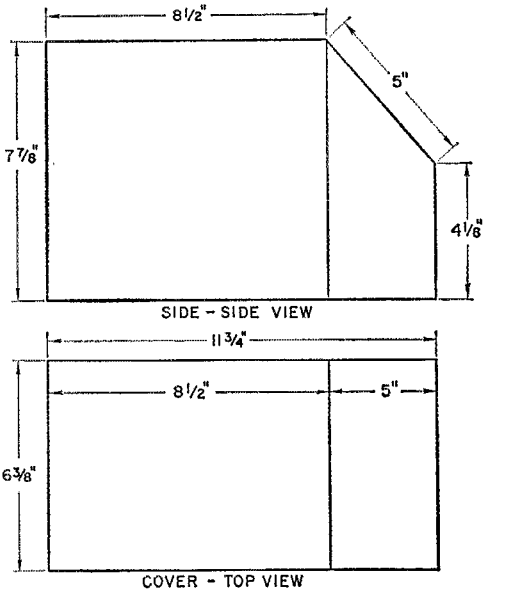


Fig. 5—Cabinet dimensions. Note that the over-all length of the cover is 13½ inches before bending. Top and sides should be provided with several ventilating holes as shown in the photos.

If it departs appreciably from this value, the value of R_1, Fig. 2, should be altered, increasing the resistance if the current is too low, or decreasing the resistance if the current is too high. As mentioned previously, the driver circuits must be repeaked for maximum drive.

Because of the small wire size and construction of the final tank coil, it is not advisable to run full carrier for any prolonged period since severe heating will result which may damage the coil. Needless to say, this is not a problem in normal s.s.b. operation with the carrier nulled.

If the receiver B supply does not furnish sufficient voltage to operate the VOX system reliably, it may help to reduce the value of the cathode resistor of the 12AT7 relay tube.

The modified unit has been in operation for about a year with very gratifying results. Reports on sideband and carrier suppression, as well as on audio quality, have far exceeded my expectations. No difficulty has been experienced with r.f. feedback or other forms of instability. QST

Strays

K1MSI, a 10th grade student, built a pulsed ruby laser and demonstrated it at an MIT meeting of the New England section of the Optical Society and at a state Science Fair. *QST* not being technical enough for the fellow, he had to get his laser info from *Electronics*.

—•••—

In a speech at Chanute AFB, Air Force Secretary Zuckert congratulated A1c Roger Ries, KØIAX, for his January, 1962, *QST* article on six-meter sideband. Secretary Zuckert pointed out that despite the many technical advances which have taken place in the Air Force, the emphasis is still on the individual.

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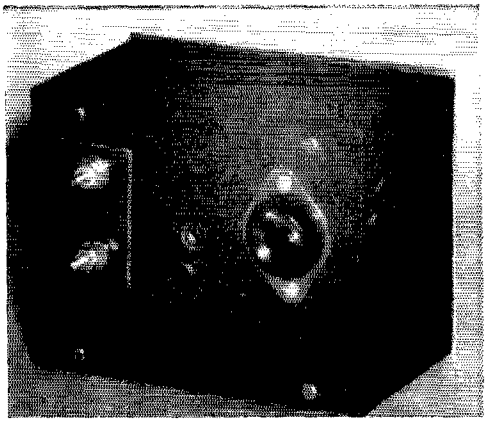
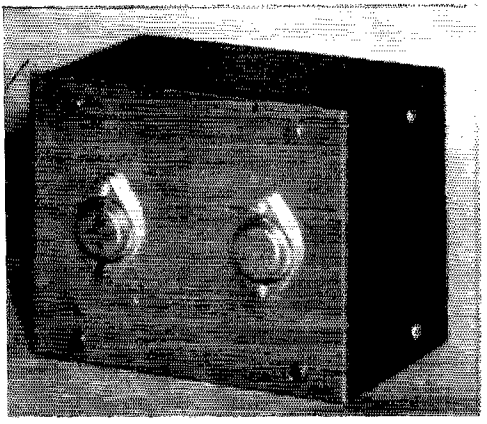
During 1961 W6BVY made 14,487 station-to-station contacts during 250 weather-net schedules. Can you top this?



Input terminals for the 12-volt d.c. input and a standard receptacle for a.c. output are mounted on the rear cover of the inverter unit.



The transistors of the d.c./a.c. inverter are mounted on a sheet of ⅛-inch aluminum which forms one cover of a 3 × 4 × 5-inch box enclosing transformer and resistors.

Handy 12-Volt D.C. to 110-Volt A.C. Inverter

Simple 50-Watt Transistor-Operated Unit

BY HARRY M. NEBEN,* W9YVZ

This little package will provide about 50 watts of 60-cycle a.c. at 110 volts from any 12-volt car battery. It can also be used to provide about 40 watts of d.c. at 200 volts. How often have you wished for such a gadget when mobiling or in the field?

A SMALL unit capable of converting 12 volts d.c. to 110 volts a.c. should find a variety of uses by amateurs, particularly those operating mobile or taking part in Field Day activities. The unit shown in the photographs is simple to build, and the parts are readily obtainable at reasonable cost. The output rating is about 50 watts. The unit has been used to light a small 115-volt lamp in emergencies, operate a standard electric shaver (much needed on Field Day), and to furnish power for a small soldering iron. It will even power a small broadcast or communications receiver if the heaters are operated directly from the storage battery. With the addition of a rectifier-filter system, it will supply about 40 watts of d.c. at 200 volts. An advantage of this supply over a vibrator type is that it is silent in operation and produces no "hash" interference to reception.

A.C. Output

The circuit shown in Fig. 1[1] is built around a readily-available 60-cycle transformer having a 24-volt, 2-ampere center-tapped secondary which is used as the primary in this application, and a 230-volt center-tapped primary which is used as the secondary. (Although this sounds like a filament transformer, the manufacturer lists it as a "control" transformer, and it will be found in catalogs under this heading.) Surplus or other filament transformers having a 24-volt center-tapped secondary and a single primary may also be used. In the circuit of Fig. 1, either of the two 115-volt windings may be used for 110-volt a.c. output, or the two windings may be connected to give about 220 volts if needed.

The output frequency varies slightly, depending on the nature of the load, from about 59 cycles to 62 cycles. As the scope patterns of Fig.

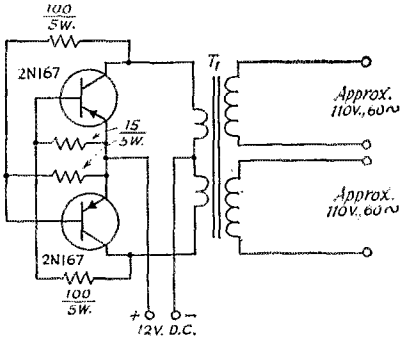
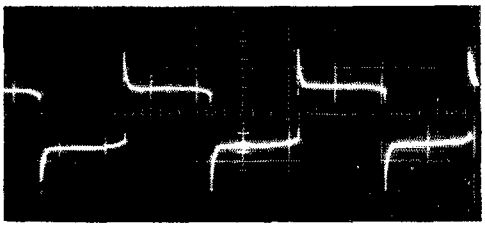


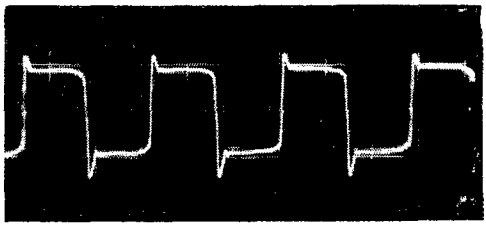
Fig. 1—Circuit of the transistor d.c./a.c. inverter. Resistances are in ohms and wire-wound resistors are recommended. T_1 is a transformer having a 24-volt center-tapped secondary and a 115/230-volt primary (Stancor P6377). A similar transformer with a single 115-volt primary may also be used for 110-volt output.

*11316 Oakley Ave., Chicago 43, Illinois.

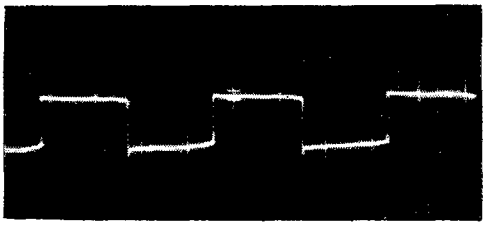
[1] See *Motorola Power Transistor Handbook.*



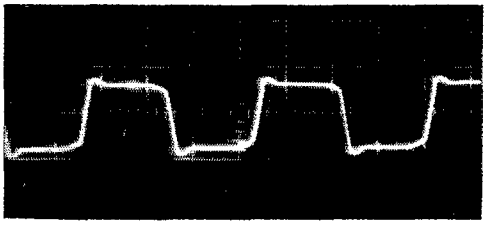
A—No load.



C—No load with the filter of Fig. 3.



B—30-watt inductive load.



D—30-watt load with the filter in use.

Fig. 2—Typical oscilloscope traces of the output waveform from the d.c./a.c. inverter under various load conditions.

2 show, the output waveform is by no means sinusoidal, and the shape of the pattern varies with the nature and value of the load connected to the output. This seems to be of no serious consequence, even when feeding the primary of an ordinary 60-cycle transformer.

It will be noticed that a rather high voltage spike develops at the leading edge of each half cycle under certain load conditions. This spike may be reduced to a negligible level by the use of the simple filter shown in Fig. 3.[1]

D.C. Output

Approximately 200 volts d.c. at 200 ma. may be obtained by connecting the two 115-volt windings in series and using the half-wave rectifier-filter system shown in Fig. 4A. (If a transformer having a single 115-volt winding is used, approximately the same d.c. output may be obtained by using a voltage-doubling circuit, such as the full-wave circuit shown in Fig. 4B). The maximum spike voltage measured under any condition has been about 340 volts, peak to peak. Although I have encountered no trouble in operating the unit without it, the use of the filter of Fig. 3 will provide an additional safety factor.

Construction

The components of the unit were assembled in a $4 \times 5 \times 3$-inch utility box. The box was

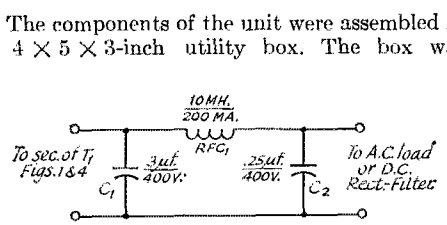


Fig. 3—Despiking filter. C_1 and C_2 should be paper. RFC_1 is a 10-mh. 200-ma. r.f. choke (Bud CH-928S or similar).

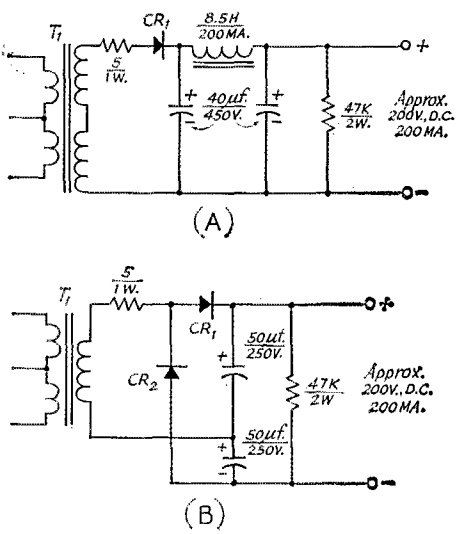


Fig. 4—D.c. output circuits. A—Half-wave rectifier. B—Voltage-doubling circuit operating from a single 115-volt transformer winding. Resistances are in ohms. Capacitors are electrolytic.

CR_1, CR_2—380 p.i.v., 200-ma. selenium rectifier.
T_1—See Fig. 1.

fitted with one new cover of ⅛-inch aluminum to provide a better heat sink for the transistors which are mounted on it. The transformers and resistors are mounted inside, while the input and output terminals are mounted on the second cover plate.

I am sure that anyone who builds this unit will be surprised at how often he will find use for it. This has been my experience and it has performed reliably in all cases. QST

BY GEORGE P. GRIFFIS, K7EIS

NEARLY three years of planning, preparation and hard work on the part of far west hams will come to fruition in less than 30 days when the 12th National ARRL Convention opens its doors at the multi-million dollar Memorial Coliseum in Portland, Oregon, the Saturday before Labor Day. The three-day event from Oregon Governor Hatfield's welcome to the final banquet award will be long remembered as one of amateur radio's best.

The first national gathering of the League since the meet of 1959 in Houston, Texas, the Portland convention is expected to draw radio amateurs from all parts of the world. Running concurrent with the Century 21 World's Fair at nearby Seattle with its heavy emphasis on space and communications, the opportunity of attending both events in one western trip is being emphasized.

"The key words for this convention are *Facts, Features and Festivities*", said Stan Loye, K7BHI. "We have booked something for everyone from the 'harmonic' and junior op to the oldest member of the QCWA. No interest or facet of amateur radio is being left out of our planning." Loye is general chairman for the convention which is sponsored by the Affiliated Council of Amateur Radio Clubs for the Oregon area.

Backing the statement of "something for everyone," convention program details show that mobile, single sideband, RTTY, DX, military, Novices, YL, c.w. and all other radio amateur interests are included. There will be plant tours, visits to the Navy's latest radar picket ship, mobile hunts, awards, movies, exhibitions, contests, shopping tours, technical talks, ARRL business sessions, new equipment displays and reports on DXpeditions. The program is so long and varied that unavoidably more than one event must be scheduled simultaneously at various points. Those attending will thus be faced with the problem of deciding which interests them the most . . . not what will I do now.

Such dual activity and action is possible because of the extensive and unique facilities available at the Portland Memorial Coliseum. Open less than three years, this 14,000-person-capacity convention headquarters building was specifically designed for just such an event. Fully air-conditioned, the building makes possible the holding of multiple meeting, meal, exhibit and registration

Capsule Facts

When: Saturday, September 1 through Monday, September 3 (Labor Day Week End) 1962.

Where: Memorial Coliseum, Portland, Oregon.

What: 12th National ARRL Convention combined with . . . 25th Annual Convention Oregon Amateur Radio Association, 8th Annual Pacific Northwest DX Convention.

Registration: Right now by advance write-in. At Convention Hall starting 9:00 A.M. Daylight Time, Saturday, September 1.

Housing: Hotel and motels arranged by Reservation Committee. Rates from $5 per day, single, up. Write for yours.

Convention Cost: All licensed amateurs $5.75 registration fee; Non-licensed hams $3.75; Registration does not include meal costs.

Meal schedule is $1.50 for breakfast meetings, $1.75 for luncheon meetings, and $3.75 for Awards Banquet.

Cafeteria also available for meals at nominal prices. Economical bus transportation to all hotels and for scheduled tours.

Parking: Acres of parking at Convention Hall — protected parking lot at 25¢ per car per entry.

How to Write: Send all queries and registration fees to:

1962 ARRL Convention
P. O. Box 1335
Portland 7, Oregon

activities all at one time. The entire facility, including parking areas for thousands of cars, is being reserved for the ARRL event.

League officials will be on hand at the convention to take an active part in all events and particularly the ARRL business sessions. Officials to attend include League President Herbert Hoover, jr., W6ZH; President Emeritus Goodwin L. Dosland, WØTSN; First Vice-President W. M. Groves, W5NW; and numerous directors from various divisions including R. Rex Roberts, W7CPY, Northwestern Division. From the West Hartford staff there will be John Huntoon, W1LVQ; Francis E. Handy, W1BDI; George Grammer, W1DF; E. P. Tilton, W1HDQ; and Robert White, W1WPO.

Concurrent with this National ARRL Convention is the 25th Annual Convention of the Oregon Amateur Radio Association. Having held meetings each year for a quarter century, the Oregon group has had attendances up to 1200 persons. The turnout of local hams is, of course, expected to exceed that figure because of the dual nature of this year's event.

Also coordinated with the ARRL Convention and jointly with it is the 8th Annual Pacific Northwest DX Convention. Hosted by the Willamette Valley DX Club, the Western Washington DX Club and the Vancouver BC DX Club, an entire day of special events and programs will be held at convention hall. Meetings of the DX event, as with all other programmed affairs at the convention, are open to all badge wearers.

Program Highlights

Technical talks covering a wide variety of timely topics are on the general convention program. These cover antenna systems, rectifier design, tubes, tuned circuit design, voltage capacitor application and linear amplifiers, to mention but a few. Individual interest groups will meet at breakfasts with speaker authorities including Merrill Swan, W6AEE, on RTTY; H. C. Vance, sr., K2FF, of RCA on sideband; Fred Hicks, W6EJU, on the Oscar Program; and *QST*'s Ed Tilton, W1HDQ, on v.h.f.

The military, always interested in the amateur radio fraternity, will take an active part in the three-day convention. Highlight of this participation will be the visit to the adjacent Portland harbor of the latest Navy radar picket destroyer, the USS *Hanson* (DDR-831). Special conducted tours behind-the-scenes to points not normally open to the public will be had by all registrants to the convention.

Also participating for the military will be Maj. Gen. Earle F. Cook, W4FZ, Chief Signal officer, on behalf of Army MARS; Lt. General Francis H. Griswold, K3RBA, for Air Force MARS; and Rear Admiral Bernard F. Roeder, Director of Naval Communications. Admiral Roeder will be the featured banquet speaker.

A complete program for the ladies, both ham and non-ham, has been arranged. Highlights for the YLs include a fashion show, tour of Lloyd Center (the nation's largest shopping center),

Rear Admiral Bernard F. Roeder, Director of Naval Communications, will be the principal speaker at the banquet.

SWOOP Initiation, scenic tours, and YLRL Forum. Women will, of course, be welcome at all talk and technical sessions and can participate in c.w. competitions, mobile hunts, exhibits and rag chews.

Equipment Show

An important part of this 12th ARRL Convention will be an extensive electronics exhibit. Occupying a good part of the Memorial Coliseum Exhibit Hall, the exhibit will feature working models of the Oscar satellite, a special display from the National Aeronautical and Space Administration, a showing of up-to-the-minute military radio hardware and a unique exhibit of an-

Convention Features and Special Events

Electronics and Equipment Exhibit: Open to all badge wearers without cost. The latest military and commercial radio and amateur gear will be on display. Special exhibit of Oscar Project. National Aeronautical and Space Administration display including Friendship Seven man-carrying satellite.

Swap Shop: The place to bring gear for selling. Also the place where you can get that gadget you need at a bargain. Thousands of items.

Rag Chewers Coffee Shop: Open every day during the convention. Just the place for that eyeball QSO or the meeting of your special interest group. Very economical prices.

QSL Card Exhibit: Bring yours. Special awards for the most unusual, the prettiest, the zaniest.

Operating Station: At the Convention Headquarters to help you find your way into town. Operating on 3865 and 3885 kc. plus 6 meters all day Saturday.

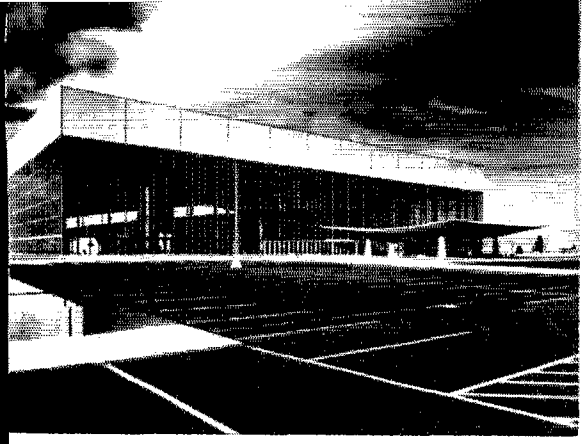
FCC Examinations: Conducted by official examiners. Newcomers to amateur radio can be proud of a "Convention" ticket.

Navy Radar Picket Destroyer: On display in the Portland Harbor with special ham tours to see the behind-the-scenes workings.

Wouff Hong Initiation: This ancient and famous society will initiate the willing and the unwary.

C.W. Competition: To get a certificate you can join in and show off your prowess as a guy who knows his Morse.

Tours: For the ladies and such men as want to join in.

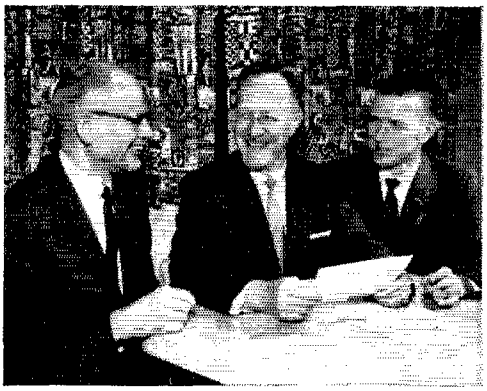


The Memorial Coliseum.

cient radio equipment including an original quench gap radio telephone transmitter, one of only two known to be in existence. Here, too, will be shown the very latest in radio gear from the country's largest manufacturers and distributors. A Swap Shop for equipment, open to all to bring or buy something unwanted in exchange for something needed, will be conducted as part of the exhibit program.

Cost for this big three-day, action packed convention is the lowest of any national convention of recent years. "We don't want to keep anyone away because of price," said Jim Strickland, W7SEZ, Area Council Chairman and Convention Coordinator. "So we've put a price tag on this event that is less than that for most state or regional meets. Our aim is to put on the best dang convention ever and come out even at the end. That's what we're doing, too."

Registration price for all licensed amateurs is $5.75. For non-licensed persons the cost is $3.75 for an "observer" admission ticket. This price includes a copy of the official program, unlimited attendance to the exhibit hall (public price is $1 per admission), admittance to all meetings and technical talks, participation in mobile hunt and



Responsible for much of the convention planning are (l. to r.) Ernie Austin, W7AXJ, registration chairman; Stan Loye, K7BHI, executive chairman; and Don Johnson, W7RFV, program chairman.

other contest events, dance, radar ship tour, complete ladies and DX Convention programs and all other scheduled affairs.

Not included in the registration fee are meals. These are priced at the nominal figures of $1.50 for breakfast, $1.75 for luncheon and $3.75 for the awards banquet. However, eating meals at the scheduled events combined with programs is optional. Thus a person wanting to go to the SSB Breakfast, for instance, is welcome to attend without being served. To provide eating accommodations for people not wanting to eat with groups and to otherwise arrange a place for eyeball QSOs and small group gatherings, the committee is setting up a special cafeteria where everything from a hot dog to a steak will be available.

Hotel and motel reservations are also being handled by the convention committee. Accommodations from $5 single to $24 for twin doubles are available. Inexpensive bus travel to and from principal hotels to the convention hall is being set up on a regular schedule for those delegates who do not have their own transportation.

Registration for the convention and hotel accommodations can be accomplished by writing to: *1962 ARRL Convention, P. O. Box 1335, Portland 7, Oregon.*

"The West is noted for its hospitality and Oregon for the kind of radio conventions put on," said Stan Loye in summary. "We've put these two ingredients together to give the whole country one of the best conventions ever. You're going to be mighty sorry if you don't come on out and join us over the Labor Day week end."

Condensed General Program

SATURDAY

MORNING — General Registration for Convention (or register Friday evening at Multnomah Hotel). QSO's — Motion Pictures — Coffee.

AFTERNOON — General Luncheon.

Welcome — By Governor Mark O. Hatfield, Mayor Terry D. Schrunk.

Welcome — By ARRL Officials Rex Roberts, W7CPY, Herbert Hoover, jr., W6ZH.

Children's Movies — Exhibit Hall opens — Swap Shop Opens.

Multi-Band Antenna Systems. Sidney T. Kitrell, KØDOM, Sales Mgr., Hy-Gain Antenna Corp.

High-Voltage Silicon Rectifier Design. H. C. Vance, sr., K2FF, Manager, Sales Engineering RCA Corporation.

Latest Receiving Tubes for Amateur Radio Equipment. B. S. Angwin, Manager, Western Region, General Electric Company.

Ham Radio Need Not be Expensive. Ed Shulman, Chief Engineer, World Radio Laboratories.

Air Force MARS. Lt. General Francis Griswold, K3RBA Commandant, National War College.

Trend of Modern Tuned Circuits — Shape Factor. Burt Ramsey, Manager-Engineer, Gonset Radio Co.

EVENING — Dinner . . . Cafeteria.

Amateur Applications for the Variable Voltage Capacitor. Byron M. Witt, W7VOK, Component Valuation Engineer, Tektronix, Incorporated.

Operation World Wide and *Operation Hope* — Films. Bud Drobish, W9QVA, Hallicrafters.

Informal Dance. Wouff Hong Initiation.

SUNDAY

MORNING — Breakfast Groups: RTTY — Oregon Emergency Net — DX — Novices — YL.

Church Service of your choice.

Non-Denominational Church Service — Coliseum Chapel. Robert Rowland, President Columbia Christian College.

AFTERNOON — Luncheon Groups for Discussions in Cafeteria (informal).

The Edison Award Program. B. S. Angwin, Manager — Western Region, General Electric Company.

Major General Earle F. Cook, W4FZ — Army MARS (Army MARS Members).

Lt. General Griswold, K3RBA — Air Force MARS — (Air Force MARS Members).

Mobile Exhibit and Field Strength Competitions. Conducted by: Wayland Byrd, W7ALG, and Lorn Hafeld, W7ZQQ.

ARRL Meeting and Open Forum. Address by Herbert Hoover, jr, W6ZH, ARRL President; Moderator: R. Rex Roberts, W7CPY, Northwestern Division Director. Meet your League Officials.

AFTERNOON — Oscar in History (film record), Fred Hicks, W6EJU, Lockheed Aircraft.

FCC License Examinations. Francis McCann, Engineer in Charge, 13th District, F.C.C.

Exhibit Hall and Swap Shop Open.

EVENING — Group Dinners (Cafeteria).

Federal Communications Commission. Speaker to be announced.

Major General Earle F. Cook, W4FZ, "The Military — The Amateur — The Future."

MONDAY

MORNING — Group Breakfasts.

Mobile — S.S.B. — V.H.F. — QCWA.

Hidden Transmitter Hunt. Lorn Hofeld, W7ZQQ, in charge.

USS Hanson (DDR-831) Naval Radar Picket Destroyer. Tour for Convention participants only.

C.w. Competitions.

AFTERNOON — Informal Luncheon Groups in cafeteria.

Distortion in Linear Amplifiers — Causes and Cures. Charles S. Carney, WØGDJ — Collins Radio.

Power — What It Means. George Grammer, W1DF, Technical Director, ARRL.

The Best Antenna. Edward P. Tilton, W1HDQ, V.H.F. Editor, *QST.*

Tube Building Techniques. Joseph V. Griffith, W7KDR, Electro-Glass Laboratory, Inc.

EVENING — Informal Banquet — Honoring Goodwin L. Dosland, WØTSN. Admiral Roeder, Chief of Naval Communications, Banquet Speaker.

Awards.

Ladies Program

All registered ladies are welcome to attend scheduled general program events. In addition this special Ladies and YL-RL Program is planned.

Saturday Fashion Show and Tour of Lloyd Shopping Center; YLRL Dinner and Forum; Sunday breakfast and luncheon with speakers; Sunday tour of Portland, including world-famous Rose Test Gardens; Monday breakfast and SWOOP initiation.

The ARRL Ladies Convention program will be hosted by the Portland Roses' Radio Club.

DX Program Highlights

8th Annual Pacific Northwest DX Convention Held jointly with the 12th National ARRL Convention

Saturday, September 1

Get acquainted hour and Eyeball QSO.

Sunday, September 2

DX Quiz.

DX QSLs by Lloyd Colvin, W6KG.

1962 Expedition to HKØAB and KS4BF by Boots Olsen, W6HAW.

DX Group Luncheon.

DXCC Topics, Questions and Answers by Bob White, W1WPO.

Yasme Foundation Topics by H. A. Sears, K5JLQ.

DX Forum, Moderator Bill Bennett, W7PHO.

DX Dinner.

1962 W4BPD Expedition by Ack Atkerson, W4ECI.

Strays

NEW YORK LICENSE PLATES

Final details have been worked out for the issuance of amateur call-letter license plates to New York state hams. K2SJO reports that state officials have arranged a special card-notice invitation to all New York amateurs to make application for the call-letter plates.

If the amateur is the owner of a motor vehicle in the state, he simply indicates this and other required information on the card-invitation and returns it to the Motor Vehicle Department. There is a $5.00 fee for the plates. The plates are being issued, effective with the 1963 registration year, as permanent plates.

The actual stamping of the call-letter plates will begin shortly, with the plan now to stamp the entire W/K-WA-WB series (of N. Y. state residents) and when the amateur makes written application for the plates, they will be pulled out of file and sent to the amateur. At this point, New York amateurs need do nothing — the invitation notices will be sent automatically. It is believed this is the first use of state-initiated invitations to amateurs for plates.

A recent news item reports that the National Automobile Underwriters Association has dropped collision and physical damage charges for two-way radio systems in automobiles. After June 1, the coverages were to be afforded without additional charge, in most states.

—•••—

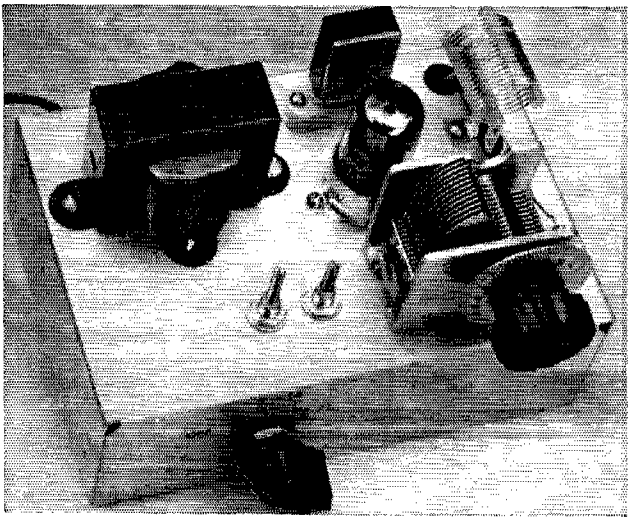
A young Milwaukee scout got his wires crossed and ended up at a weekend Camporee in the wrong scout camp, 90 miles from the rest of his troop. But K9HED (another scout) came to the rescue by working Milwaukee, and arranging for the necessary transportation.

—•••—

After moving into his new home, K5YEE, with the help of some other hams, put up a couple of masts and an 80-meter doublet. Before the antenna installation was even completed, he had received four TVI complaints!

—•••—

Dentists. Get in touch with K3LEC, 907 Jefferson St., Wilmington, Delaware. He wants to form a club. (Doc, getting these hams organized is harder than pulling teeth.)



This top view shows the arrangement of the componants above deck. At the upper right corner are L_1 and L_2, mounted on a terminal strip. To the front of the coil assembly is C_1. Near the center front are the two slug-tuned coils.

Three-Band Crystal-Controlled Converter

7-, 14-, and 21-Mc. Reception with Only One Crystal

BY LEWIS G. McCOY,* W1ICP

THIS article describes the construction of a rather novel crystal-controlled converter using an overtone oscillator circuit. The circuit of the oscillator is one cooked up by Lew North and described in the July issue.[1] Before discussing the converter, a word or two about overtone oscillators might help the Novice better understand how they work.

A Novice interested in 80, 40 or 15 meters normally thinks of a crystal oscillator as one working at the fundamental frequency of the crystal. To get to higher frequency bands, additional circuit or stages are used for multiplying the frequency. For example, let's assume we have a crystal at 3550 kc. and we want output at 7100 kc. Our oscillator would oscillate at 3550 kc. and we would tune the plate circuit of the stage to twice 3550 kc., or 7100 kc. We would then be able to get output at twice the crystal frequency. In turn, we could add another stage and feed the 7100-kc. signal in and then set up the plate circuit of the added stage either to double to 14,200 kc., or triple to 21,300 kc. However, keep in mind that our basic oscillator frequency is 3550 kc. and that is where the crystal is oscillating. If we listened on a receiver, we could hear a signal at 3550 kc.

In an overtone crystal oscillator the crystal oscillates in a different mode. For example, instead of making our crystal oscillate at 3550 kc., we can make it oscillate at three times the frequency, or on the third overtone — 10,650 kc. in this case. If we listened with a receiver tuned to 3550 kc., we wouldn't hear any signal at that frequency as we would in the type of operation explained previously. In the circuit described by North, we can make a crystal oscillate at its third or fifth overtones and this presents some interesting possibilities.

The Converter

Shown in Fig. 1 is the circuit of a three-band crystal-controlled converter. The circuit uses a single 3500-kc. crystal which is operated on either the third or fifth overtone, depending on which coil is switched into the tank circuit of the oscillator. To make the converter as simple as possible (and as inexpensive), only a single tube is used, a 6U8A. The pentode portion operates as a mixer and the triode as the oscillator. By the proper selection of L_2 and C_1, a tuning range that covers the 7.0-, 14.0-, and 21-Mc. bands is achieved without resorting to band switching. This eliminates complicated band switching and the cost of a switch and additional coils. Output from the converter is fed to a receiver that tunes the 80-meter range.

The converter has its own power supply consisting of the power transformer, T_1, a silicon

* Technical Assistant, *QST*.

[1] North, "Combination Fundamental and Overtone Crystal-Oscillator Circuit," *QST*, July, 1962.

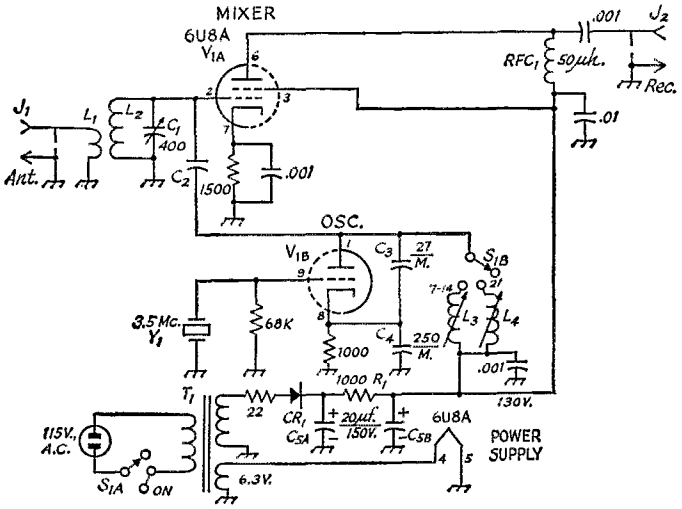


Fig. 1—Circuit of the three-band converter. Resistances are in ohms; all resistors are ½ watt.

C_1—400-$\mu\mu$f. variable, broadcast-replacement type, single section (Allied 61 H 009).
C_2—See text.
C_3—27-$\mu\mu$f. mica.
C_4—250-$\mu\mu$f. mica.
C_5—20 μf. per section, dual electrolytic, 150 volts.
CR_1—Silicon rectifier, 400 volts p.i.v., 200 ma. (International Rectifier type 2E4).
J_1, J_2—Phono jack.
L_1, L_2—See Fig. 3.
L_4—Slug-tuned coil, 3.1 μh. to 6.8 μh. (Miller type 4405).
L_5—Slug-tuned coil, 0.9 μh. to 1.6 μh. (Miller type 4403).
RFC_1—50-μh. r.f. choke (Millen 34300-50, National R-33).
S_1—2 pole, three-position switch (Centralab 1472).
T_1—Power transformer, 115 volts, 15 ma., 6.3 volts, 0.6 amp. (Triad R-54X, Knight 61 G 411).
Y_1—3500-kc. crystal.

rectifier, CR_1, and the filter network, C_5R_1. The supply is a half-wave type and d.c. voltage out of the filter is approximately 130 volts. The cost of the converter can be further reduced if you already have a power source available. Any d.c. voltage from 130 to 200 at about 10 ma. can be used. The heater takes 6.3 volts a.c. at 0.45 ampere.

How It Works

One way to explain how a converter works is with a block diagram, such as Fig. 2. For example, suppose a signal at 7100 kc. is picked up on the antenna and fed into the mixer. Also present in the mixer is a signal at 10,500 kc. (third overtone of the crystal), which is fed from the oscillator. In the mixer, a mixing action takes place and the output results in the sum and difference frequencies of the signals fed in. We are interested in the difference frequency, 10,500 kc. — 7100 kc., or 3400 kc. This signal is fed into the receiver, which is tuned to 3400 kc., resulting in our hearing a signal at 7100 kc., even though the receiver is tuned to 3400 kc. Assuming there is adequate shielding between the converter and receiver — this is usually taken care of by using coaxial line to connect the two units together — you won't be able to hear any signals around 3400 kc. leaking through, even though they are quite strong.

In order to tune the complete 40-meter band, our receiver must tune from 3200 kc. to 3500 kc., since 10,500 kc.— 7000 kc. = 3500 kc., and 10,500 kc.— 7300 kc. = 3200 kc. Note that the receiver will tune backwards in going from the low end of 40 to the high.

The same oscillator frequency, 10,500 kc., can be used for 20-meter reception, with the receiver tuning from 3500 kc. upward. That is, 14,000 kc.— 10,500 kc. = 3500 kc., and 14,350 kc.— 10,500 kc. = 3850 kc. As you can see, this is a bonus in that it is possible to tune two bands while only using a single oscillator frequency. This serves to simplify the circuit and reduce costs.

On 15 meters, the fifth overtone of the crystal, 17,500 kc., is used. In this case, 21,000 kc.— 17,500 kc. = 3500 kc., and 21,450 kc.— 17,500 kc. = 3950 kc. Note that it is also possible to cover the 20-meter band using the fifth overtone.

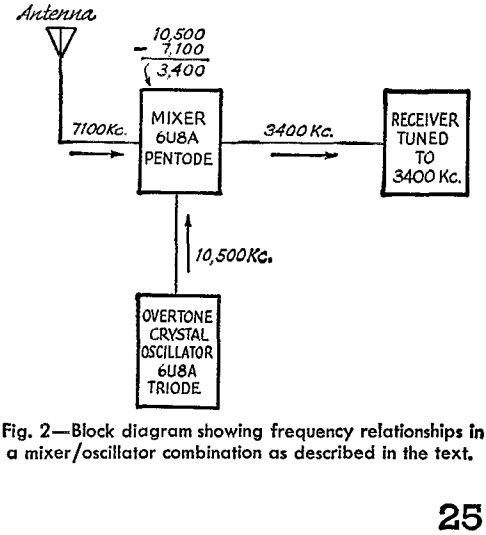
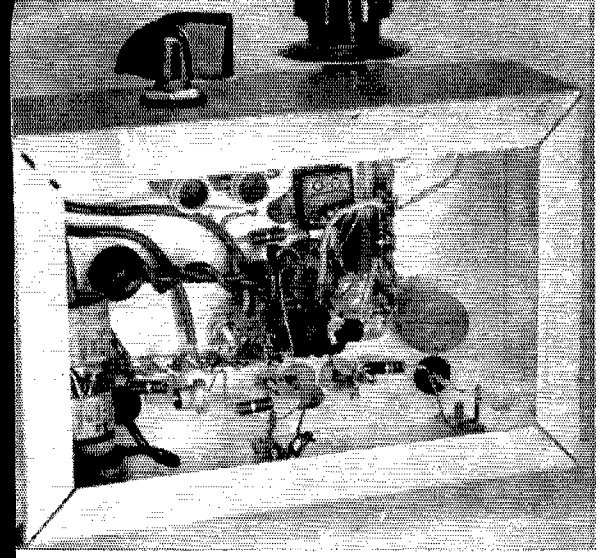


Fig. 2—Block diagram showing frequency relationships in a mixer/oscillator combination as described in the text.



The electrolytic capacitor is mounted at the left side of the chassis. The remaining power supply filter components are mounted on a terminal strip, to the right of the electrolytic capacitor. On the rear right of the chassis is J_1 and the one near the center of the rear wall is J_2.

However, the receiver would tune backwards, the same as with 40 meters.

Image Rejection

Visualize, if you will, your converter being set up to tune in a signal at 14,000 kc., using the 10,500-kc. oscillator signal. Now supppose a strong signal appeared on your antenna at 7000 kc. If there is insufficient selectivity in the front end of your converter, the $L_1L_2C_1$ combination in this case, you would have the two incoming signals both mixing with 10,500 kc. Both would come out at 3500 kc. and be fed into the receiver — and, of course, would interfere with each other. Image rejection is the ability of your receiving setup to discriminate against the unwanted signal, or image. The converter described in this article has adequate image rejection for all but extremely strong signals. We found that strong signals at the image frequencies were just barely audible when the converter front end was peaked "on the nose" on the desired frequency.

The converter can be used with any receiver that tunes from 3200 kc. to 3900 kc. One particularly good combination that will provide the beginner with a low-priced but efficient receiving setup would be the surplus BC-454 receiver, which tunes the 3- to 6-Mc. range. This combination would give receiver coverage of the 80-, 40-, 20- and 15-meter bands. The necessary conversion of the surplus unit has been described previously in *QST*.[2] While that article treated the conversion of the BC-455 (6 to 9 Mc.) the same changes and connections would apply to the BC-454.

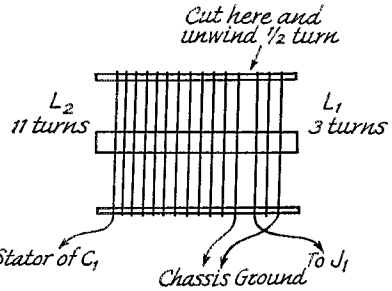


Fig. 3—Construction of L_1 and L_2. Both coils are made from a single section of B & W type 3011, ¾-inch diameter, 16 turns per inch, No. 20.

Construction Details

The converter parts are mounted on a 2 × 4 × 6-inch aluminum chassis. T_1, C_1, L_1, L_2, and the crystal and tube are all mounted on top of the chassis and the remaining components are below deck. The coils L_1 and L_2 are made from a piece of B & W Miniductor stock, type 3011. The two coils are separated by a single turn, as shown in Fig. 3. These are mounted on a terminal strip, as can be seen in the top-view photograph.

The two oscillator plate coils, L_3 and L_4, are commercially made slug-tuned jobs. They are mounted below chassis with the adjusting screws coming up through the chassis top. S_1 is a two-pole three-position switch with one pole used to turn the a.c. on and off and the other pole to switch the oscillator plate coils. The switch is mounted on the chassis front. Tie-point strips are used for mounting several of the power-supply and converter components.

C_2 consists of two pieces of No. 20 insulated wire, one inch long. One wire is connected to Pin 1 on the 6U8A and the other to Pin 2. The leads are then twisted together. This provides enough capacitive coupling for injection of the oscillator signal into the mixer.

Getting It Working

Use a short length of coax to connect the converter to the receiver. The converter has a phono jack, J_2, for an output connector, and the coax lead used to connect the two units together should be terminated at the converter end in a phono plug in order to maintain shielding of the lead. At the receiver end, don't expose any more of the inner conductor lead than is necessary for making connection to the antenna terminal, and connect the coax braid to the receiver's ground post. This is to reduce any chances of pickup of 80-meter signals.

Tune the receiver to 3250 kc. This will give you reception at 7250 kc.; there is usually plenty of activity in the phone bands and it will be easier to find signals. Turn on the converter, and after it has warmed up, tune C_1 slowly through

[2] McCoy, "50- and 144-Mc. Reception at Low Cost," *QST*, Nov., 1960.

its range. Near the high-capacitance end — plates nearly fully meshed — you should find a point where the background noise will rise and you will hear 40-meter phone signals. If you don't hear any signals, change the setting of the slug in L_3 and try again. While the slug adjustment that makes the oscillator start on the third overtone at 10,500 kc. is broad, the circuit won't stay in oscillation over the entire range of slug adjustment. Once you have the oscillator working, peak C_1 on a 40-meter signal and then adjust the slug in L_3 for maximum loudness. This should be the best setting of the slug.

Next, move your receiver tuning up to 3750 kc. This setting will tune in 14,250 kc. in the 20-meter phone band. Slowly decrease the capacitance of C_1, and near minimum capacitance you should hear the background noise peak up, along with 20-meter signals. You don't need to change the slug setting in L_3, because it will hold for both 40- and 20-meter reception.

Next, set S_1 to the 15-meter position and leave the receiver where it was tuned for 20. This will put you in the 15-meter phone band. Tune C_1 near minimum capacitance and see if the noise peaks up. If it doesn't, the oscillator may not be working on the fifth overtone at 17,500 kc. Adjust the slug in L_4, moving the slug so that it is about halfway into the coil.

Incidentally, we tried many crystals of different frequencies in our original test setup to see how they worked as overtone oscillators. All but one of them worked well on the third and fifth overtones. The one that didn't work happened to be a very poor oscillator even on the fundamental frequency.

The crystal frequency specified in the article is 3500 kc. However, there is some leeway in that figure. Crystals as high in frequency as 3575 kc. have been used in the circuit. If your crystal frequency is not exactly 3500 kc., a little arithmetic (see earlier examples) will quickly show what the necessary tuning ranges will be on your receiver. QST

• New Apparatus

National Ferrite-Bead R.F. Chokes

GIVEN one of these new r.f. chokes unmarked, and asked to identify its function, you might have a bit of trouble. An ohmmeter would show a dead short. Checks on inductance would be equally uninformative. Fig. 1 shows why.

Ferrite beads, *1*, of number and size to suit various requirements, are molded around a lead wire, *2*, and the whole embedded in a black epoxy rod, *3*. At d.c., audio, and low radio frequencies, the choke acts like a piece of wire. Around 10 Mc. and higher, it develops appreciable impedance, up to 900 ohms at 100 Mc. Ten types, having impedances from 16 to 900 ohms, at frequencies from 10 to 300 Mc., are presently available. They vary in size in the range of 1- and 2-watt resistors.

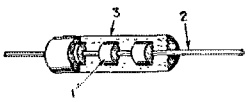


Fig. 1—The National ferrite-bead r.f. chokes consist of several small beads molded on a wire, and embedded in insulating material. They are about the size and appearance of 1- or 2-watt resistors.

The ferrite-bead choke appears to have interesting possibilities for high-current, low-impedance applications. Examples would be isolation in transistor circuits, mobile power-supply primary filters, ignition and other mobile-noise suppression and 115-volt line filters, to name a few.

— *E. P. T.*

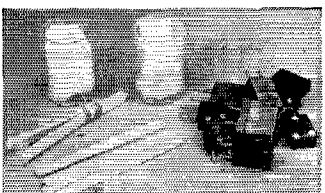
Mobile Generator Filters

GENERATOR "whine" is a common malady in mobile rigs, and can usually be detected in the mobile receiver when the engine is revved so that the generator is charging. The small plastic-enclosed "Gold Line" filter shown in the photograph is designed to suppress generator interference on any one amateur band between 80 and 6 meters. It consists of a small mica trimmer capacitor and coil which can be fastened to the armature terminal of the generator, making connection through the bracket shown, and an "A" lead from the voltage regulator connected to the other terminal of the filter. With the motor running, the capacitor is adjusted with a screwdriver until the generator interference is suppressed. The filter will pass a maximum of 30 amperes. Individual filters are available for 6, 10, 15, 20, 40, and 80 meters, and are finished in different colors to identify the frequency. Gold Line Filters are manufactured by the company of that name, P.O. Box 983, Pearl Street Extension, Norwalk, Connecticut.

— *G. H.*

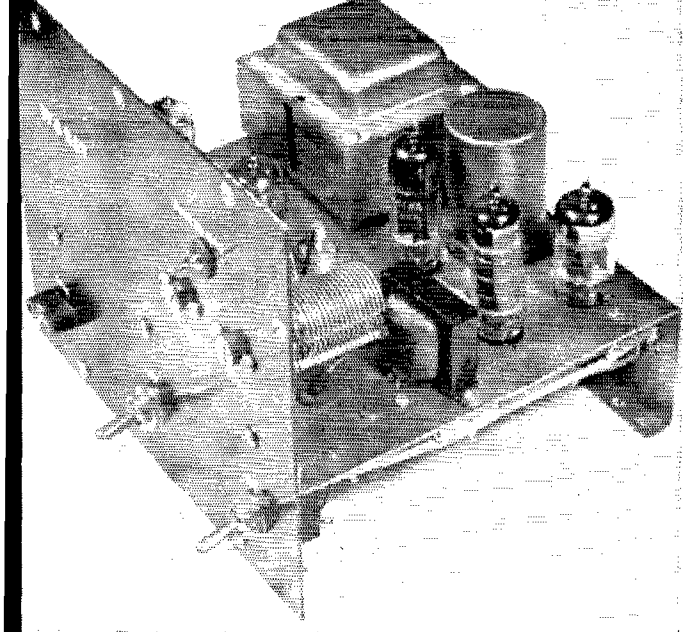
Crystal Grinding and Etching Kit

ARTICLES have been written on the subject of grinding and etching crystals, but finding and assembling the materials for the project usually isn't so easy. Quaker Electronics of Mountain Top, Penna., has brought out a crystal-grinding and etching kit that makes an easy job of changing the frequency of an existing crystal.



The kit contains the necessary materials for both grinding and etching crystals — a package of ammonium bifluoride flakes, package of grinding compound, two plastic containers for mixing the chemicals, and some ingenious wooden crystal-blank holders (see photograph) made from a rubber band and two ice cream sticks. It also includes 12 crystals in miscellaneous holders (the crystals in our kit were of the surplus variety in the 5- to 9-Mc. frequency range), and six assorted quartz crystal blanks. Instructions that give complete step-by-step details on the process of grinding and etching crystals are also included. Safety precautions to take in using the etching solution are covered in the instructions.

— *E. L. C.*



Low-Power Rig for Fixed or Mobile Use

This easily-built low-power 6-meter rig is little more than a week-end project. Just the thing for the beginner or anyone else hankering to get his foot in the v.h.f. door.

A low-power 6-meter transmitter for home-station or mobile use. Power-supply and modulator components occupy the rear portion of the chassis. *(Photos by R. G. Fleischman.)*

Four Watts for Six Meters

BY WILLIAM W. DEANE,* W6RET

THE six-meter transmitter illustrated in the photographs was designed to provide the dual functions of fixed-station rig and mobile transmitter, with the change-over being accomplished with a minimum of effort. A 115-volt a.c. power supply is built into the unit. It is inoperative during mobile use. The wiring is so arranged that the change from a.c. to mobile operation can be made by merely changing plug-in cables. The transmitter operates at a maximum of 4 watts input.

Circuit

The r.f. and modulator circuits are shown in Fig. 1. The transmitter employs a third-overtone crystal oscillator of simple design. The crystal frequency should be in the range of 8.335 to 9.0 Mc. for 50–54-Mc. operation. Crystals in the 25–27-Mc. range may be used if desired. The r.f. section consists of a 6AG5 oscillator, with the plate circuit tuning to 25–27 Mc. This drives the triode section of a 6AU8 whose plate tunes to 50–54 Mc. This, in turn, drives the pentode section of the 6AU8 which is used as the final amplifier.

The 6AG5 was selected as the crystal oscillator because the filament current of 0.3 ampere facilitates its use for 12-volt mobile operation, if desired. In this particular unit, the filaments are wired for 6 volts, since my 1954 pickup has a 6-volt system. Those having cars with 12-volt systems should wire the filaments in a series-parallel arrangement as shown in Fig. 2B.

*8831 Sovereign Road, San Diego, Calif.

The oscillator and driver plate coils, L_1 and L_2, are slug-tuned. Shifting from one band edge to the other may require some slight retuning here. Since most operation is conducted in the lower portion of the band, the addition of a variable capacitor for the driver plate was deemed unnecessary. The slug-tuned coils will easily handle a frequency shift over the lower end of the band without readjustment. Ninety per cent of my operation is at 50.4 Mc., so I peaked L_1 and L_2 at this frequency.

Audio Section

The modulator section uses one half of a 12AX7 as the microphone preamplifier which is resistance-coupled to the second half of the 12AX7 which, in turn, drives the 6AQ5 modulator. This combination gives sufficient gain for a crystal microphone. The coupling capacitor between the first and second stages is purposely made small to reduce the low-frequency response, and the plate of the 6AQ5 is bypassed to ground to reduce the amplification at the high frequencies, thus confining the frequency response principally to the most desirable range, 500 to 2500 cycles.

Power Supply

The circuit of the a.c. power supply, which is included as an integral part of the unit, is shown in Fig. 2. S_2 is the power switch. S_{1B} (see Fig. 1 for S_{1A}) operates a 115-volt a.c. change-over relay connected to P_1 as shown.

For mobile operation, P_2 of Fig. 3 replaces P_1,

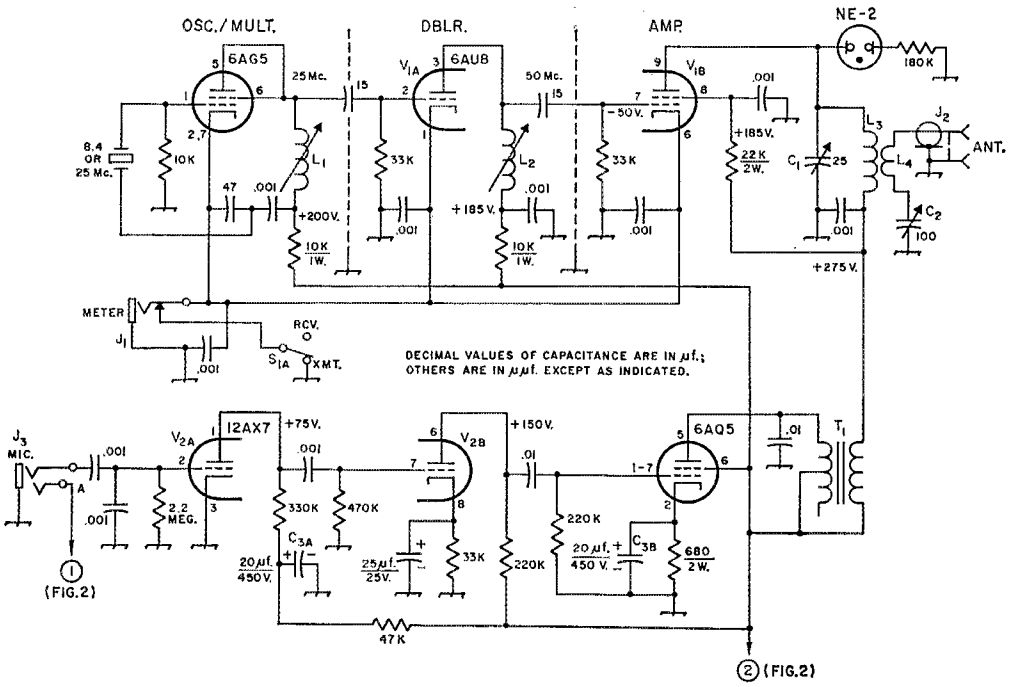


Fig. 1—R.f. and modulator circuits of the low-power 6-meter transmitter. Resistances are in ohms and resistors are ½ watt unless indicated otherwise. Fixed capacitors of less than 0.001 μf. are mica or stable ceramic; others are disk ceramic, except those marked with polarity which are electrolytic.

C_1—Miniature 25-μμf. air variable (Hammarlund APC-25 or similar).

C_2—Miniature 100-μμf. air variable (Hammarlund APC-100 or similar).

C_3—Quadruple electrolytic, 20 μf., 450 volts per section.

J_1—Closed-circuit jack.

J_2—Chassis-mounting coax receptacle (UG-22D/U or other).

J_3—Three-circuit microphone jack.

L_1—22 turns No. 20 enameled on ⅜-inch ceramic iron-slug form.

L_2—10 turns No. 18 enameled on ⅜-inch ceramic iron-slug form.

L_3—5 turns No. 18, 1-inch diam., ⅝ inch long (B & W 3014).

L_4—2 turns plastic-covered hookup wire over ground end of L_3.

S_1—D.p.d.t. toggle switch. (See Fig. 2 for S_{1B}.)

T_1—Modulation transformer: 10,000-ohm c.t. primary, 10,000-ohm secondary, 5 watts, half of primary used (Triad M-1X).

and S_1 is placed permanently in the transmit position. K_1 then is operated through J_3 (Fig. 1) from the microphone push-to-talk switch. On transmit, K_1 changes the antenna over, disconnects the B supply from the receiver converter, closes the high-voltage circuit to the transmitter, and operates K_2 which starts the dynamotor. On receive, K_1 breaks the high-voltage line to the transmitter so that there is no hang-over of transmitter output while the dynamotor is coasting after its input has been cut off by K_2.

Construction

The transmitter is constructed on a homemade chassis 7 by 6 by 2½ inches high. The panel is 7 by 6 inches and is fastened to the chassis with three 6-32 screws and nuts. The side view illustrates the location of the crystal socket, transmit-receive switch, a.c. power switch, final tuning capacitors and the r.f. output indicator. The capacitors are screwdriver-adjusted, but conventional-shaft types may be used if desired.

The interior view shows the location of the r.f. section along the front panel. The a.c. power supply is in the rear right-hand corner, with the modulator section occupying the rear left-hand corner of the chassis. The microphone jack, r.f. antenna jack, meter jack and power receptacle are located on the rear lip of the chassis.

The final plate coil and the antenna coil are located under the chassis, while the tuning capacitors are above. Two ⅜-inch holes are drilled so that direct connections can be made between the capacitors and coils. A rubber grommet is inserted in each hole to prevent any possible shorting.

The arrangement of the parts under the chassis can be seen in the bottom-view photograph. Small copper shields have been placed between L_1 and L_2, and between the triode and pentode stages of the 6AU6. Another shield between the plate coils and the modulator section has been removed to avoid obstruction in the photograph. In this installation, a UG-22D/U r.f. connector has been used for the antenna jack; however, a phono jack or other small r.f. connector may be used.

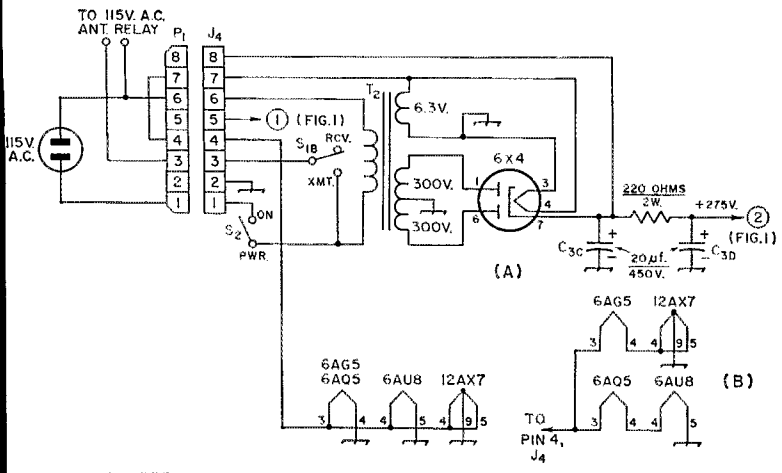


Fig. 2—(A)—Circuit of power supply. (B)—Alternate heater connections for 12-volt supply.

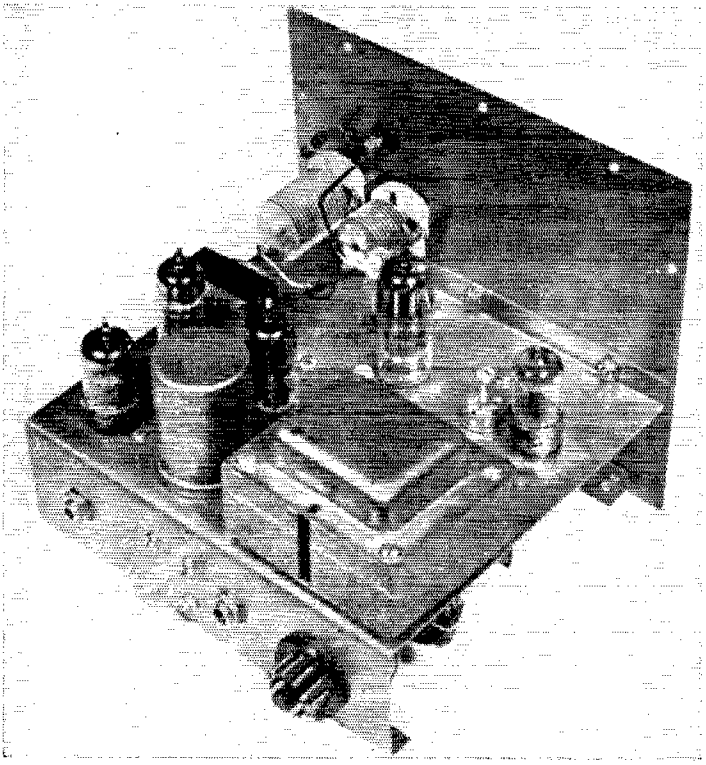
C_3—See Fig. 1.
J_4—Chassis-mounting male octal connector.
P_1—Female octal plug.
S_2—S.p.s.t. toggle switch.
T_2—Power transformer: 600 volts r.m.s., c.t., 65 ma.; 6.3 volts, 2.7 amp. (Triad R-5A or R-5B, or equivalent).

An NE-2 neon bulb is used as an r.f. output indicator. One terminal is connected to the stator of the plate tuning capacitor while the other plate is grounded through a 180K resistor. When d.c. power is applied to the final, one plate has an orange glow; when r.f. is present, the other plate has a reddish glow.

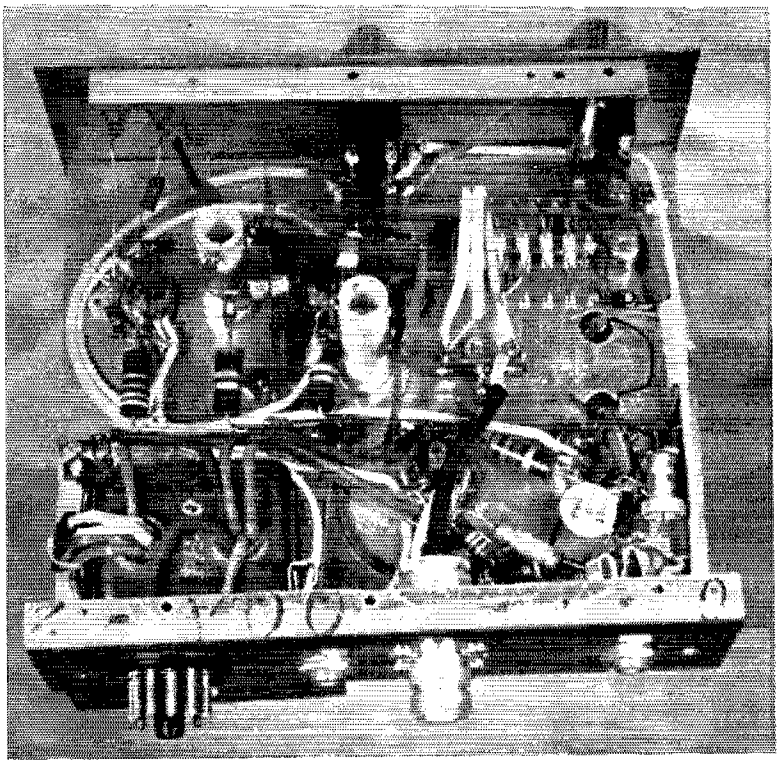
The transmitter is enclosed in Reynolds perforated aluminum. The front panel is finished in chevron blue with white decal markings.

Testing

After the wiring has been completed, coils L_1 and L_2 should be adjusted to 25 and 50 Mc., respectively, with a grid-dip meter. Otherwise, set the slugs about halfway into the coils. Connect a 50-ma. meter in J_1 (Fig. 1). With the crystal installed, turn the power switch on. When the power supply warms up, the r.f. output indicator should glow orange, as mentioned above. The meter should read about 30 ma. at this time. Rotate the plate tuning capacitor for a dip in plate current. At the same time, the r.f. output indicator should show a red glow. If no dip can be found, connect a d.c. voltmeter, with a 2.5-mh. r.f. choke in series with the test lead, to the grid (Pin 7) of the 6AU8, and adjust L_1 and L_2 for maximum grid voltage. With a vac-



The 6AG5 oscillator tube and its slug-tuned plate coil are toward the panel and to the right; the 6AU8 doubler/final is near the center. The two capacitors on the panel are for link tuning (loading), left, and output tank tuning, right. The neon indicator is in the grommet-lined hole above.



Near the center of the chassis, from left to right, are the oscillator, doubler and final-amplifier coils. Shielding is used around the multiplier tube socket and coil. A lateral shield between r.f. and audio sections has been removed temporarily in this photo.

uum-tube voltmeter, the grid voltage should be −50. Now dip the final, using the indication on the milliammeter or r.f. output indicator. Turn the a.c. switch off and connect the antenna. Turn the a.c. switch back on, and load the transmitter with the antenna capacitor while at the same time maintaining resonance with the plate capacitor. The total current when the transmitter is loaded should be about 40 ma. The final-amplifier plate current under this condition is 15 ma. Connect the microphone, and tune in the transmitter signal on your receiver (disconnect the receiver antenna to prevent overloading). The audio section can be checked by speaking into the microphone and listening to your signal on the receiver.

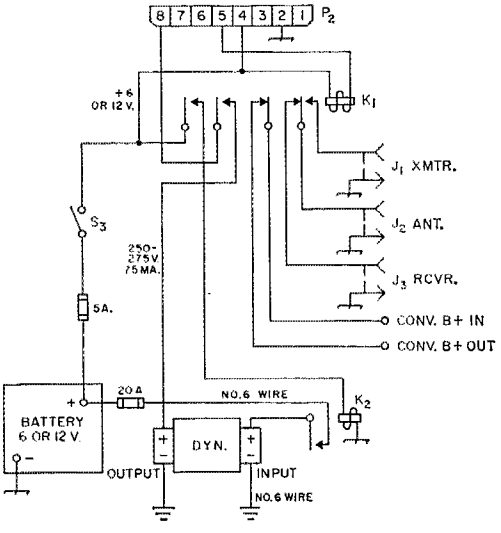


Fig. 3—Cable and control connections for mobile operation.

J_1, J_2, J_3—Phono connector.

K_1—Four-pole double-throw relay, coil to suit battery voltage (Potter & Brumfield GA17D or similar).

K_2—20-ampere automobile horn relay, coil to suit battery voltage.

P_2—Female octal plug.

S_3—S.p.s.t. key-lock switch (Arrow-Hart & Hegeman 81715-L or similar).

Mobile Installation

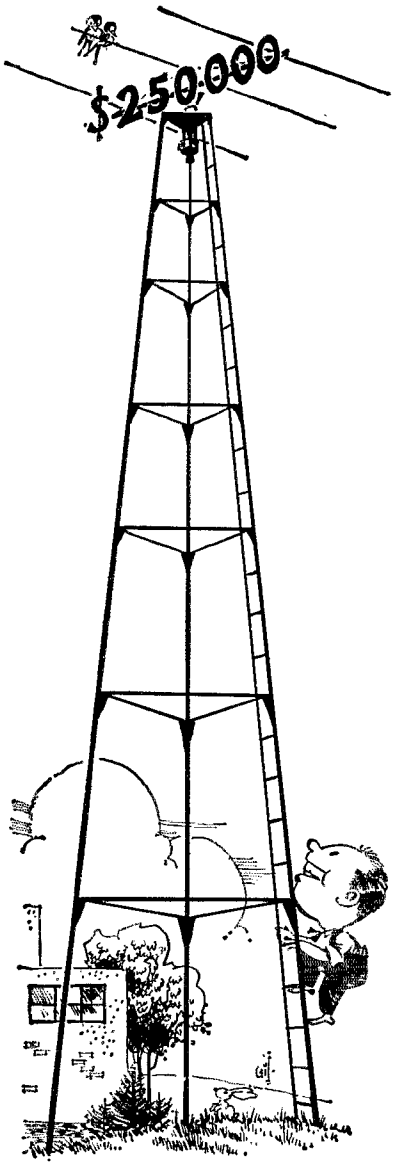
The antenna relay should be located near the transmitter, and the dynamotor relay next to the dynamotor or in the dynamotor base.

The wiring from the battery to the dynamotor relay and to the dynamotor input should be made with at least No. 6 gauge wire of short length. This is to prevent excessive voltage drop in the line to the dynamotor, since most dynamotors draw considerable current from the battery. Other wiring may be 16 or 20 gauge.

Loading of the transmitter for mobile operation can best be accomplished by the use of a field-strength meter placed near the transmitting antenna and tuning the plate and antenna loading capacitors for maximum indication on the field-strength meter.

Whether for home or mobile use, this transmitter will provide many hours of enjoyable 6-meter contacts. QST

Building Fund Progress



MAYBE it's the heat or the summer doldrums, but the figure in red climbing our Building Fund antenna tower hasn't advanced much this past month. We expect that he, in common with amateur radio activities generally, will show considerably more vigor when autumn arrives. He will need to, OMs, if we are to reach our goal.

We are disturbed to receive inquiries in the vein, "When is the Building Fund drive going to start?" Maybe the insert at page 64A of the May issue of *QST* escaped the attention of some despite its yellow hue. The Building Fund drive *has* started! Dig out your May issue and read about the program!

An acknowledgement certificate, suitable for framing, expressing the League's appreciation and containing the signatures of ARRL's President Hoover, W6ZH, and Building Fund Chairman Kahn, W2KR, is now being mailed to contributors. If you haven't received yours yet, it will be along shortly. If you haven't participated in the Building Fund drive, perhaps this handsome certificate will be an additional incentive.

We should also remind members that the League is among organizations listed by the Internal Revenue Service to which contributions are deductible from income. U. S. donors to the Building Fund may, therefore, deduct such contributions in preparing their income tax filings.

—•••—

Perhaps June has just been a slow month all around, for initial construction on the new building has been delayed pending settlement of a storm drainage problem; the necessity for following complex legal easement procedures has required more time than anticipated. But the starting whistle has now been blown and work is under way.

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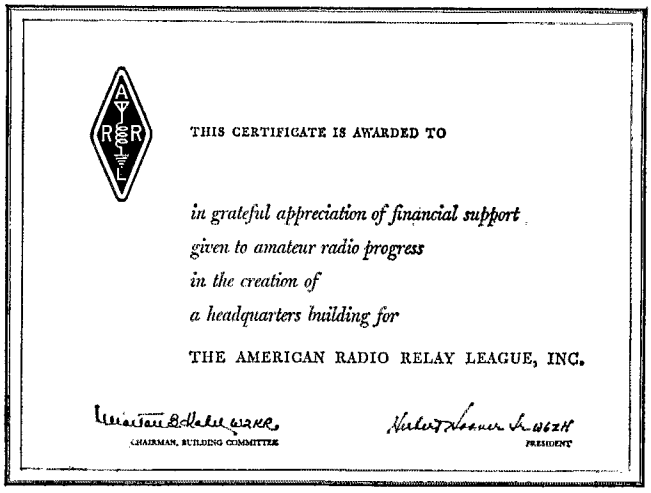
The basic reasons for supporting the Fund are best told by participating members, as illustrated by excerpts on the opposite page. Join in! QST



Members Are Saying . . .

My gift to the Building Fund is enclosed. It is certainly a privilege to be able to acknowledge by this small evidence of appreciation, the worth of the efforts that all of you have extended to radio amateurs for so very many years.

I know that I am indebted to a very large number of good men, leading off with Tuska, Maxim and Warner, and all who followed, for an able leadership of our League in sincere purpose and in a worthwhile direction. No possible remuneration could have repaid the contributions you all have made in safeguarding the rights of radio amateurs of our country with vigor and effectiveness, very often carrying forward some of your best efforts, fraught with legal and technical pitfalls, amidst storms of voices in dissent.

My thanks go to each of you for a good job well done. Old Timers and newcomers alike may well take pride in the result. — *W4VT.*

Please accept the attached check as my contribution to our Building Fund. Amateur radio has brought me in these 26 years from a boyhood hobby as a ham to a very satisfying career in the commercial communications field and on to even greater progress outside the field. Radio has been the main-stream of my life's enjoyment. It has brought me endless hours of adventure, relaxation and learning; new friends in all parts of the globe and not the least — a lovely XYL from the land of the ZL2s. I am indeed grateful for the unfailing efforts of the League throughout the years in safeguarding the rights and privileges of the American Amateur. — *W4EJN.*

Wonderful idea about the new building. You can count on me, and also with the rest of the exile gang. I hope soon you will place the first block of the building. — *CO2ZQ.*

I'm certainly pleased to see us get a new plant — we've needed it for a long time! My last visit up there was 12 years ago and I don't know how you folks have managed to do such a magnificent job with the crowded conditions you had at that time. — *W5WI.*

My contribution has been sent in under separate envelope. I believe that you people should have had a new building long ago. I visited the place about ten years ago and felt that then was a good time to have the new building. Better late than never. While you are at it, make it large enough and leave plenty of room for expansion. The way amateur radio is growing we do not want the building to be outgrown before you move in. — *K3JSI/W5PBX.*

Here is my contribution to the Building Fund, and my only wish is that it could be for a million. I belong to many clubs and associations but none of them brings me the pleasure and enjoyment that the ARRL does. No other magazine that I receive is read more thoroughly than *QST*, and none is looked for more each month. You are doing a marvelous job for us, and are absolutely *the* voice of ham radio as far as I am concerned, and any other magazine or publication on ham radio very seldom even rates my glance. Keep up the good work, we do appreciate it. — *W7IUT.*

This gives us all a splendid opportunity to express in a tangible way our appreciation of the League's many years of service to the amateurs of all lands. — *WØWM.*

I am all in favor of the Building Fund and want to keep the present reserves untapped. From the pictures of the present building, it sure seems like you need a new one. — *K6AHM/5.*

I have been on the air just ten short months but you have helped me in many, many ways. When I wanted information you gave it to me without fail. The numerous operating aids you sent me have made operating 100 times easier. All of your appointments have made amateur radio better. All of your publications, *QST* at the top, have been of great help in the fight to climb the ladder of amateur radio ranks.

Last summer I had a chance to visit you and W1AW and saw the cramped quarters that you work in. Yet, you showed a group of us around without the slightest fuss. You need new buildings for sure. The enclosed isn't much to show for all that you've done for me but my allowance is only so much. My best wishes and good luck and go to it. — *WV2VKK.*

I will contribute more at a later date if the need arises. I am only too glad to be of some small service to our splendid organization. — *K6ERF.*

This is a very worthwhile undertaking and I wish the League speedy success in its venture. — *K2HU.*

I am very pleased to be given this chance to help Hamdom's greatest asset. I think every OM who possibly can should help the cause along. — *K5ZLI.*

As a conservative old bank auditor — "Don't touch those reserves!" Hi! — *W2RME.*

Accompanying this letter is my personal check towards the ARRL Building Fund. From time-to-time I hope to be able to send additional amounts as a small token of the immense pleasure that amateur radio has brought to me, in large measure through the efforts of the ARRL. — *W9IOP.*

"Retrievable" Antennas

A Solution for the Apartment Dweller

BY TERRY G. GRINER,* W3DEA

The anchorage for the wire antenna is fastened to the brick wall with a steel "cement" or "concrete" nail. The feed-wire disconnect is made up of a banana plug and jack.

Here are a couple of ideas that urbanites and college students should find useful in combating restrictions on transmitting antennas. Even with low power, the author has found them to be surprisingly effective.

A HAM who has been accustomed to the freedom in respect to antennas usually enjoyed by those living in the wide-open spaces is often discouraged when circumstances force him to assume the role of apartment dweller in an urban area, or inmate in a college dormitory. First there are the prohibitions frequently placed against antennas of any kind. Where such restrictions do not prevail, there is the problem of keeping peace with owners of television receivers in close proximity who are ever too prone to place the blame for all of their woes on the ham when they see a transmitting antenna go up, even though the rig may be as clean as the proverbial hound's tooth.

*7313 Laurel Bowie Road, Apt. 102, Laurel, Maryland.

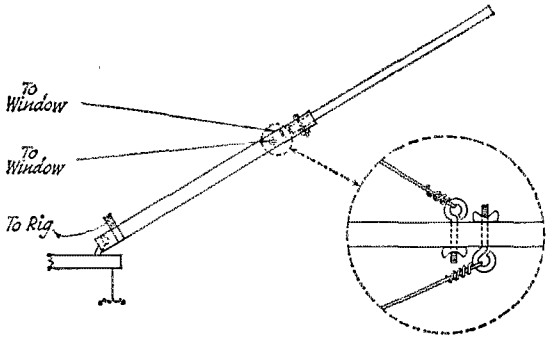


Fig. 1—Sketch of the flagpole antenna. Detail shows method of attaching guys.

However, where there's a will, there's a way. Although the antennas illustrated here will not make you DX King overnight (or in ten years, for that matter), I have had no trouble in working U. S. stations by the scores with a DX-35, and even some occasional DX. The basic features of these antennas are, first, that they are not easily recognizable as ham antennas and, second, that they can be put up and taken down in a few minutes, and easily stored out of sight within the confines of a small apartment. The latter feature makes it practicable to set up the antenna and take it down for each operating period if need be. To most readers it will be obvious that the hours of darkness may prove to be propitious toward matters other than those relating to propagation.

Flagpole Antenna

The antenna sketched in Fig. 1 may be used if the apartment or dormitory room is on one of the upper floors, providing a reasonable distance above ground. I made mine of two 6-foot lengths of aluminum tubing which is obtainable in various diameters in any store handling do-it-yourself aluminum stock. Minimum base section diameter should be 1 inch. This size will be sufficient to prevent bowing or snapping in adverse weather. The two sections are fastened together with a bolt going through both members, and a wing nut. A 12-foot bamboo pole, wrapped in aluminum foil, may also be used, although it is not collapsible. If you use this version, fasten the foil with strips of plastic tape every 6 inches or so.

The base rests against a nail driven into the window sill, and the antenna is held at an angle of about 45 degrees by a pair of guys. Small eyebolts fastened just below the joint of the antenna provide tie points for the guys. If insulators are not used at these tie points, make sure that there is a good connection between the wires and the eye bolts. The other ends of the guys are anchored to screw eyes driven into the sides of the window frame. A ground clamp at the bottom of the antenna is used for making the connection between the antenna and feed wire.

Dismantling the antenna is merely a matter of disconnecting the feed wire, lifting the antenna off the nail, and bringing the antenna in through the window, where the guys may be quickly disconnected by taking out the eyebolts, and removing the assembly bolt. The two sections may be

stored under a bed or in a closet. I just leave the guy wires dangling from the window. If this is objectionable, the guys can be fastened permanently to the antenna. Loops twisted in the anchor ends of the guys can be snagged over screw hooks driven into the sides of the window frame. In dismantling, the loops are easily lifted off the hooks and the guys brought inside along with the antenna. If the base section is made with tubing of the proper diameter, or shimmed out to the required size, a standard window-sill flagpole mounting could also be used and no guy wires would be needed.

A ground connection to a water pipe should be used. It need not be conspicuous. No. 18 bell wire can usually be pushed around under the base molding. Although there are probably more sophisticated ways of feeding such an antenna, I simply use a base loading coil the same way as it is used with a mobile whip. Turns are shorted out until the transmitter loads and a neon bulb touched to the base of the antenna shows maximum glow. After determining the number of turns for each band, I brought taps out to a switch.

I used this antenna for four years while I was going to school without running into difficulty with the authorities. A check of the log for a typical two-month period showed that I raised 70 per cent of the 150 stations I called, and worked 10 DX countries.

Ground-Floor Antenna

Because of the limited height, the flagpole antenna does not work too well if the apartment is on the ground floor. In such a situation, I felt that a full-size antenna was needed, although it still had to be "retrievable." This is not as impractical as it may sound. A point that should be emphasized is that a full-size antenna doesn't have to be 60 feet high to work. Many European stations put out respectable signals with low power and indoor antennas. "Full-size" in this case means a 33-foot wire which will provide a quarter wave for 40 meters, and multiples of this on the higher frequencies. Reasonably good results may be obtained on 80 by use of a loading coil.

In this arrangement, the flagpole antenna described previously is used as a support for the far end of the 33-foot wire. A short section of iron pipe having an inside diameter slightly larger than the outside diameter of the aluminum base section is driven into the ground at a distance of about 35 feet from the window near which the rig is located. This serves as a socket for mounting the aluminum pole. The other end of the antenna is anchored as high up on the side of the building as can be reached conveniently. The problem of providing an anchorage in a brick wall was solved by fastening a small metal angle piece having a hole in each leg with a steel "concrete" nail driven into the cement between rows of bricks, as shown in the detailed photo. I used a TV U bolt looped through the hole in the angle piece as a fastening, although a snap hook might be more convenient.

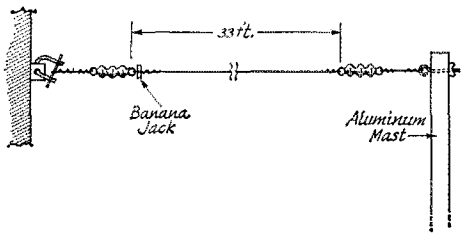


Fig. 2—Sketch of wire antenna. The flagpole antenna, fitted with an eyebolt, is used as the mast.

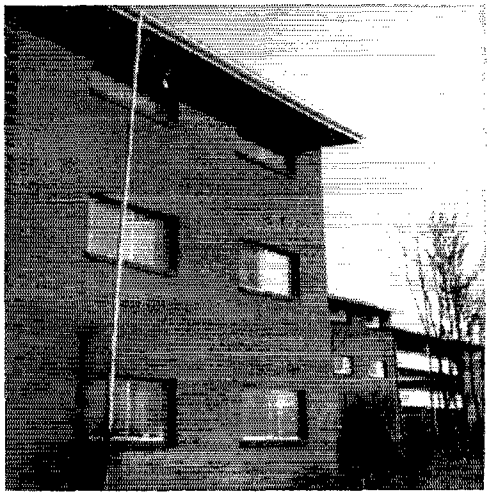
Since, in my case, the transmitter is located close to the window near the antenna, I merely used a single wire to extend the antenna to the transmitter or antenna tuner. In cases where the transmitter must be at appreciable distance from the window, Zepp feed can be used. Only a short length of the feed line is exposed to weather, so TV ribbon should be adequate and will present a smaller mechanical problem than an open-wire line. On 40 or 80 meters, the transmitter ends of the line can be connected together.

To make it unnecessary to disturb the feed line and its inside connections, I made provision for quickly disconnecting it from the antenna. A banana plug is attached to the end of the feed wire, and the end of the antenna is fitted with a mating jack.

Dismantling the antenna is a simple matter of lifting the mast out of the socket, disconnecting the two mast sections, pulling out the feed-line plug, unhooking the wire from the building anchorage and rolling it up.

Efficient operation on 40 meters depends upon a reasonably good ground connection. If a connection to a water pipe is not convenient, two or three TV ground rods may be driven into the earth immediately below the window.

This antenna has also given a good account of itself with a high percentage of calls resulting in QSOs, and with no landlord troubles. QST



The flagpole antenna now serves as a quickly-removable mast for the wire antenna.

Some Tips on Neutralizing R.F. Stages

Solving the Stabilization Problem in Receivers and Transmitters

BY EDWARD P. TILTON,* W1HDQ

At a recent ARRL Convention a troubled young ham approached the writer, carrying a 2-meter Nuvistor converter. At first glance it looked exactly like the one described in October, 1961, *QST*, and currently appearing in the ARRL *Handbook*. Upon closer examination, however, it could be seen that this was another case of "just like *QST*, except . . .",[1] and he hardly needed to tell me his sad story. The package under his arm could just as well have been a transmitter, and his complaint would have been the same: "I've tried everything I can think of and I can't neutralize this thing!"

At the same gathering other hams discussed troubles they'd encountered in getting gear to work properly, and in each case their difficulties revolved around a lack of understanding of neutralization, and how to go about achieving it. Correspondence of the Technical Information Service variety at ARRL also indicates that this is one of the more common problems encountered by v.h.f. men, with transmitters and receiver front ends. Lest we lose our non-v.h.f. audience at this point, it should be pointed out that denizens of the world above 50 Mc. are by no means alone with this dilemma.

What Is Neutralization?

Before we can solve a problem by other than pure hit-or-miss effort, we have to understand it, so let's first consider what neutralization is supposed to accomplish. Naturally, it should prevent an amplifier stage from oscillating. So what causes oscillation? Feedback from output to input circuit, which can be capacitive, as through the plate-to-grid capacitance of the amplifier tube, or inductive, due to coupling between the tuned circuits connected to the tube's plate and grid. It can be combinations of these, in various subtle ways not immediately obvious to the untrained eye. Neutralization can take many forms, but its basic purpose is to couple energy back in a phase opposite to that causing the oscillation, in just the right amount to neutralize the tendency to oscillation, so that the stage can amplify energy fed into it from an antenna or a driver stage, without taking off on its own.

Perhaps what has been said up to now may serve to show why it is difficult to prescribe exact values of coils or capacitors to be used in neutralizing circuits. Unless the unit you are building is an *exact* duplicate of the original, the plate-to-grid feedback built into your converter or transmitter final amplifier is almost certain to be different from ours. The number of turns we specify for a cascode r.f. amplifier neutralizing coil may not be right for you. Or, in a transmitter, you may require quite a different value of capacitance from what we used in our capacity-bridge neutralizing system.

This does not necessarily mean that you have to tear your pet project completely apart and start over with an exact duplicate of ours. What you should do is check for neutralization, and determine which way you need to go, with what you have, to tame the beast. This is not so difficult as you might think after having spent a few anxious nights or week ends fighting the problem blindly.

We Get Down to Cases

This heading could be taken literally. The first thing our young friend at the convention had changed from the original *QST* design was the box he built his converter in. He wanted to build on a flat plate, to have his parts more readily accessible, so he used an aluminum utility box with removable top and bottom plates, instead of the two-piece aluminum Minibox used in the original. (We hasten to say that this did *not* make his job easier. We went to the Minibox because it gives more working room for a given size than any other type of construction we've tried for converter applications.) Using the cover-plate system meant that he had to make an important change in layout. His neutralizing coil (L_2 in the converter schematic, Fig. 1, which is from the *QST-Handbook* circuit) had to be mounted on the top plate, rather than on the side of the box, as was done in the original. This meant that there would be a different amount of coupling between the neutralizing coil and the input and output circuits of the r.f. amplifier.

Then he added another "improvement," a copper plate as the surface on which the parts would be mounted. This would give better grounding, he felt. Probably he was right, too; but we used aluminum, and if there is anything that can upset the neutralization applecart, it is variations in grounding techniques! All this does not mean that this converter is useless. It *does* mean that our neutralizing coil almost certainly will not be right for his converter, and unless he knows how to read the signs he is going to get lost on the road to neutralization.

Seemingly minor modifications in transmitter design and layout may bring on similar neutralization problems. We dealt extensively with examples of this in the article footnoted in our first paragraph, so we won't go over the same ground again here. But the same principles apply

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

[1] Tilton, "Just Like *QST*, Except . . . ," *QST*, March, 1959.

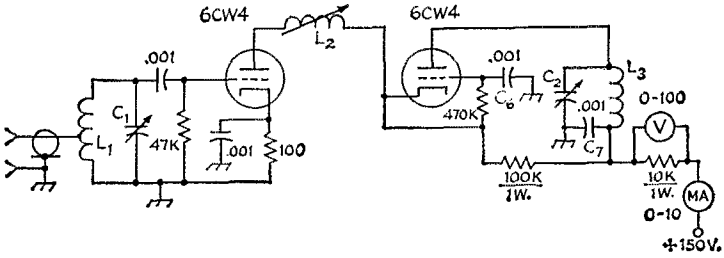


Fig. 1—Schematic diagram of the r.f. portion of the Nuvistor converter, adjustment of which is discussed. Parts designations are the same as those in the *QST* and *Handbook* descriptions of the converter.

in solving the neutralization riddle, whether we're dealing with transmitters or receivers. We'll ignore parasitics here; neutralization will not cure them. What we're interested in now is the neutralizing clues to look for, and what to do when we locate them.

Taming Converters

Neutralization is a very unprecise business, especially in v.h.f. converters. Most converters are not really neutralized; they just don't oscillate, and often that is good enough. Except for the fellow who specializes in weak-signal work at extreme distances, a decibel one way or another in noise figure is never going to be noticed. If the converter front end does not actually oscillate, and it is tuned up with reasonable care, it is going to do well enough for most of us.

But suppose it *does* oscillate, and no setting of the neutralizing coil will stop it. What then? The first thing to do is to find out for sure what stage is oscillating. Many a ham has sweated over a hot converter for endless hours, only to find that it was the second half of the cascode that was taking off, not the neutralized first stage. Mixers can oscillate, too, and the audible indications are about the same, regardless of which stage is oscillating.

Probing with a grid-dip meter can be confusing, especially if the unit is built compactly, as most converters are, so the best bet for locating oscillation may be to read current drawn by the various stages. If a stage is oscillating, its plate current will vary when its circuits are tuned, or when the hot leads to plate or grid are touched with a pencil lead or the tip of a screwdriver. (Remember that d.c. voltages are involved here; use an insulated probe, with care.) A meter can be connected temporarily in the B-plus lead to the stage being checked, or voltage drop across a resistor in the B-plus line can be measured. The 10K resistors in the plate-power leads to the various stages of the Nuvistor converters are suitable for this. Connect a 10-ma. meter between the resistor and the power source, or a d.c. meter of about 100 volts maximum across the resistor.

If the stage is a series-cascode, as in the 144-Mc. converter in question, you will measure the current to both r.f. stages simultaneously, but the probe test will tell you which stage is oscillating.

If the grounded-grid half of the cascode is the culprit, the trouble is almost certainly due to poor bypassing of the grid terminal. If the first stage is seen to be at fault, your next step is to try various settings of the neutralizing coil. Start with the slug centered in the winding, and note the amount of change in current with the probe test. Now run the core part way out, and see if the amount of fluctuation increases or decreases. If it increases, the coil inductance is too low. Add turns, or put in a larger ready-made coil. If the amount of fluctuation drops as the core is run out of the coil, but neutralization cannot be achieved, the coil inductance is too high. Take off turns, or replace the coil with one of lower inductance.

The dead-tube method prescribed in the converter writeup can be used in the same way. With the r.f. tube heater off, or its B-plus disconnected, feed a signal into the converter in the normal way. Be sure that an antenna or something simulating a 50-ohm load is connected to the converter input. Tune the neutralizing coil for *minimum* signal. Note the position of the stud. If it is centered in the winding, or all the way out of it, the stage will not neutralize. Add or remove turns accordingly, and try again. If either method shows no indication of change, try a larger coil or a smaller one, progressively, until results begin to show.

The Hot Transmitter

Figuring out which way to go in changing neutralizing circuit components is the key to success in cooling down transmitters, too. Usually the range of adjustment is small, so if your feedback is appreciably different from ours, the adjustable element in the circuit may not have enough range to do the job. The transmitter may be easier than the receiver, however, as you can measure the grid current readily in the former. It will be a very sensitive indicator, ordinarily. Use it, by all means.

With the amplifier plate voltage (and screen voltage, if any) off, and the drive on, tuning the plate circuit through resonance will cause the grid current to flick down and up quickly. How much this change is will tell you how far you are from neutralization. Anything that reduces the flicker will be a step in the right direction.

Suppose we have the capacitive-bridge system of Fig. 2, which is from the simple 50-Mc. transmitter found in recent *Handbooks*. There are two critical elements here, the range of the neutralizing capacitor, C_3, and the value of the grid-circuit bypass capacitor. The latter should be such that the grid coil is not completely down

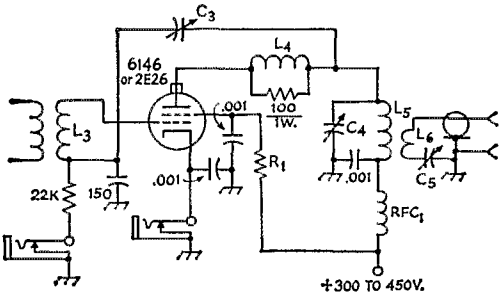


Fig. 2—Schematic diagram of a 50-Mc. transmitter final stage, using the capacitive-bridge method of neutralization. Parts are marked as in the *Handbook* description of this transmitter.

to ground potential for r.f. at its low end. We then feed back energy from the plate circuit through C_3 in just the right amount to neutralize whatever feedback may exist. The capacitor specified for C_3 has only 2.5-$\mu\mu$f. tuning range (0.5 to 3 $\mu\mu$f.) so it could easily not be large enough, or it might be too large. Just a little change in parts arrangement or bypassing methods could change the required neutralizing capacitance that much, and more. So what do we do?

The best approach depends on the circuit in question, but in this instance we can try a different value for the bypass easily. We started with 150 $\mu\mu$f. Increasing this to, say, 220 $\mu\mu$f. will require a larger capacitor for C_3. If your grid-current check showed that the current flicker was least with C_3 set at minimum capacitance, higher in value is the way to go with the bypass. If the neutralizing capacitor was set at maximum when least current change was observed, it is best to put in a larger capacitor at C_3, rather than to go to lower bypass values.

We've used two common circuits here to illustrate the approaches for receivers and transmitters, but the principle is the same for other forms of neutralization. It's a cut-and-try method, but with a purpose. With a little care and persistence you can find which way to go with the components that do the job, and doing it this way is far better than just hit-or-miss dabbling. Knowing how to handle the job is the only alternative to precise duplication of the original design.

Neutralizing circuits may take many forms, but all operate on the same basis: the feeding back of energy in phase opposite to that tending to cause oscillation. Thus we see that some indication of the intensity of the oscillation gives us the clue as to the direction our neutralizing effort should take.

How About Pentodes and Tetrodes?

Whoever invented the screen-grid tube undoubtedly had the idea that he was getting away from the need for neutralization, through the reduction of tube grid-plate capacitance to a very low value. Oscillation resulted from plate-to-grid coupling, so eliminating this by placing a screening element between the two should do the trick. This worked in most circuits until various new tube types having extremely high gain were developed.

Every old-timer remembers the great sales argument for tetrodes: "No neutralization required!" But now many of our transmitter designs using tetrodes and pentodes have neutralizing circuits built in. Why? Part of the reason is the trend toward multiband equipment. Feedback varies with frequency, and when a stage must work over a wide frequency range it is almost certain to need neutralization somewhere along the line.

At the high end of its frequency range the tube's screen may not perform its function well. Mostly because of the appreciable lead length within the tube and socket, it becomes impossible to keep the screen at true ground potential at v.h.f. by merely bypassing at the socket. This is the reason for the various screen-neutralizing systems we find in tetrode and pentode r.f. stages. Usually these are for the purpose of tuning the screen circuit at the frequency where the instability develops. This may be done with a variable capacitor to ground, or occasionally with an inductance in the screen lead. Whatever the means, adjustment can follow the cut-and-try approach outlined earlier. Examples of tuned screen circuits can be found in the 144-Mc. transmitters in all recent editions of the *Handbook*. QST

Strays

W4DKL sends in a phonetic alphabet which should liven things up on the phone bands no end.

A — are	N — night
B — bdellium	O — one
C — cell	P — pseudo
D — djinnee	Q — quoin
E — eye	R — rote
F — fone	S — seller
G — gnat	T — tsar
H — honor	U — urn
I — immense	V — voilá
J — José	W — wren
K — know	X — xylophone
L — lymphatic	Y — you
M — mite	Z — zwieback

Are we in a groove in our key-manipulating schemes? The sideswiper motion that practically everybody uses with electronic keyers, a holdover from the mechanical bug, isn't by any means the only way of operating two switches sequentially. Maybe it isn't even the best way!

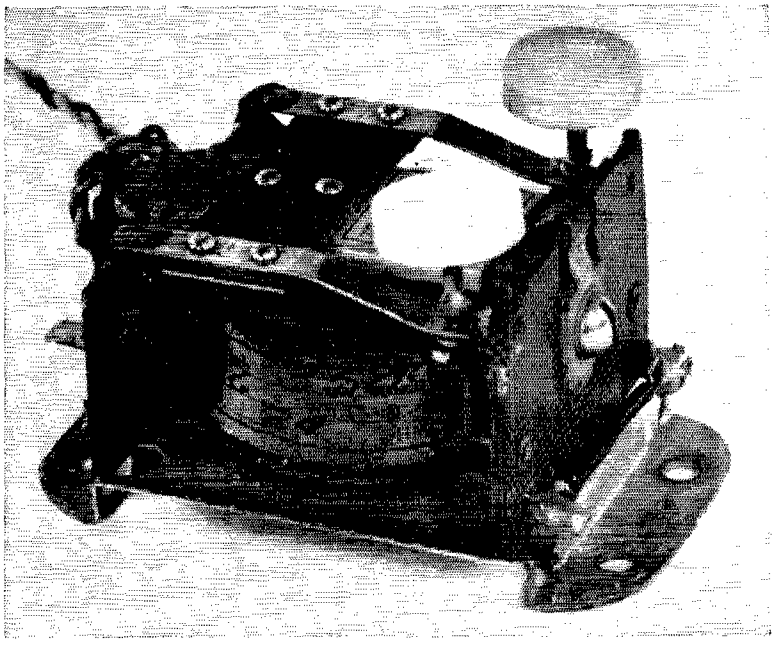


Fig. 1—A Leach 1024 relay modified into a key, ready for use on a desk. The movable contact arms have a free flexible length of ¾ inch and are 1 3/16 inches apart.

A Novel Key for Use with Electronic Keyers

BY ROY M. BROUGHER,* W5HPB

As THE result of a personal curiosity in regard to keying techniques, this paper describes a somewhat different system and a novel key for actuating an electronic keyer. The method used is to finger two keys, one for dots and the other for dashes, in a manner similar to playing certain types of musical instruments. These keys are pressed as desired by the movement of two adjacent fingers.[1]

Several different keys were made by modifying available components, such as knife, anti-capacity, and pushbutton switches, and one was constructed using two keys from a clarinet. Another of the models, which is quite easily made, is described. It uses the frame of a double-pole relay with plastic buttons (removed from doorbell ringers) fastened on top of the movable relay contacts. This is shown in Fig. 1.

Construction

Many makes and models of open-frame relays with normally-open contacts might be suitable, but it is advisable to have (*a*) thin, flexible, leaf-

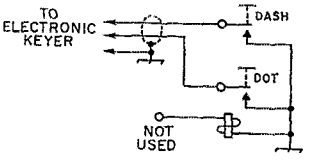


Fig. 2—Wiring connections for right-handed use. The common lead (or shielding) may or may not be at ground potential, depending on the type of electronic keyer available. One terminal of the coil is used only as a convenient tie point for fastening the common lead of the cable.

* c/o Shell Development Co., P.O. Box 481, Houston 1, Texas.

[1] The finger action is like that required for playing many wind instruments, such as the flute, oboe, clarinet, saxophone, trumpet, French horn and tuba, or for fingering the strings of a violin, and is related to the action required in playing a piano or using an electric typewriter.

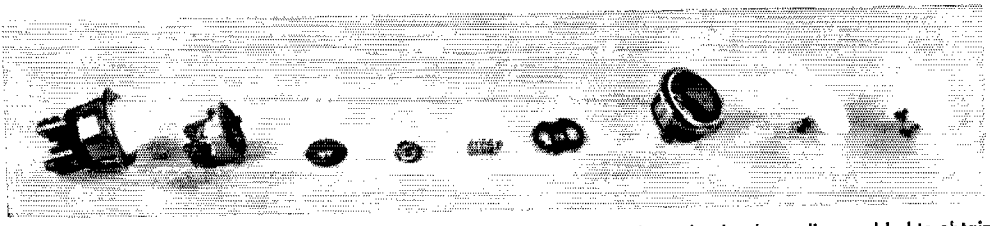


Fig. 3—A complete doorbell ringer of the round insert type, extreme left, and one that has been disassembled to obtain the plastic button, which may be either of the two types shown on the right. If your button has two support arms, these should be bent and fastened together in a V shape so that the common point can be soldered to the top of the relay movable contact.

type spring action in the movable contact arms, (*b*) from ¾- to 1¼-inch spacing between the two contact arms for convenience in fingering, and (*c*) mounting feet or a base. A d.p.s.t. relay, such as Leach 1024, 1054, 1124 or 1154, may be used, or a d.p.d.t. relay, similar to Leach 1027, 1037, 1057, 1127, or 1157, can be modified by removing the two top (fixed-position) contacts. The relay coil is not used but should be left in place.

Take apart two doorbell ringers (the round insert type) as shown in Fig. 3. The plastic buttons with their attached metal supports are used, while the springs, washers, and cases are discarded. Solder the bottom end of the metal support of each plastic button to the top of a movable contact of the relay. If excess heat is applied in soldering, the plastic buttons will melt and lose their shape; therefore, the bottoms of the metal supports and tops of the movable contacts should be pre-tinned to aid in reducing the soldering time. If a button is tilted to the side, front or back, it can be straightened while reheating the soldered joint.

A three-wire cable (or a shielded cable having two insulated conductors) of convenient length is connected to the relay as shown in Fig. 2, and an appropriate plug to fit your electronic keyer may be attached to the other end of the cable. It appears more convenient to use the index finger for dots and the adjacent finger for dashes, so for left-handed use, the wires to the two buttons may be reversed, or the relay may be turned around so that the back end faces the operator.

If the available relay has a backstop to limit the upward movement of the movable contact assembly, it should be bent until the field piece is held firmly against the armature of the relay coil. The backstop may be a clamp on the front end of the relay or may consist of legs in the back. If no backstop is provided, you should either improvise one or solder the movable field piece to the armature of the relay coil. Now that the relay contacts are firmly closed, we need to open them slightly. This can be done by bending upward the leaf springs of the movable contact arms until there is a very small gap between the contacts. The foregoing adjustments are made for two purposes: (1) so that each set of contacts may be closed individually without causing the other set of contacts to close, and (2) to provide close contact spacing, which aids in easier and smoother sending.

Relays having the coils removed can be used, but it is likely that the movable contacts will overshoot the fixed contacts because of the increased free space in the downward direction.

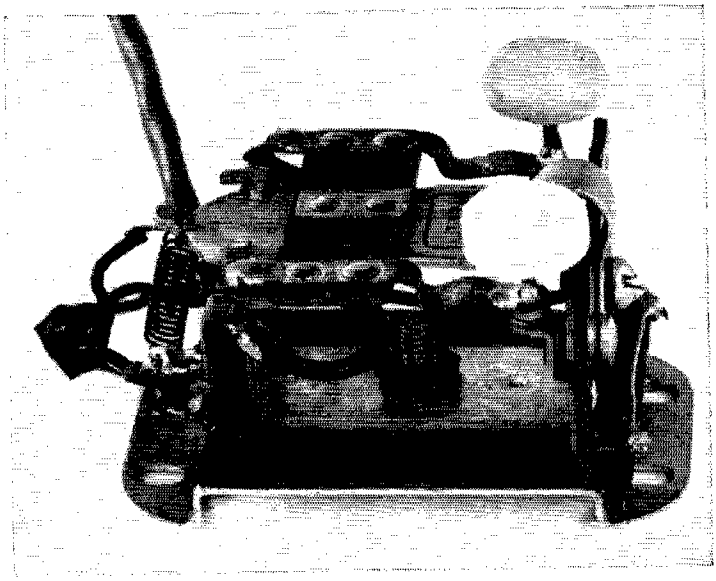


Fig. 4—A curl is bent into each of the flexible arms of a Leach relay from which the coil has previously been removed.

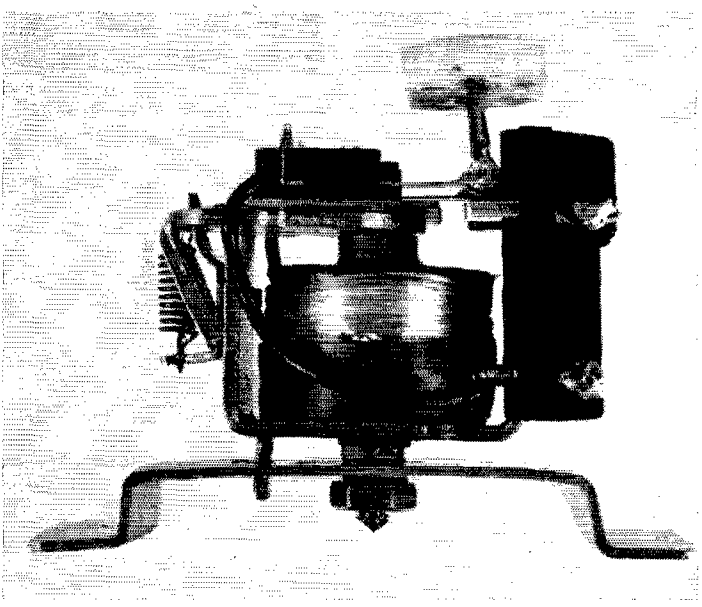


Fig. 5—Base fastened to the stud mounting of a Potter & Brumfield KA11D relay. The base dimensions were made to fit the same belt bracket used with the Leach relays.

This can be corrected by bending a curl into each movable arm to reduce the effective length, as shown in Fig. 4.

Fig. 5 illustrates the use of a Potter & Brumfield KA11D relay. It has ¾-inch spacing between the movable arms. This might be desirable for use by a person having small or slender fingers. This relay has a mounting stud instead of a base, but a base, as shown, was easily fabricated from aluminum. The movable contact arms have a flexible length of ½ inch and are about as short as can be used and still provide the required spring action.

Use of the Key

If the key is to be operated on a table or desk, a piece of inner tube or some other kind of shock-absorbing material should be mounted under it. This will reduce the sounding-board effect of the table top. Your arm may rest on the desk and the key can be actuated by tapping the buttons with the tips of your fingers, in proper sequence to form the character to be transmitted.

More advantages are obtained by hanging the key on your belt or trousers top by using a bracket as shown in Fig. 6. This provides for freedom of personal movement up to the length of the connecting cable, more choice in your operating position, and is especially convenient for Field Day, emergency, or mobile operation. Your thumb may be placed in back of the belt, behind the key-mounting bracket, to provide arm support and to serve as a fixed reference position for the touch system of keying. For a right-handed person, it would be convenient to hang the key on the left center side of the belt (buttons nearest the center and the cable coming out the left end of the relay) as shown in Fig. 7.

With most electronic keyers having self-completion and self-spacing, you will soon learn that you can fudge some of the keying of certain characters. When both buttons are pressed

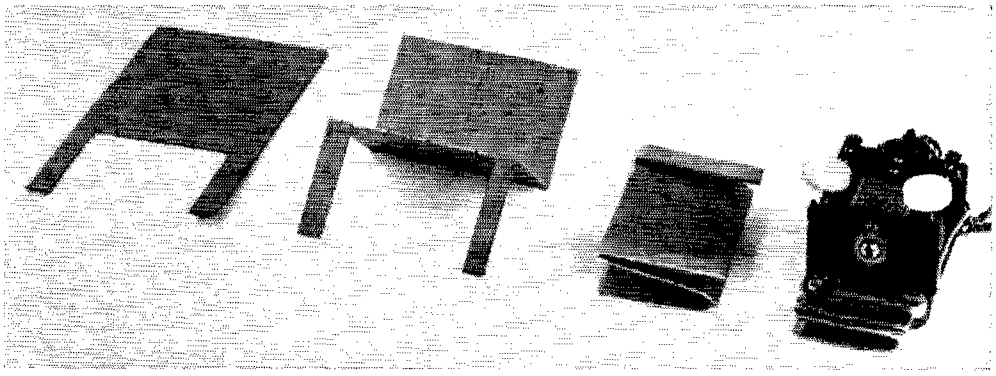


Fig. 6—Successive stages of belt bracket preparation, with the key placed into the bracket as would be done for left-handed use. For right-hand operation, the key would normally be turned around so that the buttons would be at the opposite end.

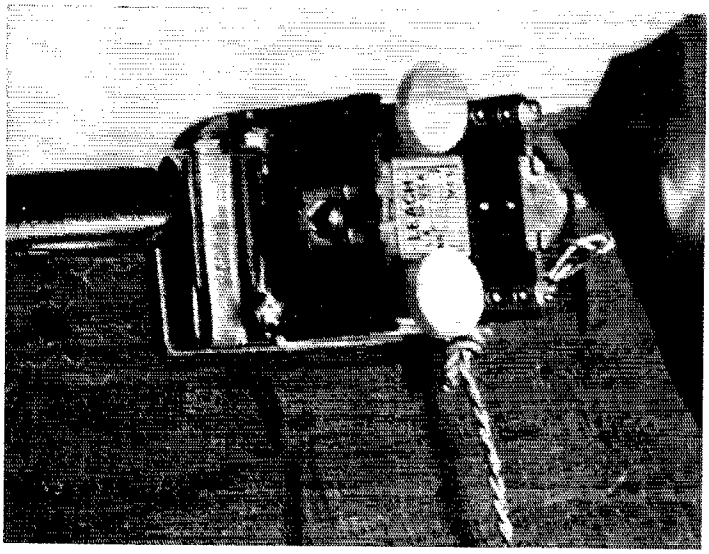


Fig. 7—The key mounted in a belt bracket (for right-handed use).

simultaneously, only a dash will be transmitted. Therefore, for letters such as A, F, J, L, P, R, U, V, W, and some numerals and punctuation, the dot key may be held down for the duration of the whole character and the dash key pressed (and released) as required.

Naturally, the keying is awkward at first, but finger action and coordination can be practiced even without the key by thinking of dits and dahs and moving your fingers accordingly while reading text from ARRL publications.

Summary

The disadvantages of this system are (1) the necessity of learning a new technique, (2) as might be anticipated, the keying gets increasingly difficult for speeds above 35 w.p.m., with more stringent demands on both finger coordination and dexterity, (3) just as much practice is required for proficiency and accuracy as with any other type of key (or musical instrument) and, (4) because of the light touch required, it is easy to make mistakes.

The advantages are (1) low cost, especially if a surplus, obsolete or open-coil relay is used (2) extremely light weight for portability, (3) personal freedom and convenience, (4) the keying force is toward the base instead of at right angles to it, (5) with such light action, it is not tiresome to use, (6) it could serve as an alternate key for the high-speed operator who occasionally may wish to send at moderate or slow speeds without losing his touch for the faster speeds, and (7) since no arm movement is required, this key may be usable by some handicapped persons who can not operate the conventional types of keys. There would also appear to be considerable advantage to bug users who are taking up the electronic key for the first time; it isn't necessary to overcome bug sending habits in learning to use the electronic, and the operating motion is so different that conventional bug sending should not be affected.

There is considerable satisfaction in the fact that you can walk around to a limited extent, lean back in a swivel chair, cross your legs, prop your feet up, recline in bed, or be driving your car and still transmit with ease.[2] QST

[2] Especially in a car having automatic transmission, the only remaining safety hazard from the use of mobile c.w. (other than posting the station log) would likely be from the concentration required in listening to extremely weak or fast signals.

Strays

Another first for amateur radio — this time the first helicopter-to-submarine QSO, with the sub underwater. W5RKR/4, pilot of a Navy chopper, worked W4NMK, skipper of the USS *Cutlass*, on 7270 kc. sideband. Starting from about a hundred miles out, W5RKR/4 worked W4NMK until he was directly overhead, at which point the sub surfaced and picked up mail lowered from the helicopter. When the outgoing mail was hoisted aboard the helicopter, right on top was a QSL from W4NMK to W5RKR/4 — which is just about as quick as you can get a QSL these days.

W5RKR, not at all incidentally, achieved even greater fame subsequently. You have read about him as CDR Wondergem, USN, who picked up Astronaut Carpenter after that recent orbiting. — *W4NJF*

—•••—

K3NFU (1111 Hellerman St., Philadelphia 11, Pa.) would like to hear from other ham members of Sigma Alpha Rho.

4U1ITU Opens

New International Ham Station at Geneva

HB9SI, club secretary, holds the ribbon while K9EBE of the Hallicrafters Company performs the cutting ceremony; to the right are club president John Gayer and ITU Secretary-General Gerald C. Gross

ON June 10, in the presence of many distinguished international experts in the field of telecommunications, amateur station 4U1ITU was dedicated at its location in the new headquarters building of the International Telecommunications Union, Geneva, Switzerland.

A ham club station has long been the aim of amateurs among the executive and staff personnel at ITU, but for reasons of space it had to await the construction of a new building. With the blessing of Gerald C. Gross, W3GG/HB9IA, Secretary-General of the Union, the Administrative Council granted approval for the amateur installation and accepted equipment donated by the Hallicrafters Company as a gift of the United States. Various members of the Administrative Council, International Frequency Registration Board, technical consulting committees and the General Secretariat witnessed the inauguration.

4U1ITU is licensed to the International Amateur Radio Club, with general membership open to all staff members of international organizations, delegate membership open to all official delegates to conferences held by international organizations, and associate membership open to all other licensed amateurs. Club officers are J. H. Gayer, DL4ZA, president; M. Joachim, OK1WI, first vice president; W. Menzel, HB9AAB second vice president; W. Baumgarten, HB9SI, secretary-treasurer.

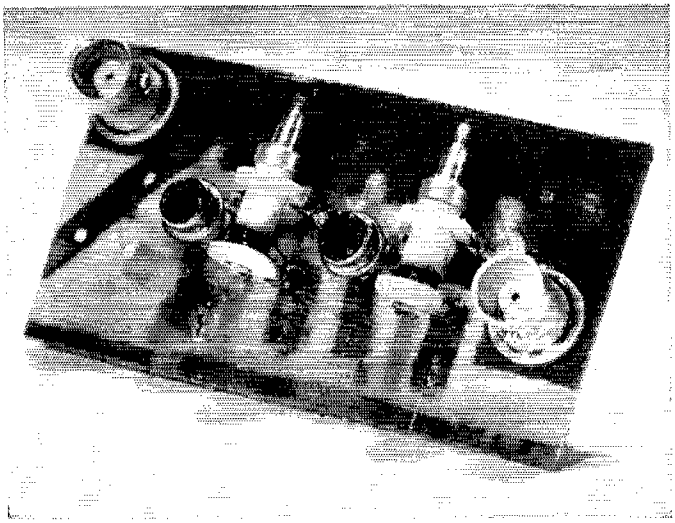
The purposes of the club are:

1. through amateur radio, to further international friendship and understanding;
2. to co-operate with all radio amateur associations;
3. to promote the proper use of the bands allocated to the radio amateur service;
4. to provide the organization through which the IARC radio transmitting and receiving station will be managed and operated.

ITU has, in essence, extra-territorial rights in Switzerland and so by agreement with Swiss authorities the station operates with a United Nations prefix. Any licensed amateur may operate the station. Over 500 contacts in 55 countries on all continents were made the first weekend of operation, largely due to the all-night c.w. stints of a visiting Stateside DXer, W4KVX, although amateurs from various countries took a trick at one time or another during the inauguration. ITU personnel hope to keep the new station regularly active on the air, using all bands from time to time but probably with a preference for 14-Mc. sideband. Watch for it! QST

Amateurs and international telecommunications experts taking part in the inauguration ceremonies assembled on the front steps of the new headquarters building housing the International Telecommunications Union offices.

The first contact after formal opening of 4U1ITU is made by W3GG/HB9IA while W3ASK assists.



The transistor preamplifier is built on a translucent printed-circuit board. The dark areas are the copper connecting strips left after etching.

A Two-Meter Transistor Preamplifier

BY JAMES A. MAYHEW, JR.*

IMPROVEMENT in sensitivity and noise figure of many v.h.f. receivers is now possible by the use of high-gain, low-noise transistor preamplifiers. Transistors for v.h.f. applications have been expensive, but the Philco T1832 (2N1742) v.h.f. transistor is currently available at a unit cost under $3.00. This device is capable of giving a noise figure of 5.5 db. and a typical power gain of 16 db. at 200 Mc.

To prove the feasibility of using this transistor in amateur service, a two-stage common-base amplifier was designed. The center frequency is 145 Mc., and 30-db. power gain is available over the entire two-meter band. Indeed, one amplifier was constructed which supplied 25 db. of power gain from 138 to 155 Mc. Such an amplifier can be easily duplicated by the average amateur, and without floating a loan.

*Project Engineer, The Bendix Corporation, Bendix Radio Division, Baltimore 4, Md.

Design Data

The circuit of the amplifier appears in Fig. 1, and photographs of the top and bottom of the

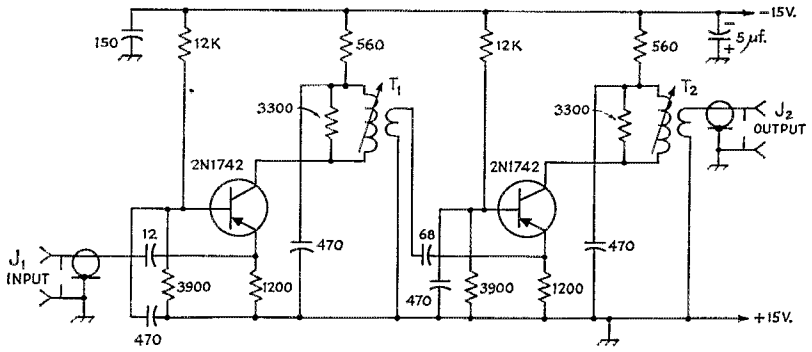


Fig. 1—Circuit diagram of the 2-meter transistor amplifier. Capacitor values in μμf. unless specified. 5-μf. capacitor is electrolytic, others ceramic or mica. Resistors ½ watt.

J1, J2—BNC fitting, UG-1094.

T1, T2—Primary 7 turns, secondary 1 turn, No. 30 enam., close-wound on ¼-inch iron-slug form (CTC 2525–4). Wind secondary over and away from the transistor.

amplifier are shown. Figure 2 is a drawing of the printed circuit board that may be used for a template. Typical band-pass characteristics are portrayed in Fig. 3.

The amplifier has a 50-ohm input obtained by capacitively matching the input of the transistor to 50 ohms. Transformers were employed for impedance matching between stages and at the output. These were designed with tuned primaries and untuned secondaries. Unity coupling was assumed for secondaries wound on top of the primaries. The number of primary turns was determined by the inductance required to resonate with the output capacitance of the transistor plus stray capacitance. The number of secondary turns was selected by the impedance transformation required to match the transistor output resistance to the load. D.c. feedback is used to stabilize the bias voltage of each stage.

One version of the 145-Mc. amplifier was constructed using a two-stage, neutralized, common-emitter circuit. Neutralization was deemed irksome, however, and it was decided to change the unit to a common-base amplifier. The common-base mode of operation is much more suitable for experimenting than its common-emitter counterpart. In the common-emitter configuration, the result of any change in the transformer turns ratio, primary-secondary spacing, etc., could not be fully determined until after the amplifier was reneutralized. The common-base amplifier, not requiring neutralization, allows the results to be instantly determined. To give an indication of the experimenting potentialities, the author, while working on a different amplifier with negative feedback around each stage, from secondary to emitter, was able to obtain a flat response from 50 to 150 Mc. and 20-db. power gain. It was decided that negative feedback would not be employed in the two-meter amplifier described, since adequate performance could be obtained in a conventional manner, thus eliminating the additional components and adjustments required for negative feedback. Two typical band-pass characteristics, obtainable by simple adjustments of this amplifier, appear in Fig. 3.

For amateurs not too familiar with r.f. transistors, there are several major points of consideration in amplifier design.

First, it is important to realize that the input and output resistance of the transistor is a function of frequency, hence the impedance transformation is a function of frequency. Anyone interested in construction of a similar amplifier at a different operating frequency must first determine the new transformation required. Information pertaining to parameter variations with frequency is available from most transistor manufacturers.

Second, most transistors will be inherently unstable in one or more modes of operation over a considerable range of frequencies. The Philco MADT transistors, of which the T1832 is one, also have this problem. It has been determined that the T1832 is conditionally unstable in the common-base mode over a wide range of frequencies; i.e., amplifiers constructed at 10 Mc. were stable, whereas amplifiers at 76 and 145 Mc. were unstable. This instability presents no problem since the simple expedient of loading the output of each stage stabilizes the amplifier without an appreciable sacrifice in power gain. In the case of the 145-Mc. amplifier, the 3300-ohm load across the primary of each transformer is for stabilization.

Third, transistor gain is sensitive to bias voltage. Thus, in the interest of transistor interchangeability, this bias should be very stable. Single battery bias stabilization as outlined by Shea[1] was employed, selecting a stability factor $S = 3.0$. A low stability factor such as this ensures stable bias over a wide range of temperatures and minimizes effects of bias voltage changes caused by parameter variations from transistor to transistor. Tests performed on an amplifier employing this stability factor revealed that the d.c. bias was controlled to within ± 3 per cent for 12 different transistors inserted in the socket one after another.

Construction and Adjustment Hints

Fig. 4 depicts the equipment used during tests of the amplifier, and the interconnection between units. The detector outlined is useful over a very wide range of frequencies.

Some sweep generators, when the output step attenuator is set to maximum, will have an output resistance which is somewhat of a function of the variable attenuator, only approximating 50 ohms. In this case, it may be found that the band-pass characteristics change when the step attenuator is switched to the next lower level.

[1] Shea, *Principles of Transistor Circuits*, Wiley, pp. 97–130, December, 1957.

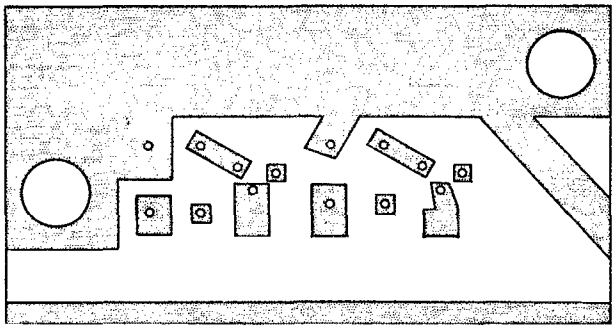


Fig. 2—Full-size pattern and drilling template for the printed-circuit board. Dark areas indicate copper portions to be retained after etching.

Bottom view of the preamplifier showing resistors and capacitors in place.

The pad illustrated in Fig. 4 was designed to isolate the generator and amplifier, resulting in a band-pass which is not a function of the generator output impedance. The pad has approximately 10-db. insertion loss and 50 ohms input and output resistance.

The transformers are the most important part of the amplifier, so for amateurs interested in experimenting it is suggested that the number of secondary turns and the spacing between these turns and the primary be varied. It has been found that a wide variety of band-pass characteristics can be obtained in this manner. Indeed, to increase this variety further, try varying the L/C ratio of the transformer primary. The transformers were constructed with the turns of T_1 and T_2 wound in the same direction.

All lead lengths were kept as short as possible to minimize lead inductance. For this reason, transistor socket assemblies, as such, were eliminated. Instead, the pins were removed from the transistor socket and installed directly into the board, thus eliminating the 1/16-inch lead in the base of the socket. However, it is believed that the use of the socket intact at 145 Mc. would cause no appreciable degradation in the amplifier performance. In passing, it is worth noting that, in most cases, the socket is good for only a limited number of transistor insertions before destruction of one of the transistor lead receptacles.

Vitramon capacitors were used because of their very small size and excellent temperature characteristics. For amateur use indoors, less expensive ceramic or mica capacitors of similar values can be substituted

To ensure uniformity of circuit arrangement, printed circuits are recommended. The board material used in the amplifier was glass-base epoxy, 1/32 inch thick, copper clad on one side only. This is made by Taylor Fibre of Morristown, Pa. For high-frequency applications either a glass-base epoxy or teflon base should be used. Phenolic boards are not recommended. The board, liquid resist and etchant, when purchased as a group or club project, should hold the cost per amplifier for printed-circuit material to less than $1.00. The scale drawing of the printed-circuit board (without components) can be used as a template, and with the aid of carbon paper, the copper pattern may be traced on the board. After application of liquid resist material to the copper portions to be retained, the board is ready for the etching tank.

Since the copper bonding employed on printed-circuit boards can only withstand a limited amount of heat, a low-wattage iron should be used for soldering. In case the number of primary and/or secondary turns is changed, this should be performed wherever possible without the removal of the transformers from the board. Fre-

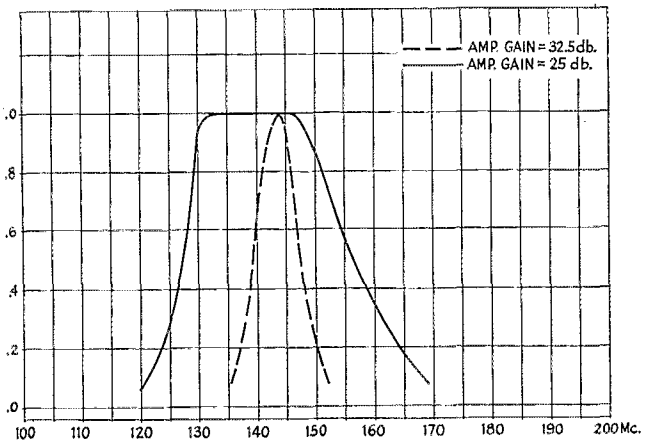


Fig. 3—Band-pass characteristics of the 2-meter amplifier achieved with different values of primary-to-secondary coupling.

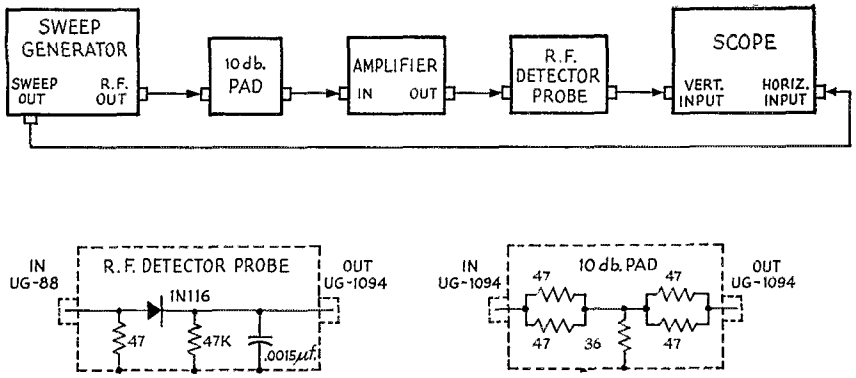


Fig. 4—Block diagram of the recommended method of adjusting the preamplifier. Details of the r.f. detector and 10-db pad are shown in the lower portion.

quent removal of any component will eventually destroy the copper bonding at the soldering points of that particular part.

Results and Recommendations

The amplifier described was used with an average BC-639, a receiver not known for its sensitivity or low noise figure. Signals completely inaudible without the amplifier became easily readable when the amplifier was used. Of course, on receivers with noise figures better than 7 db., the noise reduction would not be so apparent.

It is suggested that construction of the amplifier be conducted on a group or cooperative basis, with the recommended test equipment available and used to ensure optimum results in every case. Other test equipment could be used, but with simpler gear more time would be needed to achieve results quickly attained with the recommended equipment. The group approach will afford amateurs an opportunity to become familiar with sophisticated techniques that they might not have a chance to employ in working alone. QST

Strays

Jim Lamb, formerly Technical Director of the League and Technical Editor of *QST*, and recipient of the ARRL Merit Award in 1959, was recently sworn in as Scientific Advisor and Director of the Signal Communications Department, Fort Huachuca, Ariz.

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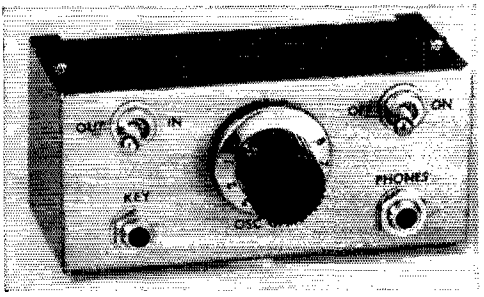
On page 48 of the April issue we had a Stray about a medical technician visiting W9QGR and turning out to be W9HZO. W6FB reports a similar incident, except that the medical technician became converted to ham radio as a result of his visit to W6FB, and is now WV6UVV!

Silent Keys

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

W1AU, Ralph W. Mathewson, Milton, Mass.
W1BWJ, Edgar S. Parsons, Natick, Mass.
W1CLY, Elroy K. Prior, Newport, N. H.
K1IFL, Ralph W. Marks, Woonsocket, R. I.
W1NZW, Henry Whorton, East Millinocket, Me.
W2LUT, Harry F. Pully, Montour Falls, N. Y.
W2LXW, Vincent J. Grygorewicz, Yorktown Heights, N. Y.
WA2QAI, Stephan Risedorf, Massapequa Park, N. Y.
K2UMS, Harold M. Cohen, Brooklyn, N. Y.
W3IGV, Edward Hartman, Feasterville, Pa.
W3SCG, Charles C. Rode, Columbia, Pa.
W3SGJ, Thomas W. Roney, sr., Ellwood City, Pa.
W4AHD, Hugh Herring, jr., Indian River City, Fla.
K4DW, Greene H. Jones, Miami, Fla.
W4KOT, Jerry B. Henderson, Louisville, Ky.
W4MNI, Harry R. Lacy, Martinsville, Va.
K4PNE, Elmer L. Brown, McLean, Va.
W4UKL, Edwin O. Birckhead, Charlottesville, Va.
K5AYP, James D. Morgan, sr., Greenwood, Miss.
W5BTH, William M. Irby, Texon, Texas
K5EZM, Loyal D. Milleson, Pawhuska, Okla.
W5KFY, William E. Leverkuhn, Houston, Tex.
W5UW, Fred P. Coleman, Missouri City, Tex.
W6DYN, Charles Connor, Long Beach, Calif.
W6FON, Walter S. Nelson, San Jose, Calif.
WA6NYE, Elmer S. Lesher, Little Silver, N. J.
W7AJJ, John W. Beck, Scottsdale, Ariz.
W7GNJ, Carl H. Austin, Bend, Oreg.
W7IUM, Blanche E. Schubach, Ekalaka, Mont.
KN7PEW, David E. Elder, Parker, Ariz.
W7UHV, Dwight B. Hill, Tucson, Ariz.
K8LEK, Earnest O. Oard, Columbus Grove, Ohio
W8OHB, Joseph Buehler, Columbus, Ohio
W8OVG, Edward F. Bonnet, Dayton, Ohio
WA9AFU, Charles D. Mills, Hobart, Ind.
WN9APX, Curtis D. Morrison, Chicago, Ill.
W9WHW, Russell J. Durm, Elwood, Ind.
KØBLI, John Sibigtroth, Spring Valley, Minn.
WØDXE, Clyde D. Fritz, Kansas City, Kans.
WØVOY, Lance L. Ingalls, Tracy, Minn.
KR6AC, John C. Hays, Okinawa
VE1ADV, Winnifred M. Parker, Bathurst, N. B., Canada
VE1UJ, George M. Wikeem, Yarmouth, N. S., Canada

A "Solid" Look at "Little Oskey"



The "solid" Little Oskey has its own internal battery power supply, and is easily contained in a 2¼ × 2¼ × 5 Minibox. It makes a good portable code-practice oscillator, too.

Compact C.W. Break-In Monitor Using Transistors

BY C. D. WARNER,* WV2ROA

C.w. monitoring seems to be one of the first problems the new operator encounters. The first method I tried was listening to my own signal on the receiver. This method presents many obvious problems, such as how to find the station you are talking to through heavy QRM. The next scheme was a relaxation oscillator that was keyed with the transmitter; this generated harmonics and would change frequency when changing bands. Several other equally unsuccessful methods were tried.

At this point, I began to search back issues of *QST* with the hope of finding something better. After a little looking, I found the original "Little Oskey" [1] circuit. This seemed to be just what I was looking for and offered the possibility of adding full break-in operation to the station. There was just one drawback: I needed something smaller, as I had very limited space at the operating desk. For this reason, I chose to transistorize the original circuit. The unit also makes a highly portable code-practice oscillator.

* R.F.D. 2, Vincent Road, Poughkeepsie, New York.

[1] Campbell, "Little Oskey — Monitoring Oscillator and Keyer," *QST*, October, 1955.

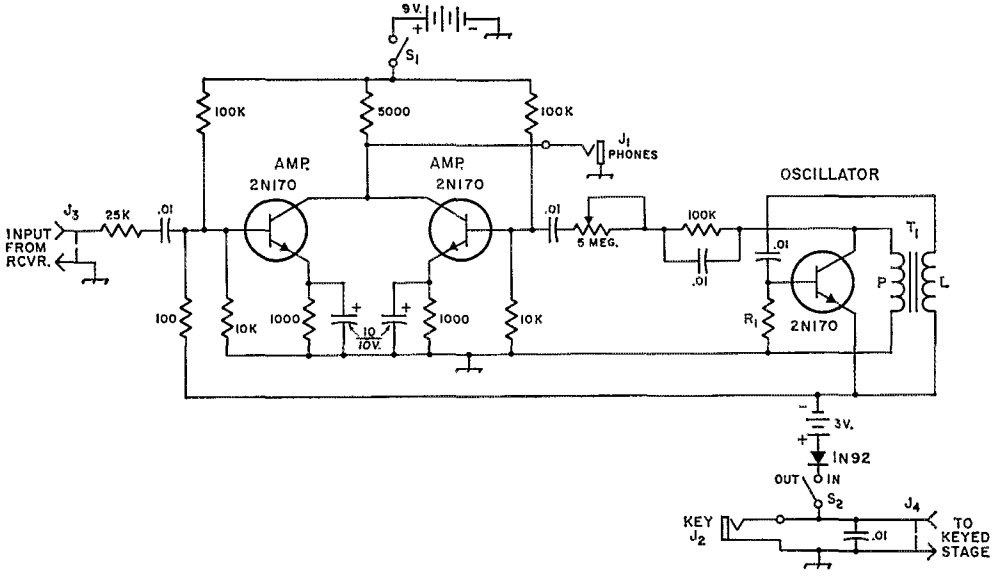
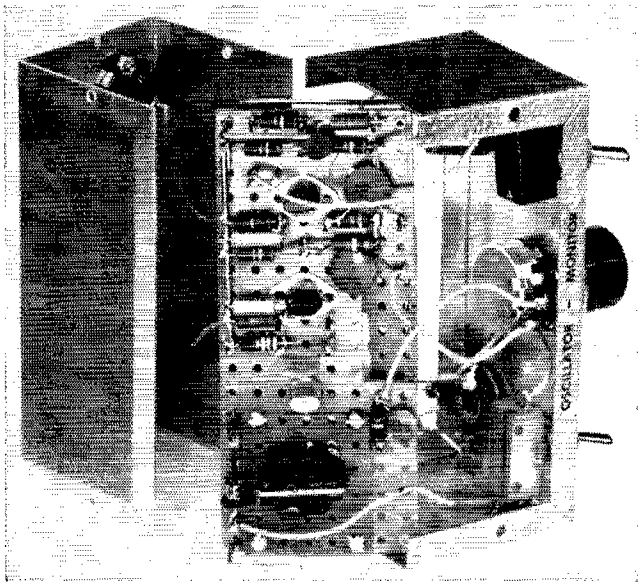


Fig. 1—Transistorized version of "Little Oskey." Capacitances are in μf., resistances are in ohms, fixed resistors are ½ watt. Capacitors with polarity marked are miniature electrolytic; others are ceramic. Headphones should be high-impedance type.

J1, J2—Open-circuit phone jack.
J3, J4—Phono jack.
R1—Approximately 100,000 ohms; see text.
S1, S2—S.p.s.t. toggle.
T1—Miniature plate-to-line, 10,000 ohms to 200 ohms (UTC SO-3).



Circuit components are mounted on a phenolic board and held in place by the wiring. Bent pieces of No. 14 wire at the ends of the board center it in the box when assembled.

Circuit

The circuit consists of two identical audio-amplifier sections and an audio oscillator. The audio sections are connected to a common collector load resistor, for mixing the receiver output and oscillator signal. Power for the audio sections is obtained from a nine-volt transistor radio battery. Audio cutoff bias and oscillator power are supplied by two penlight cells when the key is closed.

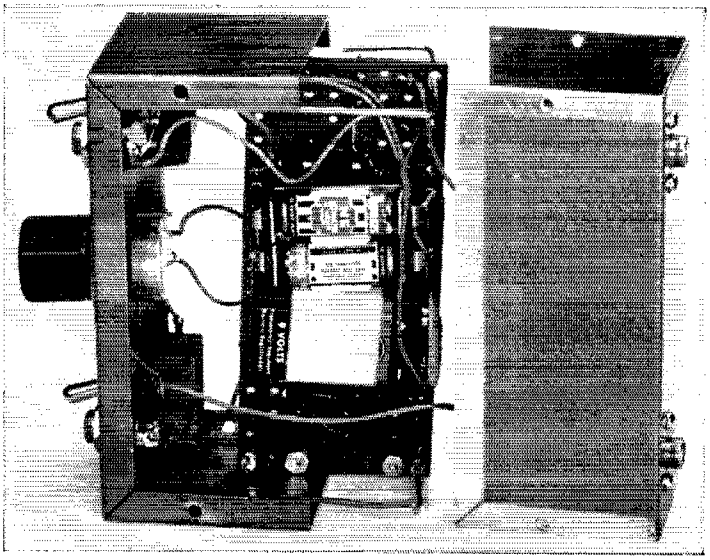
The only precaution that must be taken is to provide sufficient isolation between the unit and the cathode circuit in the transmitter. If this is not done, an excellent path is provided from the cathodes, through the unit, to ground. The 1N92 used here (200 volts peak-inverse rating) provides sufficient isolation for most transmitters. However, if very high voltages are used, two 1N92s in series should be used.[2]

The frequency of the oscillator may need to be adjusted, since transistor characteristics may vary slightly. This is done by changing the value of the oscillator base resistor, R_1.

Construction

The entire unit, including the two battery power supplies, is housed in a $2\frac{1}{4} \times 2\frac{1}{4} \times 5$-inch Minibox. This provides ample room for mounting all components. The circuit itself is

[2] Alternatively, a diode having the required peak-inverse rating could be substituted. Silicon units of considerably higher p.i.v. rating are readily available. — *Editor.*



The dry batteries are mounted on the reverse side of the mounting board. Flexible leads to the parts mounted on the box itself permit pulling the unit apart for servicing.

built on perforated phenolic board, using Zip fasteners to hold the components.

The batteries were first attached to a separate board that was then suspended beneath the main circuit board. This relieves crowding of the main circuit. The transformer was clamped to the board, using No. 14 copper wire.

If the transistors and diode are to be soldered directly into the circuit, adequate heat shunts must be used during soldering, since transistors are easily damaged by heat.

A rather novel but simple method was used to suspend the circuit board inside the box. Attached to both ends of the board are frames that just fit the inside of the box. These frames are formed from No. 14 copper wire. This allows easy access to the entire circuit when the box is open, but provides rigid support when the box is closed.

Operation

The phones and key are connected to the jacks on the front of the unit while the receiver output and keyed circuit are connected at the rear. When the power switch, S_1, is turned on, the receiver output can be heard immediately, since transistors require no warm up.

When switch S_2 is placed in the "in" position and the key depressed, the receiver output will be completely squelched, while at the same time the oscillator sidetone is heard.

The entire circuit can be disconnected from the transmitter for zero beating by placing switch S_2 in the "out" position. The oscillator volume is adjusted with the gain control on the front of the unit, while the receiver volume is still adjusted at the receiver.

The circuit as described is for a cathode-keyed transmitter. However, it could be easily modified for grid keying.

Being of such small size and having a self-contained power supply makes this unit a highly portable code-practice oscillator. It can be carried easily in an overcoat pocket or brief case.

QST

• *Technical Topic*

Attention Meteor Ping-Jockeys

SEVERAL readers have brought to our attention an item in *Sky and Telescope* [1] directed toward the amateur visual observer of meteor showers. The information given may be of more than ordinary interest to amateurs of another kind — us. It reports the surprise showing made by the Leonids meteors last November 16 and 17.

Most years this shower is not particularly marked, providing only about 10 per hour in visual observation, over the sporadic meteors one would see in a similar period. As indicated in the meteor shower table provided by W4LTU,[2] this shower has a period of about 33 years. Walt's table indicates a maximum as being due again in 1965, but visual observations last November indicate marked enhancement then, with possibly more due for the next few years.

According to the *S & T* report, observation of the 33-year period of the Leonids goes back to the year 902. There were well-documented spectacular sightings in 1799, 1832, and 1864–7, with counts running as high as 1200 *per minute!* The show was disappointing at the turn of the century, and again in the early '30s, and it was assumed that "perturbations by Jupiter and Saturn caused the main swarm to shift away from the earth's orbit." But sightings of meteors "literally dropping everywhere, in large numbers, with 3, 4 or even 5 in rapid succession, some rivaling the brightness of the quarter moon," give rise to great hopes for the next few years, especially since 1961 was a bit earlier than the Leonids were expected.

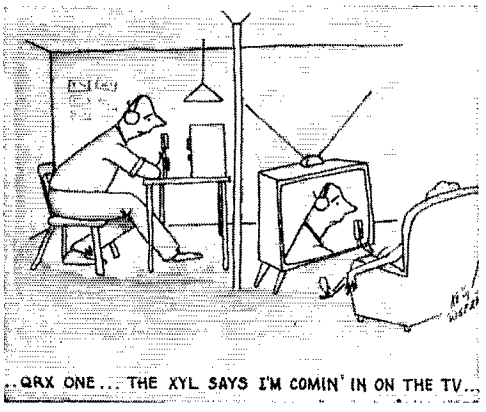
Visual counts reported by *S & T* were at least on a par with those normally associated with the summer Perseids and winter Geminids, two "regulars" commonly exploited by 2-meter DX men. Anyone who experienced the extraordinary evening on 50 Mc. provided by the Giacobinids of 1946 [3] has been waiting ever since in the hope that something like this would happen again, now that the 144-Mc. signal-bouncing qualities of meteor trails are known. We've looked for anticipated shower peaks before, and lost a good many hours of sleep with little to show for it, but for those in whom hope springs eternal, the wee small hours of November 12 through 18 may be worth a little more yawning.

For more on exploiting meteor-trail propagation, we recommend a study of the W4LTU article footnoted above. Anyone for skeds next November? — *E. P. T.*

[1] "Leonid Meteors Give Unexpected Display," *Sky and Telescope*," February, 1962.

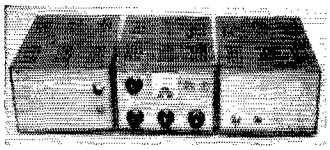
[2] Bain, "V.H.F. Meteor Scatter Propagation," *QST*, April, 1957.

[3] "World Above 50 Mc.," *QST*, December, 1946.



• Recent Equipment —

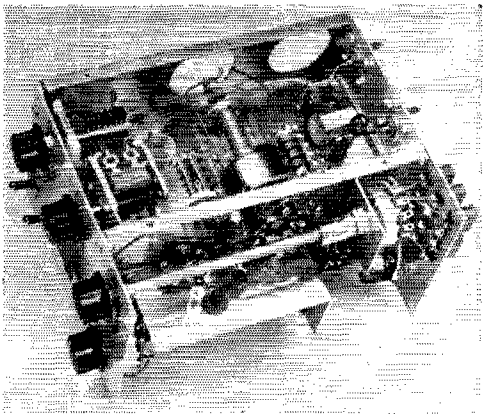
The Electro-Mechanical Labs 60-6 50-Mc. Transmitter



THOUGH some purchasers of ham gear tend to prefer one-box design, wherein power and audio equipment are built in as integral parts of a complete transmitter, the separate-package approach used by EML in their 50-Mc. transmitter has many advantages. The modulator, power supply or r.f. unit can be used in conjunction with other equipment the purchaser may have on hand, and having the r.f. equipment in a separate case makes addition of gear for other bands much simpler and less expensive than when the other parts of the station are built into the same box.

The EML 60-6 Transmitter is capable of 40 watts input on 50-Mc. phone, or up to 60 watts on c.w., when used with the companion M-10 Modulator and P-30 Power Supply shown in our first photograph. A send-receive relay is built into the transmitter and push-to-talk circuitry is provided in the modulator, so the complications usually associated with installation of a multiple-unit station are largely taken care of by the manufacturer in this instance. The transmitter is available with either 6- or 12-volt tube line-ups, permitting it to be used for mobile work by the addition of a suitable battery-powered power supply. The modulator can be wired for either battery voltage without tube changes.

As will be seen from the block diagram, crystals or v.f.o. in the 8-, 12- or 25-Mc. ranges can be used for frequency control, any of five crystals or v.f.o. input being selectable from the front panel. All transmitter r.f. circuits are broad-banded, so only the final plate and loading controls need be adjusted in shifting frequency across the band. Double-tuned circuits in the first two stages provide a maximum of attenuation of unwanted frequencies in the exciter. The 6146 amplifier has a pi-network plate circuit and adjustable capacity-bridge neutralization. A 1-ma. panel meter with suitable shunts reads amplifier grid or plate current, and is available for use as the indicator for an externally-connected s.w.r. bridge, to be furnished by the purchaser. Meter switch positions marked FOR and REF are brought out to terminals on the back of the transmitter for this purpose.



Interior of the 60-6 Transmitter, showing the 6146 amplifier, front panel and crystal-switching circuitry.

The 20 watt M-10 Modulator may be used with either crystal or carbon microphones, and the over-all gain is about the same with either type. The clipping level is adjustable, and an audio filter for restricting the audio-frequency range is included. The clipping may be set for most pleasing quality for communications under ideal conditions, or increased to provide maximum intelligibility when signals are marginal. The output transformer is tapped for 2400, 4000 and 6400 ohms, permitting use of the modulator with almost any transmitter operating conditions. Voltage is removed from the modulator

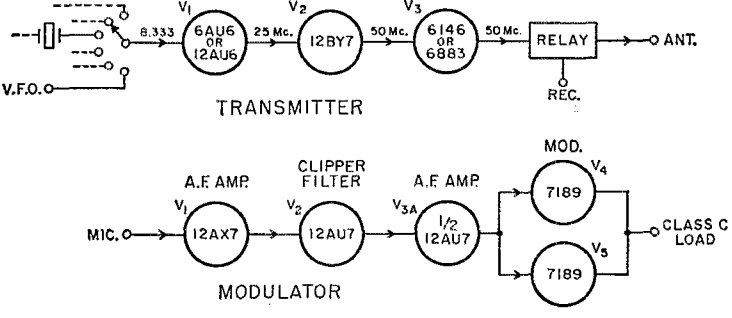
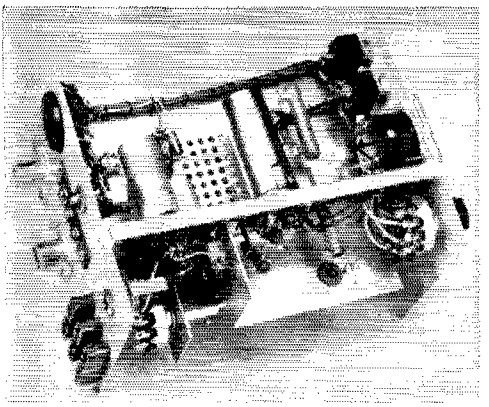


Fig. 1—Block diagram of the Electro-Mechanical 50-Mc. transmitter and modulator. Alternate tube types in the transmitter are for 6- or 12-volt service. The "B" section of the a.f. amplifier, V_3, in the modulator, is not used.



Opposite side of the 50-Mc. transmitter, with the exciter stages toward the camera.

when the mode switch is in the c.w. position, permitting higher power to be run for code work.

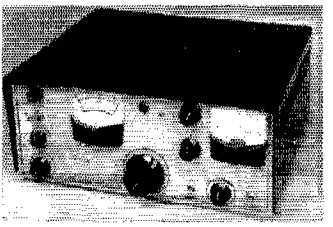
The P-30 Power Supply uses silicon rectifiers, and delivers approximately 400 volts under load. Normal operating conditions for voice call for an amplifier plate current of 100 ma., for 40 watts input. Increased loading and the rise in plate voltage with the modulator load removed permit up to 60 watts or so to be run on c.w. Installation of the EML 60–6 Transmitter involves only plugging in a microphone or key, connecting the cables between the units, connecting the coaxial antenna lead, and running a length of coax to the 50-Mc. converter or receiver. Where operating space is restricted, only the r.f. unit need be in front of the operator. With suitable cables the modulator and power supply can be tucked into lower-priority space.

— *E. P. T.*

EML 60-6 Transmitter, M-10 Modulator and P-30 Power Supply

Height: 4½ inches.
Width: 5¾ inches.
Depth: 7½ inches.
Weights: Transmitter, 3½ pounds; Modulator, 4½ pounds; Power Supply, 11½ pounds.
Price Class: Transmitter, $60; Modulator, $45; Power Supply, $35.
Manufacturer: Electro-Mechanical Labs, Inc., 102 Westport Ave., Norwalk, Conn.

Swan Mobile Single-Sideband Transceivers



"Simplicity and straightforward design" are the words to describe the Swan "100" series of mobile sideband transceivers. Designed on the premise that the mobile operator usually settles down to one favorite band, the transceivers are built to operate on a single band: 20, 40, or 75 meters. To hold the cost of the units down, some of the fancy "extras" found on other mobile sideband packages have been done away with — but without major sacrifices in performance or operator convenience.

The model shown in the photographs, and the one described in this write-up, is the SW-175 for 75-meter operation (3.8 to 4.0 Mc.). However, all three models are identical except for the tuned circuits and operating frequencies. Frequency range of the 20-meter model is 14.2 to 14.35 Mc., and the 40-meter model tunes 7.2 to 7.3 Mc.

As is the rule for transceiver operation, several of the tubes operate in both the transmit and receive modes. The block diagram in Fig. 1 shows the various jobs performed by each tube in both modes. The stars indicate dual performance.

Transmitter

When transmitting, audio from a high-impedance microphone is amplified in the two triode sections of V_{11}, a 12AU7. This signal is used to modulate the 5.7726-Mc. signal generated by the crystal-controlled carrier oscillator, V_{13}. Modulation and carrier suppression are taken care of in the 7360 balanced modulator, V_9, which gives a rated carrier suppression of about 50 db. The two sidebands are fed into a crystal-lattice filter having a 3-kc. nominal bandwidth; the upper sideband passes through and is amplified in V_7, a 6BA6. Sideband suppression is rated at 40 db. The filter, similar to the one described by Vester [1] in his popular mobile package, is made up of four crystals and a center-tapped inductance.

The single tuning control on the front panel is calibrated from 3.8 to 4.0 Mc. in 2-kc. increments. A pinch mechanism with a ratio of 15:1 drives the main tuning capacitor. One turn of the knob gives a frequency spread of 30 kc. Since the unit automatically transmits on the received frequency, only one calibration is necessary. The pinch drive has a tension adjustment so that the "feel" of the dial can be set to suit the operator. The tuning dial is behind an escutcheon that exactly matches the 0–300-ma. meter case at its right. It is illuminated by a lamp mounted to one side: a jeweled reflector in front of the light

[1] Vester, "Mobile S.S.B. Transceiver," *QST*, June, 1959.

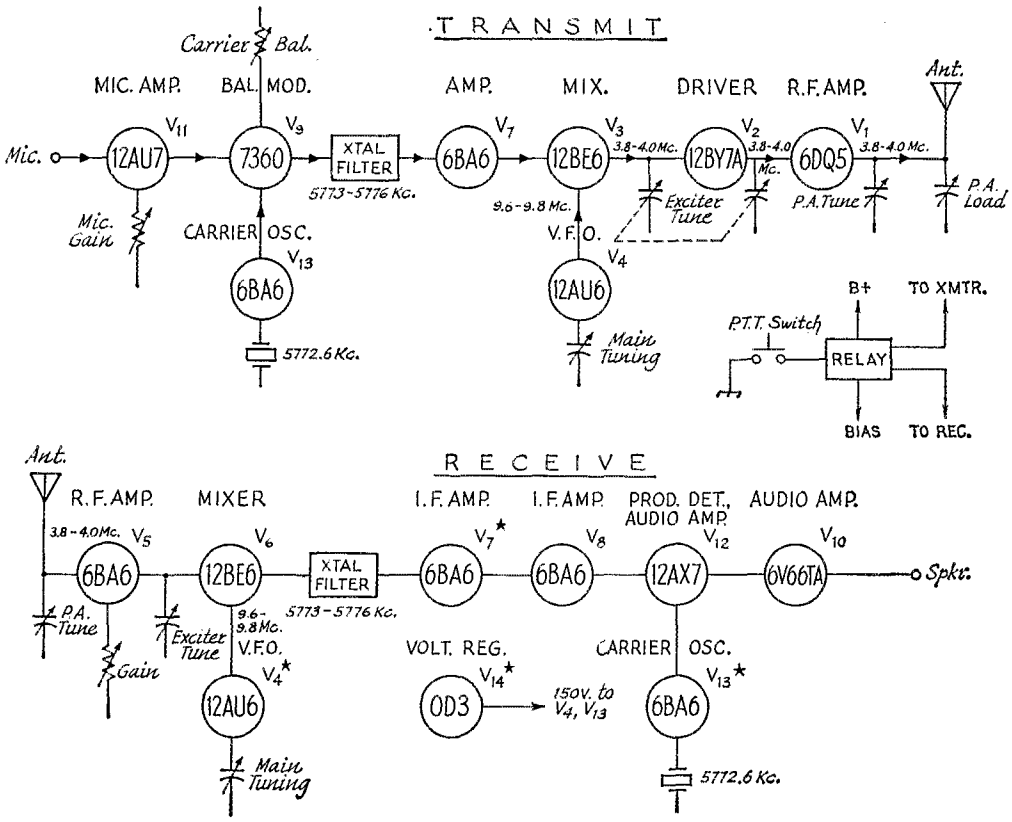


Fig. 1—Block diagram of the transmitter and receiver sections of the Swan-175 transceiver. Tubes marked with a star operate both in the transmit and receive condition.

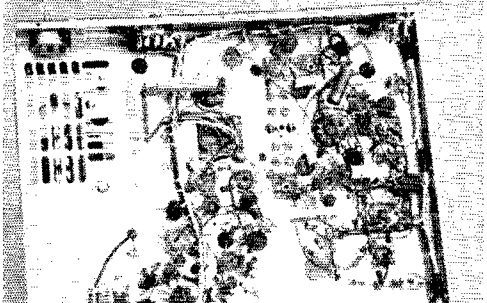
indicates when the equipment has power applied.

The v.f.o. tunes 9.6 to 9.8 Mc., and is temperature compensated and voltage regulated. A neat trick is used for factory adjustment of the inductance in the v.f.o. tuned circuit: A separate five-turn slug-tuned coil in series with the main inductor allows for adjustment, yet does not jeopardize the *Q*. V.f.o. output is mixed with the upper-sideband signals in the 12BE6 mixer, V_3. The v.f.o. frequency is higher than the sideband frequency, and since the difference frequency is used, the sideband is inverted after conversion to 3.8 to 4.0 Mc. Thus a lower sideband signal appears at the grid of the 12BY7 driver, V_2. There is no provision for changing sidebands in the Swan transceivers; the 20-meter unit is fixed for upper sideband and the 40-meter unit for lower-sideband operation.

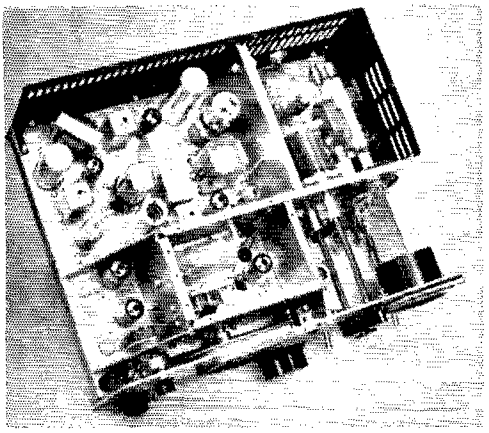
The plate of the mixer, V_3, and the plate of the driver, V_2, are both tuned by the panel EXCITER control. There is a novel space-saving idea here: Instead of using a split-stator or two ganged capacitors, the two stages are tuned by a single butterfly capacitor, one side for each stage!

A neutralized 6DQ5 TV sweep tube, V_1, is the r.f. amplifier. It can be operated at inputs up to 120 watts p.e.p. The pi-network output circuit has the familiar P.A. TUNE and P.A. LOAD controls, and is designed to work into a non-reactive 50-ohm load. A 0–300-ma. panel meter indicates the 6DQ5 cathode current, for tuning up and for monitoring amplifier operation.

A glance at the block diagram in Fig. 1 may arouse some curiosity as to how the antenna is transferred from transmitter to receiver. The answer is, it isn't! A single tuned circuit acts both as the transmitter plate tank circuit and the receiver r.f. antenna-input circuit. There are



Bottom view of the Swan-175.



This view of the Swan-175 shows the various sections of the transceiver separated by baffles. The final amplifier is at the upper right and the v.f.o. is in the center, just behind the front panel. The cabinet and cover plates have been removed for this photograph.

many advantages to this, in addition to that of saving a few components. Because of the large-diameter inductance and general construction of the transmitter tank circuit, the receiver has a better-than-usual high-Q input circuit, which gives superior selectivity to that found in most "standard" receiver antenna input circuits. Of course, it simplifies the antenna switching problem, too, and since the tuning controls are common to both transmitter and receiver, there is no need to touch up the controls when going from transmit to receive. When transmitting, the receiver r.f. amplifier is protected by a negative bias that is applied to the grid of the tube. This is similar to the principle used by Sabaroff in his electronic transmit-receive switch.[2]

Receiver

The receiver portion of the transceiver starts off with a 6BA6 r.f. amplifier. As mentioned above, the input circuit is tuned with the P.A. TUNE and P.A. LOAD controls. Its plate circuit is tuned with one section of the EXCITER tune butterfly capacitor, which is electronically switched from the transmitter section. When once set for the transmitting frequency, this control can be left alone for the same receiving frequency.

A potentiometer in the cathode of the r.f. amplifier allows for manual adjustment of the gain of the stage. The panel control is labeled VOLUME. There is no a.g.c. in the receiver, although instructions are included in the owner's manual for adding it if desired.

Signals from the r.f. amplifier are mixed with the v.f.o. output in the 12BE6 mixer, V_6, and fed to the same crystal filter that is used for transmitting, giving a selectivity of around 3 kc. at 6 db. Two stages of rather high i.f. (5.775 Mc.) amplification reduce the problem of images. Signals are detected in a triode detector with injection furnished by a crystal-controlled b.f.o. (the carrier oscillator), V_{13}. The detected audio is first amplified in one triode section of V_{12} and then in the power pentode amplifier, V_{10}, a 6V6GTA. Low impedance audio (3–4 ohms) is available at the rear of the transceiver for a speaker or headphones.

Manual switching is used for shifting the Swan Transceiver from transmit to receive. The panel REC/TRANS switch triggers a built-in relay — which is enclosed in a plastic box for protection from the dirt and grime of mobile operation — that transfers the high voltage from one section to the other, along with bias to several stages for proper operation. The relay also can be operated by the push-to-talk switch on the microphone.

In addition to the panel controls already mentioned, there are two panel toggle switches on the transceiver. One, labeled SUPPLY ON/OFF, is a s.p.s.t. switch which is wired to a connector at the rear of the chassis. This can be used to control an external power supply. The other is the TUNE/OPERATE switch, which keys the transmit-receive relay and also unbalances the modulator to give some carrier injection as an aid in tuning up. The modulator can be unbalanced manually with the panel CARRIER BALANCE control in case a.m. operation is desired (single sideband with carrier). The power input in this mode is about 35 watts.

Rear chassis connections include a three-way microphone jack for standard ¼-inch plugs, antenna connector which mates with a PL-259 plug, and power-supply connector. A mating plug for this connector is furnished with the transceiver package.

A transistor mobile power supply is available for the unit, and there are others, including kits, on the market that would operate it. A 117-volt power supply delivering the required voltages and currents can be used for fixed operation.

The owner's manual furnished with the transceiver contains the usual schematic diagrams, operating instructions and parts lists. It also contains information on adding a.g.c., modifications for c.w. operation, extending the frequency range to the c.w. portions of the band, and converting a popular power-supply kit to operate the transceiver.

A mobile mounting bracket is furnished as part of the package.

— *E. L. C.*

Swan Single-Sideband Transceiver

Height: 5⅝ inches.
Width: 13¼ inches.
Depth: 11 inches.
Weight: 11 pounds.
Power requirements: 600 volts d.c., 250 ma., 275 volts d.c., 100 ma., — 90 volts d.c., 6 ma., 12.6 volts a.c. or d.c., 3.6 amp.
Price class: $275.
Manufacturer: Swan Engineering Co., Box 306, Benson, Arizona.

[2] Sabaroff, "A Novel Electronic Transmit-Receive Switch," *QST*, June, 1957.

Strays

W3LEZ has posted the following warning in his shack.

ACHTUNG!

Alle Lookenspeepers und Fiddlefeelers

Die squealer box ist nicht fur gefingerpoken und genobtwiddlen. Ist easy schnappen der bandsetten, blowenfusen und gepoppencorken mit spitzensparken.

Ist verboten der transmisser getoonen, der meters geknocken, der key gepushen und der lautenboomen on das air getransmittenauf.

Die rubbernecken sightseeren der foodgrabben hands in der pockets keepen.

Ist nicht fur gewerken by die dummkopfen und der kinder mit.

—•••—

CUTIES

"Of course I'm leaving! And I'm naming that ham-radio outfit as corespondent!"

Reprinted by special permission of King Features Syndicate.

W8POZ (r., above) is the operator on board the SS *Hope*, using the call of Bill Halligan, W9AC. With him is Nick Craw, Project Hope supply and logistics director.

What to do with QSLs? Many answers to this perennial problem have been suggested. One very satisfactory solution is to display them in transparent, protective envelopes, and two manufacturers are now offering strips of polyethylene envelopes arranged for hanging on the shack wall. DX-QSL, Box 19033, Houston 24, Texas, and Tennessee Paper & Box Co., Box 198, Gallatin, Tennessee, are the companies.

One Wish

I chanced to find a magic lamp,
I rubbed it eagerly.
And lo! A genie did appear
And bowed in front of me.
He said "O Master, what is your wish?
Just ask and it is done;
But consider well the wish you make,
For I can grant but one."
Quick as a shot came forth my words,
Not a second did I stall.
"Please stop that boob with the endless CQ
And make him sign his call."

— *W2MXJ*

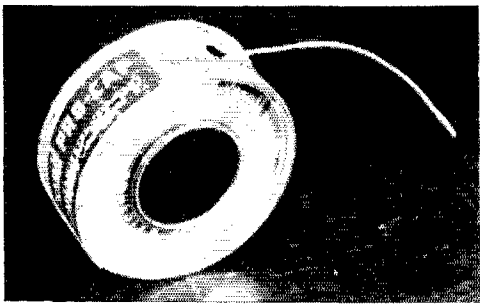
W8UPB (l., above) ARRL Great Lakes Division Director, receives the Dayton Hamvention Ham-of-the-Year Award from W8DHJ.

IMPORTANT NOTICE

Changes of Address

Important postal changes in handling second-class mail matter are now in effect. Please advise us *direct* of any change of address. Four weeks notice is required to effect change of address. When notifying, please give old as well as new address. Your promptness will help you, the postal service and us. Thanks.

Hints and Kinks For the Experimenter



HANDY SOLDER DISPENSER

THE accompanying photograph shows how I use an adhesive-tape container as a solder dispenser. The tape reel is wound with solder. The loose end of the solder is brought through a hole made in the reel "cap."

— *Lloyd H. Alford, VE3CRG*

MOBILE SHOCK MOUNTS

To keep mobile radio equipment from bouncing and "walking" about, I mounted four 3-inch rubber suction cups, such as those used for car-top carriers, to the bottom of the equipment cabinet. This arrangement seems to hold and protect the equipment even on rubber mats, rugs or other non-suction-holding surfaces. A set of four suction cups can be purchased for less than one dollar. — *Dave H. Fisher, K9VQN*

LOW-DISTORTION HEADPHONE OUTPUT

MOST modern receivers connect the phone jack across the speaker voice coil winding. This scheme works with either high- or low-impedance headphones, but audio quality is poor and, in some cases, the output tube works into an improper load.

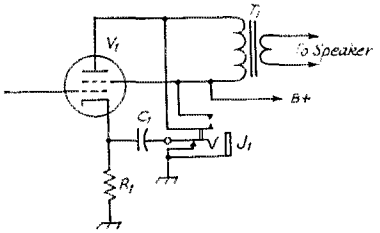


Fig. 1—Phone jack J_1 converts the output tube into a cathode follower to drive low- or high-impedance phones with low distortion.
C_1—Normal cathode bypass capacitor.
J_1—Multicontact phone plug (Mallory 704A).
R_1—Normal cathode resistor.
T_1—Receiver output transformer.

The circuit in Fig. 1 will give greatly improved audio quality and will work equally well with high impedance or the 600-ohm surplus headsets. The output tube, V_1, is connected as a cathode follower when the headphones are plugged into J_1. The speaker is muted automatically when the headphones are inserted into J_1.

— *Craig R. Allen, W9IHT*

ALUMINUM BRIGHTENER AND CLEANER

THE common chemical used in the ham workshop for treating aluminum is usually a solution of lye and water. However, this combination is difficult to store, especially after it has been used, because of the white powder that is formed by the chemical action of aluminum and the sodium hydroxide.

A commercial product called Lumabrite, made by the Penetone Company, Tenafly, New Jersey, is what I used for treating my aluminum chassis. It gives the aluminum a beautiful satin finish and, best of all, the solution does not form the annoying white powder — even after periods of use for many months. The solution does not give off any toxic fumes or odors. Interestingly enough, the solution is intended to brighten and clean aluminum trucks, trailers, trains, aircraft, etc., and can be brushed or sprayed on the object to be cleaned. Perhaps it would make a good cleaner for aluminum towers and antennas. Unfortunately, it is available only from the manufacturer in no less than 6½-gallon lots. However, a radio club or the like could go in together and puchase a "jug" for the group.

— *Robert L. Martin, K1CJX*

CORRECTING HIGH MODULATOR STANDBY CURRENT IN THE DX-100

AFTER incorporating diode time-sequence keying in my DX-100 (*QST*, April, 1959, page 35), I noticed that the no-signal modulator plate current was excessive when the transmitter was in the phone position. In this case it was about 150 ma. Upon checking the circuit with v.t.v.m., I discovered that the negative grid bias on the 1625 modulator tubes was about −32 volts volts and the DX-100 instruction manual states that the bias should be about −40 volts.

To increase the bias back to the proper value, I removed resistors R_{28} and R_{29} and replaced them with one-watt resistors of 1200 ohms for R_{28} and 1500 ohms for R_{29}. These values may be slightly different for other DX-100s. Of course, an ideal solution would be to replace R_{28} with a 2-watt variable resistor and adjust it exactly for the required −40 volts. — *Bryan Bagwell, K5FQJ*

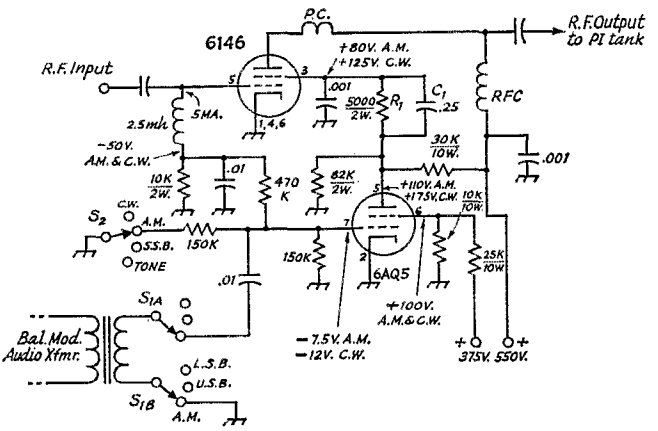


Fig. 2—Diagram of the improved clamp-tube modulator. Capacitances are in μf., resistances are in ohms. Unless otherwise indicated, resistors are ½ watt.

CLAMP-TUBE MODULATOR

THE circuit in Fig. 2 is a clamp-tube modulator, but unlike most other circuits of this type does not produce the objectionable carrier-control characteristic. I use the system in a phasing-type s.s.b. exciter. Operating potentials shown are for c.w. and a.m. conditions and were measured with a 25,000-ohms/volt instrument.

Audio is introduced to the 6AQ5 clamp tube from the secondary of one of the balanced modulator audio transformers by using spare contacts on the sideband selector switch, S_1. The function switch, S_2, in the a.m. position reduces the cutoff bias on the 6AQ5 below the c.w. value, so that the resting screen voltage on the 6146 runs about 80 volts. Under these conditions the d.c. voltage on the 6146 screen does not change with modulation as it does in the common variety of screen modulation circuits. The resistor and capacitor combination, R_1 and C_1, improves the percentage of modulation. The 6AQ5 screen voltage should be supplied from a separate source as shown and should not be tied to the plate as is often done. Sufficient grid excitation is necessary with this scheme for proper operation, with 5 ma. through the 10,000-ohm grid leak being about optimum.

The amplifier should be loaded up to about 75 watts input on c.w. Switching to a.m., will drop the input to the proper level. Too little excitation will produce controlled-carrier effects. Excessive excitation will cause compression, as will improper loading.

— *William J. Engle, jr., W3KKO*

MOBILE BURGLAR ALARM

THE circuit in Fig. 3 is an inexpensive, simple, yet effective alarm for protection against theft of mobile equipment. When switch S_1 is closed to the "ready" position, the alarm is armed and opening any of the car doors, hood or trunk will actuate the car horn, which will give an audible alert. The horn will continue to blow, even if the door, trunk or hood is closed.

Switch S_1 is a "key" switch that can be located at any convenient spot on the outside of the car. Switches S_2 through S_6, — and there can be as many of these switches as needed — are the normally-open button type used as auto courtesy light switches. These can probably be obtained from a local car junk yard or purchased new from an automobile distributor. The switches are installed on each of the car doors and on the hood and trunk lids in such a way that opening any of these will close the switch contact. Mercury switches could be substituted on the hood and trunk lids if desired.

When S_1 is closed, any one of the door, trunk or hood switches can trigger the relay, K_1. One set of the relay contacts grounds the horn relay,

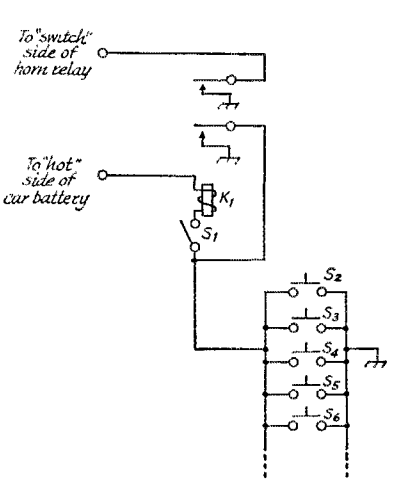


Fig. 3—Alarm system for protection against theft of mobile equipment.

K_1—6- or 12-volt relay, d.p.s.t.
S_1—Key switch, s.p.s.t.
S_2—S_6—Normally-open button switches.

causing the car horn to sound. At the same time, the other set of relay contacts provides another path to ground for the relay coil which keeps the alarm system going in the event the car door, etc., is closed. The system can only be made inoperative by opening switch S_1 with the key.

— *G. M. Miller, K5REV and Tom E. White, jr., K5AUN*

Using the *QST* Nuvistor Converters with Amateur-Bands-Only Receivers

THE Nuvistor converters for 50 and 144 Mc. described in October, 1961 *QST* and the 1962 *Handbook* were intended for use with receivers capable of tuning 14 to 18 Mc. No single i.f. range is ideal for all receivers, and 14 to 18 Mc. is unusable with receivers that cover only the amateur bands, so many requests have been received for modifications that will permit the converters to work into other ranges. The best bet is the 10-meter range on most receivers, or the special v.h.f. converter bands provided in the NC-300, NC-303, and SX-101. Where general-coverage receivers have good performance on the 10-meter band, they may also work well when this range is used for tuning with v.h.f. converters.

The exact frequency range to be tuned will vary from one receiver to another, but the procedure for modifying the converter design is basically the same for all. First determine the receiver frequency which will represent the low end of the v.h.f. bands when converters are used. This will be 26.0 Mc. when the receiver is a 75A-1, -2 or -3. For the 75A-4, it will be 28.0 Mc. The special converter ranges on the NC-300, NC-303 and SX-101 start at 30.5 Mc. for the 50- and 144-Mc. bands. General-coverage receivers vary, depending on make, model and age, so the starting frequency may be anywhere from 26 to 28 Mc.

The crystal frequency for a 50-Mc. converter will be less than 50 Mc. by the figure arrived at above, or 24, 22 or 19.5 Mc. for i.f. ranges beginning at 26, 28 and 30.5 Mc., respectively. For a 144-Mc. converter, subtract the i.f. from 144 Mc., and divide by 3. Crystal frequencies for the above examples will be 39.333, 38.667 or 37.833 Mc., respectively. The diode multiplier circuit tunes to 118, 116 or 113.5 Mc.

The mixer plate circuit must be modified to tune to the higher i.f. The inductance required is approximately 2 μh. All three frequencies given above should be within the reach of a standard 2.2-μh. (nominal) slug-tuned coil (Miller No. 20A226RBI). The value of the capacitor connected from plate to ground in the mixer can be made lower or higher, in case trouble is encountered in making the circuit tune properly. Inductance values for other coils, and Miller part numbers to match the slug-tuned coils used elsewhere in these converters, are given in table form below. The first three are for the 50-Mc. converter; others for the 144-Mc. model.

Coil	*Nominal Inductance*	*Miller Part No.*
L_8, 19.5 Mc.	3 μh.	20A336RBI
L_8, 22 Mc.	2.4 μh.	Same, or 20A226RBI
L_8, 24 Mc.	2 μh.	20A226RBI
L_6, 37.8 to 39.3 Mc.	0.8 to 0.9 μh.	20A106RBI
L_8, 113.5 to 118 Mc.	9 turns	Hand-wound

The traps, L_1-C_1 in the 50-Mc. converter, and L_9-C_4 in the 144-Mc. one, may not be needed. Space should be left for them, however, and suitable traps made up if local interference problems develop. As these vary from one locality to another, it is impossible to anticipate what may develop. Most v.h.f. converter installations may require no traps at all, and this is true with the original frequency recommendations. — *E. P. T.*

Strays

The Voice of America Amateur Radio Program continues with its round-up of amateur news, interviews with various hams around the world, and propagation forecasts. It is written and voiced by W2SKE, produced by W2BAK, and the propagation forecasts are by W3ASK and W4ETT. Send reception reports to Bill Leonard, P.O. Box 29, Geneva 12, Switzerland, or Amateur Radio, Box 922, Washington 4, D. C. Listen for the VOA amateur program on the following schedule. Sundays, 0730 GMT, beamed to Europe, the Middle East, and Africa, listen on 6025, 6080, 6180, 9545, 9720, 9740, 9770, 11,805, 11,875, 15,270, 15,380 and 17,780 kc. On Sundays at 0745, beamed to the Far East and Oceania, listen on 5985, 6145, 9545 and 9700 kc. On Sundays at 0845 GMT, again beamed to the Far East and Oceania, listen on 6010, 6075, 7155, 7235, 9615, 9650, 11,785, 11,895, 15,210, 15,250. and 15,335 kc. On Sundays at 2230, beamed to Europe, the Middle East, and Africa, listen on 1259, 3980, 5975, 6015, 6185, 7130, 7205, 9530, 11,770, 15,170, 15,225, 17,710, and 21,610 kc, On Mondays at 0330 GMT, beamed to Latin America, listen on 9650, 9750, 11,955, 15,270, 15,325, and 15,405 kc.

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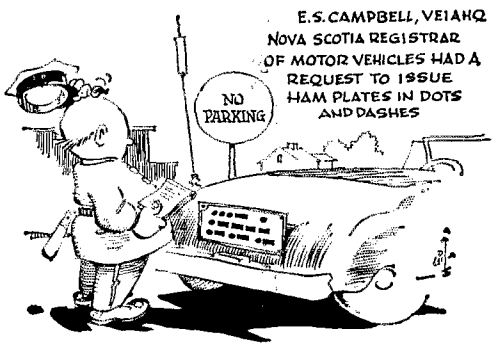


How's DX?

CONDUCTED BY ROD NEWKIRK,* W9BRD

Where?

Most of us are partial to tall tales. The underground antenna, pocket-sized superbeams, ultra-modulation and the secret spectrum are typical topics of ham science fiction (?). What's *your* favorite teaser? Current choice of W8KX is the superlocation.

Ever hear yarns about radio locations where, for some strange reason, h.f. DX signals are always two or three S-points stronger than those received at other near-by points, where the noise level is nil, and where a simple dipole becomes a hot bidirectional beam? Perhaps you've discovered such a superlocation of your own that you intend to exploit some day, a spot where your 40-watt mobile cuts through the kilowatt alley gang like a warm knife through oleo. W8KX muses,

> Some time this summer I'm going prospecting; not for noble metals, but for a "hot" QTH somewhere north of Grand Rapids in my mobile. The hearsay, as they put it about ghost towns, is that a radio repaired and returned to a local farmer produced N.Y.C. stations and carriers every ten kc. in the middle of the day. The farmer said that this was not unusual, but the service man was bug-eyed. Sound good enough to chase down? W9GVZ and I looked for this spot about four years ago but couldn't find it, at least as described. Frank thinks it possible that the "hot spot" moved away or disappeared. . . . W8FM speaks of hot spots encountered in his tour of WW-II duty in North Africa. Some of the QRP DXCC gang who manage to keep up with the kilowatters seem to have such hot spots for permanent QTHs — hi!

Which reminds Jeeves & Co. of a hillside in New Guinea where we once found time to service a few of the battalion's a.c.-d.c. BC sets. Ordinarily the GIs could hear only two local AFRS-type disk jockey outlets. After repairs and a little fancy mumbojumbo we would plug the sets in on our bench and tune in Stateside stuff from KOA, KDKA, KTHS, WCCO, WCFL, WGN, etc. The customers were bug-eyed, too, but their sets never did work quite so well when taken back to their tents. Our secret was a 700-foot Vee running downhill toward the U.S.A., a real killer on all bands.

Whether or not he finds that superlocation, W8KX gives us DX food for thought. Now and again we notice a consistent Novice signal from some out-of-the-way place, a whopper that stands out above the crowd like WRUL or WCC. And how about certain ARRL Field Day groups who put out remarkable signals from hush-hush hand-picked sites? Have they discovered superlocations? Makes us wonder.

What:

EL4A has words of wisdom for DXers appalled by the summer slack season and the sunspot drouth: "I hear plenty of guys saying, 'Aw, shucks, the band isn't open,' that they listened but didn't hear anyone coming through so they didn't turn on the rig. When I listen on a band and it seems dead, I always call about three CQs on different frequencies to make sure. This often results in a whole log page of QSOs before I QRT." Ken's right. When 10 or 15 *seem* to be dead, don't just sit there. Try out the rig. . . .

It's our long-standing custom in this corner of "How's" to extract from correspondence a cross section of DX worked, heard, heard worked or heard called during the few weeks preceding deadline. Such a presentation, together with annual ARRL DX Contest results, provides a rather valuable month-by-month band-by-band documentation of the state of the DX art. We have temporarily interrupted this procedure because of local deadline exigencies but we appreciatively acknowledge the generous "What" contributions of the following:

10 phone: Ws 2ELW 2QCI 5GFE, Ks 1MJT 1MOD 2YFE 4TEA 5VAN, WA2s FQG OBN, VE7BBB.

10 c.w.: Ws 2ELW 6RCV, Ks 1LNC 1MOD 2YFE, WA2KSD.

15 phone: Ws 1BPM 2DY 2JBL 6QYH 7POU 9KQB Ks 1MJT 1MOD 1QVI 1QYJ 2YFE 4TEA 5VAN 8IQB 8NMG ØBHM, WAs 2FIT 2FQG 2JIS 2MHH 2NDP 2OBN 2QMJ 4AYX 6ORS, DL5DU, EL4A, VE7BBB.

15 c.w.: Ws 1OPB 2JBL 6QYH 6RCV 6WAW 7POU 8YGR 9KQB, Ks 1LNC 1MJT 1MOD 1QVI 1QYJ 3CNN 3MNJ 4IKV 4TEA 7KBN 8NMG ØBHM, WAs 2FQG 2HLH 2KSD 2MHH 2NDP 2QMC 2QMJ 4AYX 6ORS, KN7REL, WN4s CMW DAA, WV6s TNC TWC URU, DL5DU, EL4A, H1ER.

20 phone: Ws 1APA 2DY 6QYH 8KML 9YMZ, Ks 1KRY 1MOD 2TDI 2UYG 4MNJ 4TEA 8IQB 8NMG 9JJR ØJPL, WAs 2FIT 2OBN 2RQZ 6HTJ 6MIN 6SBO, DL4AAA, EL4A, KH6DVG, VEs 3PV 7BBB.

20 c.w.: Ws 1OPB 2JBL 6JQB 6QYH 6RCV 6WAW 7DJU 7LZF 7MH 7POU 8CQN 8KML 8YGR 9KQB 9QGR 9WCE, Ks 1JFF 1KRY 1LNC 1MLI 1MOD 1QVI 1QYJ 2GMF 2JUA 1UYG 3CNN 3MNJ 3MYI 4MYO 4TEA 6TZX 7AGJ 7GJX/6 7KBN 8IQB 8NMG 9FJU 9GSD 9JJR 9LBL ØBHM ØJPL, WAs 2FIT 2HLH 2JIS 2KSD 2MJF 2NDP 2OBN 2PND 2PZD 2RQZ 2RTS 2UXZ 6ORS 6OZL 6MIN 6PMK 6SBO, DLs 4AAA 5DU, EL4A, H1ER, KH6DVG, VEs 3PV 7BBB.

40 c.w.: Ws 1OPB 2JBL 6JQB 6RCV 6WAW 7DJU 7LZF 7POU 8YGR, Ks 1KRY 1MLI 1MOD 1QYJ 2JUA 3CNN 3MNJ 4MYO 4TEA 7RBM 8NMG 9FJU 9GSD ØAXU ØJPL, WAs 2HLH 1KSD 6ORS 6TKS, WN4CMW, WV6TNC, DL4AAA, EL4A, KH6DVG, VE7BBB.

40 phone: W1APA.

80 c.w.: W7POU, Ks 1MOD 4TEA ØJPL, EL4A.

*7862-B West Lawrence Ave., Chicago 31, Ill.

FG7XL, Jean Pierre and Monique, proprietors, dispense plenty of QSOs and QSLs from Pointe-a-Pitre. (Photo via K9VRV/4)

160 c.w.: W1BB.

Twenty obviously is carrying almost half the DX load as 1962's summer heads into the home stretch. Fifteen isn't doing too badly, either, and 40 holds up well despite scattered heavy atmospherics. Now the remainder of the column is "business as usual" — and then some.

Where:

Asia — Korea QSL notes from here and there, first quoting W4WNY: "As custodian of HL9KR, I have arranged with K7KID to manage QSLing for this station. Certified true extracts of my logs will be forwarded to Andy for QSL purposes." . . . K6TZX inquires as to the whereabouts of HL9KR operator Joe, 1957 vintage, for confirmational reasons. . . . WA6PMK points out that HL9KJ's K6TWK comes home from Seoul this summer, U.S.A. address indefinite, and can be reached for QSL inquiries via friend K6RPC . . . . "I'm now acting as QSL manager for VU2LNZ's U.S.A. contacts," notifies W2ODZ. "Self-addressed stamped envelopes, please." . . . . FEARL's KA2CM (K9QPL) writes, "I will be glad to assist anyone in tracking down former FEARL members and officers to assist in securing QSLs, etc. We will forward to any amateur society a roster of existing KA stations on request." . . . . K5MDX assumes QSL managerial responsibilities for the Stateside and Canadian QSOs of KR6BH (K5LXZ). "Ray will handle non-W/K/VE/VO verification from his end. I will receive complete logs, however, and so will be glad to help out on these also. S.a.s.e., or s.a.e. with IRCs, are a must." . . . . W5VSQ holds 4X4DH QSLs for Ws 3LSI 4ZYQ 9WNY ØWVZ, K2s JJR PLM, K8ERV, WAs 2LMW 4DQM and s.w.l. K2-4049, large-size s.a.s.e. required . . . . EP2AT (WØQOJ) informs, "All QSLs received by me in Iran have been answered, some 740 via the ISWL bureau in late May, and I am now QRT. If any were missed, apply to my Colorado address." . . . . AP5CP observes, "I recently received a large number of QSLs from the West Pakistan bureau, some confirming QSOs as far back as July, 1961. This should explain delay in my acknowledging some of the cards sent to me. I very much regret this, and I'm taking care of them now." . . . . VERON reports PAØWWP's receipt of a thousand blank TA2AR QSLs. "However, it may take some time before each QSO is confirmed because schedules with Erim are very erratic and so is his log-sending." . . . . Oversize and undersize QSLs plague the OARC bureau. KR6MO, QSL chief, recommends legal postcard size when using bureau channels. Expanding DX activity among the KR6 gang burdens OARC files despite the sunspot fall-off.

Africa — 9G1CW, GARS secretary-treasurer, remarks: "Quite a number of QSLs still arrive here for stations who have left Ghana. Unfortunately, not all left forwarding addresses. This compels us to return such cards. 9G1s AA BA CH and CM are among those who cannot now be traced." . . . . "I believe I'm the only 100-per-cent-QSL FA station," declares FA3OA . . . . 5A3CJ (G3MBS) promises direct QSLs to those sending s.a.e./IRCs to his *Call Book* address. Others will be acknowledged through RSGB . . . . "CR5AR continues to catch up on his QSLing back home in Portugal," cheers K1MOD . . . . W5PMK reports 9U5DS QSL success with a mint stamp from W2SAW & Co. when all else failed . . . . "9U5JF has accepted my offer to act as his QSL manager," confirms VE3DGX. "Due to my proximity to the U.S. border, American postage or s.a.s.e. is acceptable. Non-W/K/VE/VOs should include appropriate International Reply Coupons, otherwise reply will be via bureaus." . . . . EL4A attempts to compile a faithful list of contemporary Liberian licensees but lack of organization makes the task formidable . . . . VE7BBB chuckles, "Two days after I got the *QST* containing my FB8XX QSL data I received a rush order for the QTH from Hawaii. Somebody reads the fine print — better print it again: via 5R8BC." . . . . "I am the Stateside-only QSL manager for ZD6HK," attests W2ELW. "However, requests for confirmation of QSOs prior to May 20, 1962, should go direct to Harry." Customary s.a.s.e., of course . . . . NEDXA's *DX Bulletin* stresses that KV4AA may be able to assist in confirming recent rarish Africa QSOs scored by roving WØMLY . . . . 5A4TC now functions as Libyan Amateur Radio Society QSL manager.

Oceania — KC6BK, who formerly signed KR6IZ, KL7CLI, DL4JY, W6TNV and WØDJO, promises thorough QSL response for his current single-sideband work from Ponape . . . . Regarding the Wallis FW8BH doings of VK3AHO & Co., all QSLs except those from VKs and ZLs should go to W4ANE. Cal emphasizes the need for s.a.s.e. or s.a.e./IRCs . . . . KH6AAJ tells W8KX he has no connection with KP6 QSL matters . . . . VKØVK, now back at VK2VK, believes he has finally accounted for confirmation of all his 3000 QSOs from Antarctica. If still shy yours, check with Steve . . . . Lots of peppy DX action this spring and summer by transient W/Ks hamming on the Pacific bomb test range. Many of them are now hard at work back home cleaning up QSL backlogs for plenty of juicy KB6-KM6-KP6-KS6-KW6-VR3 QSOs. You can facilitate their labors by strict adherence to Greenwich Mean Time and proper attention to s.a.s.e. . . . . W4DKP specifies that s.a.s.e. requirement for his WØANJ/KP6 QSL assistance.

Europe — Protest and warning from SVØWH (W5GMS) who does QSL chores for Crete's SVØWT: "We QSL all QSOs through bureaus, or direct when self-addressed stamped envelopes are supplied. But *please stop sending dollar bills.* International Reply Coupons and U.S. or Greek postage are fine, but base officers are getting the idea that we request money for QSLs. If this keeps up we may be put off the air." . . . . KØRDP comments, "In the course of managing QSL matters for GW2DUR, HH2P and VE8MZ I'm amazed at the audacity of the fifty per cent who QSL, without s.a.s.e. For these chaps I send replies via bureau every 30 or 60 days. Beginning April 1, 1962, I'll probably have the complete logs of GW2DUR from that date onward and will be able to accommodate all requests. For QSOs prior to that date, as far back as 1948, I now have records only for those who have recently applied for QSLs. In any case, all valid GW2DUR contacts will eventually be confirmed." . . . . G3CSE vows complete QSLing for QSOs resulting from his Isle of Man vacation this month . . . . WGDXC's *DX Bulletin* indicates that W2FZY has a fistful of fresh ZA1GB logs for QSL purposes.

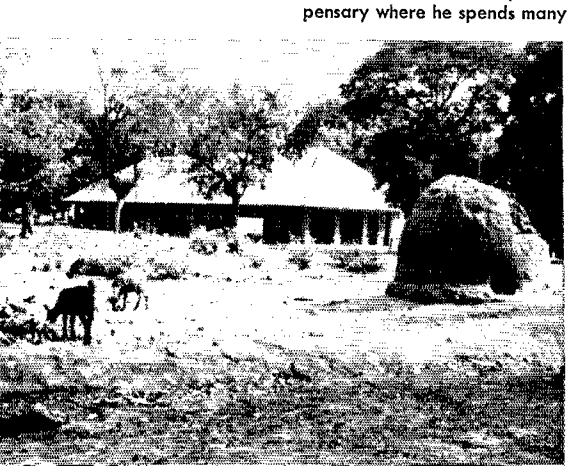
South America — CP5EZ pens W8KX, "I have communicated with 54 countries but have only 27 confirmed. I send everyone a QSL but have received scarcely 20 per cent replies. For example, I sent 56 cards via the ARRL QSL Bureau for last week's QSOs with the U.S.A." The low returns of CP5EZ may be partly explained by the fact that he has been active only a few months. Bureau channels do produce steadily after initial priming . . . . W8KX hears from JA2JW that all efforts fail to shake QSLs from CP3CN, PY7LJ and YN1CI. South and Central America are stiff DX challenges for Asians . . . . "I now handle W/K QSL details for HC5s CN and RG," states K8TBR. "Logs are received around the 15th of each month. S.a.s.e. please!" . . . . W9VZL, late of the antarctic, recommends: "My advice to those wanting CE9 confirmation is to write to the base concerned, in care of III Naval Zone, Punta Arenas, Chile. Include an envelope with Chilean stamps [obtainable from W2SAW, for instance] as well as a card for the operator to sign. Chances of fetching a QSL any other way are very slim, for it is difficult to obtain printed stock in Chile. You'll have to be patient, too, since the next boat down that way won't arrive until December." Ted recently had the opportunity of operating from CE9s AW

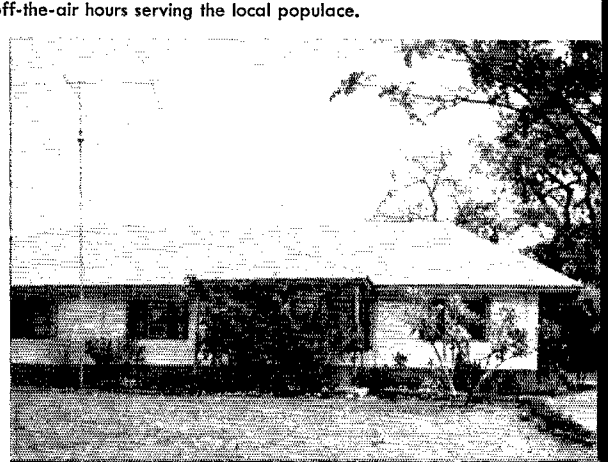
and AY *aboard ships* *Piloto* and *Lientur*, respectively, between traffic schedules . _ . _ . _ W4JQM tells W1WPO of the ARRL DXCC Desk that he holds FY7YI logs for s.s.b. work April 15-28, 1962.

Hereabouts — "QSLers of the Month" in depth, nominated by W5PMK, Ks 1MOD 2YFE 4TEA 5YYI 6TZX 7KBN, WAs 2OGI 2ONO 2QMJ 4AYX 6ORS 6PMK and 7RBM are as follows: CE3ST, CRs 5AR 6DO, CTs 1SQ 2AI, DL9VZ/SVØ, EA4GZ, EP2BK, FP8BX, HB9s IX SJ, HC4CD, HK3PQ, HP1AC, HV1CN, JA1CWP, KGs 4AI 6AAY 6FAE, KP4s CC HQ, KR6GY, KV4AA, OAs 1AM 6AN, OHØNF, OX3BZ, OZ5JT, SM5RV, SP9TA, TF2-WGB, VE3BQL/SU, VKs 2ADE 3AHO 9RO, VP2s KJ VI, VSs 4RS 6EK, XEs 1EI 2OV, XW8AS, YN9CIL, YV5AYM and ZS5NJ. QSL managers also come in for thunderous applause — FB, OMs! . _ . _ . _ "Let's stamp out non-QSLers!" exhorts K5VXL/KH6 . _ . _ . _ WA4AYX insists on s.a.s.e. concerning his QSL work in behalf of HI8JES, TG6PB and VP2SM . _ . _ . _ Operator Ski of KC4s USD USN, VE8s MA MB MC and MD comes home in November, according to WA6PMK. Copious QSLing will follow . _ . _ . _ K7KBN volunteers to serve as QSL aide to a deserving DX brother . _ . _ . _ WGDXC has it that VE7ZM may be of assistance toward HP9FC/VQ8, HS2A KC6CG, KH6EDY (opr. Hunt), TA3GI, VK8OW and ZB1A pasteboards . _ . _ . _ K1IMP offers, "If there is anyone who has not received a QSL for QSO with VP6AM before or after the time I became his QSL manager he should send his card with s.a.s.e. to me." . _ . _ . _ Now for your perusal we present a few individual recommendations, addresses omitted from or at variance with *Call Book* listings to date. Be our guest. . . .

AP5AH (via AP5CP)
CE2AW, D. Cavada, P.O. Box 3016, Valparaiso, Chile
CO8HB, A. Arjona, P.O. Box 222, Guantanamo, Cuba
CP5EZ, I. Tadic, Box 930, Cochabamba, Bolivia
CR6DO, Zica & Julio Saraiva, Quizenga, Angola
CR8AB (via W4QCW)
ex-EP2AT, R. Leffert, WØQOJ, 10 E. Jefferson, Colorado Springs, Colo.
EP2BM (via W4ANE)
EP2BQ, Box 1065, Tehran, Iran
F2CC/FC, R. Roblot, Cargese, Corsica
FG7XH, Box 335, Pointe-a-Pitre, Guadeloupe
FG7XM, Box 521, Pointe-a-Pitre, Guadeloupe
FM7WZ, c/o Martinon Radio Stn., Lamentin, Martinique, F.W.I.
FP8BY (to XEØAEJ)
FW8BH (non-VK/ZLs to W4ANE)
HB1ABU/vs, H. Emmenegger, Olivenweg 44, Bern 18, Switzerland
HC1BS, R. Howard, USARMIS, U.S. Embassy, Quito, Ecuador
HC5s CN RG (W/Ks via K8TBR)
HI3PC, Box 282, Santiago, D.R.
HI8JES (via WA4AYX)
HK3AH/p (via K4ASU)
HKØSO (to HK3SO)
HL9KP, APO 8, San Francisco, Calif.
HL9KR (via K7KID)
JA5FQ, R. Shono, 441 Nisibara Hirajima, Naga, Tokusima, Japan
K5FOQ/KS6 (to K5FOQ)
K4HDI/mm, USS *Randolph* (CVS-15) (via K4TGA)
K5VXL/KH6, D. Turner, 312 Lowella Av., Pearl City, Oahu, Hawaii
K6DCA/KG6 (via K6DCA)
K6EJD/KM6, Navy 3080, Box 20, FPO, San Francisco, Calif.
K6OTW/KL7, V. Goldsmith, Hq. USASA AL, APO 949, Seattle, Wash.
ex-KA2DA (to WA6OZY)
KB6CL, Box 38, Canton Island
KC6BK, S. Kohn, Kolonia, Ponape, E. Carolines
KG1BQ, Box 351, RCA, APO 23, New York, N.Y.
ex-KG4AI (to WA2WDA)
KG4BF (via W2SOE)
ex-KG6SF (to WA6KWB)
KH6ENT/KS6, 1725 Nicholson Dr., Baton Rouge, La.
KJ6CU, 1957th Comm. Gp., APO 105, San Francisco, Calif.
KR6BH (W/K/VE/VOs via K5MDX, others via OARC)
KS6AM (via W1BYH)
KZ5MH, P.O. Box 53, Ft. Kobbe, C.Z.
LA3ZH/mm, L. Molle, M/T Finnanger, c/o Lago Oil & Transport Co., Ltd., Aruba, N.W.I.
M1QHP (via DL4/5 Bureau)
M1ZDP (to W7ZDP)
OX3AI, Station Nord, Greenland
OY8MR (to OY7ML)
PX1GX (to F7GX)
PX1RV (to G5RV)
PY1BUS, G. Wolff, P.O. Box 58, Rio de Janeiro, Brazil
PY1NEW, E. Filho, P.O. Box 369, Niteroi, R.J., Brazil
PZ1AM, A. Meubelman, P.O. Box 12, Paramaribo, Surinam
SP9PT (via PZK)
ex-SU1MQ-5A1TQ-VR3G (to G3KDE)
TF2s WGP WGW, VW-11 Radio, Navy 103, FPO, New York, N.Y.
TG6PB (via WA4AYX)
UC2CS, E. Homenko, P.O. Box 45, Minsk, B.S.S.R., U.S.S.R.
UW9CC, P.O. Box 118, Sverdlovsk, U.S.S.R.
ex-VE8DM, R. McQuillan, VE7PU, 104 Peveril Av., Vancouver 10, B.C., Canada
VE0MF, Radio Aids Workshop, 202 Harbor Rd., Victoria, B.C., Canada
VK2VC/L.H. (via W4ARR or W4ZRZ)
ex-VK0VK (to VK2VK)
VP1AM, P.O. Box 411, Belize, Br. Honduras
VP2SM (via WA4AYX)
VP5DB, Navy 104, FPO, New York, N. Y.
VP8GO, Box 136, Port Stanley, Falkland Islands
VQ9AA (via W4ECI)
VQ9HBA (to VQ9HB)
VR1M (via W1HGT)
VR3H (via W6AFI)
VR3L, CIARC, BFPO 170 via Postmaster, Honolulu, Hawaii
VS1FJ (via MARTS)
VU2LNZ (W/Ks via W2ODZ)
W1MV/KP6 (to W1MV)
W1ZLG/VR3 (via W1AHQ)
W4LCY/KM6, F. Phillips, RFD 1, Box 33A, Baker, Fla.
W5HTM/VR3 (to W5HTM)
W6GMQ/VR3 (via W6AFI)
W6VUN/KW6 (to W6VUN)
WØANJ/KP6 (via W4DKP)
WA4DQI/VP9, FPO 138, New York, N.Y.
WA6WQM/VR3 (via W6AFI)
XE1BBO, A. Thomas, P.O. Box 23, San Rafael, Ver. Mexico
XE2JS, F. Ramos, Box 395, Guaymas, Sonora, Mexico
XEØAEJ, D. Simonsen, K7AEJ/5, 1431 E. Broad St., Texarkana, Texas
XZ2VK (via BARTS)
YV4CP, J. Avila, P.O. Box 523, Valencia, Venezuela
YV5BLP, P.O. Box 2737, Caracas, Venezuela
ZA1GB, Filo, QSL 7AD, Box 1978, APO 241, New York, N.Y. (or via W2FZY)
ZB1BW (to G3PEU)
ZC5DO (via MARTS)
ZD6HK (W/Ks via W2ELW)
4U1ITU, International Telecommunications Union, Geneva, Switzerland (or via USKA)
4X4IX (via WA2KNC)

5N2JKO's person and station appeared in last October's "How's". W1VG of ARRL Hq. completes Mike's environment with these photos of the 5N2JKO abode, complete with TA-33 beam and 7-Mc. dipole, plus the Nigerian medical dispensary where he spends many off-the-air hours serving the local populace.





5A3CJ, S. Gibbs (G3MBS), Box 62, Benghazi, Libya
9Q5HL, P.O. Box 427, Elisabethville, R.C.
9U5JF (via VE3DGX)

Hooray for QTH donors Ws 1APA 1BPM 1WPO 2DY 2ELW 2JBL 6WAW 7LZF 8KX 9NN 9QGR 9VZL 9YMZ, Ks 1MLI 1QVI/VO1 2KRK 2TDI 2UYG 2YFE 3JHF 3MNJ 4EF 4IKV 4TEA 6TZX 8NMJ ØBHM ØJPL, WAs 2FIT 2FQG 2HLH 2QMC 2QMJ 6HTJ 6ORS 6PMK 6RCJ 6SBO, HB9KC, KH6DVG, VE7BBB, L. Waite, D. Houghton, DARC's *DX-MB* (DLs 3RK 9PF), Far East Auxiliary Radio League *News* (KA2CM), Florida DX Club *DX Report* (W4CKB), Japan DX Radio Club *Bulletin* (JA1DM), Kanawha Radio Club *Splatter* (W8PQQ), Newark News Radio Club *Bulletin*, North Eastern DX Association *DX Bulletin* (W2DGW), Northern California DX Club *DXer* (K6CQM), Okinawa Amateur Radio Club *Keystone Karrier* (KR6MIL), Polar Bears Radio Club *DXer* (SL3ZO), Universal Radio DX Club *Universalite*, VERON's *DXpress* (PAØs FX LOU VDV WWP), Western Washington DX Association *DX Northwest* (W7JPC), West Gulf DX Club *DX Bulletin* (K5ADQ) and a few others we've tried not to overlook. Come again!

Whence:

Asia — Lower that radiation angle, OM...On the final week end of this month you're invited by JARL (Japan) to participate in the 3rd All-Asian DX Contest, an all-c.w. affair that kicks off at 1000 GMT on the 25th and concludes 1600 on the 26th. The general call is "CQ AA," and non-Asians will strive to hook Asians from 3.5 through 28 Mc. Serial exchange consists of RST plus your age in years; YLs, however, are politely permitted to substitute two zeroes for this revealing statistic. For final score multiply total different Asian stations worked per band by the total number of Asian band-countries worked. (Working JA1AA on three bands, for example, would net nine points.) High aggregate scorers and high single-band scorers may earn certificate recognition if log entries are shipped to JARL Contest Committee, P.O. Box 377, Tokyo Central, Japan, no later than September 30, 1962 . . . . . KH6DVG learns that BV1USA's Bob (W5KPH) comes back home this summer, and we hear that HS1W goes to KA-land this month . . . . . K2GMF, running RTTY for Uncle Sam in Korea, hears all U.S. call areas well on 20 with his 51-f4 and hopes to earn an HL9 call before closing his Asian tour . . . . . K2UYG's Eastern observations: ZC4CT (G3PSM) hopes to try much MP4ing next month, and Kuria Maria island near Aden may soon make DX headlines if the VS9K Kamaran gang get their DXpeditionary wishes . . . . . JA5FQ, according to VE7BBB, finds K6BX's Certificate Hunters Club functions a worthy way to while away periods of poor conditions . . . . . It's Qatar for W5LAK (ex-5A5TA), then perhaps a rarer spot come October. John is an oil-source detective . . . . . From HL9KR (W4WNY): "The Republic of Korea has recently authorized issuance of a limited number of amateur radio licenses to personnel of the U.S. forces in Korea. I was fortunate in receiving one of the first. Frequencies are restricted to 50 kc. above and below the Stateside phone bands on 10, 15 and 20 meters — 14,150-14,250 kc., for example. Power is limited to 100 watts in the antenna, and third-party traffic is prohibited." . . . . . "VU2LNZ, now a Novice as evidenced by the 'Z' in his call, soon will be a VU General," enlightens W2ODZ. "Neel puts a good signal into the U.S.A. although he runs only 25 watts to a folded dipole. Watch for VU2LNZ between 14,040 and 14,060 kc., 1630-1800 GMT, occasionally around 1200 GMT." . . . . . FEARL Secretary KA2OM (K9QPL) writes, "We are trying to prepare a history of our league and would appreciate hearing from former members and officers of FEARL." . . . . . W0QOJ, terminating his EP2AT DX doings, states, "Iran will continue to be represented by several active hams. Circumstances look favorable for even more EP tickets in the near future." . . . . . AP5CP hopes to encourage more local amateur activity to help cope with such calamities as last year's East Pakistan cyclone and tidal wave emergencies.

Africa — DXdom loses one of its royalty. A newsclip forwarded by W8FTD reports the passing of Ethiopia's Prince Sahle Selassie, ET3YX, younger son of the emperor: Bob reminisces, "I had the pleasure of seeing ET3YX's rig when in Addis Ababa. He ran a kilowatt on several bands and was known on the air as 'Hal'." . . . . . 5As 2CX 2TR 2TW 3TK 4TC 4TN 5TE 5TM 5TW and 5TY got together in May to form the Libyan Amateur Radio Society, electing 5As 4TN president, 5TE secretary, and 4TC treasurer. 5As 2CX 3BC and 5TM act as representatives for the Benghazi, Barce and Wheelus areas, respectively. Amateurs world wide are invited to qualify for LARS's Libyan Amateur Radio Award which is based on QSOs with eight Libyan stations on two bands (three bands for European applicants). Full specifications are available from Awards Mgr., 5A QSL Bureau, P.O. Box 372, Tripoli, Libya . . . . . K2UYG has it that 5N2RDG may make a c.w. visit to TY2 next month . . . . . W2JBL finds neighbor K2KUR behind that large 5A1TW signal . . . . . YL Zica and OM Julio of CR6DO tell K2YFE of their need for recent amateur literature . . . . . ZD6HK renewed local on-the-air acquaintances while awaiting his new receiver and revising his TA-33 rotary. W2ELW says Harry should be back on the North American paths any time now . . . . . GARS secy.-treas. 9G1CW specifies, "Ghana stations are now allowed a maximum of 150 watts on 3.5, 7, 14, 21, 28 Mc. and five v.h.f.-u.h.f. bands. . . . A Ghana Award will be issued in about three months time, requirements to include five contacts with 9G1s on two bands." . . . . . 5A3CJ (G3MBS), a former ZC4AK clubber, likes c.w. and sideband on most DX bands and intends to continue the 160-meter DX activity he enjoyed so much on Cyprus . . . . . Our Liberian lookout, EL4A, comments: EL2V sold out to EL6A and headed for California and a year's well-earned leave. . . . EL4A sports a new Drake receiver but his new Vee beam succumbed to the African elements after a brief but glorious DX splurge. Ken thinks in rhombic terms now and plans plenty of 1803- and 1827-kc. work this coming season . . . . . Africa addenda via some of the aforementioned club sources: TZ8BF is a juicy job reported on 20 c.w. from Bamako, . . . TT8AG knocks off for return to France. . . . After his 6000-QSO Aldabras VQ9AA triumph, W4BPD struck out for the Agalegas and Seychelles. Gus now sets his DX sights for QSOs from YA 9N1 AC3 AC5 and VK9 locations. . . . W0MLY/Africa, after warming up in early summer as TR8 and TC8 bait, plans probable operational visits to the Cameroons, Dahomey, Togo, Mauritania, Mali, etc. Watch the low edges of all c.w. bands and U.S. phone subbands for Mac's c.w. and s.s.b. signals.

Oceania — KC6BK of the E.C., causing quite a stir on 20 sideband, formerly signed KR6IZ, KL7CLI and DL4JY . . . . . From W4LCY/KM6: "Sure having a lot of fun working the boys back home on c.w. Judging from the pile-ups one would think I was really rare DX. Must be that most former KM6s were phone men. I spend most of my free time away from electronic duties on the low end of 15 or 20 meters. Tried 40 a few times but conditions seem to be pretty poor and 7-Mc. commercials make it rough." . . . . . WA6PMK reports W6VUN/KW6 also having a ball with a KWM-2, 30L-1 and dipole on 20 and 40 sideband. He's due for return home this month . . . . . W1APA likes the way VK sidebanders poured through on 7 Mc. between 1000 and 1100 GMT this spring . . . . . According to KØBHM, KR6LY will become K4UEE/Ø at Kansas U. this fall . . . . . KH6DVG and K6TZX find VR2AB, active regularly around 14,090-kc. c.w. and a.m., readying for return to New Zealand . . . . . VKØVK, now VK2VK, particular thanks Ws 1AGS 1HZ 4ML 5WW 6WX 9ZB, K2KGJ and ZS7P for sterling assistance during his 3000-contact 1960-'62 antarctic DX sojourn. Steve may visit eastern U.S.A. next month and expects to become VKØVK again early next year. Heard Island, perhaps . . . . . Club items from the Pacific quadrant: ZL4JF of the Campbells again schedules VE7ZM sideband, 14,125 kc. at 0530-0600 GMT. . . .

VP4LQ looks on while Trinidad Minister of Works Gerard Montano QSOs VP2GAC from the station recently exhibited publicly by the South Trinidad Amateur Radio Society . — . — . — The group at right assembled to honor visitor G2YL, prominent British YL pioneer DXer, at an STARS barbecue. From left to right, rear, are VP4s BO KR NC SX LH LR PL seated, VP4s KE VP, YV6BC, VP4LQ, G2YL, VP4s LP MM TO, the XYLs of TO and MM. (Photos via VP4s NC and PL)

CE9AF of the Chilean antarctic was recently operated by guest W9VZL of the University of Wisconsin Geophysical and Polar Research Center. Ted couldn't find a bug down there so he fashioned one from nails, washers, packing-case stripping, wood from an oar, and other miscellany—that old well-known ham ingenuity. CE9AF's 32V-3, SX-96 and dipole are usually found between 14,100 and 14,200 kc., but you may have to brush up on your Spanish.

Some visiting yanks on the bomb squad apparently had FCC permission to sign "/KP6" in VR3-land. . . . Ws 4ARR and 4ZRZ tell of VK2VC's July Lord Howe venture, s.s.b. preferred. . . . VK3AHO tried his luck as YJ1RH in June before attempting his FW8BH Wallis swing. . . . W4QCW congratulates W1WPO & Co. for development of *QST*'s new Honor Roll layout and underwrites the legitimacy of Timor's CR8AB, 14,113 kc. at 1300–1400 GMT.

Europe — DARC (Germany) invites amateurs throughout the world to participate in the WAE DX Contest, No. 8 in the series, scheduled for (c.w.) from 0000 GMT August 11th to 2400 the 12th, and (phone) same hours August 18th-19th. Non-European stations will trade RST001, RST002, etc. (omit the "T" on phone, of course) serials with Europeans once per band at one point per QSO (two points per 3.5-Mc. contact). Additional points are yours by sending "QSO reports" (QTC) to European stations at one point per QTC. Each QTC consists of (1) time in GMT, (2) station call, and (3) QSO number of any previous WAE Test contact. For example, W9XYZ raises DJ7JJ and earns a contact point thereby; W9XYZ previously worked G3BS at 1207 GMT for G3BS's 96th Test QSO. So besides the QSO point for his serial trade with DJ7JJ, another point accrues to W9XYZ if he sends "1207/G3BS/096" to DJ7JJ. W9XYZ can work DJ7JJ again later on the same band, but only for QTC purposes. Over the entire Test period each QTC can be transmitted to Europe by W9XYZ but once, and DJ7JJ can accept no more than 10 QTC per band from W9XYZ. (It figures that the more Test QSOs accumulated, the more QTC are available to parlay into additional points.) *Scoring*: Multiply combined QSO and QTC points collected on all bands by the combined numbers of multipliers collected on all bands, the latter deriving from DARC's Worked-All-Europe Countries List — CT1 CT2 DJ/DL/DM EA EA6 EI F FC G GC GD GI GM GW HA HB HE HV I IS IT LA LX LZ M1 OE OH OHØ OK ON OY OZ PA/PI PX SL/SM SV TF UA1-6 UB UC UN UO UP UQ YO YU ZA ZB1 ZB2 3A2, GM Shetland, LA/p Jan Mayen, LA/p Spitzbergen, SV Crete, SV Rhodes, TA Europe and UA Franz Josef Land. (DARC stresses that UD UF and UG are Asia, not Europe.) Entries go to the DARC DX Bureau, Berlin-Rodow, Germany, postmarked no later than October 15, 1962. The highest scorer in each continent and country (or call area) will earn a certificate of merit; second- and third-place awards also will be considered. By the way, a large self-addressed envelope sent to DARC together with a pair of IRCs (for airmail reply, 5 IRCs) will bring back convenient score sheets for transcript and summary. DARC hopes that the change of dates in this affair will meet more favorable DX conditions from year to year . . . . . North American high scorers in the 7th WAE DX Test by call area are Ws IJYH 2WZ 3GRF 4KFC 5WZQ 7PQE, K8AUP, Ws 9IOP ØBLZ, VE3HB, VO1AW and KP4CC. Continental leaders are W3GRF, DJ3KR, PY1ADA, 5A3TQ, EP2BK and ZL1APM. This January version was c.w. only . . . . . G3CSE will spend the second week of this month on the Isle of Man with DX gear. "I'll be looking for U.S.A. QSOs on DX bands, phone and c.w." . . . . . I1SVZ expects to visit one or more of IC1 IE1 IP1 IS1 and IT1 this month. "We'll operate only sideband but will listen for a.m. and c.w. calls as well." . . . . . *Fine* thing — K8NMG failed to hear a single F station in this year's REF Test period . . . . . WA2JGL learns that DL3TJ and SM5CAK helped DJ6OG's summer Corsica DXpeditionary plans. DL9PF was another lively FC visitor . . . . . K3CUI notes in Russia's *Radio* that R6K certificates after January 1, 1963, will be issued only for single-sideband contacts dating after May 7, 1962. Also that it will be necessary to work the full 100 oblasts to qualify for R100-O as of the same date . . . . . "I1ZCN/M1 intends to be active on week ends all summer," writes W9WCE. John and son K9LBL found him flitting about 20 c.w. near 0200 GMT. Incidentally, RAEM indicates to W9WCE that Yuri, UA1LO, most probably is *not* the cosmonaut . . . . . DL5DU's new Mosley spinner helps foil worsening h.f. conditions. Ray recently visited San Marino but — darn it — had no gear along. DL5DU anticipates U.S.A. return about a year hence . . . . . Re the pile-up problem, G3BID votes for the approach well demonstrated by old ZD9AA, currently espoused by CR9AH: frequent instructions to call *far* off frequency, a hundred kc. or so. Admittedly this rules out typical transceiver techniques . . . . . OY7ML writes of a new Faeroes operative due to appear on sideband thanks to an SB-10 from W4ECI. Martin has a telephone pole on order from Denmark and hopes a new trap dipole will give him improved 40- and 80-meter results . . . . . Ws 8KX and 9NN relay IT1AGA's plea for more W/K YL QSOs. YLCC, you know . . . . . DL5GX (W7ZDP) and DL4DL (K1QHP) undertook a May DX pilgrimage to San Marino as M1s ZDP and QHP with c.w.-only output on 15, 20 and 40 meters . . . . . G3NBC succeeds G3IEC as RSGB certificates manager and may be reached via the society's address, 28/30 Little Russell St., London W.C.1, England . . . . . 4U1ITU, ham station of the International Telecommunications Union at Geneva, fired up by Ws 4KVX 9AC and K9EBE in early June. A snappy hallicrafters layout is supported by a Hy-Gain rotary . . . . . G5RV and F7GX hope to sign PX1s RV and GX early this month, a multiband c.w. and single-sideband endeavor.

South America — From correspondent VP4NC: "We are most anxious to extend a warm and cordial welcome to visiting amateurs. Such travelers to Trinidad should contact VP4VP of Texaco Trinidad Ltd., Pointe-a-Pierre, or myself, VP4NC, Chaplain's Residence, Naparima College, San Fernando." South Trinidad Amateur Radio Society's May radio exhibition drew impressive crowds and doubtless will produce new candidate VP4s for our logs . . . . . VE7BBB says PJ3AD is nearing retirement QRT . . . . . K8IQB pushes traffic with OA6AB, YV11K, HR1MD and YN1BOB when not hunting new ones . . . . . W2ELW encountered the c.w. 50-watter of FM7WZ for a new ten-meter item. Bob has a long-wire and 15-tube receiver peaked for W/K/VE QSOs . . . . . WA6ORS says the soft voice of YV4DU's Irene does a lot for 15 meters . . . . . CP5EZ is filled in on DX awards data by W8KX and is active almost nightly on 20 c.w. with his DX-100 and NC-100XA. Like most isolated overseas amateurs, CP5EZ enjoys hearing from colleagues by mail as well as by radio . . . . . HK7ZT has details on a 7HK7 certification for those who are lucky enough to have contacted seven HK7s on c.w. or seven on phone before January 1, 1962 . . . . . W4KXV finds PY1NBP beating the W/K bushes for Montana, South Dakota and WAS.

Hereabouts — Monique of FG7XL tells VE7BBB she'll be touring the U.S.A. this month, itinerary not specified . . . . . K9VRV/4's *Handbook* distribution program has reached into 28 countries so far — great going! . . . . . WA2JGL, back at DX after a 20-year layoff, formerly signed Ws 2AGQ and 2HSE from 1925 through '39 . . . . . VP6AM, usually close to 28,500 kc. at 2100–2200 GMT, tells K1IMP he will shut down his Barbados station in October . . . . . Willamette Valley DX Club, W7QY secy., will play DX host at the ARRL National Convention, Portland, Ore., on the first three days of next month. Gala program, natch . . . . . W8KX credits the HKØAB-KS4BF bunch with one of the snappiest DXpeditionary efforts on record. W7POU seconds the motion, adding, "I think I hold some sort of record for pile-up persistency. Chased HKØAB for two solid days, finally snagging him on 14 Mc. on the 148th call. Next came a VR3 on only two tries." . . . . . If you prefer to run powers of less than 100 watts input (200 watts p.e.p. single-sideband) you may be interested in the QRP Amateur Radio Club. During the

W6FB is a discerning awards collector as anyone can plainly see. Although a few of Fred's more recent acquisitions are not shown, he has twelve WACs, four DXCCs and four WASs, all earned under nine different calls in various locations around the world since 1926. Remember TA3GVU?

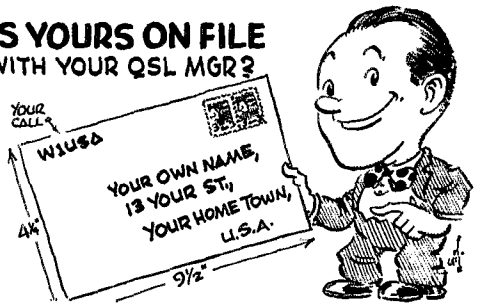
illness of club secretary-recorder K6JSS, a committee of Ws 6CIS 9DBO, Ks 4WXV 6TBW and 7BUE manages this group. It all started with a letter to the editor published in a recent *QST* — 122 members here and abroad so far . . . . . W8CQN surrendered a 127/98 DX record as K3DUB but already is 120/37 in Michigan.

Ten Years Ago in "How's DX?" — Rebuilding time traditionally arrives with the summer season. Jeeves proves beyond doubt that it comes none too soon to W1VMW in 1952 . . . . . Twenty phone keeps DXCC aspirants all adither with AG2AC, EA9DC/Ifni, FL8MY, HC8MM, JY1OG, KT1WX, MI3s BW MK, ST2GL, Ws 6HQH/KM6 ØEGY/KJ6, YI3BZL, ZC6UNJ, ZD4BF and 9S4BF . . . . . Twenty c.w. presents EK1s AO FM JG, ET3Q, FD8s AA AB, FN8AD, FR7ZA, HE9LAA, I5s WC ZC, JY1AJ, KH6USA/KS6, MI3s LK US, OE13USA, OY3IGO, TA3AA, VK1PG, VK2QZ/9, VR7AB, VSs 2CW 2DH 7GV 7NG 7YL, ZCs 2MAC 6JE, ZDs 4BC 9AA and 9S4AR. . . . . Fifteen-meter fans are on the increase thanks to EK1CW, MI3s SL ZX and OQ5RA . . . . . The best on 40 c.w. are TA2EFA, Norfolk's VK9GM, VR4s AF and AT . . . . . Ten and 160 go unreported in the summer lull, but VE1ZZ keeps the transatlantic path hot on 80 c.w. . . . . W6MLY had 876 QSOs as HZ1MY, German amateurs begin using the DJ prefix, SU1AD (W3BHD) shuts down, and WIs FTJ and MCW apparently are the DXingest YLs on the DXCC roster . . . . . Jeeves goes fishin' for TRØUT and P1KE, while photos of AP2N and friends, HZ1KE (MD5-KW), the MI3US gang, and the station of CR9AF deck out the digest.

A.R.R.L. QSL BUREAU

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

W1, K1 — G. L. DeGrenier, W1GKK, 109 Gallup St., North Adams, Mass.
W2, K2 — North Jersey DX Ass'n, P.O. Box 303, Bradley Beach, N. J.
W3, K3 — Jesse Bieberman, W3KT, P.O. Box 400, Bala-Cynwyd, Pa.
W4, K4 — Thomas M. Moss, W4HYW, Box 20644, Municipal Airport Branch, Atlanta 20, Ga.
W5, K5 — Brad A. Beard, W5ADZ, P.O. Box 25172, Houston 5, Texas.
W6, K6 — San Diego DX Club, Box 6029, San Diego 6, Calif.
W7, K7 — Salem Amateur Radio Club, P.O. Box 61, Salem, Oregon.
W8, K8 — Walter E. Musgrave, W8NGW, 1245 E. 187th St., Cleveland 10, Ohio.
W9, K9 — Ray P. Birren, W9MSG, 702 Spring Road, Elmhurst, Illinois.
WØ, KØ — Alva A. Smith, WØDMA, 238 East Main St., Caledonia, Minn.
VE1 — L. J. Fader, VE1FQ, P.O. Box 663, Halifax, N. S.
VE2 — George C. Goode, VE2YA, 188 Lakeview Avenue, Point Claire, Montreal 33, Quebec.
VE3 — Leslie A. Whetham, VE3QE, 32 Sylvia Crescent, Hamilton, Ont.
VE4 — **D. E. McVittie, VE4OX, 647 Academy Road, Winnipeg 9, Man.**
VE5 — Fred Ward, VE5OP, 899 Connaught Ave., Moose Jaw, Sask.
VE6 — W. R. Savage, VE6EO, 833 10th St., N., Lethbridge, Alta.
VE7 — H. R. Hough, VE7HR, 1291 Simon Road, Victoria, B. C.
VE8 — Russ Allen, VE8BC, Aeradio Station, Snag, Yukon Terr.
VO1 — Ernest Ash, VO1AA, P.O. Box 8, St. John's, Newf.
VO2 — Douglas B. Ritcey, Dept. of Transport, Goose Bay, Labrador.
KP4 — Joseph Gonzales, KP4YT, Box 1061, San Juan, P. R.
KH6 — John H. Oka, KH6DQ, P.O. Box 101, Aiea, Oahu, Hawaii.
KL7 — Alaska QSL Bureau, Box 6226, Airport Annex, Anchorage, Alaska.
KZ5 — Ralph E. Harvey, KZ5RV, Box 407, Balboa, C. Z.



Strays

W2EE says he has newspaper proof that he was a ham 56 years ago, in 1906.

—···—

K9ZVE entered a science project in a district science fair and three days later discovered that the fellow he was working on 75-meter sideband, W9HG, was one of the science fair judges.

—···—

If you're a funeral director or embalmer, contact John Walter, K9AEK, Box 441, Hartford City, Ind.

The World Above 50 Mc.

CONDUCTED BY SAM HARRIS,* W1FZJ

THE June QSO Party is over and all we need now are the final scores. New milestones in contest history were passed by all participants. W1MHL/1, on Pack Monadnock Mt., New Hampshire, defended their hold on the Syracuse VHF Society Trophy by passing the 100,000 mark. It took operation on all bands from 50 Mc. to 10 kMc. to do it. The effort produced 544 contacts in 32 sections on 50 Mc., 490 contacts in 17 sections on 144 Mc., 63 contacts in 14 sections on 220 Mc., 26 contacts in 10 sections on 432 Mc., 10 contacts in 4 sections on 1296 Mc., and one contact in one section on 2300, 3500, 5650 and 10 kMc. A total of 1254 contacts in 81 sections for a new high in the multiple-operator class. In the single-operator class, W4GJO took advantage of ideal skip conditions on 50 Mc. to amass a total of 600 contacts in 51 sections. Grid also picked up another section on 144 Mc. to give him a score in the vicinity of 30,000 points. Tad, XE1OE (W8NRM), contacted 318 stations in 50 sections on 50 Mc. Considering the fact that his nearest local is 800 miles away, this score attests to the conditions existing on the 50-Mc. band during the contest period.

50 Mc.

First and foremost this month a correction and an apology to be made to Harry Wilson, EI2W. In this column in May *QST* we made the statement that Harry is a professor at Dublin University. Seems that we goofed and may have caused Harry considerable embarrassment! He is in the electronics industry! We are sorry, Harry, and promise to be much more careful in the future.

Word received from HC1FS relates two openings on 50 Mc. into his QTH; the first of these on May 6 when the band opened at 1700 (local time there) and closed at 1855. During this period Fred worked stations in Alabama, Louisiana, Texas and Mississippi; working nineteen stations in all. He also heard CO2EX in QSO with Puerto Rico. All signals were 89 with little QSB. The second opening occurred for Fred on June 2, when he worked three stations in Indianapolis, Indiana, before the band closed down again. A short but very pleasant opening, says Fred, who has been twiddling that dial for months just a-waitin' for an opening.

News of note from the Montreal area received from Geoff, VE2AIO. "The last half of May was very good here as far as tropo and E_s openings. The E_s tended to favor the West more than the South with many short openings into WØ and W9 noted. Mexico was heard but not worked. On May 21 at 1632Z, a strong, unmodulated carrier was heard at 50.001 bearing 215 true for about twenty-five minutes. It peaked about 18 db. above the noise and had a slow rolling fade. Weak southern Florida signals were in at the same time along with a weak XE at 50.097. I have heard this carrier two or three times since, always unmodulated, T9 and when the E skip is long with double-hop signals heard also. Wonder if this signal is coming from Central America?" Can't say, Geoff, but the same signal is heard here in New England under the same circumstances. On May 26 a similar carrier was noted on 50.040 but bearing was true north at 1700 Z. This one went off and on twice before fading out according to Geoff. Might have been KL7FLC.

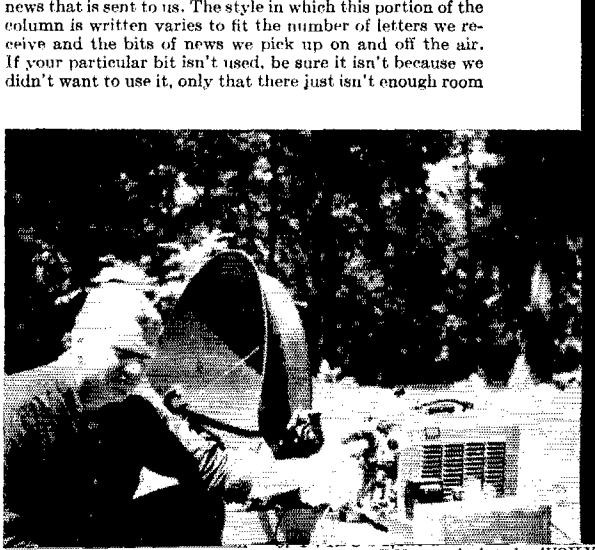
VE2AIO operated the v.h.f. contest on June 9-10 and worked W5UB in Texas for a new state. At 2325Z on June 9 he noted a weak aurora so immediately started keeping a close watch for VE8BY; sure enough, all of a sudden there came Pete out of the noise with a terrific signal. He was so strong that Geoff had to back off his r.f. gain most of the way in order to copy Pete's c.w. VE2SH also worked VE8BY during that period. Only other interesting opening heard in Montreal was on June 18 when Arizona, California, Mexico and New Mexico were heard along with Tennessee.

Another Canadian call area heard from this month is VE4RE who sez that the last opening of any proportion occurred on May 19 when the WØ, 9, 5 and 4 areas were worked. VE8BY usually breaks through to Winnipeg two or three times a month via what seems to Murray to be aurora. He also mentions that the Winnipeg v.h.f. groups gather twice weekly for a six-meter net and that other activities include transmitter hunts, propagation checks and social get-togethers. However, they are handicapped in that there are no large centers of v.h.f. activity within 300-400 miles. Must be discouragin'.

Norm, VE6HO, sez that several six-meter openings were observed and on May 20 he worked WA6BYA with 5/9 reports exchanged. Norm is more active and more interested in the 144-Mc. band, and you'll note more news from him later in the column.

Interesting news, as usual, from Pete, VE8BY, who states that after a very poor spring season, the six-meter band opened up for the contest. In fact it was open at the time he was writing his letter to us, into the VE4s, but he was unable to get hold of them. They seemed to be running a net on about 50.04, on a frequency too close to that of KL7FLC for Pete's liking. WA2VMB was getting into Yellowknife with a 5/9 signal but didn't hear Pete come back to his "CQ". Strongest signal heard was VE2AIO on s.s.b. although VE4TL also had a good signal, 5/7/9. KL7FLC was last heard at VE8BY on May 17 at 0605/0645 GMT.

The expression "a feast or a famine" applies to many things, amongst which is "writing a column." During the winter months it is often quite difficult to find enough news to interest the v.h.f. gang, but once the band starts opening in the spring of the year, it is very difficult to use all of the news that is sent to us. The style in which this portion of the column is written varies to fit the number of letters we receive and the bits of news we pick up on and off the air. If your particular bit isn't used, be sure it isn't because we didn't want to use it, only that there just isn't enough room



K1BDR adjusts X band setup at W1BU during the June contest.

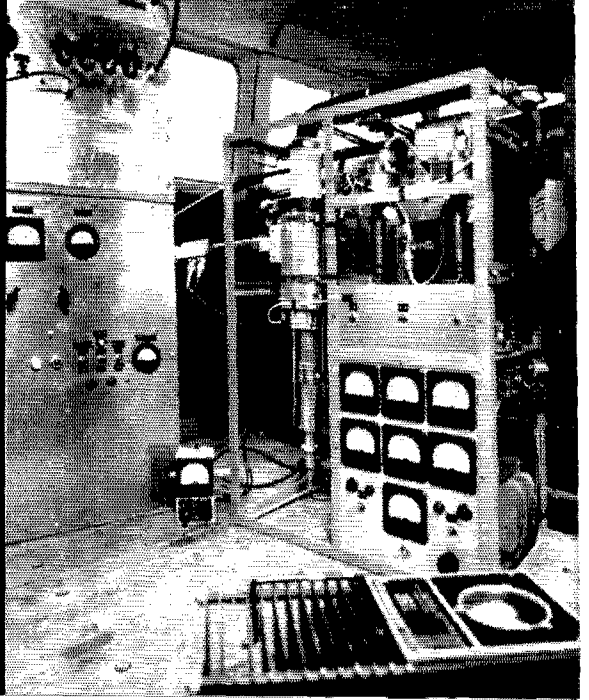
*P.O. Box 334, Medfield, Mass.

in the column no matter how far we try to stretch each page. Also — if your "bit" wasn't used it could be because you forgot to mention the band it concerned, or that for some reason your news concerned events on the low frequecnies rather than v.h.f.

Guess it's probably because we live in the first call area that we never receive (well, hardly ever) reports from stations in this area. We are suspected of being on all the v.h.f. bands constantly so of course there's nothing we need to be told about conditions in this area. However, we do occasionally eat, sleep and run outdoors for a breath of fresh air, so do miss some of the news. This month we have four (count 'em) reports from all of New England. W1HGT sez that every time he turned on the receiver during May the band was open. All states in the fourth call area were heard except South Carolina, all states in the eighth and ninth call areas, Minnesota, Iowa, Missouri, Kansas, California, Oregon, Washington, CO2XG, XE1OE, XE1CT, KP4AXC and LU3D? Jack, W1QXX, tells us that on May 20 K1ISR worked K8SSK in Columbus, Ohio, on scatter. Bud in Columbus was using s.s.b and was also heard by W1DDF. Down Connecticut way W1ZGO relates E_s coming through on 5 days during May with double hop coming through on the 8th when Al worked WA6JOV. Good ground wave conditions for Al on May 22, 23 and 30th of the month. A most interesting letter from Roy, W1JCV, who normally has very few contacts on six meters. Roy sez "There is no six-meter activity in this part of Maine except for the occasional QSO's between this station and K1TJR in Blue Hill. This being the case we were really happy to get into the opening to 8-land on May 15. We were on for approximately three hours and during this time worked a total of twenty-two stations, eighteen of which were in Michigan. *During the next five days we worked into Tennessee, Kentucky and Florida.*" Maybe things are pickin' up, Roy. He also tells us that he decided to try his luck atop Cadillac Mountain in Acadia National Park, and after operating for two and a half hours on Memorial Day, gave up without a single contact. For generation information, Roy reports that if any of the gang is thinking of using that location for portable work, a permit from the U.S. Park Service, 339 Main St., Bar Harbor, Me., is required. This is news that it's nice to have ahead of time — thanks, Roy. Six reports *from the 2nd call area; five from New York, one from New* Jersey. K2BGU sez that he observed openings on 50 Mc. on May 8, 12 and 17; WA2TQT noted them on May 5, 9 (double hop), 10, 11, 12, 13, 17, 20 (Cuba), 23, 24 (CO's again, 4s and 5s), 25, 29, 30 and 31. Openings to K2PQY on May 6, 9 and 11, 13, 15 (VO1DW only), 16 (K4YDA only), 17 and 23. WA2DAC had a private Field Day for himself on May 9 when he worked 45 six meter stations in two hours to the mid west. Lynn also reports openings on May 12 and 23. K2HLA notes that conditions were exceptionally good on 50 Mc. to the north of his QTH (Long Island) on May 28, 29. Up to this point every station reporting mentioned very good ground wave on a number of days during the month of May. From New Jersey WA2BDP heard XE1OE and XE1CT on May 6 but was unable to contact them, also *heard and worked some 4's on that date. Thirty-four states* and all call areas were heard by K3CNN during the month of May. K3JCZ heard and worked his share during May with CO5CN, KP4AXC, KP4BCS, KP4BBR, CO2XA and XE1OE, besides California, Arizona and Wyoming. Ed h sez that he noted skip on twenty days during May, with other locals reporting it on eight more days. K3OBU in Wilmington, Delaware informs us of good ground wave to the northeast and skip coming in on May 7, 16, 18 and 23 Joe makes mention of other stations in Wilmington operating on six meters, so you fellows who need Delaware take note they are K3SUY, K3SXA and K3RKH. From Rosemont, Pennsylvania, and K3LNU we hear of good ground wave conditions on May 1, 2, 3, 6, and 7; skip on May 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, and 28, with good ground conditions usually preceeding the openings. Among the tidbits heard and worked by Bill was CO2XA, CO2BP, CO2BZ, CO3NW and CO5CN. John, *K3KPA keeps his report short by saying "6 meters has been* open almost every day in the month of May. Sporadic *E* and some double hop worked." Heard CO2BZ but no contact." And K3LLR sez that the band was opened and closed so many times that it was hard to keep up with it.

After listing sixteen different ways of openings for the month of May, K4KYL sez that he doesn't think this year's openings are "up to" the openings of last year. He too worked into Cuba; looks like those Cuban stations have been mighty busy. Joe, K4FPT tells us that band openings in *eastern Tennessee have been mostly from New England*, Florida, Texas and Cuba, with six VE4's coming through on one Saturday afternoon sending everyone into a frenzy. No luck! From Virginia W4GVQ sez that the first three weeks of the month were outstanding for 50 Mc, so he took the fourth week for a vacation. As usual, that week turned out to be a dud except for Sunday when stations to the south and southwest, plus Cuba, came through. Dave notes that it is most unsual to have a Tulsa station QRM a local ragchew, and that it seems kind of hard on a fellow, or fellows, *when a net can't operate in Virginia without QRM* from Texas. (The Texan joined the net.) While in Pen Hook, Virginia, K4RTG reports six meters open every day in May except the 15th, 25th, 26th and 28th, with several California stations being worked on the 12th. K4IMF also reports hearing California in Norfolk, Virginia, and sez that he worked eleven states and Cuba during May. From K4SNF we hear that double hop to California was worked several times by WA4AET and that W4ULE worked CO2DN during one of the openings. And down Alabama way K4SFH mentions good openings into all call areas; W4WGI caught four days of openings but missed the others because of his work schedule. K4YZE in Marietta, Georgia goes along with the crowd and agrees that May was a "good one," with openings almost every day.

K4RNG down Miami way sent a detailed report of openings for each of the first nineteen days of May, with as many as fifteen states being heard during a number of the openings; while Kent, K4ANU also of Miami sez: "50 Mc. excellent into Alaska, Mexico, Indiana, Ohio, New York, New Jersey, Texas, Puerto Rico and California." Another "all call areas heard or worked" from W4EGL who was active during the openings on ten different days during the *month. Jim also heard XE1OE but was unable to catch him.* Among the many to observe double hop was Al, W4RMU, who worked W6NLZ on s.s.b. on May 13. S9 signals both ways but rapid fading was observed. W4ZGS, WA4BMC, WA4FJF and WA4FIJ, all reported the tremendous openings into Florida, with double hop into California and Mexico being noted by most, and contacts into Cuba and Puerto Rico being made. "I have missed some good openings and have been in a lot of them!" Famous words from Ray Clark, K5ZMS in Duncanville, Texas; said after listing eighteen *days of openings down his way with many juicy "bits"*



Transmitter used for first 1296-Mc. moonbounce signals received from Europe, via HB9RG, HB9RF and their hard-working group.

along the way. On the 6th of the month (May) Ray heard but did not work HC1FS; on the 7th, CO2GX; on the 8th he heard CO5GN; on the 12th VE5GG; on the 13th VE4TL, VE4OL, VE4WS and VE4KF were worked with VE4JS and VE4HA being heard. On the 14th VE4s were heard once again and also XE1FU and a few VE3s; the 16th came through with a contact with XE2BT the only XE2 on 50 Mc at the present time; the 18th came up with XE1OE. This is only a small portion of Ray's activity during the month of May, maybe it's just as well that he can't be in on all the openings.

In San Carlos, California, WA6BYA also worked Bob, XE2BT, along with VE6AK and VE6HO. W6IEY expresses the feelings of all when he says "Wow, what a month!" Dick worked twenty days of openings and sez "north, south, east, west, openings in all directions and in between, East coast, west coast, Canada, Mexico and the high seas." Al, K7ICW in Las Vegas, Nevada, wants everyone (particularly in 1 land) to know that there is now quite a lot of activity on 50 Mc. in his area. K7ICW, W7YQY, W7VYC, K7NSN, K7RSQ, K7RKH, K7TDQ and K7RLX are all looking toward New England. Another tough one for New Englanders is Montana, and we hear from W7TGG, Vera, that there are now stations active in Whitefish, Billings, Brady, Harlowton, Terry, Great Falls and Miles City. She also reports lots of openings in Montana during May. One of these is W7EGN, Fred, in Whitefish, Montana who reports working Tad, XE1OE on May 1. Another one really hard-to-get in New England is Wyoming, which came through for the first time in three years or more on June 15 when W7VTB and W7CDZ were practically harried to death by W1's and many other call areas. We are most happy to note particularly that now Jack, W1QXX, "has it made," that the many phone calls to Wyoming did pay off as both of the boys were looking for W1QXX.

From Pinedale, Wyoming, we learn that W7VHS and K9DNW/7 are both active on six. From Casper, Wyoming, Bob, W7UFB sez that the *E* season opened to that area on May 6 and was open almost constantly until May 12. Out in Oregon K7IMH notes that six meters has been open almost every day and all call areas except 2 and 3 lands have been heard; while W7ADR and W7GUH of Portland say it has been open to all areas. W7ADR sez that the band has been open 50% more in 1962 than in 1961, and W7GUH adds that KH6, KL7, XE1 and CO2 have made life even more interesting. Comments from Michigan can all be grouped together in K8BGZ's words "Band open for E_s almost every day. A couple of days by double hop into California." In Charleston, West Virginia 50 Mc. was open to K8TSB every day in May except the last five days of the month. Most frequently heard by Ken were Texas, Oklahoma and Louisiana, although he heard many others including VE1s, VE2s, and CO2. Mike, K8WVF reports good c.w. activity during the June contest when he worked twelve skip stations via c.w.; and Tom, K8MMM sez that the first sporadic *E* he caught this season was on May 7 and he heard skip every day until the 14th, when he wrote us his report. From Indiana comes word that Jim, K9WSV worked HC1FS on June 2, and that on June 9 the VE2's and VE3's only were skipping into Greetown, Indiana and K9UEF. According to K9WED six meters has had long skip to the east coast and Florida which has been consistent lately.

For WØENC in South Dakota the band was open for a total of twenty-two days during the month of May with CO2GX being heard and XE2BT worked. A change from skip activity in the note received from WØCGQ, Boulder, Colorado. Bill sez: "Just got our logs off to the league (did you) for the past QSO Party and I thought I might let you know that it has been a great experience, not only from the standpoint of operating but from the standpoint of the weekends in the mountains and the equipment that is beginning to evolve for just such operating. Anyone who contacted WØFPP/Ø during the June contest and who wants a QSL should send his own QSL to WØFPP/Ø, c/o Chief Engineer, Radio and Television Dept., University of Colorado." Glad you enjoyed your mountain-topping, Bill. WØHPS in Minnesota noted wide band openings into Texas from the 25th to the 30th of May. Dot Hall, KØGIC in Wichita, Kansas, noted the band open on twenty one days during May with the 11th and 12th being the best days, and Dave, KØRWC sez much DX with 2's, 3's, 4's and 5's being especially heavy.

Missouri had its share of openings and WØCMI reports a terrific month for DX. He caught six days of openings and the 19th was the best, particularly as he worked Colorado and Louisiana for two new states. Ames, Iowa, and WØPFP report that never have so many California stations been heard as were on May 12 and 13. Jim sez that the band was open so much that he couldn't get anything else done; however, we note that he lists only 18 days of openings so he wasted time somewhere.

Clubs and Nets

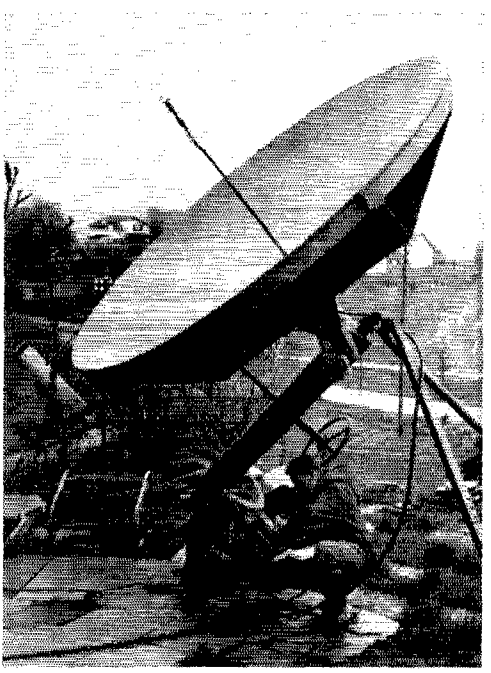
The newly organized v.h.f. club, "Beta Cube" of Bakersfield, California, is making a trip to the top of Mt. Whitney on August 17–19; purpose of the hike is to operate a two-meter station from the highest point in the continental United States while providing two new counties for the locals and possibly a new state for DX. The group will be operating from 1700 GMT on August 18 to 0500 GMT on the 19th; the first thirty minutes of each hour and again from 1500 GMT on 1900 GMT on the 19th. There is a possibility that the station will be operating on the 17th also, but at this writing that is not a definite date. The 11.5-mile, eight-hour hike, will be made by WA6MWA, WA6PZD, WA6MZQ, WA6TVV and WA6KTS.

The "Happy Gang," a 25-station net operating nightly on 146.17, has honored their late vice-president, K2OKX, by securing his station call for use of the club. Custodian of the call is a student brother at The Franciscan Friary at Graymoor, Garrison, New York, and club activities will be controlled from the Friary. The Happy Gang operates and handles two-meter traffic throughout Westchester, Putnam and Dutchess Counties, N.Y., as well as serving to relay traffic to Metropolitan New York and parts of New Jersey. Membership is open to any ham over the age of 18 who can maintain contact with a majority of the member stations. Further details can be secured from K2ITW or WA2PCM.

Word has been received that the "East Coast V.H.F. Single Sideband Association" will be holding their "on the air" meetings at 11:00 A.M., EDST on Sunday mornings throughout the summer months. Band and frequency were not mentioned.

Another two-meter net now active is the "Alabama Emergency Net" which operates on 145.350 with eight stations active. NCS is K4YKQ.

Two-meter operators within a radius of 100 miles or so of Connecticut will be interested in a series of weekend



Antenna installation for moonbounce work at HB9RG.

operations to be conducted by the 2-Meter Mobileers. The objective will be to promote activity and full utilization of the band, while providing fun for all. Several stations will be set up on various high spots, using frequencies in *all* parts of the band. You try to work them all as quickly as possible.

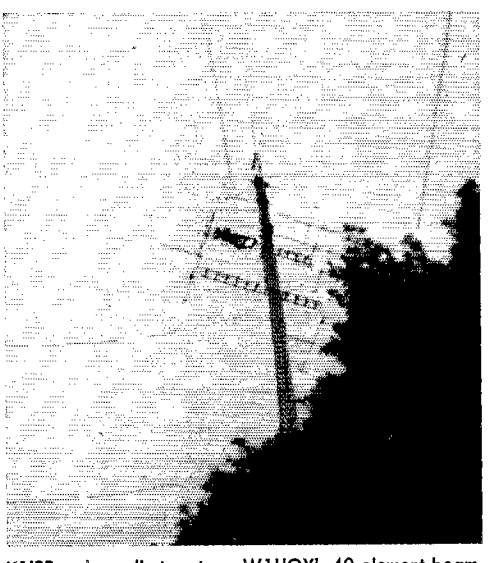
A "dry run" will be held Aug. 5. Monitor 145.35 Mc. nightly for more information before this date. Based on experience in this one, a full-scale affair will be run Sept. 2, and possibly another in early October.

The Northeastern Ohio V.h.f. Group provided something new in the way of stunts for their picnic at Sunset Park, near Alliance, Ohio, June 17 a transmitter hunt on 1220 Mc.! Receiver problems were solved by inclusion of instructions for making a suitable sniffer in the brochures advertising the party. The "receiver" was nothing more than a folded dipole, a diode, and headphones in series, with a capacitor across the phones. W8CZV and K8UBS were on hand to help any engineers who ran into trouble with pilot models of this device.

144 Mc. and Up

Up in Calgary, Alberta, Canada, VE6HO is working hard at providing some good DX for the 144-Mc. group around the country. Norm is active on both two and six meters but is partial to the two-meter band. Has been building up his station during the past year and at the present time his station consists of the following: Receiver — Johnson 6N2 converter which is used on six and a W2AZL converter. Transmitter — Johnson 6N2 with home-brew power supply and modulator, run to full input on two meters. Norm recently completed a two-meter final with a 4CX250B and hopes to get good results with same during the Perseids. Antenna on six is a dipole and on two a sixteen-element colinear. He would like to line up some skeds for the meteor showers, so anyone interested get in touch with VE6HO. Maine seems to be a fairly consistent contact on 144 Mc. for Dick, K2HLA. Dick has recently worked W1COP, W1ZKO, W1ISO and K1CLL/1 all in Maine; added to these DX 144 Mc. contacts is another one with VE2AOR/VE1 on May 29. The new 16-element colinear is getting wonderful results for Dick on Long Island. In Tennessee W4ZBQ, W4VSN and K4KYL are on two meters nightly about 0130 GMT looking for contacts. They'd be glad to have some "takers." Two meter ground wave is helping to make life mighty interesting for Al, W1ZGO in Connecticut. During May he worked W3VWK, W3NOK, K3QAX, K1CLL/1 New Hampshire, W1AJR, W1AHE, K1MNS, and K1RAB. On 220 Mc. Al worked locals only throughout the month of May. K1KZU and K1MVN have built 432-Mc. transceivers similar to those in May *QST*, and have had very good results and lots of fun. Pete, K1MVN, says that now he'll get his 11-element beam back up in the air for two meters.

From Jacksonville, Florida, and W4RMU we hear that the 144-Mc. hams in that area are constructing the nine-element spiralrays as originated in the Orlando area. K4IMF reports that local conditions on two meters have been good, although nothing unusual except for good ground wave to the North on May 23. In Virginia K4EUS heard W8KAY



K1ISR makes adjustments on W1HOY's 40-element beam.

2-METER STANDINGS

W1REZ	32	8	1300	W5EDZ	8	5	
W1AZK	28	8	1205	W5YYO	7	4	1330
W1KCS	24	7	1150	W5UNH	6	3	1200
W1RFU	24	7	1120				
W1AJR	23	7	1130	W6WSQ	15	5	1390
W1MMN	22	8	1200	W6NLZ	12	5	2540
W1HDQ	22	6	1020	W6DNG	0	5	1040
W1IZY	20	7	1180	W6AJF	6	3	800
K1CRQ	19	6	800	W6ZL	5	3	1400
W1AFO	18	6	920	K6HMS	4	3	850
K1AFR	17	5	450	K6GTG	4	2	800
				W6MMU	3	2	950
W1NLY	37	8	1300				
W2CXY	37	8	1360	K7HKD	13	5	1130
W2ORI	37	8	1320	W7JRG	12	4	1040
W2BLV	36	8	1020	W7LHL	5	3	1050
K2GQL	35	8	1365	W7CJM	5	2	670
W2AZL	29	8	1050	W7JIP	4	2	900
K2IEJ	27	8	1060	W7JU	4	2	235
K2CEH	25	8	1200				
K2LMG	27	8	1160	W8KAY	38	8	1245
W2AMJ	25	6	960	W8PT	38	9	1260
W2ALR	24	8	1100	W8SDJ	37	8	1220
W2RXG	23	8	1200	W8IFX	35	8	980
W2SMX	23	7	1090	W8SFG	34	8	1040
K2HOD	23	7	950	W8LOF	33	8	1060
W2DWJ	23	6	860	W8RMH	32	6	910
W2PAU	23	6	753	W8GGH	32	8	1180
W2LWI	21	6	753	W8BAX	32	8	960
K2KIB	21	5	700	W8NOH	31	8	1090
W2ESX	21	6	750	W8SVI	30	8	1080
W2UTH	20	7	880	W8EHW	30	8	860
W2WZR	19	7	1040	K8AXU	29	8	1050
W2RGV	19	8	720	W9LPD	29	8	850
W2RLG	17	6	980	W8WRN	28	8	680
K2JWT	16	6	550	W8DX	26	8	720
K2DDK	13	5	465	W8ILC	25	8	800
WA2JFA	10	4	340	W8JWV	25	8	940
WA2PGY	8	5	266	W8WNM	25	8	900
				W8GFN	23	8	540
W3RUE	33	8	1100	W8LCY	22	7	680
W3GKP	31	7	1180	W8BLN	21	7	810
W3SGA	31	8	1070	W8GTR	17	7	550
W3TDF	30	8	1125	W8NRM	17	7	550
W3KCA	28	8	1110				
W3BYF	28	8	1070	W9KLR	41	9	1160
W3EPH	32	8	1000	W9WOK	40	9	1170
W3LNA	21	7	720	W9GAB	34	9	1075
W3LST	21	6	800	W9AAG	33	8	1050
W3NKM	20	7	730	K9AAJ	31	8	1070
W3LZD	20	7	650	W9REM	31	8	850
K3HDW	12	6	1015	W9ZIH	30	8	830
				W9PBP	28	8	820
W4HJQ	38	8	1150	W9LVC	27	8	950
W4HHK	37	9	1280	W9OJI	27	8	910
W4LTU	34	8	1160	W9ZHL	25	8	700
W2XI	34	8	950	W9BPV	25	7	1030
W4MKJ	33	8	1149	K9AQF	24	7	900
W4AO	30	8	1120	W9LF	22	7	825
W4LVA	26	8	1000	W9KPS	22	7	690
K4EUS	26	7	1130	K9SGD	21	7	1100
W4EQM	25	8	1040	W9CUX	21	7	800
W4AIB	25	8	900	W9ALU	18	7	800
W4WNH	24	8	850				
W4JCJ	23	6	725	W0BFB	37	9	1350
W4VVE	23	6	724	W0HD	31	8	1030
W4RMU	21	7	1080	W0SMJ	29	9	1075
W4TLV	20	7	1000	W0LFE	28	7	1050
W4IKZ	20	6	720	W0QDH	27	9	1300
W4OLK	20	6	720	W0RUF	23	7	900
W4LNG	19	7	1080	W0IC	22	7	1360
W4RFR	18	9	820	W0MOX	22	6	1150
K4YUX	18	8	830	W0INI	21	6	830
W4CPZ	18	6	650	W0TGC	21	7	870
K4VWH	18	6	590	W0RYG	20	8	925
W4MDA	17	6	757	W0ENC	20	6	1100
				W0AZT	18	7	1100
W5RCI	37	9	1215	W0JAS	18	6	1130
W5AJG	32	9	1360	K0AQJ	16	6	1120
W5FYZ	30	9	1275	W0IFS	16	6	1100
W5JWL	29	7	1150				
W5DFU	28	9	1300				
W5PZ	27	8	1300	VE3DIR	10	8	1330
W5LPG	25	7	1000	VE3AIB	28	8	1340
W5KTD	23	8	1200	VE3BQN	19	7	790
W5SWV	20	5	960	VE3AQG	18	8	1300
W5ML	16	6	700	VE3DER	17	8	1340
W5KFU	13	4	1300	VE3HW	17	7	1350
W5FSG	12	5	1390	VE3BPB	14	6	715
W5HEZ	12	5	1250	VE2ABF	10	4	580
W5CVW	11	5	1180	VE7FJ	2	1	365
W5NDE	11	5	620				
W5VY	10	3	1200	KH6UK	2	2	2540

The figures after each call refer to states, call areas and mileage of best DX.

220-and 420-Mc. STANDINGS

220 Mc.

W1AJR	11	4	480
W1AZK	9	3	472
W1HDQ	11	5	450
K1JIX	10	3	
W1OOP	12	4	400
W1RFU	15	5	480
W1UHE	11	4	385
W2AOC	13	5	450
K2AXQ	9	3	240
WA2BAH	4	2	167
K2CBA	13	6	650
K2DIG	4	3	140
W2DWJ	15	6	740
W2DZA	12	5	410
K2ITP	11	5	265
K2ITQ	11	5	265
K2JWT	6	3	244
K2KIB	12	4	300
W2LRJ	10	4	250
W2LWI	12	4	400
W2NTY	12	5	300
K2PPZ	11	4	490
K2QJQ	13	5	540
W2SEU	4	2	150
K2UUR	4	3	105
W3AHQ	4	3	180
W3FEY	10	5	350
W3JYL	8	4	295
W3JZI	4	3	250
W3KKN	10	4	255
W3LCC	9	5	300
W3LZD	15	5	425
W3RUE	9	5	450
W3UJG	13	5	400
W3ZRF	5	4	112
K4TFU	8	4	400
W4TLC	5	1	315
W4UYB	7	5	320
W5AJG	3	2	1050
W5RCI	8	5	700
K6GTG	2	1	240
W6MMU	2	2	225
W6NLZ	3	2	2540
K7ICW	1	1	250
K8AXU	10	5	1050
W8LIG	9	5	475
W8LPD	6	4	480
W8RNM	8	4	390
W8PT	10	5	660
W8SVI	6	4	520
W9AAG	9	4	660
W9EQC	11	5	740
W9JCS	6	2	340
W9JEP	9	4	540
W9OVL	6	3	475
W9UED	4	4	605
W9ZIH	10	5	500
K9DGU	5	3	425
K9ITE	6	3	515
KH6UK	1	1	2540
VE3AIB	7	4	450

420 Mc.

W1AJR	10	4	410
W1HDQ	8	3	210
W1MFT	8	3	170
W1OOP	11	3	390
W1RFU	7	4	410
W1UHE	6	4	430
W2AOD	6	4	290
W2BLV	12	5	360
K2CBA	5	3	225
WA2DTZ	6	3	200
W2DWJ	10	4	196
W2DZA	5	3	130
K2KIB	4	2	100
W2NTY	3	2	100
W2OTA	10	4	300
K2UUR	7	3	175
K3CLK	9	4	
K3EOF	6	3	250
W3FEY	7	3	296
W3LCC	2	2	
W3RUE	2	2	96
W3UVG	6	6	4
W4HHK	6	4	550
W4VVE	7	4	430
W5HTZ	5	3	440
W5RCI	10	3	600
W6GTG	1	1	180
W7LHL	2	1	180
W8HCC	3	2	355
W8HRC	3	2	250
W8JLQ	4	2	275
W8NRM	3	2	390
W8PT	6	3	310
W8RQI	4	2	270
W8TYY	9	5	580
W8UST	3		225
W9AAG	5	3	375
K9AAJ	4	3	425
W9GAB	9	4	608
W9OJI	6	3	330

The figures after each call refer to states, call areas and mileage of best DX.

ten times out of fourteen tries at the time of W8KAY's regular sked with W4FJ. Sam had two QSOs with W8KAY. Sam also mentions good tropo opening on 144 Mc. on the nights of May 13, 15 and 18, when he worked a number of stations in New Jersey on phone. Bill Scott, W4UVP, in Johnson City, Tennessee, would like skeds with anyone on week ends; Friday after 1900 EST and Saturdays or Sundays until 2000 EST. Bill's frequency is 144.080. Preparing for skeds Bill has erected a 10 × 10 Hy-Gain antenna for two-meter use. W1NTN writes that he has used everything in the book in the way of two-meter antennas, but that the 2-meter wheel has the stuff. He started out with a single bay about two months ago and was so much encouraged that he added another bay a short time ago. W4DPD in Lake Wales, Florida says there have been several good openings to Texas, Louisiana and Alabama on 144 Mc. during May, and Jim firmly believes that the band is open to most of the Gulf States nearly every morning, but no activity. Jim himself has worked W5BAU several times in the early morning hours. In Denison, Texas, W5SWV worked W8YIO and W8PT in Michigan, W9OII in Wisconsin and K9UIF in Indiana for three new states on 144 Mc. These boys were worked on June 16. Daily keeps skeds on 432 Mc. morning and night which have been paying off; if you're interested, drop him a note. During the last two weeks of May, K4IXG noted openings on two meters into Texas, Louisiana, South Carolina and the western coast of Florida. His location — Indialantic, Florida. W4TU, WA4HCJ, W4AWS and WA4AME all say approximately the same things: "Two meters has been open almost all of May with South Carolina, Texas and Louisiana coming through."

Al Hagen, W7IST writes that he had contacts with K7IRR on May 22 and May 26 on 220 Mc. K7IRR running 20 watts from North Seattle and Al running 12 watts from Auburn, Washington. WA2MTB sez that as he is not too active on two meters the only opening he caught was the one of May 23 when he heard 4's coming in. Al did not attempt to work them as his receiving gear is being overhauled. In Milwaukee, W9JFP sez that 2 meters really opened on the night of June 16 when he worked W5HCX in Oklahoma and W5IOW in Kansas, besides other stations in Missouri. Brad, K6UGZ sez that two-meter activity is growing steadily in the Coachella Valley. WA6TET, W6POQ, WA6HTK and K6UGZ have steady contacts with the coast, over a 100-150 mile path obstructed by two ten-thousand foot mountain ranges and a 2000-foot pass.

In Michigan K8PBA noted exceptional conditions on 144 Mc. on May 6, 13, 22, 17 and 28. Bob has a weekly sked with W9ZSC on 144.121 Mc and they've exchanged good reports for three weeks. Bob runs 200 watts and W9ZSC runs 400 watts — both on s.s.b. Old friend and good reporter, Al, K8AXU, is doing all right from his new QTH in Sistersville, West Virginia. First opening of the year for Al was a small one on 144 Mc. the night of June 2 when he worked W3LML for a new state, and heard W9UBD in Iowa calling him but band faded out before contact was made. On the night of June 16 the band opened to the west and W9UBD in Iowa, WØYMG in Kansas, WØLFE and a few others in Missouri were worked by K8AXU, all on 144 Mc. On the night of June 17 WØLFE was heard again at Sistersville, and W8UOH/M1M was worked off the coast of North Carolina. Skeds with K9UIF, approximately 350 miles, have been very good contacts with every night for three months except for two or three failures. Al sez that activity on 220 Mc. is very poor with only two locals on the band, and many, many "CQ's" going unanswered. QST

Strays

Carl Camp, K1DQX, seated above, a member of the Concord Brasspounders, is supervisor of the Division of Blind Services for the state of New Hampshire. Looking on while K1DQX attempts to raise an HZ are (l.) W1ALE and W1CVB. Besides DX, he has an interest in emergency communications and public service. He has achieved dubious local fame on two occasions by having his phone signals get into a church organ's amplifier during Sunday services and into the p.a. system of a lodge during memorial services one night!

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Despite the rumors, 160 meters is not inhabited only by OTs. WA2MPP is one of the 160-meter gang, and is but 16.

Happenings of the Month

Election Notice

Ten-Meter Rumors Unfounded

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 a vice-director for the 1963–1964 terms. 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 Articles of Association and By-Laws will be mailed to any member upon request.

Nomination is by petition, which must reach the Headquarters by noon of September 20. 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 vice-director therefrom. No person may simultaneously be a candidate for both offices; if petitions are received naming the same candidate for both offices, his nomination will be deemed for director only and his nomination for vice-director will be void. Inasmuch as all the powers of the director are transferred to the vice-director in the event of the director's resignation or death or inability to perform his duties, it is of as great importance to name a candidate for vice-director as it is for director. The following form for nomination is suggested:

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 vice-director; from this division for the 1963–1964 term.

(Signatures and addresses)

The signers must be Full Members in good standing. The nominee must be a Full Member and the holder of at least a General Class amateur license, or a Canadian Advanced Amateur Certificate and must have been a member of the League for a continuous term of at least four years at the time of his election. No person is eligible who is commercially engaged in the manufacture, sale or rental of radio apparatus capable of being used in radio communications, or is commercially engaged in the publication of radio literature intended in whole or in part for consumption by radio amateurs.

More than 450 years of League service and experience is represented by the 25 employees above who met recently to honor the oldest and three newest members of the Ten Year Club. Flanking General Manager John Huntoon are Gerald Pinard, Training Aids Department, ten years, third from left; David H. Houghton, Treasurer and Circulation Manager, the dean of the Hq. staff with 40 years service, fourth from left; Margaret Crowe, Circulation Department, ten years, third from right and Managing Editor Richard L. Baldwin, W1IKE, ten years, second from right.

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, 1962. 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 vice-director. 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 vice-director 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 1 and November 20, except that if on September 20 only one eligible candidate has been nominated, he will be declared elected.

Present directors and vice-directors for these divisions are: *Central:* John G. Doyle, W9GPI, and Philip E. Haller, W9HPG. *Hudson:* Morton B. Kahn, W2KR, and Harry J. Dannals, W2TUK. *New England:* Milton E. Chaffee, W1EFW, and Bigelow Green, W1EAE. *Northwestern:* R. Rex Roberts, W7CPY, and Robert B. Thurston, W7PGY. *Roanoke:* P. Lanier Anderson, jr., W4MWH, and Joseph F. Abernethy, W4AKC. *Rocky Mountain:* Carl L. Smith, WØBWJ, and John H. Sampson, jr., W7OCX. *Southwestern:* Raymond E. Meyers, W6MLZ, and Howard F. Shepherd, jr., W6QJW. *West Gulf:* Roemer O. Best, W5QKF and Ray K. Bryan, W5UYQ.

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

For the Board of Directors:

July 1, 1962

JOHN HUNTOON
Secretary

ARRL URGES ADOPTION OF 420-MC. PROPOSAL

In December, 1961, the League asked FCC to amend Section 12.111 (k) of its rules by deleting the 50-watt power limit on the 420–450 Mc. band.[1] In April, the Commission brought out a Notice of Proposed Rulemaking,[2] Docket 14610, proposing to change the rules as requested by the League, except for certain areas of the South and West where kw. amateur stations might be expected to cause interference with certain government installations operating in the same band.

The League now has filed in support of Docket 14610, as follows:

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

In the Matter of Amendment of Parts 2 and 12 of the Commission's Rules and Regulations to Remove the Power Restrictions in the Band 420–450 Mc/s in the Amateur Radio Service.	DOCKET NO. 14610 RM-304

COMMENTS IN SUPPORT OF PROPOSED RULE MAKING

The American Radio Relay League, Incorporated, by its General Counsel, supports the proposed amendments of Footnote US 7 to Section 2.106 and Sections 12.111(b) (14) and 12.131 of the Commission's Rules, which would remove the power restrictions in the 420–450 Mc/s amateur band except in limited areas, for the reasons stated in its petition of December 21, 1961.

The League appreciates the Commission's prompt consideration of its petition and urges that the amendments be adopted at an early date.

Respectfully submitted,
THE AMERICAN RADIO RELAY LEAGUE, INC.
By ROBERT M. BOOTH, JR.
Its General Counsel

1735 DeSales Street, N.W.
Washington 6, D. C.
June 15, 1962

[1] Page 64, February *QST*.
[2] Page 62, June *QST*.

MORE AMATEUR RADIO WEEKS

The Province of Saskatchewan, through its Deputy Attorney General and Executive Council, declared the week of June 24 to June 30 inclusive as Amateur Radio Week in Saskatchewan. The Proclamation cited amateur emergency and special-events work, technical knowledge and research, and world-wide amateur fraternalism as a promoter of world peace.

Governor Ferris Bryant of Florida, proclaiming the same amateur radio week for Florida, additionally cited amateur message-handling for American personnel in remote scientific and military outposts and amateur encouragement of blind and handicapped persons.

Amateur Radio Week in Texas was from June 18 through 24. Governor Price Daniel's Official Memorandum praised Project Oscar, flood and hurricane relief, and MARS activities by amateurs.

The Mayor of Englewood, N. J., Austin N. Volk, proclaimed Amateur Radio Week, the second year he has done so, for the period June 17 to 23. Across the river a few miles, the city of New Rochelle, New York, also proclaimed Field Day week as Amateur Radio Week, and the acting mayor made an announcement to that effect over the air. New Orleans also has declared Amateur Radio Week, but for the period including the Delta Division convention, August 27 through September 3, 1962.

CANADIAN LICENSE STATISTICS

At the end of the Canadian fiscal year, March 31, there were 9347 amateur station licenses in force in Canada. By regions, the figures were:

Regional Office	*1962*	*1961*
Vancouver	1150	1280
Edmonton	939	912
Winnipeg	1118	1087
Toronto	3417	3192
Montreal	1692	1586
Moncton	1016	953
Shipboard licenses (VEØ)	15	21
Totals	9347	9031

Comparison figures for 1959 and 1960 may be found on page 65 of *QST* for August, 1961.

JUNEAU EXAMS DISCONTINUED

The Federal Communications Commission's sub-office in Juneau, Alaska, was closed on July 1. Those wishing to take FCC examinations in

Alaska may make arrangements to do so with stations of the Alaska Communications System.

MAIL EXAMS NOW GO TO GETTYSBURG

The FCC has a new record-processing center in Gettysburg, Pennsylvania, away from the overcrowded conditions long a problem in the Washington offices of Federal agencies. During the past year or so, the Commission has been gradually transferring some of its purely routine paperwork to the new center.

The grading of Novice, Technician, and Conditional Class examinations is now being done at Gettysburg. Applicants still obtain the application and test papers from the FCC District office nearest their homes, but the volunteer examiner now should send the completed papers to:

The Federal Communications Commission
334 York Street
Gettysburg, Penna.

Other types of application continue to be handled as in the past for the time being at least. Further changes will be reported in this column as they occur.

TEN-METER BAND RUMORS

Many serious amateurs have been disturbed about widespread rumors concerning the ten-meter band, alleging that the FCC is going to take all or part of the band from amateurs and give it to the Citizens Radio Service. The rumors are completely unfounded; there is no such plan at FCC. We quote a portion of a recent FCC letter:

In regard to your understanding that citizens band operators have designs to acquire all or portions of the present 10 meter amateur band, we call your attention to the fact that the primary international allocation which includes the 26,965–27,255 kc/s Citizens Radio Service frequencies is to Fixed and Mobile (except aeronautical mobile) radio Services. The Citizens Radio Service is classified as a Mobile Service. A footnote to the allocation table provides that, in North America and South America, Australia and New Zealand, the amateur service *may* operate between the frequencies 26,960 and 27.230 kc/s. This same international table of frequency allocations (Geneva, 1959, Radio Regulations) provides 28.0–29.7 Mc/s exclusively for the Amateur Radio Service. There is no allocation in the table either on a shared basis or otherwise by footnote to any other radio service.

The Commission does not have on file any petitions to allocate the 28 Mc/s amateur band to the Citizens Service and, furthermore, it does not contemplate any allocation contrary to the international 28.0–29.7 Mc/s band allocation.

LICENSE SUSPENSIONS

The FCC has suspended the Technician Class license of Jack Goldstein, K1UCT, of Randolph, Massachusetts, for operating in the 75-, 20- and 10-meter phone bands, contrary to the terms of his license. The suspension, not contested by Mr. Goldstein, was of two months duration, and went into effect on May 6, 1962. [*Section 12.23(d) of the Rules Governing the Amateur Service*]

Lewis A. Prince, WA6UYL, of San Diego, California, had his license suspended for 60 days because he operated in the Citizens Band without a license for that service. No hearing was requested. The suspension went into effect on May 16, 1962. [*Section 301 of the Communications Act of 1934 as amended; Section 19.11 of the Rules Governing the Citizens Radio Service*]

BOARD COMMITTEE REPORTS

Last month in this department we presented the full minutes of the Board of Directors meeting of May 11. The Board has a number of Standing and Special Committees composed of Directors which assist the full Board by preparing reports on specialized subjects. The following reports of committees were made at the May 11 meeting, and are referred to in the minutes:

REPORT OF THE FINANCE COMMITTEE

To the Board of Directors
American Radio Relay League

The Finance Committee met at the Headquarters on May 10, 1962. Also present were members of the Housing Committee, the President, General Manager and Treasurer.

With the knowledge that total expense of the new building, including site improvements and furnishings, will be about $450,000, consideration was given to the source of funds to meet construction expenses. It was agreed that ample funds can be made available on a temporary basis from current accounts. The eventual sale of 38 LaSalle Road and receipts of the Building Fund should later cover most of the construction costs. It is therefore anticipated that no difficulty should be encountered at this time.

The Committee recommends that the General Manager be authorized to draw, temporarily, upon current League funds to meet construction bills each month, until contributions and other receipts are available.

Respectfully submitted
MILTON E. CHAFFEE, *Chairman*
ROEMER O. BEST
R. REX ROBERTS

May 11, 1962

REPORT OF THE BUILDING COMMITTEE

The Board of Directors
The American Radio Relay League
West Hartford 7, Connecticut

Gentlemen:

During the year that has ensued since the last Board meeting, the Building Committee has succeeded in getting the plans of our new Headquarters building completed, to cover a new design comprising a two-story building that is estimated to cost approximately $175,000.00 less than the single-story building which was presented to the Board last year. This new design necessitated a resubmission to the Town Board of Newington for their approval, which was subsequently done in December, 1961. The Board approved this new concept.

The architect has completed the drawings and has sent them out to interested contractors for bid purposes. It is hoped that bids will be received at approximately the same time as the Board meeting is held. However, this is not absolutely certain at this writing.

At the last meeting of the Executive Committee in March, the Building and Finance Committees were in attendance for the purpose of reviewing the architect's plans prior to okaying them for bid purposes, and also to discuss the establishment of a Building Fund for purposes of financing. Full details concerning the Building Fund appeared in the April and May issues of *QST* and I believe completely described our objectives.

As soon as bids are received, an evaluation will be made and a course of action will be determined to insure the building's early start.

It is hoped that alterations and modifications can be made on the W1AW building so that more room will be provided for the station equipment, as well as for the start of its modernization. It is hoped that this can be accomplished during the course of the new building construction

and at a minor cost.

Respectfully submitted,

MORTON B. KAHN
Chairman
Building Committee

May 7, 1962.

REPORT OF THE MEMBERSHIP AND PUBLICATIONS COMMITTEE

Board of Directors
American Radio Relay League

Through excellent efforts of our General Manager and his office, the Communications Manager, Managing Editor of *QST* and our dedicated headquarters staff, all of whom have worked closely with our Membership and Publications Committee, the year 1961 has been a banner one with respect to an over-all interest in ARRL.

Results of our efforts, such as the tear-out sheets on W1AW schedules; extracts of FCC regulations; Membership application blanks; color pages in *QST*; our Cover awards; Senate and House bills sponsoring reciprocal license agreements; the new Handbook; interest in the new League headquarters; plus the extreme efforts on the part of our Directors, Vice-Directors, SCM's, and other appointed League officials, are best indicated in the fact that 22% of the new 5-year licensees have become ARRL members.

Club affiliations have grown by leaps and bounds which in turn adds membership totals and this alone may be credited to the various Directors in their efforts to get around their respective Divisions.

Various radio, TV and press releases have most certainly given our hobby a spot in the sun. Project Oscar, which ARRL sponsors, has done much to attract both national and international attention.

The efforts of the directors in the Southeastern, Canadian, and the Great Lakes Divisions, who lead all sixteen Divisions by 7.5, 6.9 and 5.2 percent gains respectively, has accounted for a gain of 1047 new members, or 34% of the net overall gain of 3057 new members which by the way is better than 66% over last year.

Only one division dropped in its total number of members, as against four divisions last year. It is interesting to note that the Southeastern Division has moved from tenth to ninth place in the total number of members per division.

Our General Manager estimates the cost of a ten-year index would be in the neighborhood of $2000 to cover printing, editorial preparation and handling, with an estimated return of $1250 if 5000 copies, which he recommends as the maximum to be printed, were sold at $.25 a copy.

The Committee in making a study of item 20 of the 1961 Board meeting considers publication of a v.h.f. handbook would be an asset to our list of publications. Our General Manager believes this could be accomplished by additional man-hours over and above the normal office hours of Mr. Ed. Tilton.

The Manual for Elected Officials of the League which this Committee presented at the last Board meeting was referred by item 35 of the minutes to the Executive Committee. This Committee is of the opinion this item, which was given unanimous support by the Board, should be followed through to a conclusion.

Although the project of a "junior handbook" was not given this committee as a specific assignment, it may be that the Board and headquarters staff may consider combining all four publications now included in the "Gateway to Amateur Radio" at a cost of $1.50, and give this publication that name. The present stock of the four publications could be depleted by sales, as they are at present, but no recommendation for reprinting these is offered.

It has been a pleasure to serve the Board and we suggest that in accepting our report that consideration be given to the introduction of the following motions:

1. Move that the Board of Directors proceed with a 10-year index for *QST* which is to be sold at a fixed fee of twenty-five cents per copy.
2. Move that the Board of Directors proceed with the publication of a v.h.f. handbook to be sold at a nominal price based on cost figures to be determined by the General Manager.
   Note (In the event the General Manager feels that the v.h.f. handbook can not be published with full use of his present staff that either a technical writer be added to the staff, or that the VHF Editor eliminate field trips until the publication can be made ready for the printer.)
3. Move that the Board consider the advisability of a Beginner Handbook entitled "The Gateway to Amateur Radio" for publication in lieu of four publications now making up this package.

Respectfully submitted:

RAY MEYERS, W6MLZ
JAMES P. BORN, JR., W4ZD
NOEL B. EATON, VE3CJ

PUBLIC RELATIONS COMMITTEE

The Board of Directors,
American Radio Relay League, Inc.

This Committee met on two occasions, processed several suggested mediums, worked up detail and perfected methods for the cover awards, assisted in the preparation of and publication of many club papers and bulletins.

This Committee strongly feels that the greatest projects for the best amateur public relations go beyond the ability of this Committee, for proper execution.

To illustrate — certain areas, Los Angeles as an example, can have men like Tom Cargo writing a column for a metropolitan daily (the *Los Angeles Herald-Examiner*), in which amateur radio is a feature; this effort continues to be excellent in creating interest and understanding for amateur radio. Harry Tummonds (W8BAH) has, for three years, been doing a similar thing in the Sunday Edition of the Cleveland (Ohio) *Plain Dealer*.

Both of these gentlemen were contacted last May and asked to offer ideas that could be used by others, in conducting columns. Mr. Tummonds came up with what is called "Amateur Radio Editors Association" (AREA). There are now about 51 members and "news releases" are mailed to members, at least monthly. At the end of this calendar year, it is planned for this group to be made an organization with elected officers, etc. We are watching this effort closely, and hope it will be of great value in our public relations efforts.

This continuing type of Public Relations is the pinnacle of effort along this line, and in the main, is a localized example of the best we can hope for in any area; yet maintaining the flow of material to these writers is the basic responsibility of the Director of ARRL in these divisions, wherein we can have the regularly published columns in the local papers. Only the director, who is close to his division, can encourage councils, clubs and even individual amateurs, to get any and every worthwhile story to a columnist or city editor.

Until each director, vice director, assistant director, club president and club member becomes familiar with the ARRL publication *Getting Newspaper Publicity for Your Club and Amateur Radio* it will be difficult to know what and how to shape up the material, and get publication.

This Committee earnestly recommends a careful reading of the above described publication, and its complete distribution by the Director in all Divisions.

Each director is urged to impress on the members in his division, the good will that can be generated for Amateur Radio, when he or she delivers a message to the addressee. This is "grass roots" public relations and many, many times the first favorable contact such a person has had with "Amateur Radio."

The ARRL Cover Award

Where proper preparation for the presentation of this award has been made, the resulting publicity to the individual recipient and amateur radio has been exceedingly gratifying.

Ample notice of a winner in his division is given to a Director; this gives him time to contact clubs and the winner, to determine his membership or association. When this is determined a party can be arranged, with media coverage.

Thus far along, in presentations to date TV kinescope radio, and newspaper coverage has resulted. Since this is purely local in nature and is news, getting the local club group into the picture advances public relations for amateur radio and the recognition being given the author of the prize article enhances his standing in his community, his job and social life.

Continued on page 150)

How to Solder and Make It Stick

BY RICHARD L. BALDWIN,* W1IKE

KING Spark has come and gone, sideband is gradually supplanting amplitude modulation, dozens of new and different components are available to the builder — but one technique has never been replaced and has been common to just about every piece of ham gear for fifty years. Yet the lowly soldered joint, taken for granted by so many of us, is the downfall of many a budding constructor.

Occasionally a woebegone lad comes trudging into headquarters carrying some piece of gear that won't work, even though he built it "just like in *QST*." Or we'll run into the same situation at a club meeting, and again with the Boy Scouts we're helping with their radio merit badges. Incorrect wiring and cold solder joints — these appear to be the major difficulties. (We're not going into the matter of following a schematic diagram right now, except to suggest very quickly that you use the technique recommended by so many builders — take a red pencil and trace over the schematic drawing as you complete each connection.)

What's the Problem?

What happens? Why aren't the joints any good? How can the poor ones be quickly spotted? How do you get a *good* joint?

Well, when you melt some solder onto a joint (perhaps a couple of wires that you have twisted together), unless a good smooth bond results you may actually have produced what we commonly call a cold-soldered joint, which instead of bonding the wires together in a good mechanical and electrical connection produces a joint that is weak mechanically and which has a finite amount of resistance. Because the joint is mechanically weak, it may some day break loose due to vibration or movement. And because it introduces some resistance into the circuit (maybe only a little resistance, maybe a whole lot), the piece of apparatus doesn't work the way the original designer planned.

A cold solder joint can usually be spotted quite readily. It tends to have a rough surface, while a good joint is smooth and the edges feather into the pieces of metal being joined. Once you have mastered the art of soldering, it will become second-nature for you to watch for the "flow" of the solder, indicating a good bond has been achieved.

The two photographs below show the difference between a cold-soldered joint and one which has had sufficient heat applied and thus is strong mechanically and electrically. Note the rough, mottled surface of the one joint, and how the solder doesn't meet the wire leads in a smooth flowing surface. Then note the smooth surface on the good joint — see how the shiny surface of solder flows into a feather edge on the joining leads.

Let's learn how to make a good soldered joint.

The Tools

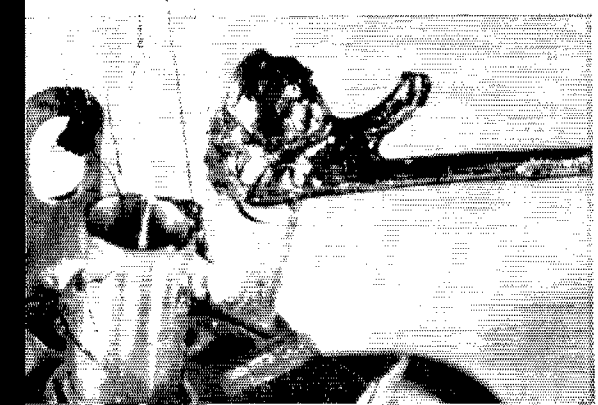
First of all, a good workman should have good tools. You've got to have a good soldering iron or gun, and you've got to take care of it properly. The other tools that you'll use in soldering are secondary, and they'll not require as much care.

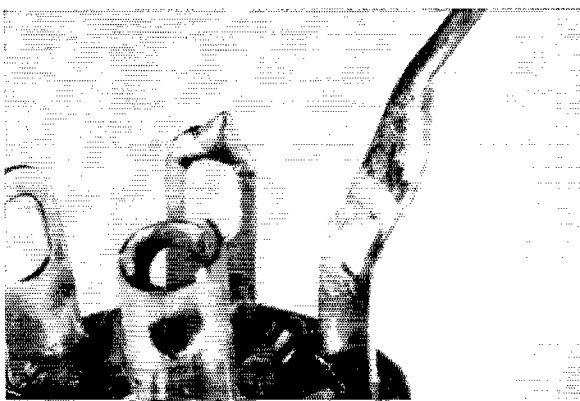
Gun or iron? It doesn't really make too much difference. If you are going to be working at your bench for long periods of time (well, like for an hour or two at a time), a soldering iron is more convenient. After the initial warm-up time of a few minutes, it is ready to go whenever you reach for it, without further delay. But if you do only an occasional soldering job, then the gun is mighty handy.

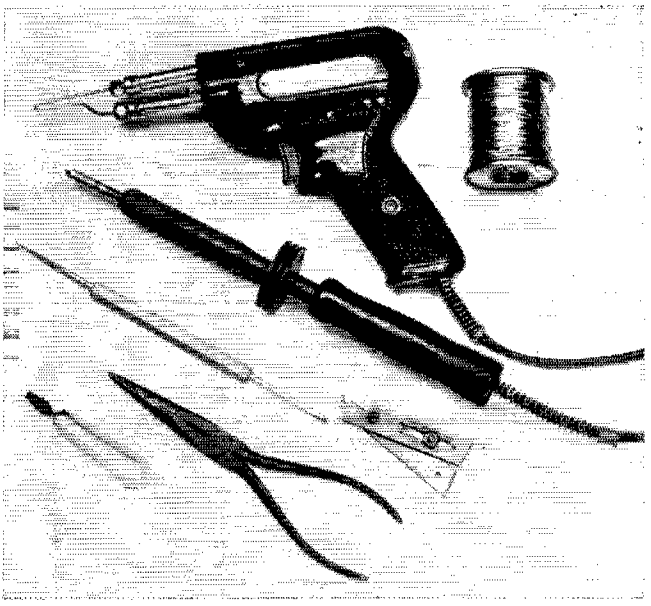
But, whichever you use, one pitfall to avoid is having too hot an iron. Too much heat can roast the components adjacent to the joints you are soldering. On the other hand, insufficient heat and we're stuck (not literally!) with cold-soldered joints. For ordinary run-of-the mill soldering (conventional tubes, ½-watt to 2-watt resistors, etc.) a 60-watt iron is about right. When you get into transistors and their associated miniature components, and printed-circuit boards, one of

*Managing Editor, *QST*.

Below to the left is what we suspect to be a cold-soldered joint. It has a rough mottled surface, indicating that heat was not properly applied and that the solder never "flowed." This may not be a secure joint mechanically, and it is even possible that it is not an electrical connection at all. Anyway, it is a bad one. To the right, however, is what we can deduce immediately to be a good soldering job. Not too much solder, nice smooth edges where the solder has flowed between the two pieces of metal being joined, and it surely is A-OK all the way.







Tools commonly used in soldering. Across the top, a 100-watt gun and some resin-core solder. Just beneath the gun, a 60-watt iron with a nice shiny tip. Below the iron, to the left, a soldering aid, and to its right a pair of wire strippers. At the bottom left, a heat sink (as illustrated on the next page) and a pair of needle-nose pliers.

the pencil irons is a better bet. With the soldering guns, avoid the heavy-duty 250-watt jobs unless you are going to resolder the copper flashing around your chimney. Stick with something in the vicinity of 100 watts for your radio work.

Stay away from the acid-core solder. It's easy to use, because the powerful action of the acid eats away any dirt on the surface of the pieces being joined. But it may eventaully cause corrosion of the joint, resulting in intermittent operation of the equipment. So, stick with one of the resin-core solders, and use a little extra care in cleaning the surface of the work before applying heat and solder.

There are some other tools that will come in handy. Needle-nose pliers, to hold parts being soldered and to make the short-radius bends usually required. A knife, to scrape surfaces clean and, maybe, to remove insulation. But be careful not to nick the wires when removing insulation — this would weaken them. It's kind of frustrating to finish up a neatly soldered joint, and then have the wire break off where it had been too deeply nicked by careless use of a knife. Wire-strippers, properly adjusted for the size of wire being used, avoid weakening the wire. A "soldering aid," which is made of an alloy that does not take solder, is very handy in twisting leads around hard-to-reach terminals and in removing the same kind of leads.

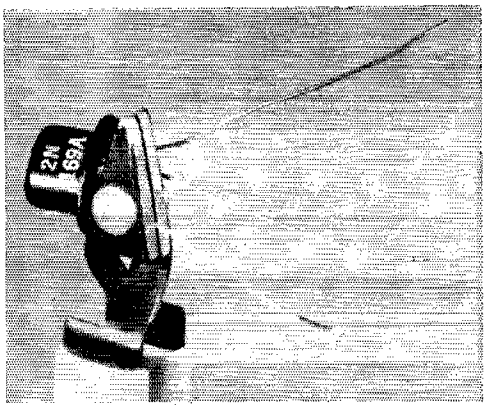
Care of the Iron

Don't forget — a good workman has good tools, and he takes care of them. The most important single instruction is that you keep the tip of your iron (gun) clean and bright. This is not just for looks, but so that proper heat transfer will be achieved. The heat will not flow over from your iron to the joint unless the surfaces of both are clean and bright. Keep a rag and a piece of steel wool handy. Every now and then, give the tip of the iron a swipe with the rag, to clean off any accumulated crud. Less often, a bit of polishing with that steel wool is beneficial. And if, through lack of proper care or because of long periods of disuse, the tip of the iron becomes pitted and corroded, file it down to the bright smooth copper while it is hot, and immediately "tin" it by applying some solder to the tip. (Unless yours happens to be a plated iron tip instead of unplated copper, in which case it should not be filed.) Perhaps it will be necessary to do each side of the tip separately because while the copper is hot it oxidizes very quickly. That is, file one side of the tip of the iron down to the bare copper, tin that side, and then file the next side. This tinning operation will leave the tip silvery bright, which is exactly what we want for good soldering results.

What is a Joint?

It's what a sailor is looking for on Saturday night — a place to make a good connection. It may be two pieces of wire twisted together, it may be where a piece of wire is twisted around the lug on a tube socket, it may be where a piece of coax cable is soldered to a coax fitting — it is any place where we want electrical energy to flow readily from one component to another.

A good joint is strong mechanically. It can get this strength from the solder, and it is not considered necessary to twist the leads together tightly. Current practice is to rely on the solder for both electrical and mechanical strength. If your joint is the connection between a piece of wire and a soldering lug, merely make sure that the wire passes through the hole in the lug. This also makes it easy to take apart afterwards.



This illustrates the use of a heat sink tool. The copper jaws grip the lead close to the unit which requires protection from excess heat (in this case, a transistor). When heat is applied to the wire being connected to the transistor lead, the heat tends to dissipate in the jaws of the heat sink, rather than continuing on along the transistor lead into the transistor itself.

Cleaning the Surfaces

Now that you know what a joint is, you're just about ready to solder. But there's an important step that comes first — you must clean the surfaces to be soldered. In fact, they should be tinned just the way you tinned your soldering iron. Why? Because this makes the whole job easier and insures a good electrical bond.

If you're using new hook-up wire, it is probably already tinned — but don't take a chance. Scrape the wire clean, removing any fabric or plastic insulation and scraping off any enamel insulation. (You may think that this is a pretty silly admonition, but we've had some pretty silly experiences along this line. A while ago a beginner wrote in about a receiver he had built from one of our articles. It wouldn't work, even though he had double-checked all the wiring. After a couple of exchanges of letters, during which we exhausted the usual remedies without result, our curiosity was whetted and we asked the fellow to send in the receiver for us to look at. You wouldn't believe it, but he had made every single "connection" without removing the insulation!) So, make sure you have bare wire, and then tin it. Incidentally, you will find that solid wire is much easier to work with than stranded wire. After you tin stranded wire, it will not bend easily and so is difficult to handle at such spots as tube sockets.

Likewise, scrape the soldering lugs or other pieces of metal being joined, and tin them. (They may be already tinned, and if so you will find that they take additional tinning very easily.) Remember now, the process of tinning is merely the coating of the surface of the work with a film of molten solder — don't leave a big glob of it to interfere with the rest of the operation.

How to Do It

The preliminaries have been fun, but now we get down to the meat of the matter, the soldering operation. Here is where you finally succeed or fail in your attempt to get a good soldered joint. However, once you have made a *good* soldered joint, you will catch onto the knack of it, and you'll never have any further difficulty. We have seen this happen so many times with the beginners we have helped. A fellow will hold a bit of solder up against a couple of wires, apply some heat until the solder just barely melts, and then stand back to admire the (not really) soldered joint. He has read about the process in some book or magazine, but the message hasn't really gotten across. A first-hand demonstration, done just once, opens his eyes to what soldering really is!

We can't give each one of our readers a personal demonstration, but perhaps a careful attention to these words and the photos will get the message across.

The secret is in getting the solder to *flow*.

Here's how you do it. Take that brightly tinned iron, and put just a drop of additional solder on the tip. The only purpose of this bit of solder is to wet the surface and to improve the transfer of heat over to the joint being soldered. Then hold the iron against the joint for three or four seconds, during which time the joint should be approaching the temperature of the iron. Touch the joint with a piece of the resin-core solder — touch the *joint*, not the soldering iron. If the solder doesn't melt right away, wait — the joint isn't hot enough yet. When the solder melts as it touches the joint, allow just a drop or two (just enough to thoroughly wet the joint all over) to *flow* onto the joint. Keep your soldering iron touching the joint for another second or two, until the solder has *flowed* over the joint. Then withdraw the iron and let the joint cool naturally. It is very important that while the joint is cooling it not move — if the pieces of metal being joined move while the solder is cooling, the electrical and mechanical quality of the joint will be spoiled and it will have to be done over. The joint will cool in just a few seconds, becoming quite secure just after the hot solder loses its initial brilliant shine.

The solder having hardened, you now have a good joint. It wasn't so hard, was it! Yet this little operation of soldering, done improperly, can completely ruin so many hours of other construction work.

Just remember that the key to success lies in applying just enough heat so that the solder *flows* into and around the joint.

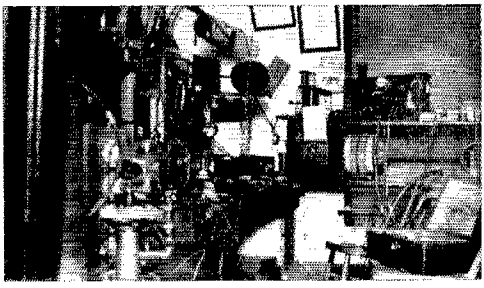
Too Much Heat?

You might think that an easy answer is in using a bigger iron and heating the joint to a faretheewell, but this isn't so. Too much heat and, for one thing, both the iron and the joint will tend to oxidize. This means that a film of oxide is rapidly built up on the surface of the iron and the work because of the extra heat, and then it becomes almost impossible to make a good connection. (The oxide acts like an insulator.) Also, with excessive heat, there is the chance of damag-

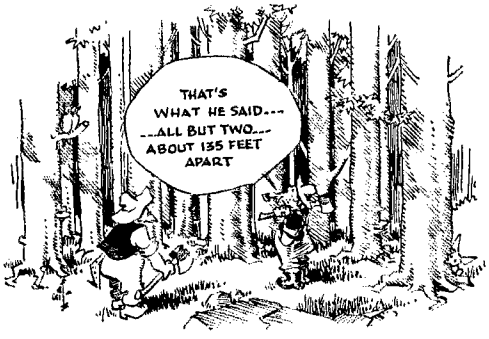
(*Continued on page 152*

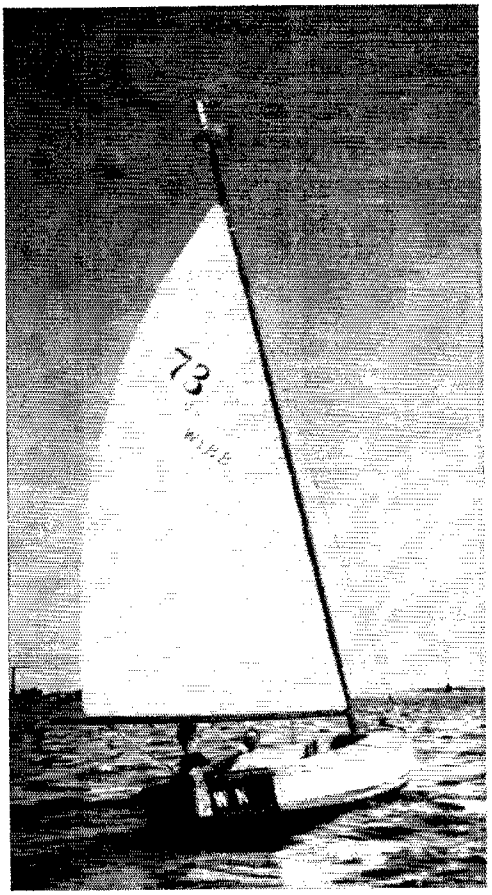
Strays

Here's how K5PPY hides his gear so that when he is not on the air the room has no haywire visible. The center door swings down and provides a writing surface at desk height. The cabinet is 8 feet high, 15 inches deep, and 24 inches wide.



Now in the good old days they didn't worry about haywire. Here's 9RZ, circa 1920, Fergus Falls, Minnesota. *(Photo via KØYDT)*





W1BB and wife W1DQF operate 2 and 6 meters while cruising around Massachusetts Bay. You can guess, no doubt, that W1BB is a pretty avid ham!

K7HFV recently received the Rocky Mountain Division Junior Achievement Award for his emergency net and traffic work. He is EC for Salt Lake County AREC and has organized 10- and 2-meter nets for the group, being NCS of the 2-meter net. Last year he was Field Day chairman for the Utah ARC in Salt Lake.

All Otto King On the Queen Roger Mary, Charlie

BY JOHN G. TROSTER*, W6ISQ

ROGER and Otto King there, Charlie. There was quite a lot of Queen Roger Mary from some of the Charlie William stations on the Frank Queen but your old Queen Roger Otto rode right over it all Frank Baker.

"Well, Charlie, your sigs sure Frank Baker here. Right now about Queen Susan Adam 5 . . . ahhh, that's Frank Ida Victor Edward . . . Sugar niner . . . ahhhhh, Nancy Ida Nancy Edward and getting stronger. The Queen Thomas Henry here is Atherton — I spell, Adam Thomas Henry Easy . . I mean Edward . . Roger Thomas Otto Nancy. It's near San Francisco — I spell . . . ahhh, no, I'll repeat, San-Fran-cis-co in Cal-i-forn-i-aaahhh. That's Cal-i-forn-i-aaaaahhhhh.

"Handle here is Jack — John Adam Charlie King. That's John Able Charlie King and we're running about 400 watts — I spell . . . ahhhh . . . Frank Otto . . . oh well, ahhhh, 400 William Able Thomas Susans to a three . . . that's Thomas Henry Roger . . . ahhh, a three-element Baker Edward Able Mary.

"Queen Roger Xray one there, Charlie, while I check the Frank Queen. Still some Charlie William there, William . . . I mean, Charlie. If it doesn't clear up we can Queen Sugar Young about Thomas Edward Nancy King Charlies up . . . that's Union Peter. Or we could go Charlie Williaming, too. That's Thomas Otto Otto.

"Queen Roger Xray again there, Charlie, the Xray Young Love . . . ahhhh. Lewis is calling. . . . Well, Charlie, looks like the Xray Young Lewis wants me to Queen Roger Thomas here and take her to the Sugar Thomas Otto . . . ahhhh, store. Sure would like to Queen Susan Lewis Lewis with you with you, Lewis . . . ahh, Charlie. You're my first King Love on this Baker Able Nancy David. I'll get your Queen Thomas Henry from the Baker Union King or from Baker Roger David's David Xray list in the latest Queen Susan Thomas. So thanks for answering my Charlie Queen and if you have any Queen Susan Peters for this William Susan Ida Xray area, will be glad to handle for you.

"Oh yes, you might repeat my Queen Roger King there, Charlie. So 73 . . . seven three . . . ahhh, Sugar Edward Victor . . . ahhh, 73, Charlie and George Lewis.

"King Love Seven Charlie Nancy Roger, this is William Susan Ida Xray Ida Susan Quebec . . . ahhhh Queen. Able Roger, K . . . ahhhhh, King."

"W6ISQ this is KL7CNR. Roger and thanks report. There was a little c.w. Mary on the Queen but your sigs 9 all the way. OK on your Henry

*45 Laurel Street, Atherton, Calif.

there near San Francisco. The Henry here is Anchorage — that's north of Seattle. Sorry to hear you have to Thomas there, Jack — would like to carry on this interesting and exciting Otto. Think I'll Young here and get clear of the Mary from these William stations. Funny thing, it's usually the Nancy that bothers me up here and not so much the Mary. Well, Jack, Union here. Maybe I'll Roger Peter and work locals. Glad to swap Lewis' with you and my Henry was OK in David's list in last month's Thomas. 73. W6ISQ, KL7CNR."

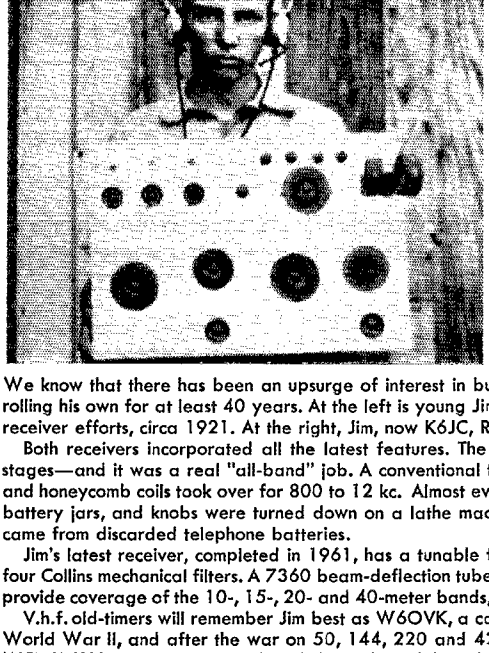
"King Love Seven Charlie Nancy Roger, this is Whiskey . . . ahhh, William Six Ida Sugar Queen. Roger and Otto King, Otto Mary. Will check your Queen Thomas Henry in the last month's Queen Sugar Thomas for the Queen Sugar Lewis. Sorry I have to Queen Roger Thomas here, Charlie, it's been so David Able Roger Nancy Edward David interesting. But thanks for the short Queen Sugar Otto anyway. So it's Queen Roger Uncle for now Charlie Henry Adam Roger . . . ahhhh . . . Charlie. King Love Seven . . . ah, KL7CNR from William 6 . . . ah, W6ISQ. Sugar King."

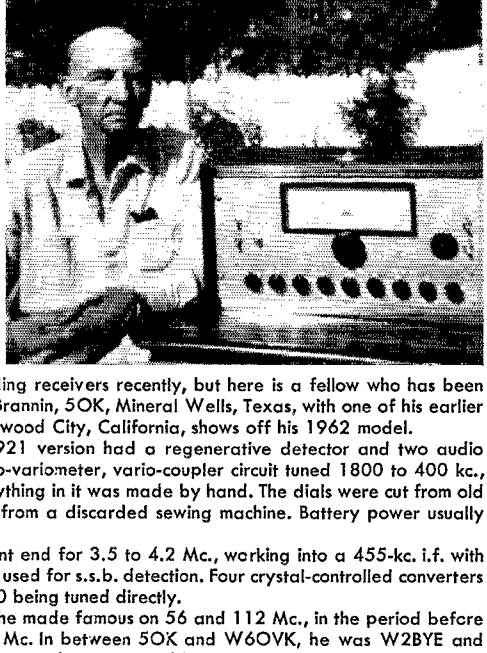
"ISQ, CNR. Rog. SK." QST

Strays

The Cleveland Amateuradio Convention will present the Mid-America Amateur-of-the-Year award at its convention on October 13. This award will recognize continuous service to the public and/or amateur radio. Any amateur residing in Western Pennsylvania, Western New York, West Virginia, Ohio, Kentucky, Michigan, Indiana or Illinois is eligible. Nominating petitions are solicited, and must be postmarked no later than September 30. Send them to Jack Siringer, W8AJW, 2972 Clague Rd., North Olmsted, Ohio.

Strays





We know that there has been an upsurge of interest in building receivers recently, but here is a fellow who has been rolling his own for at least 40 years. At the left is young Jim Brannin, 5OK, Mineral Wells, Texas, with one of his earlier receiver efforts, circa 1921. At the right, Jim, now K6JC, Redwood City, California, shows off his 1962 model.

Both receivers incorporated all the latest features. The 1921 version had a regenerative detector and two audio stages—and it was a real "all-band" job. A conventional two-variometer, vario-coupler circuit tuned 1800 to 400 kc., and honeycomb coils took over for 800 to 12 kc. Almost everything in it was made by hand. The dials were cut from old battery jars, and knobs were turned down on a lathe made from a discarded sewing machine. Battery power usually came from discarded telephone batteries.

Jim's latest receiver, completed in 1961, has a tunable front end for 3.5 to 4.2 Mc., working into a 455-kc. i.f. with four Collins mechanical filters. A 7360 beam-deflection tube is used for s.s.b. detection. Four crystal-controlled converters provide coverage of the 10-, 15-, 20- and 40-meter bands, 80 being tuned directly.

V.h.f. old-timers will remember Jim best as W6OVK, a call he made famous on 56 and 112 Mc., in the period before World War II, and after the war on 50, 144, 220 and 420 Mc. In between 5OK and W6OVK, he was W2BYE and W5DCI. K6JC is still active on the v.h.f. bands, with homebuilt gear there, too, and has recently been taking a DX fling on the lower bands. (*Photos courtesy of the Northern California DX Club.*)

HBR-16 Circuit Up-to-Date

Alex Stewart's article on his Eddystone-dial modification of the Crosby HBR-16 receiver (June, 1961 *QST*) didn't repeat the electrical details contained in W6TC's original story in October, 1959, and in the meantime the latter issue has gone on the "no longer available" list here at Hq. To help relieve this situation, Alex has prepared an up-to-date schematic and parts list, and will furnish copies at a nominal cost covering the expenses of reproduction. Panel and chassis templates for the Eddystone-dial version also are available. The material has been double-checked by W6TC, and all known corrections and worth-while modifications have been included. For details, write to Alex at 420 Croton Drive, Alexandria, Va.

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SWITCH TO SAFETY

A recent item in a Los Angeles newspaper told of the accidental electrocution of a "radio amateur" while working on his antenna. While our hearts go out to the family of the victim, we do want to point the object lesson in this unfortunate accident. The victim, who was not a ham but a shortwave listener, was taking down a 35-foot guyed mast which had supported some sort of antenna. He enlisted the aid of his five-year-old son to hold two of the guy wires in order to steady the mast. The mast began to topple, the boy was unable to control it with the guys, and it tilted far enough to hit a high-tension line which ran alongside the house. The high voltage hit the man with such force that it amputated his leg, and he probably died instantly. The boy lived, although he was knocked unconscious and suffered first- and second-degree burns.

Fellows, you just can't fool around with this stuff. You *have* to think ahead and visualize what problems may arise in the course of a project like this. What may go wrong and how can you avoid it? *Think!*

In this instance, a five-year-old child should never have been relied on to hold the guy wires for a 35-foot mast. In view of the proximity of the high-tension line, the utmost precautions should have been taken in the handling of the antenna and mast.

Because the proper precautions weren't taken in this particular case, four children are now without a father. Not a pleasant thought.

Russian Amateur Radio—1962 Style

BY THEODORE M. HANNAH,* K3CUI

Those of you who have been working Russian amateurs during the past few years know that they have become considerably easier to work. You may also have noticed some other changes. These changes, together with some of the author's own experiences, are discussed in this article. There is also a brief look at some of the mysteries of the Russian language as used in QSOs and on QSLs.

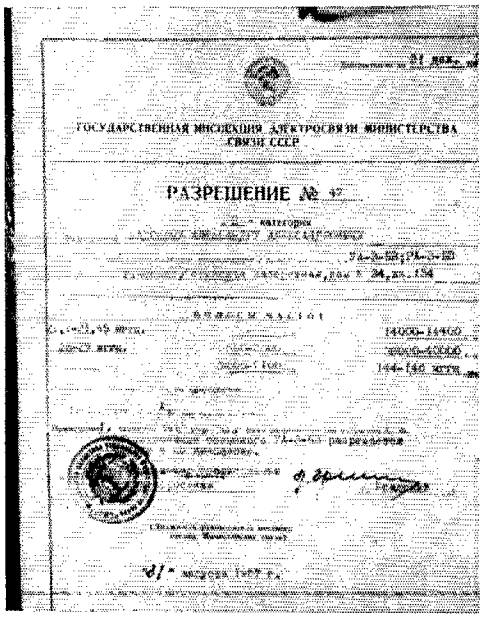
DURING the nearly four years since my first article on Russian amateur radio was published in *QST* [1] I have continued to be interested in ham radio as it is practiced in the Soviet Union. Results of this interest include several hundred "U" QSOs (many of them in Russian), two Russian awards, many letters from Russian hams, and a greater awareness of the value of amateur radio as a means of improving relations between the United States and the Soviet Union. [2]

A happy combination of superb propagation conditions and an increasingly international outlook on the part of Russian amateurs has made the past few years an extremely good period for U.S.–U.S.S.R. amateur radio communication. While we hope that the Russian attitude will continue, we know that the favorable radio conditions will not, thus the period 1958–1962 may be remembered as the golden age of American-Russian amateur radio communications, at least during this decade.

*11106 Bybee Street, Silver Spring, Maryland.

[1] "Amateur Radio, Russian Style," November, 1958.

[2] "Man's desire to communicate still offers our greatest opportunity to achieve peace on earth and good will toward all mankind." — Hallicrafters Christmas message, *QST* December, 1961, p. 1.



The license to operate a Russian ham station looks like this.

Changes

Changes in Russian ham radio have been both quantitative and qualitative. Not only are there more Russian hams on the air than ever before,[3] but the quality of their signals has improved tremendously during the last few years. Always skilled operators, most Russian hams now have the kind of signal that, together with operating skill, makes for very pleasant QSOs.

Russian equipment has improved greatly. While military surplus and home-built transmitters and receivers are still the order of the day in Russian ham shacks, the equipment is now much more sophisticated. The Russians realize, of course, that poor signals are a spectrum-wasting luxury that they can no longer afford. This is reflected in construction articles published in Russia's *Radio* magazine. For c.w. transmitters, the emphasis is on clean, stable signals which occupy a minimum of space in the band. For phone transmitters, the emphasis is on s.s.b.

There are now about 75 Russian ham stations using s.s.b. Not a large number perhaps, but four years ago there were only two. Those of you who work DX on s.s.b. know that, due largely to Russian efforts to popularize sideband, it is now possible to work all zones on s.s.b. *Radio* has recently begun carrying a "CQ SSB" column, written by Leo Labutin, UA3CR, one of the U.S.S.R's top sideband DX men. There are also a number of articles on the construction of s.s.b. equipment. In addition, the rules of the R6K award (the Russian WAC) have recently been changed to reflect the increased emphasis on sideband. All QSOs for this award must now be made on s.s.b. (rather than by any or all modes as in the past).

Russian sideband will be found on the following frequencies: 3600–3650, 7050–7100, 14,265–14,350, 21,400–21,450 and 28,600–28,900 kc. (lower sideband on 40 and 80 meters, upper sideband on the other bands).

[3] There are now about 10,000 stations. The goal is to have 25,000 stations on the air by the end of this year, but *Radio* magazine reports that the goal may not be reached.

Greater ham activity has not been a completely unmixed blessing, however. Together with a growth in amateur radio has come a growth in television — hence TVI problems. There are now about 115 television stations and 6 million TV sets. Until recently, the Russian ham had to be concerned about TVI only during the relatively few evening hours that television stations were on the air. Now, however, the TV broadcasting day, at least in the large cities, often begins at 11:00 A.M. and lasts until midnight. The Russian amateur now seems to be facing the same TVI problems that the American ham faced in the early 1950s. And, just as *QST* did during those years, *Radio* is now carrying a number of articles on the cause and cure of TVI.

The Competitive Russians

As any recent DX contest participant knows, the Russians have become increasingly keen competitors. This is not entirely accidental: the recently organized Federation of Radio Sport (headed by the well-known Ernst Krenkel, RAEM) encourages Russian participation in international contests. Announcements of these contests, as well as the results, are published in *Radio*. Russia's own international DX contest, held annually about the first of May, has become quite popular worldwide.

The winning of awards has also become a matter of great interest to Russian hams. In the letters I have received, the request most frequently made is, "Please send me information on American awards." *Radio* has also begun publishing more information on foreign awards, as well as more DX information in general.

QSLs and the Language

Whether your interest is the obtaining of a QSL from a rare "U" prefix or just a desire to make your card a little different, the use of a few words of Russian on your QSL will be appreciated by your Russian contact.

The following are the Russian versions of a few of the expressions commonly used on QSL cards:

TNX FOR FB QSO
— Очень Вам благодарен[4] за FB QSO.

HOPE CUAGN
— Надеюсь на новую встречу.

PSE UR QSL
— Очень прошу Вашу QSL.

SO LONG, OM
— До свидания OM (in c.w., DSW)

A few of the more common Russian names are Boris (Борис), Gena (Гена), Sergei (Сергей), Vlad (Влад) and Yura (Юра).

The three largest cities are Moscow (Москва), Leningrad (Ленинград) and Kiev (Киев).

[4] YLs and XYLs use «благодарна...»

А	A	·−	Р	R	·−·
Б	B	−···	С	S	···
В	W	·−−	Т	T	−
Г	G	−−·	У	U	··−
Д	D	−··	Ф	F	··−·
Е	E	·	Х	H	····
Ж	V	···−	Ц	C	−·−·
З	Z	−−··	Ч	MN	−−−·
И	I	··	Ш	MM	−−−−
Й	J	·−−−	Щ	Q	−−·−
К	K	−·−	Ы	Y	−·−−
Л	L	·−··	Ь	X	−··−
М	M	−−	Э	UI	··−··
Н	N	−·	Ю	IM	··−−
О	O	−−−	Я	AA	·−·−
П	P	·−−·			

Here is the Russian code conversion chart. Note that there are five additional characters in the Russian alphabet. These five, however, are never used in Russian ham calls in order to avoid international confusion. But if you'd like to practice some Russian-language c.w., here you are. Remember, the English code equivalents listed in the two right-hand portions of each column above are only for c.w. use—they do not help you in translating the language.

By using a code conversion chart, you can even transmit these words and phrases in Russian c.w., but be ready to get a string of it right back at you as soon as you sign "K"!

As you may have noticed, the Russians occasionally send QSLs with the call in Cyrillic (Russian) characters. The conversion chart mentioned above may be used to convert these calls into English. An example: УБ5КАЩ = UB5KAQ. Remember, though, that the table shows only Morse code equivalents; it cannot accurately be used to *translate* Russian into English.

Another thing that sometimes causes confusion on Russian QSL cards is the use of Moscow time (shown as MSK on Russian cards). Although a map will show only two time zones between Greenwich and Moscow, there is actually a three-hour difference. This is because the Soviet Union observes daylight-saving time the year round. To get GMT, just subtract three hours from Moscow time.

Good luck and DSW! QST

Strays

W4KVO (Box 536, La Grange, Ga.) would like to hear from hams who served in the 58th Signal Battalion in WW II.

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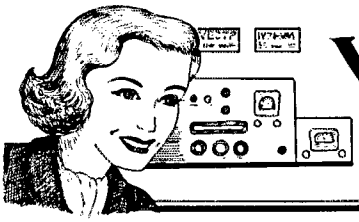
One of the popular DX bashes each year is the WAE DX Contest, sponsored by the German Amateur Radio Club (DARC). The customary January date has been pushed ahead to August in order to take advantage of better propagation conditions. See page 63 of this issue for complete rules.



YL NEWS AND VIEWS

CONDUCTED BY ELEANOR WILSON,* W1QON

A Pictorial Peek at the Orlando Hamfest and Floridora YL 5th Anniversary Celebration May 4–6

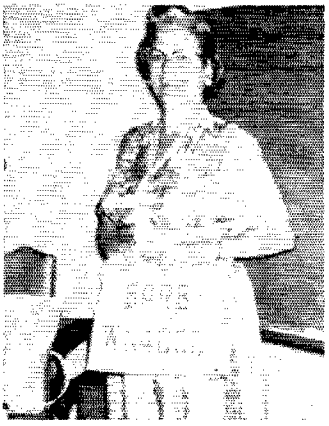
New 1962 Floridora officers W4HRC, Pres.; K4ANR, V.P.; and K4PPX; Secy., were installed into office by Yankee guest W1QON. Other officers for the new term are K4JZX, Treas.; K4BDF, Membership; K4UIZ, Historian; K4RCX, Publicity; K4RNS, Certificate Custodian; and WN4EEO, Novice Net Mgr.

Florida Skip, the All Florida Radio Amateur Publication, was an integral part of the Orlando Hamfest, as it is of Florida in general. (Strategically located overlooking the hotel swimming pool, the *Florida Skip* exhibit booth aroused exceptional attention!) As Editor and Business Manager of *Florida Skip*, Andy and Betty Clark, W4IYT and W4GGQ (he's editor) of Miami Springs, are two of the busiest hams in the state.

His 'n Her shirts are, of course, a logical follow-up to His 'n Her ham stations. In the line-up are Mr. and Mrs. W4LZT and W4UEW and Mr. and Mrs. K4RNR and RNS.

Examining an exhibit in conjunction with the Orlando Hamfest theme "50 Years of Amateur Radio" are Marge Campbell, K4RNS and Ruth Nissen, W4BWR, attractive in their "hamfest blouses."

Twenty-two of the Floridoras (104 membership) who reminisced about the first five years of the club and looked forward to a still better "next five years."



The latest in hamfest handbag gear for Milady Ham. You figure out who the model is!

Evalyn Shea, K4UIZ, the capable and gracious chairman of the YL program of the Orlando Hamfest. Evalyn and her OM Hal, W4BKC, have contributed much to ham radio activity in Orlando.

With the WAYLARCS

On May 7 a special dinner-meeting was enjoyed by members of the Washington Area YL ARC and guests Marge and Ralph Dennis and W1QON. Dinner at the picturesque Watergate Inn on the Potomac preceded a later meeting at the Washington Post Building. Club President Camille Hedges, W3TSC, announced that Claire Bardon, W4TVT, will chairman the YL program for the ARRL Atlantic Division Convention to be held in the nation's capital next year. The highlight of the evening was the lecture, with colored slides, by Marge, ex-W1FBT and 9N1MD, and Ralph, ex-W1CF, and 9N1MD Dennis. Working for the State Department, the Dennises helped set up a telecommunications system in Katmandu ("Shangri-La"), India. WAYLARCS (and their OMs) who appreciated Marge's interesting and informative comments were: K3PDH, W3s AKB, CDQ, RXJ, TAK, TSC, UTR; K4s EAM, IKK, LMB; W4s RHC, TVT, and W8SSF/3. (The one regret of the evening was that not a camera in working condition was available to capture the occasion for reproduction here.)

"This is the World's Fair"

Located in the National Bank of Commerce Building, at the entrance to the Alaska Exhibit, and right under the famous Space Needle, is the World's Fair amateur radio station at Seattle (see photo). From 10:00 A.M. to 4:00 P.M., running a Viking 500 and HQ 180, the call KL7SOA, assigned to Mary Olendorff, KL7BJD, representing Alaska, is used. From 4:00 P.M. to 10:00 P.M., employing Collins S-Line equipment, the call K7USA, assigned to the Puget Sound Council of Amateur Radio Clubs, is used. Available for operation also is a 2-meter f.m. and a 6-meter a.m. rig, assigned to the Council. All bands are used, but there is heavy noise from nearby electronic exhibits. Twenty phone has been the preferred band to date. W7CLS cautions, "The world hears us, but we can copy only the very loudest, especially in the daytime." The station is manned by volunteers from the Puget Sound Council and the Alaska Sourdough Net. In the first month, some 700 operators from all over the world stopped by. W7LCS also reports that the Fair is fabulous, and she invites everyone to Seattle to behold the spectacle (*not* at Toddy's expense!).

—•••—

The president of the Sheraton Hotel Corporation of America, Mr. Ernest Henderson, gave ham radio a nice bit of publicity in his autobiography, *The World of Mr. Sheraton*. As W1UDY, "Ernie," of Lincoln, Mass., devotes several pages to his varied amateur experiences, including "occasional international flirtations" with lovely YLs. For details and an intriguing autobiography we refer you to W1UDY's book, especially if you are interested in how $1000 became $400 million. *The World of Mr. Sheraton*, originally published by David McKay Co., Inc. in 1960, is now available as a Popular Library paperback.

Florence Bogardus, "Little Bo," W4HRC, president of the Floridora YLs, cuts a piece of the fifth anniversary cake for K4UIZ at the Floridora Birthday Party.

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

Right under the Space Needle! Mary Olendorff, KL7BJC, and Toddy Nye, W7LCS, take care of as many calls as they can at the World's Fair ham shack (see item).

For the past two months you have read of Louise Ramsey Moreau, W3WRE, and articles penned by her on wireless and telegraphy, subjects on which Louise has done much research. Our thanks to Jack Sargent, K8BSM, of the Dayton Hamvention Committee, for forwarding this photo of Louise and a small part of her famous key collection that she exhibited and lectured about at the traffic forum at the Dayton Hamvention

First Religious Sister

Our thanks to Father Schaefer, W8BPQ, for bringing the following information to our attention.

Dear Editor:

The May issue of *QST* in YL News had the story of Sister M. Emiliana celebrating her Golden Jubilee. Allow me to join you in congratulating her.

In the story it was stated that Sister became the first Religious Sister in the world to join our hobby when she joined in 1933. I do not want to start a contest to find the oldest Sister ham operator in the world, but being from this locality where many ARRL members still remember Sister M. Charitas, S.S.N.D., I must come to her defense. Sister operated her amateur radio station in 1923 and perhaps before with the call 9AXN.

Sister was never a phone addict, having remained on c.w. during her time of ham radio. She is now living in retirement at Mesmer High School, Milwaukee, Wisconsin. She is no longer active as a ham.

Some of the old timers might remember Sister Charitas, 9AXN, so I am taking the liberty to send on this information. — *W8BPQ*

The new president of the Amateur Radio Club of Southwest Louisiana, Lou Fontenot, WA5ARV, is the first YL to hold office in the club's 18-year history. OM K5CRE, says that Lou is "proving to be a very good and active president and is a real credit to the club." Other OM clubs may wish to take notice (photo by K5CRE)

Past and present officers of the Ladies Amateur Radio Klub of Chicago gathered for the 10th anniversary celebration of the club in May. Reading, left to right, are: K9TRP (current president); K9BWJ; K9IVG; W9YWH; W9LDK; W9BCA; W9YBC; and W9SJR. Missing from the photo is W9LOY, the first president. A brand new LARK certificate will be issued after Sept. 1, 1962. Contact 10 LARK members and send list to custodian W9UON, 1045 Milwaukee Ave., Chicago. Applications for the old LARK certificate will be honored up to Sept. 1, 1962.

"Extremely anxious" to talk with stateside YLs is Eve Gardner, KA2MM, ex-W4MTH, according to Fay, K1OYM, who submitted this photo. Eve and her OM, ex-W4ODV, expect to operate KA2MM for another year on s.s.b. 14.3 Mc., 1100–1200 GMT daily.

The 8th district of the YLRL held its annual meeting at the ARRL Convention at Grand Rapids April 14 with the above 31 W8 YLs present.

We figure that ARRL members can't hardly come any younger than 8-years old. Little Miss Sheryl Stroup, KN7UDP, who is both—a League member and an 8 year-old—took her novice exam last January before a total stranger (she copied at 7½ w.p.m.). The pride of the Evergreen Amateur Radio Club of Portland, Oregon, Sheryl is expected to be on hand for the ARRL National Convention Labor Day week-end.

Lil Pullen, W7GRC, and Mary Govig, K7BII, work on favors for the National Convention Labor Day week-end at Portland.

Coming Events

ARRL National Convention — Aug. 31–Sept. 3 at Portland, Oregon. YL program conducted by the Portland Roses. Last call for this big event. See additional information, YL program in June column.

Howdy Days — Sept. 25–27.. Sponsored by the YLRL, Howdy Days kick off the fall and winter season of YL activity — it is not necessary to be a YLRL member to participate. Complete rules next month.

Prior to the SWOOP (Suffering Wives of Operators' Protectorate) at the ARRL Convention at Disneyland in June there were hundreds of SWOOP certificates to stamp and that's precisely what Gladys Eastman, W6DXI, and Esther Given, W6BDE, are shown doing.

VHF Contest Results

Top-scorer in the YL VHF Contest, conducted April 11–13 by the YLRL, was Joyce Garlick, K1OLM. Runners-up were Elayne Smith, WA6IZO, second place, and Phyllis Hannes, K3NBS, third place. K1OLM received the WRONE award. 100 Miss WRONE QSLs, for her efforts. (Information courtesy K2JYZ, YLRL V.P.)

Hiawatha Land Certificates

W8HAV, Zelma Neault, sends word of a new certificate, The Hiawatha Land Certificate, offered by the Upper Peninsula YL ARC for contacts with 50 licensed operators in the Upper Peninsula of Michigan. Also required is a confirmed QSO with 5 members of the Upper Peninsula YL Net (net members need not be located in the Upper Peninsula of Michigan to count). Net contacts are not acceptable. Send list arranged alphabetically by call letters of operator and full log information to Custodian Zelma Neault, W8HAV, Box 483, Marquette, Mich. The list should be signed by the applicant and two other amateurs, other than novice or technician class, stating the QSL cards have been examined and are in possession of the applicant. Fifty cents should accompany the application. Endorsements will be issued for each duplication of the requirements.

The 12th Midwest YL Convention was labeled a "huge success" by Chairman Esther Stuewe, W8ATB. Some 60 licensed YLs registered for the affair at Flint, Michigan on May 18 and 19. The 1963 convention is slated for "somewhere" in the Upper Peninsula of Michigan.

Correspondence From Members-

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

THE TINKERER

¶ Hooray for your "Home-Brew" editorial in June *QST*.

Amateur radio is such a vast hobby that it is not fair to say that the operator must build his station, for his enjoyment may be derived from other aspects of this hobby; but just as there is room for the fellow who buys his gear ready-made there is plenty of room for the tinkerer, who sometimes has to put up with hum or chirp on his signal while he solves his problem.

The fellow who brews his own has a feeling of accomplishment which is, in my estimation, unequaled in any other hobby. This is also accompanied with a feeling of security that if something "blows" the home-brew fan knows his equipment well enough to fix it without much loss of operating time.

I have worked hams who didn't know what tube they had in the final, or the basic principle behind their type of modulation; for these people I am sorry. — *David Thornburg, K9SRW, Chicago, Illinois*

NEW AWARD?

¶ The recent letters column has published several in which the correspondents expressed thanks for the code practice from W1AW. I would like to add my sincere thanks also because it has been a great help to me.

Other letters have been about awards and I would like to propose a new one, "Heard While Copying W1AW." Recently we have been taping W1AW off the air for use with our Club Training Program and the careless hams on top of W1AW are more noticeable on the tape than when trying to copy directly. The fellows in QSO aren't so bad; it's the ones who choose 14,100 to tune up that really shake me. Maybe it is good training for copying through QRM but for a fellow trying to copy 2 or 3 WPM over his head it's very frustrating. Besides, I don't recall any QRM on the FCC Examiner's tape recorder!

For the benefit of you OMs who no longer need to worry about your code speed we would like to pass on this information. W1AW transmits code practice transmissions at 0130 GMT each night for about 45 minutes. There are several frequencies used but 7080 and 14,100 cover the entire country and are probably the most used. If you would leave us just a little clear space, maybe about 2 kc. each side, a lot of new hams and would-be hams sure would appreciate it. — *Bill Clark, WA5AUB, Corpus Christi, Texas*

¶ As a beginner in this wonderful hobby of amateur radio I was most pleased with "The Amateur's Code." I could also envision that much good could be accomplished, i.e., possibly decrease juvenile delinquency by introducing this fascinating hobby to the young people. I believe it is only natural to want to share the good things of life with others. I still feel that much of this can be accomplished, but I must admit that I have been forced to join the ranks of other amateurs who are very disappointed in those few members of the amateur radio hobby who do not observe and practice The Amateurs' Code.

I am a Novice who is anxiously and conscientiously applying every spare minute to acquiring the code speed necessary to qualify for a General license. As an executive of a growing concern I do not have any great amount of spare time to devote to code practice. Therefore, every opportunity that I have to listen to W1AW's hour of code practice is a very rare and invaluable time to me. Under these circumstances it should not be difficult for any amateur radio operator to appreciate my disappointment, frustration, and possibly some moments of anger, when on these rare occasions I try to listen to W1AW only to find that 2 or 3 hams are using this same frequency and on occasion it sounds like one ham left a brick on his key while he went to the kitchen for a coffee break. I am positive that all of this QRM cannot be attributed to harmonics. When there are so many other frequencies that appear to be open at the time of code practice I fail to understand why these few amateurs violate the code of ethics and insist on jamming code transmissions of W1AW during this important hour.

To the majority of "hams," my sincere thanks for your assistance, patience and encouragement to the Novice. — *L. B. Kirkendall, WN9APR, Glen Ellyn, Illinois*

APARTMENT-FLOOR ANTENNA

¶ In case WA2KSY does not win the battle of a "no antenna" clause (May, 1962 issue of *QST*) in his lease, the following item on a "Hunk-of-Wire Antenna" might help him keep his fist in shape until he moves.

I moved into an apartment with a "no antenna" clause in early January, 1961 and by February, I was ready to ham once more. I tried to feed the outer braid of 23 feet of RG-59/U coax, grounding the inner conductor, in accordance with an item on page 88, Volume 5, *Hinks & Kinks*, but the transmitter just wouldn't load.

In March, 1961, I broke down and purchased a Viking Matchbox, and used it to end-feed a covered #14 wire indoors on the apartment floor. Length used was 33 feet for 40 meters and 16 feet for 20 meters. To keep the XYL happy, I kept the wire coiled up in a closet when not in use and stretched it out when I wanted to operate.

I used this antenna system with 100 watts input, from March to December, 1961, and was able to work many stations on both 20 and 40 c.w. The majority of the contacts were made during daylight hours on week ends with the usual week-end QRM. — *Richard W. Randall, K1GCX/KA7DR, APO. San Francisco, California*

W6IVK — ER, W6ISQ!

¶ Every one seems to be bickering about *QST*. One fellow says "Gimme this," and the other says "Gimme that." Well, I think *QST* is pretty good as is. But one thing is distressing me: do you guys know you have a brilliant, and fascinating writer among you? Yes, an unsung hero — let me explain.

There is always that someone on the air who does things you dislike. Maybe he's trying to be an m.c., maybe he is a big spectrum-wasting blabber-mouth. This gets you mad, and you begin steaming.

Well, anyway, you pull the switch, and settle down in your easy chair, being careful not to sit in the octal socket you left there, and you open your new issue of *QST*. Within you find an article — fiction, of course — all about this lid that got you so mad. Well, you laugh to yourself, as you read the exposé.

The person who writes what you love to hear is John Troster, W6ISQ. He is our modern-day equivalent of the anonymous "Old Man" of days past.

Let the fellows bicker about *QST;* as long as John Troster and his humor are in *QST*, I won't desert your magazine. — *Stan Schwartz, WA2YED, Jackson Heights, N. Y.*

¶ I would like to thank both *QST* and W6ISQ for the short amateur radio stories that have appeared in *QST* for some time now. I always enjoy reading these stories and am looking forward to more of them. To be sure, I enjoy all of *QST*, but in particular these stories. Keep up the fine work. — *James H. Demler, WØDSU, Hastings, Nebraska*

EXTRAS ONLY?

¶ I wish to congratulate the persons concerned, the ARRL and the government for allowing amateurs to place amateur-built satellites in orbit.

When amateur technology progresses further to allow for

(Continued on page 150)

Operating News

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

Traffic and Public Relations. From the time the first amateur message was handled the great value placed on traffic has been that, properly handled, it represents a real and valid public service. All the talk in "Traffic Topix" recently on test messages and adherence to proper procedures to avoid garbled traffic is to help the individual amateur demonstrate and maintain his capacity to contribute to this public service.

Do we hear someone say: "What about trash-traffic and legitimate traffic?" Perhaps the apparent importance of a message gives it a high or low priority rating with some. But really no one except the recipient or the originator has the right to pass judgment. Does a commercial or government agency in accepting a message quibble about its value? Greetings sent to a family from a long-unheard-from person may be a service *par excellence* to one recipient; with another a message on the availability of a million-dollar piece of equipment may to the well-heeled recipient seem trivial. So we suggest amateurs "stop reading the texts" except as necessary to get them started, delivered, and serviced properly by the rules. The emphasis should be to see that any and all dispatches are truly handled so as to be a credit to the amateur fraternity . . . just as any other communications service handles its business, if it wants to continue to be called a service! There is great public relations potential in traffic. We ought to put on our best face and really develop understanding of, and goodwill for amateur radio when we get a chance to deliver a message. In telephone deliveries especially, we have an ideal mechanism to further the opinion of those other than amateurs about our hobby.

Some Pointers in Message Deliveries. It does not follow that every message should be delivered with a lecture. Of course, we must be courteous and business-like. If any addressee has not had such a message delivery before and requires a little explanation, we should be ready with the answers. For example, the amateur donates his time and equipment without cost. The message was not "picked up" in casually scouting the radio frequencies, as a broadcast listener does, but was relayed through several stations. Care and responsibility were assumed by the individuals in two-way work and organized amateur networks assisted by systematic means to forward the message. Experienced amateurs come from all walks of life and take responsibility for and pride in the handling of such messages, as well as assist in emergencies in giving broader public service. Additionally one can volunteer to handle a reply through the same channel, when practical. Judgment and restraint of enthusiasm may be advisable; explaining may *not* be necessary if a person knows about the hobby, but let us build respect for our work as it deserves it.

Code Proficiency Success. Over 40,000 different people have been ARRL-certified for their code proficiency in the course of monthly Qualifying Runs. Scheduled runs and tape-sent practice transmissions from W1AW and W6OWP are announced in each issue of *QST*. All interested persons can enjoy daily practice and submit copy for monthly runs for a Code Proficiency Certificate at speeds of 10 to 35 w.p.m. During 1961, 3048 papers were accredited as passing; there were 448 failures. In January and March papers came in at almost a 500-per-month pace. You earn a certificate at the highest speed you can take without error for one minute with endorsement stickers for each subsequent month in which you advance in 5 w.p.m. steps from the initial certified speed. Analysis of 1961 results shows certifications as follows: 42.9% at 10 w.p.m.; 40.5% at 15 w.p.m.; 10% at 20 w.p.m.; 3.2% at 25 w.p.m.; 1.5% at 30 w.p.m.; and 1.6% at 35 w.p.m.

For those going up for license examination, we recommend copying W1AW until you can be certified at five words faster than any exam challenge you will meet. This helps you beat any nervousness or fatigue. CP certification is a measure of one's ability to concentrate and transcribe accurately what is sent. Lots of fellows who thought they could take stuff by ear, but never wrote it down, find *copying* ability a real challenge. CP certificates demonstrate more than casual ability; they are displayed proudly by all who hold them. Have you earned your Code Proficiency Certificate?

Use W1AW Bulletins for Code Practice. Too many newcomers subscribe to the fallacious theory that they have to limit their listening to 7 w.p.m. before they can do 10 w.p.m., and copy 10 well nigh perfect before they try 15. "It ain't necessarily so." Some of the better operators in the days of old never had a chance to listen to any code below useful commercial manual speeds. They made the grade, putting down all possible characters, learning to let one go by and get the very next . . . speeding up their responses; better for learning progress than to put down only what you can take solid, so they say. So the 18 w.p.m. tape-sent W1AW bulletins sent daily at 0000 and 0400 GMT are considered ideal for practice; they have the added interest of giving

significant information as a reward for the listener. Here's what one Navy Commander who is a beginner in our art has to say: "I'm proud of being an associate member of ARRL. I look forward to the time I shall get my ticket and can become a full fledged member. . . . I am confident there are many other newcomers like myself who are missing a splendid chance for code practice by not copying (or trying to) W1AW bulletins, for the simple reason they *think* the speed is out of their range. . . . Just as soon as I copy full bulletins fairly well, I am going after that General Class license!"

DXCC. During 1961 ARRL's DX Century Club desk checked some 120,472 cards, handling 4277 pieces of mail not counting certificates. On the latter, records indicate that post-war we have issued over 8000 certificates. The annual December *QST* listing of DXCC members now credits all DXCC activity for the previous 24 months. The December listing of nearly 2000 amateurs is a barometer of the continuing high interest. Last year there were nine country additions and no deletions approved by the ARRL staff committee; two disqualifications were made and 140 advisory letters sent concerning Rule 11.

DXCC endorsements for 1961 were up, probably as a result of the new African countries introduced the preceding year, and overriding the radio conditions associated with this part of the sunspot cycle. For the benefit of newcomers to the DX game, let's review briefly the present basis that determines country status in the ARRL Countries List.

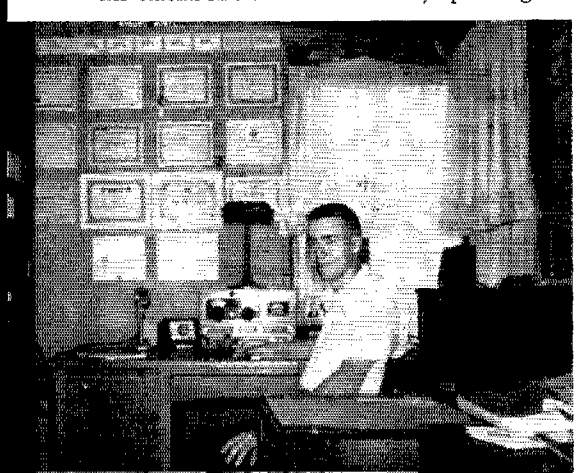
The League's DXCC developed pre-war from country discussions in *QST*. It soon became apparent that a standard reference list of countries for everyone was needed. Like other awards that carry prestige, the rules are based on policies and precedent, not merely or completely responsive to reflecting wishes or pressures of persons working for the award. Some might think it nice if there could be a "frozen" list with no additions or deletions. On the other hand wishful thinkers often suggest island areas that ought, in their opinion, to be raised to the status of a country. But a countries list has to meet the combined political and geographical facts of life and the changes in the political status of nations in the world itself to be a realistic list. Changes are not for the sake of change, but to reflect a changing world. An important thing to remember is that the official ARRL Countries List, Operating Aid No. 7, is the same for everyone who is working for credits. The list is revised once or twice a year to pick up the interim information given in "DXCC Notes" which are presented in *QST* and indexed in the December issue.

Countries Criteria. The pre-war DXCC countries list was the starting point for the present DXCC list. A standard list had been developed by extensive consultations and reference to authorities. It was a good list, as far as it went. Much of the older list was taken as generally approved and acceptable. Some listings, as Scotland and England, were continued as universally satisfactory, even if on academic grounds not all were in agreement. A definite criteria to serve as a guide was needed. The official ARRL list had to be updated to take into account the changes wrought by WW. II. Three basic general criteria were adopted additional to the many precedents of past decisions, as a guide in country determination. The criteria established that the status of any area to be a candidate for the ARRL Countries List must rest on the facts as stated by definite authorities (not amateurs) so that reviews would take into account the following:

(1) The degree of political-administrative independence:
(2) The geographical separation; and
(3) If the areas have foreign land between.

In cases of dispute between countries (and some disagreements continue) we have been obliged to turn to the U.S. Department of State as well as the leading geographical societies of the world to secure information. Geographical separation from the mainland may serve to place an area on the Countries List, even if the political setup alone would not permit it to make the grade. Where foreign territory divides a country, a minimum of 75 miles of foreign land separating the two areas in question is required. This distance requirement does not apply in the case of island groups. Where a place has no political/administrative sovereignty, it must be at least 225 miles from the nearest land to which it is administratively attached to be considered for separate country status. This point, however, does not apply to islands in a natural island grouping, such as the Marquesas in French Oceania, for example. The geographical position, as well as the form of government with its degree of autonomy, representation, or integration has to be considered. It is because of these many factors that there is a functioning ARRL staff DXCC Awards Committee of seven, so policy or listings are not responsive to the whim of any individual person or to the pressures of those who have special axes to grind.

—*F. E. H.*



Hawaii SCM, KH6DVG.

MEET THE SCMs

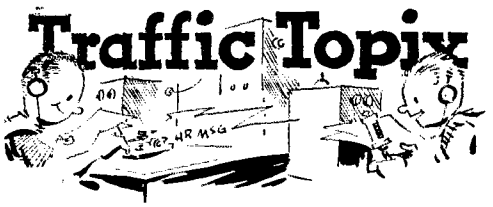
John Montague, KH6DVG, a licensed amateur since 1958, has just completed his first term as Section Communications Manager of the Hawaii section — a mighty successful year at that.

Formerly K6PXQ of the Los Angeles section, Monte held appointments as OO, ORS and OES and was treasurer of the Glendale Amateur Radio Club. Operating activities like Field Day, CD Parties and DX Contests are his gravy. Presently he is an OO and member of the Honolulu Amateur Radio Club.

KH6DVG's homebrew rig, 160–10 meters phone and c.w., runs a pair of 807s with a 2E26/6146 on 6 meters. Receiver is a modified Knight R-100. Antennas include a three-element Tribander, dipoles for 40, 20, 15 and 10 meters, a 2-meter ground plane, a 6-meter ground plane and an 85-ft. long wire — all on a *city* lot!

Photography and stamp collecting are Monte's other hobbies and he enjoys swimming in the Hawaii surf and target shooting. An E.E. major, he is a part-time lab technician at the University of Hawaii. Monte is trying to get an appointment to the Air Force Academy but if he is unsuccessful will work for a commission in the Air Force through ROTC.

The ARRL Board of Directors meeting in annual session in May praised the work of SCMs and expressed their sincere thanks for the volunteer efforts of these our elected section leaders. KH6DVG, like all our other SCMs, exemplifies the true amateur spirit in getting things done at the section level.



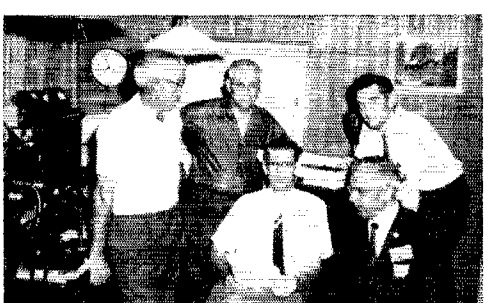
We were talking about message form last month, when we were interrupted by the end of the page.

At the end of the preamble, which concludes with the date, there has been some controversy among c.w. operators as to whether or not a "break" (BT) sign should be inserted before the address begins. This is a minor point, really, because the name of the addressee follows the date in any case so what's the necessity? Nevertheless, many operators prefer to do this, and we do not consider it incorrect. It is, however, unnecessary and may be confusing to send the preposition "TO" prior to the name of the addressee. On phone, the name of the addressee can follow the date similarly without prosigns, such as "going to."

The address of the message is one of its most important parts and one of the most difficult — hence, it is where a great many garbles occur. It should be transmitted, by voice or c.w., with the greatest care. By voice, speak each syllable distinctly, spelling out phonetically all difficult words or initials. Avoid such inanities as "common spelling," and "Missus, a married lady," and avoid *over*-phoneticizing; usually, if you speak distinctly (surprising how few people do), it is not necessary to use phonetics on common names, which most of them are whether they are of people, streets or cities. On c.w., be sure to use the AA separation signs between parts of the address; it can be quite confusing if you fail to do so. Get into this habit, and when copying make sure you understand where the name stops and the address begins, and where the street address stops and the name of the city begins. Get a phone number for the address, if you can; it often expedites delivery. The phone number comes after the city and state. Avoid special instructions on the address, such as "via Podunk Net," or "withhold delivery until birthday," etc.

Before starting the text, insert a BT sign on c.w. On phone you hear "break and the text," but we wonder how necessary this is; it seems that a pause after the city and state should be sufficient to indicate that the text is coming.

ARRL procedure is to use the word STOP in place of periods and semicolons in the texts of messages, and to *spell out* all other punctuation, on c.w. or phone. The use of X (or X-ray) is quite common, but this is from the military; nothing wrong with it, of course (on military circuits). When transmitting a message you originated, *put it in correct ARRL form.* But when relaying a message someone else gave you, *do not* change X's to STOP's or make any other changes in the text as sent to you. To a certain extent, it is proper to correct the *form* of a message, but *never* to change



Shown at the Second Annual Hamfest of the Panhandle Amateur Radio Club at Amarillo, Texas, are (standing, l. to r.) K5RSK, W5WB (Regional RACES RO) and K5AEX (SEC, N. Texas). Seated, l. to r., are K5TRY (Texas State RACES RO) and W5UYQ (Vice Director, West Gulf Division, ARRL). W5WB, K5TRY and W5UYQ were speakers at the hamfest.

BRASS POUNDERS LEAGUE

Winners of BPL Certificate for May Traffic:

Call	*Orig.*	*Recd.*	*Rel.*	*Del.*	*Total*
W3CUL	132	1701	1296	383	3512
K6BPI	87	1026	910	116	2139
WØLGG	474	783	738	4	1999
KØONK	87	691	620	27	1425
W1PEX	41	504	467	31	1043
W3EML	29	515	451	16	1011
K4AKP	19	496	394	98	1007
WØSCA	43	463	456	1	963
W8DAE	49	466	334	106	955
W7BA	9	461	416	44	930
K4SJH	119	455	329	12	915
W9JOZ	8	435	443	0	886
W7DZX	7	471	363	33	874
K6EPT	24	408	233	175	840
W3VR	49	397	389	4	839
KØLTJ	371	232	209	23	835
W9DYG	30	392	337	32	791
W4PL	10	378	347	16	751
W6WPF	5	365	335	30	735
W1TXL	47	329	318	11	705
W6GYH	178	256	242	11	687
WA2GPT	271	243	26	70	610
W3WRE	48	285	233	44	610
W6UTS	0	305	300	5	610
WA4BAC	157	203	190	12	562
KØWWD	185	185	103	77	550
KØRCF	26	260	251	8	545
W2EZB	8	281	245	7	541
W8UPH	7	267	226	41	541
W2EW	135	189	104	75	503
K7JHA	18	242	242	0	502
K4KWQ	6	254	200	41	501

More-Than-One-Operator Stations

Call	*Orig.*	*Recd.*	*Rel.*	*Del.*	*Total*
W6IAB	117	1212	1145	67	2541
W6YDK	888	455	419	30	1792
KR6GF	526	108	41	67	742

BPL for 100 or more *originations-plus-deliveries*

K2UCY 206	K4HOE 131	K6GZ 105
WA2TQT 173	K8ZZW 127	W9TT 105
K9DIP 171	W9NZZ 125	K3IMP 102
W4FOR 166	KØMMS 122	K8TDJ 102
WAØBRE 144	W2UAT 121	K8KMQ 101
VE3CFR 132	W4NTR 117	K8RXD 100
K4FSS 131	WA2CCF 112	

More-Than-One-Operator Stations

W2OPB/2 272 KR6MD 125

BPL medallions (see Aug. 1954 *QST*, p. 64) have been awarded to the following amateurs since last month's listing: WA2TQT, K8JJC.

The BPL is open to all amateurs in the United States, Canada, and U. S. Possessions who report to their SCM a message total of 500 or more or 100 or more originations plus deliveries for any calendar month. All messages must be handled on amateur frequencies within 48 hours of receipt, in standard ARRL form.

its content. The use of X has become so common that perhaps eventually we'll be forced to adopt it, but we don't like it; it sounds too much like BT, and we know at least one amateur who uses it in message transmission *instead* of BT and throws us for a loop every time.

One separates the text from the signature again with a BT on c.w. *DO NOT* say 'SIG" before the signature on c.w. The separation sign is enough. On phone, it is probably almost a necessity to indicate that the signature is coming. If there is no signature, send "NO SIG" on c.w., just say "no signature" on phone. If the signature includes an address, be sure to use the separator signs on c.w. (AA). At the end of the signature, indicate that the message is terminated and whether or not there is more to follow. On c.w. you send AR to indicate end of message, B to mean more to follow, N to mean no more. On phone, you say "end of message" followed by "more" or "no more."

This has been a rather exhaustive treatment of the details of the handling of a message. Even so, we have left out a few minor points. We hope that it will have some effect in improving our procedure on the air and get us away from some of the regionalisms that cause messages to become garbled when they reach long-distance nets. — *W1NJM.*

May net reports.

Net	*Sessions*	*Check-ins*	*Traffic*
7290	47	1689	764
Fourth Region Day	31	41	212
All Service	4	34	24
Northeast Teen	10	42	11
Eastern Area Slow	31	90	21
Northeast Area Barnyard	—	762	8
20 Mtr. I.S.S.S.B.	23	692	910
Mike Farad Emerg. & Tfc.	51	457	726

National Traffic System. Are you fellows getting along with your plans for operation this winter? If any of you think that you'll just keep right on merrily operating on 80 meters for local (i.e., within two or three hundred miles or so) work, we're afraid you're in for a rude awakening come October. In the dead of winter, conditions on 80 will be just about prohibitive for reliable communication between about 50 and 500 miles starting at sundown or shortly thereafter. Most of our section and some of our region nets will have to make plans to cope with this situation.

At section level, we strongly suggest ten or six meter groundwave for the smaller sections, such as most of those in the northeast and some on the west coast. Either phone or c.w. can be used, and there is plenty of good gear around, especially on ten. Some of the ten meter DX gang will be peddling their gear. In the larger sections out west, section nets would be well advised to start talking up 160 meters Not much room up there, but at least the signals can be heard, especially c.w. signals which can often pierce through phone carriers. We're planning on fixing up a 2-3 Mc. ARC-5 surplus rig to give us about 100 watts on 160, and we understand these units are still available for five or ten bucks; we also understand that *QST* is considering a conversion article on same. You'll need a power supply and an antenna coupler; also a receiver that will hit 160, such as a BC348, BC342, some Super Pros and some mobile receivers. Point is, *now* is the time to start getting set up, not when 80 starts to fold up, as it most certainly will.

Net managers and NCS staff please take note of this. Get together and decide what you're going to do. Region and area nets probably will stick to 80, but QNY to 160 should become as commonplace as QNY up and down five Even if you can't transmit on 160, you will do well at that level to be able to receive on that band; we will probably be doing some cross-banding.

Recently when we ran out of copies of CD-24 (that's the NTS descriptive circular, remember?), we decided on a complete revision rather than a simple reprint from the old stencils. Quite a few changes have been made, the most outstanding being complete changeover to GMT. Much of the rest of CD-24 has been re-written, principally for the purpose of clarification.

The principles of operation of NTS, however, remain the same. Your present CD-24 is not obsolete, just slightly out of date because it presents the system in terms of local times with the necessity for conversions. The new CD-24 requires that you swim or sink in terms of GMT. Copies are available on request.

May reports.

Net	*Sessions*	*Traffic*	*Rate*	*Average*	*Representation (%)*
1RN	57	466	.308	8.2	65.4
2RN	60	467	.415	7.8	89.6
3RN	62	725	.379	11.7	95.7
4RN	58	497	.297	8.6	84.1
RN5	60	402	.198	6.7	65.0
RN7	60	321	.203	5.4	53.5
8RN	60	352	.184	5.9	66.7
9RN	59	774	.501	13.1	63.1
TEN	63	673	.470	10.8	41.7
ECN	22	39	.101	1.8	65.2[1]
TWN	31	426	.380	13.7	91.9[1]
EAN	28	1350	.865	48.2	97.6
CAN	31	1072	.614	34.5	96.2
PAN	31	1035	.666	33.4	100.0
TCC Eastern	124[2]	391			
TCC Central	93[2]	766			
TCC Pacific	123[2]	774			
Sections[3]	1163	4813		4.1	
Summary	1845	15343	EAN	7.3	PAN
Record	1951	21774	.909	22.1	100.0

[1] Region net representation based on one session per night. Others are based on two or more sessions per night.

[2] TCC functions reported, not counted as net sessions.

[3] Section nets reporting (40): GEM (Idaho); MDDS & MDD (Md.-Del.-D.C.); BUN (Utah); SCN & NCN (Calif.); NJN (N.J.); ILN (Ill.); WSB, WSSN, WIN (Wis.); NCSN & NCN (N.C.); QMN & Wolverine (3 Mich.); AENM, AENB, AEND, AENO, AENT, AENP Eve, AENP Morn (Ala.); WSN (Wash.); SCN (S.C.); GBN (Ont.); VSN & VN (Va.); BN (Ohio); MJN, MSN, MSPN Noon, MSPN Eve (Minn.); GSPN (N.H.); POI (Hawaii); CN & CPN (Conn.); RISPN (R.I.); SGN (Me.); TCW (Texas).

We are in the process of changing managers in a number of region nets. In 2RN, a new manager will be appointed to replace W2EZB, who is moving "upstairs" to EAN managership. We haven't heard from RN6 for so long that we forget who the manager is. RN7 will shortly have a new manager to relieve W7DZX, who has been doing double duty. W8DAE is giving up the 8RN job. WØDUA wants "out" of the TEN managership, and W8SCW is vacating EAN's saddle in favor of W2EZB. Some of these have been hanging fire for quite some time, but we are having difficulty finding time to go through the formalities.

W3UE moans and groans about 3RN's performance this month, but it still looks pretty good to us. Low percentages on RN5 are caused by representation practically 'nil" from Ark. and Miss., sez W5GY. We have high hopes that RN7 is at last getting its very own manager. Low QNI from West Virginia irks 8RN Manager W8DAE, who wants to toss 'em out of 8RN. TWN changed to 7060 kc. on June 1 to avoid the rough QRN on 80 (and it's *really* rough out there in the mountains!). QRN is raising the ole Ned with CAN, too, according to W9DYG. W6FNE and W6QAE have been awarded PAN certificates for outstanding work as RN6 liaisons; PAN moved to 7120 kc. in mid-June.

Transcontinental Corps. Things going along about as usual, with between 10 and 20 per cent failures on TCC schedules. This is too many, but it's to be expected this time of the year. No criticism of the TCC crew — they're all doing a crackerjack job.

May reports.

Area	*Functions*	*% Successful*	*Traffic*	*Out-of-Net Traffic*
Eastern	124	82.3	998	391
Central	93	83.9	1565	766
Pacific	123	89.4	1547	774
Summary	340	85.3	4110	1931

The TCC roster: Eastern Area (W1SMU, Dir.) — *W1s* EMG NJM OBR SMU, W2MTA, K2UAT, *WA2s* APY OPG, *W3s* EML FAF WRE, K3RXQ, *W4s* DLA FOR, *W8s* CHT ELW UPH. Central Area (K4AKP, Acting Dir.) — K4AKP, K9UGY, *W9s* JOZ DYG CXF ZYK, *KØs* RCF IVQ, *WØs* DUA SCA. Pacific Area (W7DZX, Dir.) — W5ZHN, *K6s* ZYZ GID, *W6s* EOT FNE HC, *WA6s* ROF JDB, *K7s* NWP TBB, *W7s* DZX GMC ZB, *KØs* EDH EDK, *WØs* WHE KQD.

Our correspondence seems to indicate a considerable degree of interest in the League's Public Service Award. Let's discuss it a little.

The Public Service Award is not the type of award, like so many others, that is specifically worked for, expected or demanded. It comes as a spontaneous recognition of outstanding work by individual amateurs *during communications emergencies*. It is available *only* to licensed amateurs whose work has been duly reported to us and written up in *QST*, and it is available *only* for work performed *as a licensed amateur radio operator*.

We don't like to set up a lot of restrictive rules, but we think that amateurs in general are getting to be altogether too award-happy. The "g'imme-an-award" philosophy is beginning to penetrate our service to the extent of becoming an obsession, so that the end-object in amateur radio is often to "git" rather than to *give*. This is not the public service spirit with which the AREC has always been imbued, and when amateur radio public service gets to the point where its primary aim is to get a certificate, remind us to take up stamp collecting.

So, to those who have inquired (not to mention those who have demanded), we have to repeat that PSAs are issued on a non-priority, routine basis, completely without fanfare or ceremony. They are a small but sincere token of the work done in a communications emergency; they are not intended as publicity gimmicks. They are issued by headquarters directly to the recipient as soon after the following conditions have been met as possible;

(1) An amateur radio communications service was performed in a communications emergency involving the health or safety of a segment of the general public.

(2) The service performed is reported to ARRL within a reasonable time (less than a year) either direct or via your EC or other official.

(3) The emergency in which the service was performed is written up in *QST;* this normally takes from six to eight weeks from the time it is reported.

(4) The issue of *QST* in which the emergency is described is in circulation.

We don't mean that PSAs will be issued *immediately* when these conditions are met, but only that they cannot be issued *before* they are met. In the past, we have had to turn down some requests for special action, such as one case in which an EC wanted to issue a PSA to the mayor because of the fine cooperation given the amateurs; and another in which an EC wanted to present a PSA to an Amateur who used his car (*sans* mobile rig) heroically to transport refugee families during a flood; and still another who demanded that the PSAs be sent to him posthaste to be presented formally; and *yet* another who demanded a PSA for services he had performed six years ago but which unfortunately had never been reported.

Fellows, you'll get your reward for public service in heaven, if you deserve one; otherwise, you'll be dealt with elsewhere. Don't expect much before then. That's not what we're doing it for. Or, are we? — *W1NJM.*

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Correction: On page 88, June *QST*, second column, in the item about the runaway children in Middletown, R.I., W1TXL informs us that the call K1OZY should be K1OZI.

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When returning from the Rochester (N. Y.) Hamfest on May 13, WA2TCZ/mobile was called by W2AKV and advised that a canoe had capsized in the middle of Seneca Lake and two boys were in danger of drowning. WA2TCZ joined W2AKV at the lake. W3BKF was contacted, who informed the Dundee, N. Y., fire department by land line. WA2HFL activated the AREC and stood by. K2DNN/mobile assumed duties as base station and called WA2HFL to bring portable generator and extra gear. Others on hand were WA2JVF/mobile, K2UOQ/mobile and WA2KLF. One of the boys reached shore; the other was presumed drowned. — *K2DNN, EC Chemung County, N. Y.*

In March, heavy rains and thawing in the midwest precipitated some emergency operation which came to be known as "Operation Wet Sponge." We now supplement July *QST* information from a full account of the emergency which appeared in *Mismatch* Magazine, published by KØRUF.

In the evening of March 28, spring thawing caused flooding conditions in Rochester, Minn., and at 2100 Olmsted County RO KØCPW alerted the six meter net with WØMXW at the court house as NCS. KØCPW/mobile was stationed at Maywood to keep an eye on the dam, accompanied by KØSBB. KØAOZ/mobile and KØEWA/mobile kept a close check on river conditions south of town. but were recalled at the request of the Red Cross, and with *K*Øs JRN and JXB were directed to report to Red Cross Comms. Officer WØKVU. KØJRN became NCS of the Red Cross Net, and WØKVU was set up on six meters at the Red Cross building. Although the operation was not without its irregularities, it can be said that the group did its usual excellent job. Others who participated, not already mentioned: *K*Øs AJD UKU PSI.

In last month's writeup on the operation in Waterloo, change KØRLS to KØRLJ and KØFDZ to KØFOZ. Some EC must have misinterpreted somebody's hen-scratching.

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On April 27 an explosion followed by a fire erupted at the Union Carbide Plastics Company in Marietta, Ohio. K8HYE rushed to the plant and immediately set up communication with K8OKW, K8YGZ and K8ZDP, until K8LTS in Marietta came on the air. Because of the nature of the fire, the plant's supply of foam was soon exhausted and the amateur net contacted other plants and U. S. government installations for a supply of foam to combat the fire. The amateur group also supplied information on casualties and damage. Later in the day, W8HRQ/mobile and K8BLR went to the scene to relieve K8HYE. W8IBF set up at the airport. Others responding: *K8s* HKW LTS.

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At approximately 1930 on April 30 a tornado hit the Stealy-Perrine Stockyard in Marshall, Michigan, throwing the roof of the stockyard over on the tracks of the New York Central Railroad, disrupting both the operation of the line and their communications system. K8UCQ set up a portable station at the railroad freight office and reported into the six meter net, which was already in progress. Contact was maintained with K8UCY, who relayed to Battle Creek and Albion. K8WPO/mobile was dispatched from Battle Creek to Marshall to assist. K8BUV was asked by Marshall police to assist with communications, and when a tornado funnel hit East LeRoy, Mich., he was able to inform the police who warned the populace and nobody was hurt. The Southern Mich. 6 Meter Net was in operation from 1600 to 2100. W8NZ was NCS during this period. Amateurs assisting included *K8s* NEY ZQV NWO CIS AXV YYC YZF REM JGT WKZ KMC DSC, *W8s* AJQ VZY BGY. — *K8AEM, EC Calhoun County, Mich.*

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The Metropolitan Denver AREC assisted the Denver Police Department on June 5 in searching for the body of a 3-year-old girl missing and presumed drowned in the Platte River flowing through the city. Eighteen AREC members left their jobs and stationed their mobiles near the river in accordance with assignments worked out by EC KØOVQ and the police. Four teams of AREC members traveled on foot on opposite sides of the river while two mobiles followed to provide liaison with base stations. Suspicious objects observed in the river were discussed by means of hand-carried units. The operators, with their equipment, sloshed through muddy water for two hours in covering their assignments. The body was found several miles downstream days later. Taking part in the search were *K*Øs CLJ JSD KGA KKY MNQ PGM QGO QID RRC STI TSD ZIJ, *W*Øs AJY CCA DPU VDY, WAØBHR.

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The Steuben County, Ind., AREC went into action during a tornado on April 30, 1962. Mobile radio units on 52.525 Mc. patrolled the county and reported storm damage and downed telephone and light lines on behalf of the telephone and power companies. A portable unit was operated from the sheriff's office. The AREC radio units were coordinated by W9BF, the station of the Tri-State College Amateur Radio Club. Amateurs taking part included K2QVC/9 (NCS), WA2LPM, W4CTU/9 *K8s* HBU JPC OSH, W8MNP, *K9s* 1BE TDC, *W9s* BGY CMA YCB, WA9DAB. — *W4CTU/9, EC Steuben County, Ind.*

On April 8, YV5DS in Venezuela attempted to contact New York to obtain a drug not available in Venezuela to save the life of a dying boy. Unable to make contact, he appealed to W5AGM, who also tried and finally succeeded in contacting W3YZF in Croydon, Pa. After some difficulty, the drug was obtained and flown to Venezuela in time to be used on the boy, whose condition improved immediately.

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On April 20, while operating mobile on 20 meters, at the town of Tom Bean, Texas, W5GOS was called by TI2FFD, who informed him that the ship *Colombia* was sending an SOS approximately 100 miles off Key West, Fla. After a series of attempts to get the position, W5GOS drove to the nearest public telephone and called the Texas Highway Patrol and explained the situation to them. From here it was relayed to the Coast Guard via the National Warning System. Ultimate results are unknown.

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On April 24, just before midnight, a gasoline storage tank exploded in Houston, Texas, precipitating an emergency in which amateurs of the Harris County AREC took part. K5JKN/mobile and W5DNE/mobile were near the scene when the explosion occurred; SEC W5AIR came on a half hour later and others followed. The net stood by awaiting an order to assist with the evacuation of homes near the storage tank farm, but this proved unnecessary and the net was secured at 0115. During the emergency operation, K5JKN and K5HUT were both mobile at the scene, the former to give first hand information from Fire Dept. officials and the latter in contact with W5AWG for direct contact with a local broadcast station. Mobiles standing by included *W5s* DNE IKX and K5BEQ; others were ready to go mobile if called upon. K5FOG did an excellent job of relaying from K5JKN/mobile when the conditions were rough. Others who participated: *K5s* RDP IBW BGY GBJ KYH WJB IUY GPJ BCU and W5EGV. — *W5AIR, SEC So. Texas.*

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Amateurs in Toledo, Ohio, assisted in finding a pressure tank on May 25 when a skin diver was stricken with the bends. K8ZBP, himself a skin-diving enthusiast, contacted K8BAT, and the two of them started the search for a decompressor. The stricken youth wound up being flown to Detroit and placed in the torpedo tube of a submarine on display there. K8WDZ assisted with the arrangements.

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On Friday, June 15, K4RNG in Miami was advised by K4HSW that the outgoing cable of the North Shore Hospital was out and assistance was needed in providing emergency communications for outgoing calls to doctors. K4BUW at home and WA2TVT/mobile established communication at the hospital, with outgoing calls being placed through K4BUW. This system was set up within thirteen minutes of the outage. Relief mobiles were *K4s* HSW RDF QXB. Relief contact stations were *K4s* JCU RBR and WA4PBW. — *K4RNG.*

This picture, taken during a recent meeting of the AREC Planning Committee of South Jefferson County, Texas, shows Assistant EC W5LQP at his operating position (foreground) with (l. to r.) W5ZAT, K5RVF and K5TAX in the background. K5RVF is EC, the others are assistant ECs.

A motorist with car trouble got prompt aid on May 1 when he was noticed in his stranded car by Leon County (Fla.) EC K4YPI. Using his mobile rig on the Florida mobile calling frequency of 29,560 kc., K4YPI raised W4MLE, who immediately telephoned aid. This prompt action was made possible by continuous monitoring of this frequency on a squelched monitoring receiver by W4MLE.

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W9YYL was riding with his family on May 13 when they witnessed an accident at the junction of routes 11 and 194 near Racine, Wis. One of the occupants seemed injured, so W9YYL called a CQ for assistance. He was answered by K9JEA in Racine, who called the sheriff. W9HAG also arrived at the scene and rendered assistance. Within five minutes, as a result of the work of the amateurs, the state patrol arrived at the scene. — *W9YYL.*

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South Texas SEC W5AIR stumbled into a tense situation one evening on 20 meters while he was trying to work some DX. He received a call from K4HFI in Alabama saying that a tornado was about to hit there any second. In K4FHI's shack were some women and children from the neighborhood and his own two children. Several other stations checked in but there seemed little to do but keep up the conversation and the morale of everybody concerned. After a few minutes the tornado threat passed over and everybody was much relieved and plans were made to get the extra children home.

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Pretty good reporting record for April: 32 SEC reports received, representing 14,347 AREC members, but not quite as many reports as last year, when late reporters boosted the total from 29 to 33. The number of AREC members, however, represents a considerable increase and a record for the month. Sections reporting: E. Mass., Mich., N.Y.C.-L.I., Maine, Alberta, Nevada, Ind., Wash., Ohio, Ore., Nebr., N. Texas, Colo., E. Fla., Los A., Iowa, Tenn., S. J. V., W. Pa., E. Bay, N. N. J., Md.-Del.-D. C., Hawaii, Ariz., S. Dak., E. Pa., Ala., Okla., Utah, W. Va., S. C. V., N. Dakota.

RACES News

Reports on amateur operation during the early March Atlantic Coast storm are still coming through. We have quite an extensive one from "Cross Talk," the club paper of the Gloucester County (N. J.) Amateur Radio Club.

On March 7, the Cape May C.D. Director accepted aid from the C.D. Director of Gloucester County in the form of mobile communication units and operators needed for storm communications. W2KE started assembling volunteers at 1830 and by 2030 a group of four cars was ready to depart with *K2s* AQL GHZ JRU, *W2s* GQK and MMD as operators and five 2-meter transmitter-receivers and an f.m. unit in each car; also a 5-kw. gasoline generator, all c.d. property. The caravan proceeded to the Cape May County airport, where the c.d. control center was located. There they were joined by W2GQK, who had arrived earlier, and briefed on the operation. The briefing ended at 0100, at which time W2MMD and K2JRU relieved the control center operators for the remainder of the night. W2GQK went to Ocean View to attempt to contact the Sea Isle City Amateurs whose signals had faded out. Most of the group retired for the night at 0200. By 0800, everyone was at his assigned station except W2MMD, who was prevented by high water from reaching his station, so he assisted police at the roadblock until the highway was clear. K2GHZ and K2AQL relocated their equipment from the truck to a conference room in the county agricultural building and mounted the antenna on the roof, for the f.m. base station. At about 0930, W2KE completed the survey of damage from Cape May Point north to Villas, concluding that more mobiles were needed in the Ocean View area; therefore, these units proceeded to Ocean View for the day. Communications were needed at the helicopter landing site, at the bus loading area across the field and at the Ocean View fire house. For a time, one mobile unit was located halfway between Crest Haven and Ocean View for relaying between mobile units and the base station manned by K2GHZ; this arrangement was continued for the remainder of evacuation operations.

During the day much traffic was handled to and from the county control center and other locations such as Woodbine, Sea Isle City, Cape May Court House and the helicopter landing area at Ocean View. Most of the traffic directly concerned evacuation operations.

W2MMD got through to Stone Harbor about noon, provided much-needed electric power for the c.d. operations there and got their transmitter back on the air. He then proceeded north to Avalon and offered assistance, but none was needed; so he returned to the mainland before high tide closed the road again.

The operation was completed at 1730 and the mobile net was secured. As in past disasters, much was learned to improve c.d. methods and equipment. — *K2AQL.*

DXCC Notes

For many years there has been support among member societies of IARU of the principle that the bottom 100 kilocycles of the 14-megacycle band be used exclusively for telegraphy. The European Band Plan embracing this feature has been respected and closely observed in most countries, even including those where phone operation between 14,000 and 14,100 kilocycles is not contrary to regulations. ARRL believes this is an excellent plan and will continue to use its efforts to keep it in effect.

Therefore, ARRL announces that effective 0001 GMT on 13 July 1962, DXCC credit will not be given for contacts where either station is operating by telephony, using frequencies between 14,000 and 14,100 kilocycles.

DX CENTURY CLUB AWARDS

Honor Roll

The DXCC Honor Roll consists of the top ten numerical totals in the DXCC. Position in the Honor Roll is determined by the first number shown. The first number represents the participant's total countries less any credits given for deleted countries. The second number shown represents the total DXCC credits given, including deleted countries. Positions in cases of ties are determined by date of receipt. All totals shown represent submissions received as of the end of the last day of the month of May, 1962.

PY2CK... 308/320	W1GKK....306/319	W7GUV....304/316	W2HMJ....302/313	W9NDA....300/313
W2HUQ....307/319	W3JNN.....305/317	W9YFV....304/316	W0QVZ....302/312	W8KML....300/311
W4DQH....307/319	W9RBI.....305/318	G3AAM....304/316	W2BXA....302/314	W8JBI.....300/310
W6CUQ....307/320	W3KT.....305/317	W6AM.....304/317	W6EBG....302/315	W7GBW....300/312
W2AGW....307/319	W1ME.....305/317	W8BKP....303/314	W7PHO....302/312	CX2CO.....300/312
W3GHD....307/319	W8DMD....304/315	W5ASG....303/315	W1CLX....301/312	W1BIH.....300/312
W8BRA....306/318	W8BF.....304/315	W8CIA....303/315	W5MMK....301/312	W2LPE.....299/311
KV4AA.....306/319	W5ADZ....304/315	LU6DJX....302/314	W9HUZ....301/312	W9LNM....299/312
W8JIN.....306/319	W8UAS....304/315	CE3AG.....302/314	4X4DK.....301/311	W4TM.....299/311
				W3LMA....299/310

Radiotelephone

PY2CK.....308/320	W9RBI....302/313	W8PQQ....301/311	CX2CO.....299/311	W8KML....297/308
W8GZ.....305/316	VQ4ERR....302/314	W4DQH....300/310	4X4DK.....299/309	W6YY.....297/308
W8BF.....303/314	W7PHO....301/310		W3JNN.....298/309	W6AM.....294/306

From May 1, to June 1, 1962 DXCC Certificates and Endorsements based on contacts with 100-or-more countries have been issued by the ARRL Communications Department to the amateurs listed below.

New Members

K4ZKL....231	CE1BD.....125	UA6KOD...110	OZ5DX.....104	LA7JF.....102	KR6LJ.....101
W4ZRZ.....200	OK3IR.....123	DJ1RG.....107	UA3HI.....104	W1HZE.....101	UR5KBA....101
5N2JKO....169	ZL2BG.....123	OD5CQ.....107	ZS6JH.....103	WA2LWJ....101	YV5ABL....101
J1PDN.....164	W2HC.....120	K3AIG.....105	K6PAK.....102	K4RDE.....101	W1MND....100
W9ZB.....162	K4KYL.....113	W9GMS....104	W6QJW.....102	W5PMK....101	K2OXN....100
K4WIS.....160	VP6PJ.....113	VE3BLU....104	K8JTF.....102	W8CJN.....101	K8SVE.....100
G3NAC.....142	ZL3VL.....113	DJ4QM.....104	W9TBC.....102	K9OPF.....101	K5U8E.....100
LA3UF.....131	SM4BZH....112	OK3KAG....104	DJ2VA.....102	JA2DO.....101	K9ZQW.....100
OK1TW....131					VE3AXQ....100

Radiotelephone

W4ZRZ.....138	5N2JKO....129	W1BPM....116	KG6AJB....104	WA2PJQ....100	OE6FJ.....100
W8NVP.....135	K6VVA.....124	K4HYL.....112	W1HZE.....100	W3OBD.....100	ZS6JH.....100
OH3NM....134	G3NAC.....121	DL7FW.....111	W1MZB....100	K4BMS.....100	

Endorsements

VK2DI.....300	W3AYD....260	VE2AYY...212	W3JW.....183	WA6TGY...160	W2HUG....136
W4AAU.....291	PA0TAU....260	K2GUN.....211	W1IJO.....181	VE3BKL....160	K4HDR....136
W6TZD.....291	Z81RM.....251	K6VVA.....211	W8QQH....181	EA3GF.....160	OZ4H.....135
W1ZZK.....290	W1JNV.....250	SP7HX.....211	DL7FW.....181	W7BPS.....154	OH3NM....134
W6BVM....290	W4CKB.....250	W4FID.....210	WA2ELS....180	K1DIR.....153	DJ2XP.....131
W7ADS.....281	Z81OU.....249	W4NWW....210	W2MES....179	OZ4RT.....152	K2YMO....130
W0VBQ.....281	W1BLO.....246	K9GZK.....208	GM3BCL....178	W1WTF.....151	K8VSL.....130
WA2IZS....280	ZP5ET.....245	IT1AGA....207	SV0WT.....172	OE8SH.....151	K0MAS....130
W2PCJ.....280	W9WIO.....241	W2WMG....204	K8MTI.....171	K6ZIF.....150	W9RUB....130
K9EAB.....280	G3AIZ.....241	W3PN.....202	K9EMG....171	W7AEA.....145	K5OGP....130
W6BSY.....278	W3MWC....240	K4TEA.....202	WA2AEI....170	SP8HU.....145	OH2FS.....129
ZP5CF.....273	K2UKQ.....235	W6FLT.....201	W4AVY.....170	K1IMP.....141	ZL2VN.....129
W2EQS.....272	K9LFY.....235	W1IKB.....200	K9GTK.....170	W9YZA.....141	HP1IE.....121
W6DQH.....271	YV5AE.....230	W7CWE.....200	OK1AFH....168	K2ZRO.....140	DJ4OM.....120
W1GYE.....270	VE7CE.....225	W0AUB.....200	W9YT.....166	W4QVJ.....140	VP5MC.....120
VE3RE.....266	ZL3IB.....225	W4IUO.....199	K8PUU.....165	K6COP.....140	PJ2AE.....115
W1IJB.....263	ZP5LS.....225	OH2YV.....199	W3PH.....161	W8CUT.....140	K4YXJ.....112
VE3ES.....262	W4S8U.....222	W3HDZ....195	W0VIP.....161	W8QNW....140	W4UF.....111
W1OJR.....261	W4RNP.....221	K2DBN....190	W2MOF....160	K9LSN.....140	K1IMD.....110
K9BVR.....261	EA4CR.....213	F8SK.....184	W4JUJ.....160	VE7BW.....140	WA2KSD...110
W2FXA....260	K5JZY.....212				

Radiotelephone

ZP5CF.....272	W2YBO....211	W2HXG....180	W4PJG.....164	K0KKN....143	VE3CJ.....126
W2WZ.....263	W6BSY.....203	F8SK.....180	W3YZI.....160	W3FGN....142	K0MAS....123
W9LNM....255	YV5AFF....202	W5ABY.....176	VE3BKL....159	W7BPS.....142	W1AW.....121
YV5AB.....246	W3AYD....200	VK2DI.....173	IIZLW.....159	CE3WN....140	W0YZQ....121
ZP5ET.....245	VE1WL.....186	W6TZD.....172	XE1CV.....157	W4IUO.....134	MP4BDC...120
W4OM.....242	W4LZT.....183	CX1AX.....172	W4S8U.....154	5H3PBD....132	W1OJR.....116
K8RTW....236	VE3ES.....183	W3BIW.....171	K0RDO....150	W1WTF....130	K9LIX.....115
IIRIF.....225	W1LIB.....181	GM3BCL...168	W8SMQ....150	W9GAI....130	W8DVY....110
G3AIZ.....213	DJ3VM.....181	K8PUU.....165	KP4CL.....150	W9LXW....130	

CONTEST NOTES

Note the following correction to the Sweepstakes Contest reported in May *QST*. The Atlanta Society of Teenage Radio Ops club score as amended to 176,820. K4UJS was reported in error to have been the club's c.w. winner.

Note the following corrections to the V.H.F. Sweepstakes Contest reported in June *QST*. Wisconsin's K9UGH was incorrectly reported as W9UGH. K1NKT was incorrectly reported as K1NHT. The printer dropped a line giving the score of Los Angeles multi-op station K6UMM/6. K6UMM/6 with a score of 12,796-457-4-AB is multi-op high scorer for L. A. Sorry, fellas!

DELAWARE SECTION AUTHORIZED

This announcement establishes a new field organization Section of the League's operating territory for Delaware members, to be known as the *Delaware Section* and consisting of all counties of Delaware, to be effective from December 10, 1962. Nominations for the new SCM of the Delaware Section of the Atlantic Division, to take office Dec. 10th next, are solicited and will be received up to the closing date of Oct. 10, 1962 as solicited below.

ARRL members in Maryland and the District of Columbia are notified that their Section will be known as the *Maryland-D. C. Section* of the Atlantic Division, also effective as of Dec. 10, 1962. Notice is hereby given of the election for SCM of this area also, solicitation of SCM petitions due on or before Oct. 10, 1962 as per election notice below. Signers of petitions for SCM candidates must reside in the respective territory as indicated, responsive to said notice.

ELECTION NOTICE

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

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

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

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

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

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

Communications Manager, ARRL. (place and date)

38 La Salle Road, West Hartford, Conn.

We, the undersigned full members of the.....

.....ARRL Section of the.....

Division, hereby nominate.....

as candidate for Section Communications Manager for this Section for the next two-year term of office.

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

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

— F. E. Handy, Communications Manager

Section	*Closing Date*	*SCM*	*Present Term Ends*
Mississippi	Aug. 10, 1962	Floyd C. Teetson	Resigned
Vermont	Aug. 15, 1962	Miss Harriet Proctor	Aug. 10, 1962
North Dakota	Aug. 15, 1962	Harold A. Wengel	Aug. 19, 1962
Nevada	Aug. 15, 1962	Charles A. Rhines	Oct. 10, 1962
Santa Clara Valley	Aug. 15, 1962	W. Conley Smith	Oct. 15, 1962
New Hampshire	Aug. 15, 1962	Ellis F. Miller	Oct. 26, 1962
Kansas	Aug. 15, 1962	Raymond E. Baker	Oct. 29, 1962
Southern Texas	Oct. 10, 1962	Roy K. Eggleston	Dec. 10, 1962
Maryland-Del.-D. C.	.....	Andrew H. Abraham	Dec. 10, 1962
Delaware	Oct. 10, 1962	.....	.....
Maryland-D. C.	Oct. 10, 1962	.....	.....

ELECTION RESULTS

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

San Joaquin Valley	Ralph Saroyan, W6JPU	Apr. 10, 1962
Manitoba	M. S. Watson, VE4JY	Apr. 10, 1962
Alaska	Kenneth E. Koestler, KL7BZO	Apr. 10, 1962
Eastern Massachusetts	Frank L. Baker, jr., W1ALP	June 15, 1962
Ontario	Richard W. Roberts, VE3NG	June 15, 1962
Western Pennsylvania	Anthony J. Mroczka, W3UHN	Aug. 7, 1962
Santa Barbara	William C. Shelton, K6AAK	Aug. 10, 1962
Western New York	Charles T. Hansen, K2HUK	Aug. 10, 1962
Wyoming	Lial D. Branson, W7AMU	Aug. 22, 1962

In the SouthCarolina Section of the Roanoke Division, Mr. Lee F. Worthington, K4HDX, and Mr. John R. Warner, W4FFH, were nominated. Mr. Worthington received 146 votes and Mr. Warner received 133 votes. Mr. Worthington's term of office began June 26, 1962.

A.R.R.L. ACTIVITIES CALENDAR

(Dates shown are per GMT)

Aug. 2: CP Qualifying Run — W6OWP
Aug. 22: CP Qualifying Run — W1AW
Sept. 2: CP Qualifying Run — W6OWP
Sept. 13: Frequency Measuring Test
Sept. 15–16: V.H.F. QSO Party
Sept. 20: CP Qualifying Run — W1AW
Oct. 4: CP Qualifying Run — W6OWP
Oct. 6–7: Simulated Emergency Test
Oct. 19: CP Qualifying Run — W1AW
Nov. 10–12, 17–19: Sweepstakes Contest

OTHER ACTIVITIES

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

Aug. 11–12: WAE DX Contest (c.w.), DARC (p. 63, this issue).

Aug. 18–19: WAE DX Contest (phone), DARC (p. 63, this issue).

Aug. 25–26: Third All Asian DX Contest, Japan Amateur Radio League (p. 62, this issue).

Aug. 25–26: New Jersey QSO Party, CSARA (p. 118, this issue).

Sept. 8–9: Ohio Worldwide Contest, Cleveland Convention (p. 112, this issue).

Sept. 15–16: Scandinavian C.W. Activity Contest, EDR (next issue).

Sept. 22–23: Scandinavian Phone Activity Contest, EDR (next issue).

Oct. 6–7: VK/ZL Phone DX Contest, NZART (next issue).

Oct. 13–14: VK/ZL C.W. DX Contest, NZART (next issue).

Oct. 12–22: Goose Bay QSO Party, GBARC.

Oct. 20–22: Second World-Wide RTTY Sweepstakes, RTTY, Inc.

NATIONAL CALLING AND EMERGENCY FREQUENCIES (KC.)

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

During periods of communications emergency these channels will be monitored for emergency traffic. At other times, these frequencies can be used as general calling frequencies to expedite general traffic movement between amateur stations. Emergency traffic has precedence. After contact has been made the frequency should be *vacated immediately* to accommodate other callers.

The following are the National Calling and Emergency Frequencies for Canada: *c.w.* — 3535, 7050 14,060; *phone* — 3765, 14,160, 28,250 kc.

SUGGESTED RTTY OPERATING FREQUENCIES

3620, 7040, 14,090, 21,090 kc.

GMT CONVERSION

To convert to local times subtract the following hours:

ADST −3, AST −4, EDST −4, EST −5, CDST −5, CST −6, MDST, −6, MST −7, PDST −7, PST −8, Honolulu −10, Central Alaska — 10.

CODE PROFICIENCY PROGRAM

Twice each month special transmissions are made to enable you to qualify for the ARRL Code Proficiency Certificate. The next qualifying run from W1AW will be made August 22 at 0130 GMT. Identical tests will be sent simultaneously by automatic transmitters on 3555, 7080, 14,100, 21,075, 28,080, 50,700, and 145,800 kc. The next qualifying run from W6OWP only will be transmitted August 2 at 0400 Greenwich Mean Time on 3590 and 7129 kc. *CAUTION:* Note that since the dates are given per Greenwich Mean Time, Code Proficiency Qualifying Runs in the United States and Canada actually fall on the evening previous to the date given. *Example:* In converting, 0130 GMT August 22 becomes 2130 EDST August 21.

Any person can apply. Neither ARRL membership nor an amateur license is required. Send copies of all qualifying runs to ARRL for grading, stating the call of the station you copied. If you qualify at one of the six speeds transmitted, 10 through 35 w.p.m., you will receive a certificate. If your initial qualification is for a speed below 35 w.p.m., you may try later for endorsement stickers.

W1AW conducts code practice daily at 0130 GMT on all frequencies listed above with speeds of 15, 20, 25, 30, and 35 w.p.m. on Tuesday, Thursday, and Saturday, and at 5, 7½, 10, and 13 w.p.m. on other days. Approximately 10 minutes' practice is given at each speed. To check your copy, the texts used on several transmissions are listed below. The order of words in each line of *QST* text is sometimes reversed. To improve your fist, try to send in step with W1AW.

Date	Subject of Practice Text from June *QST*
August 8:	*Research, Tracking and Reporting*, p. 22
August 14:	*Space-Age Antenna Ideas*, p. 11
August 17:	*Getting Started in RTTY*, p. 25
August 20:	*No-Holes . . . Installation*, p. 49
August 25:	*Recent Trends in . . . Design*, p. 17
August 29:	*A Transistor Power Supply*, p. 52
August 31:	*A Transistor Transceiver . . .* p. 37

W1AW SCHEDULES

(August 1962)

Operating-Visiting Hours

Monday through Friday: 1 P.M.–1 A.M. EDST.
Saturday: 7 P.M.–2:30 A.M. EDST.
Sunday: 3 P.M.–10:30 P.M. EDST

The ARRL Maxim Memorial Station welcomes visitors. The station address is 225 Main St., Newington, Conn., about 4 miles south of West Hartford. A map showing local street detail will be sent on request.

Operating Frequencies

C.w.: 1820, 3555, 7080, 14,100, 21,075, 28,080, 50,700, 145,800 kc.
Voice: 1820, 3945, 7255, 14,280 (s.s.b), 21,330, 29,000, 50,700, 145,800 kc.

Frequencies may vary slightly from round figures given; they are to assist in finding the W1AW signal, not for exact calibrating purposes. Amateurs are respectfully requested to refrain from transmitting on the above frequencies during W1AW bulletins and code practice.

Official Bulletins

Bulletins containing latest information on matters of general amateur interest are transmitted on the above frequencies according to the following schedule in Greenwich Mean Time.

C.w.: Monday through Saturday 0000; Tuesday through Sunday, 0400.
Voice: Monday through Saturday, 0100; Tuesday through Sunday, 0330.

Caution. Note that in the U. S. and Canada, because times are GMT, bulletin hours actually fall on the evening of the previous day.

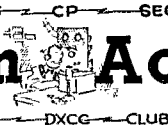
W1AW CONTACT SCHEDULE

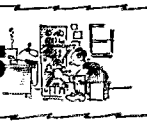
Would you like to work W1AW? W1AW welcomes calls from *any* amateur station in accordance with the following schedule:

Time (GMT)	*Sunday*	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*	*Saturday*
0000–0030[1]	.....	14,280	3555[3]	14,100	14,100	7080[3]	14,100
0030–0100	.....	14,280	3555	14,100	14,100	7080	.....
0100–0130[1]	.....	145.8 Mc.	21,330	145.8 Mc.	50.7 Mc.	21,330	.....
0230–0300	.....	.....	.....	1820	.....	1820	.....
0300–0330	.....	.....	.....	3555	.....	3945	.....
0330–0400[1]	.....	.....	3945	7255	3945	7255	3945
0400–0500[1]	.....	.....	3555[3]	.....	3945	7080[3]	.....
1700–1800[2]	.....	21/28 Mc.	21/28 Mc.	21/28 Mc.	21/28 Mc.	21/28 Mc.	.....
1900–2000	.....	7080	14,100	7255	14,100	7080	.....
2000–2100	.....	14,280	7080	14,100	14,280	14,100	.....
2200–2300	.....	14,280	14,280	14,280	14,100	7255	.....
2300–2330	.....	7255	.....	21,075[3]	.....	14,280	.....
2330–2400	.....	14,100	.....	3555	.....	14,280	.....

[1] Starting time is approximate. General-contact period on stated frequency begins immediately following transmission of Official Bulletin, on c.w. at 0000 and 0400, on phone at 0100 and 0330.
[2] Operation will be on 21,075, 21,330, 28,080 or 29,000, depending on band and other conditions.
[3] W1AW will listen for Novice Class licensees on the Novice portion of this band before looking for other contacts.

Station Activities





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

ATLANTIC DIVISION

EASTERN PENNSYLVANIA—SCM, Allen R. Breimer, W3ZRQ—SEC: W3DUI, V.H.F. PAM: W3SAO. RM: W3EML. PAM: K3BHU. As of this writing there remains only 22 members to go for the AREC in this section to join the 1000 membership group. K3RYR and K3HNP are new OES appointees. We welcome the Milton ARC as a League affiliated club. W3EU was temporarily QRT when his receiver power supply gave up. The neighbors in the area of K3RFH are staring at his new 10-15-20-meter quad. W3SKL/DL4AD is sporting a new jr. operator in Germany. This makes W3ID a grandpop again. K3LSX found out how all the knobs on the Drake 2-B work and is doing a bit of DXing now. W3BNR/7 still is looking for E. Pa. stations on 75-meter phone. W3GRS added WPX and CHC wall paper to the shack. K3DAC is running 300 watts on 6 meters and K3MLI has 40 watts mobile on 6 and 2. K3LKQ, EC for Lehigh County, and the AREC group supplied radio parade control for the Allentown Bi-Centennial. W3NNL, K3KLT, K3EMB and W3JKX have a 10-meter circuit working on 28.9 Mc. and welcome stations to QNI. K3KJI, Temple University, has closed for the summer vacation and will be back in the fall. A new Novice is KN3TEC. K3NLW is now on 6 meters with a Seneca. New club officers: Ivyridge ARC—W3WZC, pres.; K3JLI, vice-pres.; K3MDB, treas.; K3LJZ, secy. The North Penn ARC—W3BPM, pres.; W3ADX, vice-pres.; W3EMH, secy.; K3ISW, treas. The Coatesville Veterans Administration Hospital ARC station call is K3TOS, recently issued. K3NFT, Lil, is sponsor and quite active as trustee. W3HNK is planning 2-meter mobile again in the Illinois Area. Third place winner in the Rhode Island QSO Party was W3UIU. W3CUL added an electric "mill" to speed up the traffic work. A 40-meter vertical was added, making a total of 5 sky-wires for W3AHZ. The Frankford RC and the Potomac Valley RC held their Annual Banquet at Wilmington, Del. K3HTZ graduated from school and now is piling up the traffic points. W3WRE was quite a surprise to this SCM; met her at our section picnic. Traffic: W3CUL 3512, W3EML 1011, W3VR 839, K3LMP 365, W3UIU 177, K3RXQ 165, W3HNK 141, K3JSX 133, K3BHU 126, K3ONW 116, K3MVO 108, K3HTZ 106, W3RV 96, W3MQE 94, K3NLW 76, K3CAH 75, W3JKX 65, W3FAF 62, K3KJI 57, K3JHF 54, K3DCB 53, W3ZRQ 43, W3AXA 26, W3ITI 19, K3ANU 18, W3NNL 16, W3BFF 14, W3ADE 10, W3LC 10, W3BUR 9, K3LKQ 9, K3LWY 9, K3MDG 8, W3EEN 7, W3GJA 7, W3PDJ 7, K3IMR 5, W3NF 4, W3OY 4, K3AKN 2, W3BNR/7 2, W3GRS 2, K3LSX 2, W3ELI 1, W3ID 1, K3MNT 1.

MARYLAND-DELAWARE-DISTRICT OF COLUMBIA—SCM, Andrew H. Abraham, W3JZY—Asst. SCM Del.: M. F. Nelson, K3GKF, SEC: W3CVE. The MDD Traffic Net meets on 3650 kc. at 0000Z daily; MDDS (slow) Net on 3650 and 1814 kc. at 0130Z daily; MEPN on 3820 kc. at 2300Z week days and 1800Z on Sat. and Sun; Del Emg. Net on 3905 kc. at 2300Z Sat. Check in your favorite nets. There are vacancies for appointment as net control on MDD and 3rd Regional Net Liaison in the MDD Net. There is need for a traffic outlet to the Eastern Shore of Md. Contact K3JYZ, our RM. Mail your activity reports on the first of each month to reach your SCM on or before the sixth of each month or your report will not be in this column for that month. *Delaware:* K3AMC reports attendance slow in the Del. Net. W3EEB will be operating as portable going to Seattle and return during Aug. and Sept. K3EWK was out on Field Day. K3GKF reports that K3BBR, W3BAV and K3GKF/3 were tops in the Delaware QSO Party. W3HKS reports no activity because of receiver trouble. W3JFR reports that the amateur radio clubs of Delaware will hold their first statewide Hamfest and Picnic at the Dover AFB Aug. 12. K3OBU reports that K3SUY and K3SXA are new stations in the Wilmington Area. K3OZM has his General Class license now, and is tops for all Delaware for traffic handled in May. W3CFA reports considerable activity on 432 Mc. with transceivers described in May '62 *QST*. *Md. and D.C.* W3CDQ is now on the air. K3TKW is a new amateur in Westminster. W3GON installed a new tower to get his Hornet beam off the roof. W3PZA and W3ZT are equipped for 6 and 2 meters. W3EOV is active on the weather nets Sun. K3LLR will be on the lower frequencies. K3RES has worked 37 states, Canada and Cuba, with an SWL card from Hawaii, in less than seven months on 6 meters with a Clegg Zeus. W3IVC has been appointed ORS. W3KHA is now in military service and had to give up his OBS skeds. K3NCM reports a little activity. K3ONQ had an enjoyable eyeball QSO with WA2RKU. K3PRN is active on 6 meters and reports the Fort Howard Amateur Radio Club is looking for members. The location is Fort Howard Veterans Hospital, and meetings are held Mon. night at 1930. W3QZZ relays traffic reports to me from the MDD. K3SFT is moving to a new QTH and will be checking into MDD for traffic soon (check into the Slow MDD Net at 0130Z until you get on to taking traffic). W3YYC has a new Heath Warrior on the air; Jack also is a new ORS. W3YZI reports that W3MCH is back on the air. K3DNV has DXCC, W3CAY and W3TLN handle traffic for the USS *Roberts*, W3JNN is not on the air as yet. W3HEC has a new s.s.b. transceiver. W3ZNW would like to see more 10-meter activity during the summer months. W3ZAQ reports that "hamming" has suffered but finds time to cite a few for unusual chirps, clicks and whistles. W3HQE is having tower trouble with his neighbors. Good luck. Traffic: W3YYC 266, W3TN 161, K3WBJ 81, W3IVC 77, W3HQE 68, W3BKE 52, K3MQP 47, K3OZM 37, K3EWK 35, W3JFR 34, W3EOV 31, W3EEB 30, W3ZNW 28, W3ECP 23, W3QZZ 12, K3AMC 8, K3CXX 8, K3DCP 8, W3YZI 8, W3CDG 4, K3KPZ 4, K3AVA 2, W3CVC 2, K3NCM 2.

SOUTHERN NEW JERSEY—SCM, Herbert C. Brooks, K2BG—SEC: K2ARY. PAM: W2ZI. RMs: W2HDW and WA2VAT. NJN May totals: QNI 505, traffic 274, sessions 31. NJ Phone and Tfc. Net totals: 31 sessions; QNI 387, traffic 97. W2ZI, Trenton, is visiting the Seattle World's Fair. Ed also plans to visit Alaska and the Yukon. WA2OVR, Mercer Co. EC, reports the following officers of the Trenton District Radio Assn.: WV2TOI, Pres.; WA2AAI, vice-pres.; WN2AZA, secy.; WA2OVR, treas. Look for the Delaware Valley 2-Meter Traffic Net on 146.8 Mc. nightly at 0200Z. WA2KWB, Yardville, received the NJ Phone Net and WANJ certificates. W2BEI, Audubon, has applied for DXCC. K2RXB, Margate, has a new linear amplifier. The SJRA's Annual Hamfest is scheduled for Sept. 9 at Molia Farms, Malaga. K2CPR, Pennsauken, now has a DXCC total of 271/262. K2HJY, Medford, Burlington County Radio Officer, is confined to the hospital. WA2PFH/M is doing FB with a quad on 2 meters. K2BKG is Atlantic County Radio Officer. WA2HSP and WA2ABF were the SJRA's Field Day chairmen. W2ZX and W2FXN have been adding many new ones to their DXCC s.s.b. score. K3HNP was elected the Bucks Co. Radio Club pres. Dave also is an SJRA member. W2BLV *Harmonics News and Libel* editor, supplied the SJRA membership with the latest Oscar information. WA2KAP, Palmyra, erected new 2- and 6-meter beams, assisted by WA2NOV. K2MOV, Delance, now in KX-Land expects to return home in July. We expect W2ZVW, now living in Beverly, to take over as Burlington Co. EC soon. Reorganization of the AREC nets will take place at that time. Traffic: W2RG 127, K2RXB 46, W2ZI 31, WA2BLV 12, K2CPR 12, K2SOX 10, WA2HJD 1.

WESTERN NEW YORK—SCM, Charles T. Hansen, K2HUK—SEC: W2LXE. RMs: W2RUF, W2EZB, W2FEB. PAM: W2PVI. NYS C.W. meets on 3670 kc. at 1900, ESS on 3590 kc. at 1800, NYSPTEN on 3925 kc. at 1800, NYS C.D. on 3610.5 and 3993 kc. at 0900 Sun. and 7102.5 kc. at 1930 Wed.; TCPN 2nd call area on 3970 kc. at 1900; 1PN on 3980 kc. at 1600. 2RN on 3690 kc. at 0045 and 2345 GMT. Appointments: WA2KZQ and WA2ENV as OPSs. K2OEW as ORS. Endorsement, W2MTA as ORS. Congratulations to the Walton Radio Assn., the Tioga ARA and the Hamburg ARC on their recent affiliation with ARRL. The 1962 WNY Hamfest, sponsored by the RARA, was better than ever. WA2EOQ and WA2KMI were ticket and prize chairmen and the over 400 in attendance can attest to a job well done. K2SSX won the Code Receiving Contest at better than 40 w.p.m.

with a pencil. MC W2ICE presented the DX Phone *Award to WA2EOQ and the DX C.W. Award to WA-2LWJ.* Call letter plates will be available this fall for a five-dollar fee. Persistence on the part of many clubs and individuals finally paid off. W2SAW is going to visit OZ, LA, SM, OH, DL, HB9, I and F on a 7-week tour. He has 15 meetings scheduled. The Rome Radio Club held its Annual Ham Family Day and the usual good time was had by the 100-plus families present. Congratulations to WN2AMM, WN2ANU, WV2ZDF, WV2ZUE, WA2TCZ, WA2QVL, WA2YQQ, WA2YQR and Generals WA2QVW and WA2YPY, all who recently got their tickets. K2DNN, Chemung Co. EC, reports much AREC activity for the summer months, including a combined AREC-CAP test for a lost boy hunt, sports car rally communications for race control, canoe race communications and a real emergency involving a drowning coming home from the RARA Hamfest. W2ANE has acquired a Viking I and a Drake 2B receiver. WA2BPE has built the *Handbook* 220-Mc. converter. WA2WEE has a new antenna, an HK-1B electronic keyer and a Valiant II. K2UOQ has built a 2-meter rig running 110 watts on a ten-element beam. Congratulations to W2EZB on making the BPL. Traffic: (May) W2FZB 541, W2MITA 226, WA2-OPG 226, K2RTQ 215, W2RUF 156, WA2HSB 133, W2FEB 85, W2RKU 82, K2SSX 73, K2QDT 47, WA2KZQ 44, K2OFV 41, W2RQF 34, WA2ANE 33, W2QHH 27, WA2-GLA 19, W2PVI 16, K2TDG 13, WA2WEE 13, W2QQK 9, WA2TDE 8, WA2IXY 7, WA2KLV 7, K2QQY 6, K2RYH 5, K2DNN 2. (Apr.) W2QHH 143, WA2CIG 81, WA2ANE 31.

WESTERN PENNSYLVANIA—SCM, Anthony J. Mroczka, W3UHN—SEC: W3WRE. Asst. SEC: W3KUN. RMs: W3KUN and W3NUG. The WPA Traffic Net meets Mon. through Fri. at 2400 GMT on 3585 kc.; the Keystone Slow Speed Net (KSSN) at 2330 GMT on 3585 kc. Mon. through Fri.; the Penna. C.D. Net every Sun. at 1300 GMT on 3538 kc. The Breezeshooters Hamfest was a huge success with over a thousand registrations. K3SBP has a Comm. III for mobile. W3UFR is going on 2 meters. New officers of the South Hills Brass Pounders & Modulators are W3LYC, pres.; W3GJS, vice-pres.; K3AJQ, treas.; W3HND, secy. The club's Annual Hamfest will be held Sun., Aug. 12, at South Park, Pittsburgh. Congratulations to W3WRE on making BPL twelve months in a row. The Bedford County ARC reports via *Shorts*: K3MKX is putting up a 6-meter beam; K3JVQ is a YL operator in the county; K3MYC is busy working on antennas. We regret to record the death of W3ZWJ, of Everett. W3SYY is going mobile. K3AKR is busy working on his 220-Mc. gear. Coke Center RC reports: W3QZV moved into a new QTH; W3NCE has a Marauder on the air. Officers of the Dividing Ridge ARC are: W3IOB, pres.; K3OGK, vice-pres.; K3JCZ, secy.; K3MLE, treas.; W3DCY, TVI committee chairman. The June meeting of the ATA had W3QJJ and W3OVM as guest speakers. W3RTV operated wide-band f.m. at the recent hamfest. W3GJY moved to a new QTH. The KP4KD Award has been given to W5WZQ for his job during the 1961 SS Contest when he won the National High certificate for finishing first. K3RGY now has his Tech. Class license. A new General call is K3SMB. The Shenango Valley ARC had WA6-MLM and W3CSA as guest speakers at a recent meeting. The Nittany ARC reports via *Beacon*: W3SLX has a 6-meter kw. final; the W3SYY's have a new jr. operator. Congratulations to W3LIV, winner of the HRC DX contest trophies for both phone and c.w. Traffic: (May) W3WRE 610, W3KUN 85, K3DKE 52, W3OEO 43, W3IYI 36, K3EDO 33, W3LSS 29, W3UHN 13, W3KNQ 8, K3HID 7, W3IDO 4, K3COT 3, W3LOD 2, K3DCI 1, W3MFB 1. (Apr.) W3NEM 314, K3DKE 124, K3HID 12.

CENTRAL DIVISION

ILLINOIS—SCM, Edmond A. Metzger, W9PRN—Asst. SCM: Grace V. Ryden, W9GME. RM: W9USR. PAM: W9RYU. EC of Cook County: W9HPG. Section net: ILN, 3515 kc. Mon. through Sat. at 1900 CDT. This section extends to the new president of the League, Herbert Hoover, jr., W6ZH, its heartfelt congratulations and hopes that his term of office will be a very successful one. To our former President, Goodwin L. Dosland, WØTSN, who devoted approximately 20 years of his valued experience and much of his time from his legal business, we say many, many thanks for a job very well done. W9KMA, formerly of Wheaton, now is in Riverside, Calif. with WA6WQT as his call. K9BDJ has a new FB 830-mw. transistorized transmitter and is working the hard ones. W9BOD and K9ZOO are working on 1215 Mc. with APX-6 units. Officers recently elected for the Wheaton Community Radio Amateurs are W9FRS, W9GOX, K9MHP. WA9BZR and W9PYG. The Kankakee Amateur Radio Club has been issued the call W9AZ for its club station. K9WED has finished his new 150-watter on 6 meters and reports some good contacts. New appointments are W9KQX as OBS, W9YTQ as OO and K9WED as OPS. The Bureau County ARC received its club license and the call WA9DYH. K9AQW has a new Hornet triband. K9HSK and K9WYX also have new triband beams. WA9CDL is a new call heard and is the only XYL in Bureau County. The League's Executive Committee approved the application of the Chiburban Radio Mobileers, Inc., as a duly affiliated society of the League. K9GKR is sporting a new Swan transceiver. The North Central Phone Net handled 182 messages and the Calumet Area Emergency Net passed 82 messages during May. WV6UER and WV6UES have moved to Granite City and are awaiting their 9 calls. K9DCG, W9VBU, W9QOT and W9CPD are the newly elected officers of the Big Thunder Amateur Radio Club of Belvidere. The Kishwaukee Radio Club (DeKalb) now has a club call, WA9CJN. K9TVA is the proud owner of a new HT-37. WA9ACO has a new vertical antenna and transmitter. New Novices at St. Mary of the Lake Seminary Radio Club (Niles) are WN9CAI, WN9CBG, WN9CRI, WN9-CIH, WN9CSG, WN9CTE and WN9DQK. The Breakfast Club Hamfest held at Waverly, Ill., and the SARA (Shawnee Amateur Radio Assn.) Picnic, which was held as usual at the Dixquoin State Fair Grounds, were very well attended and from the reports everyone had a fine time. W9JGW graduated as No. 1 man from the Jet Training school, and has been assigned to F-100s at Tucson, Ariz. K9DZF and W9KMN were elected as president of their respective school boards. Traffic: W9IDA 367, W9AKV 194, K9BTE 172, K9UOV 142, W9JXV 115, K9UCG 93, K9JTD 75, W9MAK 69, K9CRT 61, K9DRS 48, K9ZQT 40, W9EET 32, K9LXG 21, W9QQG 18, K9RAS 10, W9PRN 6, W9SKR 6, WA9DEW 3, K9TVA 2, K9EIV 1.

INDIANA—SCM, Donald L. Holt, W9FWH—Asst. SCM: Clifford M. Singer, W9SWD. SEC: W9SNQ. PAMs: K9KTL, K9CRS, K9GLL. RMs: W9TT, W9VAY, K9-WET. Net skeds: IFN, 0800 daily and 1800 M-F on 3910 kc.; ISN (s.s.b.), 1930 daily on 3920 kc. GIN (training), 1800 M-W-F on 3745 kc.; QIN, daily at 1900 and RFN, 0700 Sun. at 3656 kc. New appointments: K9IVG as OPS; K9OFG as EC of Marion County; W9ALQ as EC of Bartholomew County; K9KRN as EC of Pike County; W9YCB as EC of Steuben County. WA9AUM is a new General in Richmond. New Novices in Anderson are WN9CKG, WN9CKF, WN9CWP, WN9CWR and WN9CWE. New Novices at Fishers High School are WN9BSN and WN9DKP. With deep regret the following Silent Key is reported: W9WHW, Russell Durm, of Elwood, Ind. The Columbus Amateur Radio Club's Annual Hamfest was a success with about 450 present. QIN Honor Roll for May: W9QLW, K9SGZ, W9TT, W9VAY, W9ZYK and K9WET. *Amateur radio exists as a hobby because of the service it renders.* May net reports: IFN 322, ISB 364, QIN 207, QIN (training) not reported, RFN 71, Hoosier V.H.F. 414, 9RN 774 with 100 percent Indiana representation. Those making BPL: W9JOZ, K9YIC, K9DIP, W9TT, W9NZZ. The Big Bull Hamfest will be held Sun. Aug. 12, at Highland Park, Kokomo, Ind. Traffic: (May) W9JOZ 886, W9ZYK 448, W9MM 365, W9TT 268, K9OET 264, K9PNV 262, W9RE 207, W9NZZ 187, K9DIP 175, K9SGZ 146, K9HWQ 102, K9DNY 81, K9KTL 80, W9FWH 76, W9CRS 69, W9BUQ 67, K9RMI 60, K9WET 60, K9IVG 50, W9QLW 48, W9QYQ 44, W9RTH 44, K9BS 43, W9GJS 43, W9PMT 39, K8WWJ 39, K9ATY 36, K9JSI 32, K9HYV 31, W9OG 26, K9YXK 26, W9EJW 24, W9AWH 23, K9DUV 23, W9BTZ 22, W9SNQ 22, K9DZW 21, K9YJW 21, K9QUT 20, K9ILK 16, W9-DGA 14, W9DOK 14, W9YYX 14, K9CIF 13, W9IMO 13, K9QVZ 12, W9ETI 11, K9UEF 11, K9OFG 9, W9CC 8, K9MWC 8, K9ZLB 8, W9BDP 7, K9MAN 6, WA9DPO 4, W9JSV 2, K9ZLA 2. (Apr.) K9GEL 16, K9DFG 8, K9ATY 3, W9AQW 2.

WISCONSIN—SCM, Kenneth A. Ebneter, K9GSC—SEC: W9BCC. RMs: W9VIK and W9VHP. PAMs: W9NRP, W9NGT and W9SAA. New appointees: W9FBC as OES, K9WGN, AS OO Class III. Endorsed appointments: W9LQC, W9VHA and W9HDV as ECs; W9NLJ, W9SIZ, W9IQW and W9APB as ORSs. W9DFS is working on a nuvistor transceiver for 432 Mc. W9NLJ has his DX at 185/180. W9LFK is mobile, c.w. and phone, with an ARC/2. W9KZZ, W9YYL and K9SLS presented a program about amateur radio on their local broadcast station. W9YT reports making 11,000 contacts in the past year and receiving several new awards. K9SHL is mobile on 6 meters with a Lincon transceiver. WN9BDX has a new SX-100 and a 15-meter beam. K9GDF has received new awards: HTH-25G, Twin Cities, CAA and CHC No. 562. W9KQB received CP certificates for 30 w.p.m. and needs two more cards for DXCC. W9MWQ has a new antenna for 80 meters. W9DWH and K9HED operated portable from the Scout Camporee. K9JVP is active on 40-meter s.s.b. W9OTL has been working on his antenna efficiency. The Racine and Kenosha Clubs held a joint S.E. Wis. Banquet, and hope to make this an annual affair. The FLARC held a spring banquet with 5N2AMS and 5N2DMS of Nigeria as guests of honor.

W9DYG made the BPL for May traffic. Traffic: (May) W9DYG 791, W9SAA 142. W9KQB 128. K9UUT 104, K9LGU 56, K9GSC 55. W9DWH 50, W9MWQ 45, W9WJH 44, W9VIK 43. W9VHP 31, K9WGN 30, W9YT 23, K9IMR 21. W9OTL 19. W9IQW 17, K9DOL 16, W9CBE 15, W9-LFK 14, K9GDF 11, K9REC 8, K9QKG 4, K9TRB 4, W9ONI 2. (Apr.) W9IHN 8, W9ZB 8.

DAKOTA DIVISION

NORTH DAKOTA—SCM, Harold A. Wengel, WØ-HVA—SEC: WØCAQ. PAM: KØTYY. RM: KØQWY. The North Dakota 75-Meter Phone Net reports for May: 23 sessions with a total of 522 check-ins, 30 formal messages and 83 informal messages handled with 6 relays. The Goose River Net, which meets Sun. at 9 A.M. CST on 1990 kc., reports 102 check-ins for Apr. and 96 check-ins with 10 formal and 5 informal messages handled for May. Two EC certificates were renewed in May and one EC certificate was issued. A new call in Bismarck is WAØBFN; new in Williston is WNØCSJ. In Minot WAØARU has received his General Class license. Thanks for club reports from the MARA and BARK. The MARA reports six new members. WØCZR, of Bismarck, conducts code practice for Novices every Tue. KØRLF is changing his QTH and preparing an HT-37 into a 4-811 AHB rig. Traffic: KØIVQ 376, KØRSA 20, WØYCI 20, KØJNB 15, KØGGI 14, KØTPK 10, WØIRN 8. WØPHC 8, WØIHM 3. KØMPH 3, WØBHF 2.

SOUTH DAKOTA—SCM, J. W. Sikorski, WØRRN—SEC: WØSCT. New calls in Sioux Falls: WNØCWW and WNØCWX. WNØCWY and WNØCWZ. WNØCXA and WNØCXB. WNØCWY and WNØCWZ are father and daughter; the other pairs are husband-wife. WØCFC passed the Technician Class exam at Mitchell. KØUMW now is running a DX-100. WØZWY (Sioux Falls ARC) has purchased an HQ-170C. KØBMQ, KØTXW, WØSWH and WAØAOY have qualified for c.w. net certificates. Ten members of the SFARC have completed a project of building Monimatch units, designed by WØMPQ. WØPRL is moving to Rapid City. New General class tickets: KØGZZ, Loyalton, and KØJMW, Mitchell. WØNNX is recovering from an accident in which his car was struck from behind. His wife still is hospitalized, and son, K6SNZ, riding with them, has returned to California. Strong winds took down KØLXF's antenna and moved his mobile home on its foundation. WØSCT is acting as NCS for the NJQ Net during LXF's absence. WØOOZ has moved to Lake Madison. Traffic: WØSCT 321, KØBMQ 148, WØDVB 117, KØDUR 15, WAØAOY 13, KØBSW 12, WØOFP 8, KØTXW 7, KØBRC 6, KØCXL 6, KØHQD 6, WØRWM 4, KØZBJ 4, KØCVF 2, WØFJZ 2, WØGWW 2, KØJGM 2, KØTVJ 2, KØVYY 2, KØYJF 2, KØYNS 2.

MINNESOTA—SCM, Mrs. Lydia S. Johnson, WØKJZ—Asst. SCM: Charles Marsh, WØALW. PAMs: KØEPT, WØGCR. RMs: WØKLG, KØAKM. MSSB Net Mgr.: WØHEN. MSPN (noon and evening net, phone) meets on 3820 kc. at 1205 and 6 P.M. Minnesota time. The c.w. nets, MSN and MJN, meet on 3595 kc. daily at 0630 and 0700 P.M. Minnesota time. The S.S.B. Net meets on 3805 kc. at 1130 A.M. and on 3815 kc. at 0645 P.M. Minnesota time. The net managers invite all who are interested in traffic handling to participate. The Annual MSN-MJN Net Party was held May 27 at the SCM's QTH. The following attended: KØs AKM, CIB, JFJ, ORK, PJH, OTH, UXQ, VTG, WYY, WØs CGK, DQL, BUO, ISJ, THY, KLG, TKX, RQJ, OMC and XYL, QXA, QXF, KJZ. WAØAAM and her 12-year-old daughter. All beginners and Novices, please note the new time for MJN, which was changed to 0100 GMT or 7 P.M. Minnesota time to continue on the same frequency, 3595 kc. New Route Managers were elected: KØUXQ for MSN and WAØADX for MJN. Our most sincere appreciation and thanks go to RMs WØKLG and KØAKM, who have a marvelous job serving in their respective positions. We are losing KØAKM to the U.S. Navy. Congratulations go to OO WØWMA on receiving the A-1 Operator Award. YL KØOXR has been working several new states on the few 6-meter openings. Laura was able to handle some urgent traffic between Dallas, Tex., and St. Paul during a band opening. EC KØCNI can be heard on 160 meters. KØWYV has an HQ-110 receiver. WAØCAI put up a 40-ft. tower and a rotating quad for 20-meter operating. OPS KØSBB renewed his appointment. KØZKK, after being released from the hospital, went to recuperate at her son's home in Iowa. KØRCF made BPL. Traffic: KØRCF 549, KØWPK 237, WØKJZ 100, WØATO 73, WØYC 69, WØHEN 63, WØGCR 44, KØORK 44, KØJFJ 38, WØKLG 32, WAØADX 31, WØUMX 30, WØWMA 27, KØVPJ 25, KNØJFV 22, WØMXC 14, WØTHY 14, WØOPX 13, WØRIQ 13, KØZKK 12, WAØABU 10, WØALW 10, WAØAAM 6, KØLWK 5, KØZOH 5, KØUBA 4, KØCNI 3, WØFGP 2, KØIJU 2, WØSZJ 2.

DELTA DIVISION

ARKANSAS—SCM, Odia L. Musgrove, K5CIR—PAM: W5DYL. RM: K5TYW. Activity on the nets was slow this month; the OZK Net has closed down for the summer, the RN5 Net needs some good c.w. operators to handle Arkansas traffic. It is with much regret that we announce the passing of K5AYP. Dud was a member of the Arkansas Emergency Phone Net. Oscar has given the 2-meter operators a chance to tune their converters and try them out; there have been several reports of them being picked up as far as four to five hundred miles. The 6-meter operators really have been having a ball; one operator worked ten states in an hour. The Arkansas Emergency Phone Net met 27 times and had a total check-in of 956. Traffic: K5IPS 20, W5SGG 10, K5DLV 2. K5TYW 2.

LOUISIANA—SCM, Thomas J. Morgavi, W5FMO—The Delta Division Convention chairman, K5USO, along with heads of committees, Delta Division Director W5MUG, your SCM and other interested persons met at the Tamanaca Motel in New Orleans working out important details in connection with the convention to be held at the Jung Hotel Labor Day week end. After four years inactivity, W5WQX is back on the 40 watts on 40 meters. W5HHA expects to be on RTTY real soon. WA5BAC dropped the "N" and now is on with Eunice with an HT-37 and a Drake 2-B. K5BXX had his ORS appointment renewed. W5NDV made 2 contacts with military stations on Armed Forces Day. K5LZA, back home from school for vacation, plans to catch up on the hamming time he missed. Traffic totals are going to suffer with W5CEZ away from home for about a month or so. K5CZV says that the Lake Charles Club is conducting "Operation Elwood" for the Boy Scout Camp again this year. The Springhill ARC is in the process of being organized. Five new AREC members are K5ELJ, W5VSU, W5SQO, K5BCN and K5QNK. Springhill hams are 100 per cent RACES. K5UYL is active on 75 meters. K5QXV is on 14- 40- and 75-meter s.s.b. K5FYI got his modulator troubles fixed. W5KAT has been appointed OES. He is active on 6 and 2 meters with a Gonset III Communicator and a 60-watt linear amplifier. K5CHC reports that openings on 6 meters have been very frequent with K5JAX working 12 new states in one evening. K5JAX has a 450TH running 1 kw. K5CHC is building a converter for his teletype and a Kw. final for the rig and is working with W5JGV trying to get more observing stations on 17 kc. for the measurement of solar noise. Traffic: W5CEZ 420, K5WBN 156, W5MXQ 147, K5QXV 113, W5NDV 24, K5CZV 16, K5FYI 7.

MISSISSIPPI—SCM, Floyd C. Teetson, W5MUG—SEC: K5SQS. Congratulations to W6ZH on being elected our new president. We wish Herb all the best in his new job. W5GY says we need more c.w. operators to help out in RN5, so let's give him a hand, gang. K5WSY is on with a new Viking 500. K5YPV is putting an ARC-3 on 2 meters. K5MDX reports a DX count of 265 worked, 247 confirmed. Nice going, Dave. The Jackson Club is now running classes for would-be hams. I recently met with the New Orleans gang. It looks like they are going to put on one fine Convention come Labor Day. I hope to see you there. K5FNU and several others report they are working 10-meter short skip. Glad to hear it; we need all the activity on 10 we can get. Yours truly has built a keyer for a little c.w. operation. It is doing an FB job. A new appointee is K5YPV as OPS. A few more appointments are available. Traffic: K5WSY 35, K5DGL 21, K5YPV 15, K5GAD 7.

TENNESSEE—SCM, David C. Goggio, W4OGG—SEC: W4WBK. PAM: W4PQP. RM: W4OQG. Net traffic: TN-112, TPN-74, ETPN-34. Let's support our section nets: TN-3635-7 P.M.; TPN-0645 M-S, 0800 Sun. 3900; ETPN-0545 3980 kc. All times CST. If you are confused about counting traffic, see page 12, *Operating An Amateur Radio Station*. This ARRL booklet is available on request from your SCM. Urge all net stations to get a copy. Your new SEC is W4WBK. Frank has done an outstanding job with the AREC program in Shelby County. All ECs, please send your reports to him at 925 North Trezevant St., Memphis. All ECs should report each month when there is a change in organization and at least once each three months when no change. This is the only way your SEC's report to ARRL can be an accurate state summary. The new RM for TN is W4OQG. All NCSs send your QNS to Pat. Reporting clubs are the MARA and Delta (Memphis), Oakridge and London County. Would like to hear from others. New appointees: W4EET as ORS; W4SLC as OES; K4TAX, K4WWQ and W4OQG as OPSs. The Delta Club Hamfest Aug. 4 and 5 will have Delta Division Director W5MUG and 3rd Army MARS Director Wade Nelms. See Hamfest Column for details. Remember the Delta Division Convention Labor Day week end in New Orleans. Reports were received from ECs K4APJ, K4DLC, K4ILW, W4PFP, K4PKO, W4TZG, W4TZJ, W4ZBQ and K4ZLC;

(*Continued on page 112*)

No. 89 of a Series

A LETTER WORTH 10,000 PICTURES

William Joseph Halligan
c/o Hallicrafters Company, Chicago, Illinois

Dear Mr. Halligan:

I READ with interest an article about you in the INVESTORS READER, published by MLPF&S, brokers, whom I had the privilege and pleasure of representing on the floor of the Midwest Stock Exchange from October 9, 1929, until December 7, 1956, when I suffered my first coronary heart attack. Another one occurred in 1958 and two more in fall of 1959 from which I barely recovered. However, the Good Lord seems to have had me by the hand and led me into a path of activity that I can do and enjoy within my limitations.

MY biggest problem was inactivity. Every time I tried some of my old hobbies I got in trouble. I worked cross word puzzles, tried photography, learned to play our electric organ a bit, started out with one tank of tropical fish and wound up with thirty, but none of that seemed to fill the bill.

THEN, on the recommendation of a local M.D. who is a ham, I became interested in Amateur Radio. The code was no problem but I studied pretty diligently on the theory and am still at it. I learned the code about 1909 in Crawfordsville, Indiana, for the old Postal Telegraph Company as an $8.00 per month messenger boy.

I LATER worked for the Western Union, Associated Press, and was Chief Operator for E. A. Pierce & Company (now MLPF&S) from 1924 until 1929 when they helped me obtain a membership on the Exchange.

LAST August I secured my novice license and the conditional license December 22, and believe have hit the jackpot for shut-ins like myself. At the request of local doctors, I have called on other disabled persons in an attempt to pull them out of their "shell" by recommending Amateur Radio as something to keep them occupied.

RECENTLY I exchanged letters with Clarence B. Randall, retired Chairman of the Board of Inland Steel Company, who received an American Heart Association award from President Kennedy. He wrote me in part:

> "Your experience with Amateur Radio fascinates me, and it is a new formula different from any that I have heretofore encountered. I shall have your experience in mind as I go about the country in the interest of the heart cause, and it may be that I can bring others to try this same experiment which has brought you so much satisfaction."

I AM using a Hallicrafters HT-32 (used) transmitter and a used receiver which I hope to be able to replace with a Hallicrafters SX-115 receiver some day. My son, 39, an electrician, and his boy, 10, are studying for their novice licenses and listening on a Hallicrafters S-120, and we are still using our first TV set, a Hallicrafters purchased about 1950.

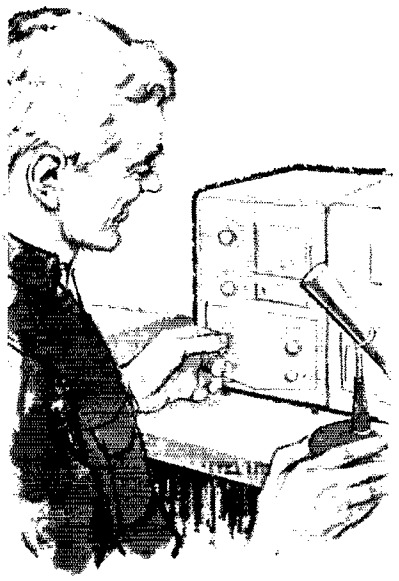
WHEN I was with the firm of EAP&CO. as Chief Operator, they were the first brokerage firm to install the teletype machines in the brokerage fraternity in 1928 with a top speed of 30 wpm, and I can say those contraptions also have really advanced over the years.

WHILE this letter was inspired by the above mentioned article and my desire to congratulate you on your life time achievements and wonderful family, I thought you might like to know how your products fit into the picture I have described. I have made about 500 contacts so far, mostly CW, and many are disabled persons who would be mighty lonely if it were not for their Amateur Radio activity.

— CLYDE H. BIDGOOD, WA9AJF

Jean Marshall K9EBE W. J. Halligan W9AC for hallicrafters

NEW! COMPLETE FILTER-TYPE SSB ADAPTER!



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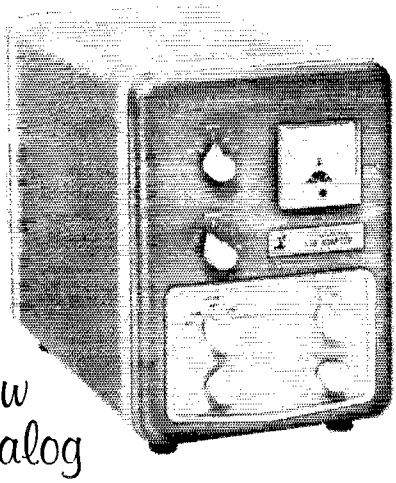
●Bandswitching 80 through 10 meters ...more than 50 db sideband suppression ...more than 45 db carrier suppression!

Here's the filter-type SSB generator that amateur operators everywhere have been asking for! The "SSB Adapter" when used with the Viking "Valiant" or "Valiant II" places 275 watts P.E.P. at your command—gives you the punch and penetration necessary for solid communications on today's crowded bands!

The Viking "SSB Adapter" consists of two compact units and interconnecting cables. RF unit is only 8" wide—may be placed on your operating desk alongside your "Valiant"—power supply unit may be placed in any convenient location. Unique design features built-in multiplier requiring VFO input only—band-pass interstage couplers require no tuning—design and front panel layout make the "SSB Adapter" practically "foolproof" in operation! Unit gives superb audio fidelity and balanced audio response; excellent sideband, spurious and carrier suppression. 7360 beam deflection balanced modulators and specially developed multisection crystal filter give you more than 50 db sideband supression —more than 45 db carrier suppression. Other features: Instant bandswitching coverage 80 through 10 meters; smooth, positive VOX and anti-trip circuits with built-in anti-trip matching transformer and adjustable VOX time delay.



SPECIFICATIONS

FREQUENCY RANGE: 80, 40, 20, 15, and 10 meters.

POWER REQUIREMENTS: Separate plug-in unit supplies filament, bias, plate voltages. 90 watts; 105-125 V AC, 50-60 cycles. Single Phase.

POWER OUTPUT: Approximately 2 watts. Will drive "Valiant" or Valiant II" to full SSB input.

SUPPRESSION:
Unwanted Sideband: 50 db or better
Carrier Suppression: 45 db or better
Spurious Frequencies: 50 db or better
Distortion Products: Better than 40 db down

FUSE PROTECTION: 1½ Amp, 110 V AC fuse is chassis mounted on power supply.

Cat. No. 240-305-2 Viking "SSB Adapter" wired and tested with remote power supply, tubes crystal filter, less microphone.

AMATEUR NET **$369.50**

New Catalog

E. F. Johnson also manufactures a line of higher power transmitters; SSB equipment; amplifiers; station accessories; keys and practice sets . . . all described in detail in our newest amateur catalog. Write for your copy today!

E. F. JOHNSON COMPANY
WASECA, MINNESOTA, U.S.A.
®

FACTORY AUTHORIZED SERVICE Instead of shipping to our factory, equipment to be serviced may also be sent to:

Electrosony Corp.—Empire State Div. 65-37 Queens Blvd. Woodside 77, New York
Park-Armature Co. 1218 Columbus Ave. Boston 20, Mass.
Heights Electronics, Inc. 1145 Halsted Street Chicago Heights, Ill.
B and S Electronics, Inc. 6326 W. Roosevelt Rd. Oak Park, Ill.
Radio Comm and Engr. Pinehurst Place Charlotte 9, N. C.

● Built-in provisions for use with SSB adapter... increased communications power...VFO designed for outstanding stability so vital to SSB operation!

NEW STYLING ...NEW FEATURES!

Newly restyled—and offering many new operating and performance features, the "Valiant II" gives you outstanding flexibility and performance in a compact desk-top rig! Completely bandswitching 160 through 10 meters—delivers a full 275 watts input CW or SSB (with auxiliary SSB exciter or the new Viking SSB Adapter) and 200 watts AM! Low level audio clipping prevents overmodulation and increases modulation level and intelligibility for increased communications power. Differentially temperature compensated VFO operates in the 1.75 to 2 mc. and 7.0 to 7.45 mc. ranges—provides the extreme stability necessary for peak SSB operation. High efficiency pi-network tank circuit will match loads from 50 to 600 ohms and tunes out large amounts of reactance—final tank coil is silver-plated. Other features: complete TVI suppression; timed sequence (grid block) keying; high gain push-to-talk audio system for use with high impedance crystal or dynamic microphones; built-in low pass audio filter; self-contained power supply; and single control mode switching.

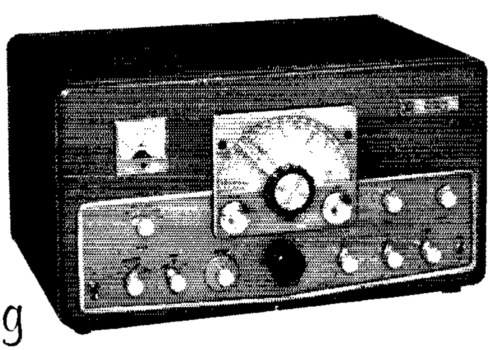
AS AN EXCITER—The "Valiant II" will drive any of the popular kilowatt level tubes, and will provide a high quality speech driver system for high powered modulators. The 9-pin receptacle on the rear of the transmitter brings out TVI filtered control and audio leads for exciter operation . . . Also permits the "Valiant II" to be used as a filament and plate power source, as well as a modulator for auxiliary equipments such as a VHF transmitter.

SSB OPERATION—New in the "Valiant II" are provisions for plug-in SSB operation with no internal modifications necessary. Rear panel coax fittings are provided for VFO output and SSB input, and a 5-pin plug, also located on the rear panel, provides connections for remote control of the final amplifier bias and VFO keying through the VOX control of the SSB adapter.

Available completely wired and tested or in a complete kit.

Cat. No. 240-105-1 Viking "Valiant II" Kit with tubes, less crystals........................ **AMATEUR NET $375.00**

Cat. No. 240-105-2 Viking "Valiant II" wired and tested with tubes, less crystals........................ **Amateur Net $495.00**



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equips his shack at half-price with

Wise Amateur Radio operators know that they can depend upon Heath for quality, dependability and performance at lowest cost! Savings realized through easy, do-it-yourself kit construction, make it possible for the radio amateur to equip his station with complete facilities at savings of up to 50%! You also enjoy latest engineering design and features for top performance and convenient operation. Whatever your need, whatever your interest . . . "Mobile", "Fixed", AM, CW or SSB . . . there's a Heathkit product to fill it! The handy accessories shown above are only a few of the many money-saving Heathkits available to make better contacts, more conveniently, and with added fun.

1. MONITOR SCOPE: Specially designed for Amateur use! Displays envelope, AF and RF trapezoid patterns. Ideal for checking "flat-topping" and non-linearity in SSB linear amplifiers, observing modulation characteristics of AM & SSB transmitters plus quality of received signals. Use on amateur bands 160 through 6 meters. Built-in two tone test generator. 10 lbs.

Kit HO-10...no money down, $6 mo.....**$59.95**

2. REFLECTED POWER METER: Checks efficiency of antenna system by measuring forward and reflected power or standing wave ratio. Handles a peak power of well over 1 kilowatt and may be left in the antenna system feed line at all times. Matches 50 or 75 ohm lines. Covers 160 through 6 meters. 2 lbs.

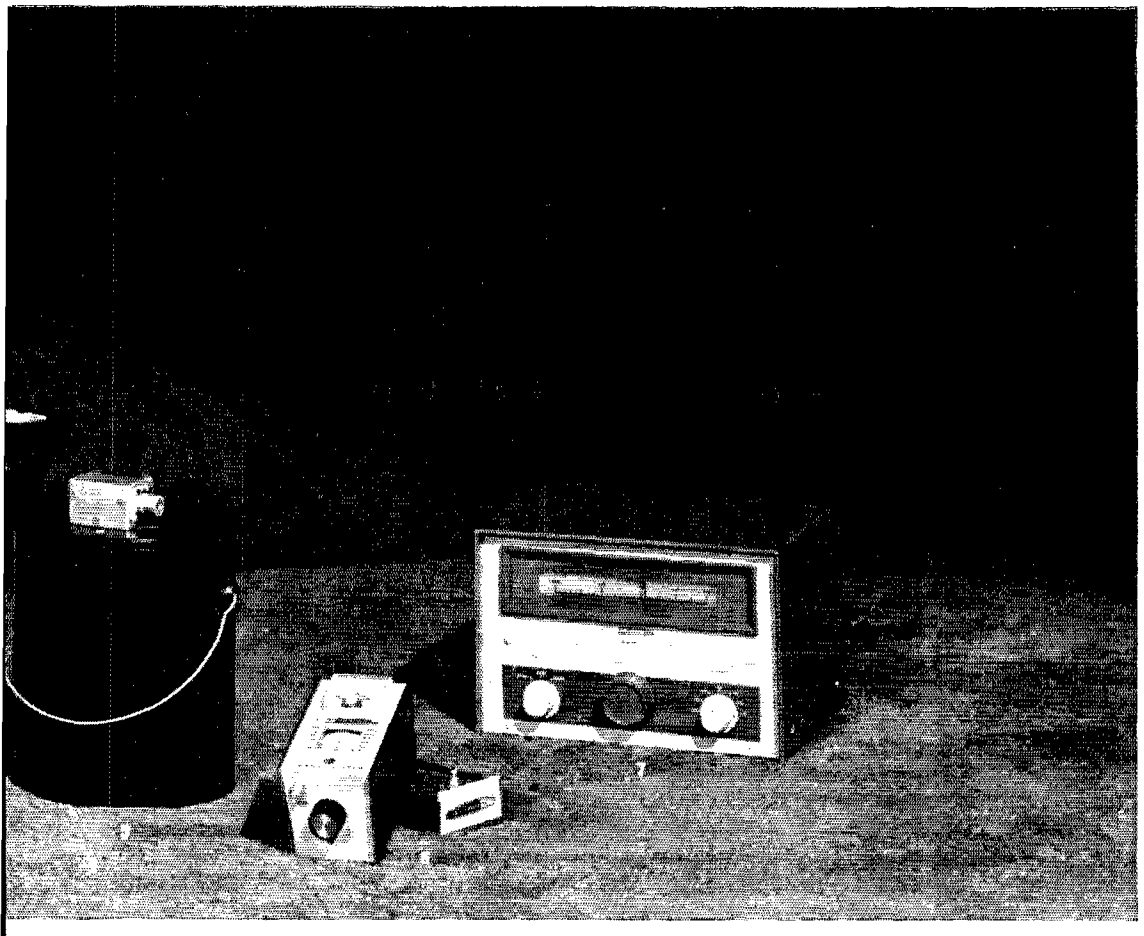
Kit HM-11.....**$15.95**

3. 100 KC CRYSTAL CALIBRATOR: Perfect for checking VFO's, receivers and other communications gear! Provides precise output every 100 kc from 100 kc to 54 mc. Circuit is transistorized and battery powered for complete portability. .005% crystal included. 1 lb.

Kit HD-20.....**$14.95**

4. RF POWER METER: Samples RF radiation near antenna to give continuous indication of relative power output of transmitter. Sensitive 200 ua meter. Requires no external source of power for operation. Covers 100 kc to 250 mc range. 2 lbs.

Kit PM-2.....**$12.95**



easy-to-build Heathkits

5. "CANTENNA" TRANSMITTER DUMMY LOAD: Permits testing or servicing transmitting equipment "off-the-air" . . . no TVI, QRM, or FCC violations to worry about! Handles up to 1 kilowatt I.C.A.S. with *less than 1.5 V. S. W. R. up to 300 megacycles.* Features oil-cooled resistor (oil not included). 2 lbs.
Kit HN-31.....$9.95

6. "TUNNEL DIPPER": Exclusive with Heath! . . . a solid-state grid dip oscillator. Hundreds of uses in amateur radio work. Covers 3 to 260 mc. Color-matched coils and dial scales. Battery powered, use it anywhere! Complete with rugged, epoxy coated coils, protective cover. 3 lbs.
Kit HM-10...no money down, $5 mo.....**$34.95**

7. VARIABLE FREQUENCY OSCILLATOR: Provides complete coverage of amateur bands, 80 through 2 meters. Rugged, reliable and loaded with special features for top performance and stability. Use with most transmitters designed for grid-block or cathode keying. All connecting cables furnished. 12 lbs.
Kit HG-10...no money down, $5 mo.....**$34.95**

FREE CATALOG:
Send today for your free 100 page Heathkit Catalog. Over 250 different quality kits to choose from. Save up to 50% with Heathkit.

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Benton Harbor 9, Michigan

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ADDRESS _____

CITY _____ ZONE _____ STATE _____

NOW...PROOF OF DX PERFORMANCE

IS K6INI THE WORLD'S CHAMPION DX OPERATOR?

Judge for yourself! Read his letter and count the DX he has worked—with only 65 watts and a $16.95 Gotham V-80 Vertical Antenna.

2405 Bowditch, Berkeley 4, California
January 31, 1959

GOTHAM
1805 Purdy Avenue
Miami Beach 39, Florida

Gentlemen:

I just thought I would drop you a line and let you know how pleased I am with your V-80 vertical antenna. I have been using it for almost two years now, and am positively amazed at its performance with my QRP 65 watts input! Let me show you what I mean:

I have worked over 100 countries and have received very fine reports from many DX stations, including 599 reports from every continent except Europe (589)! I have also worked enough stations for my WAC, WAS, WAJAD and ADXC awards, and I am in the process of working for several other awards. And all this with your GOTHAM V-80 vertical antenna!

Frankly, I fail to see how anyone could ask for better performance with such low power, limited space and a limited budget. In my opinion, the V-80 beats them all in its class.

I am enclosing a list of DX countries I have worked to give you an idea of what I have been tal king about.

Wishing you the best for 1959, I am

Sincerely yours,
Thomas G. Gabbert, K6INI (Ex-T12TG)

OR IS K4ZRA THE NEW CHAMP?

Read his letter, and see his diagram of a typical installation and what it achieved:

2539 Christie Place
Owensboro, Kentucky

GOTHAM
Miami Beach, Florida

Gentlemen:

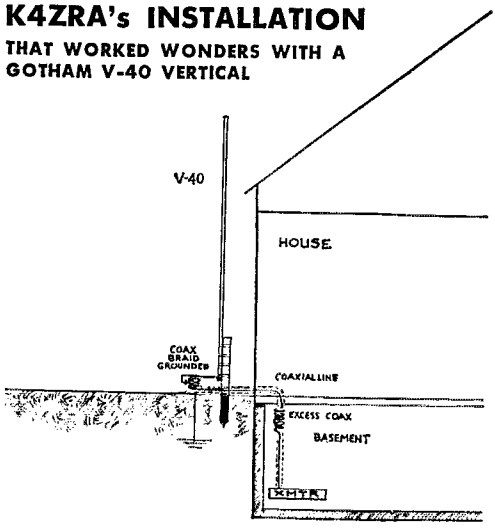
During the time I used this antenna, I worked well over 100 DX stations in 44 different countries, earned a WAS certificate, and worked the necessary stations for WAVE, receiving very fine signal reports from all. My rig ran from 75 to 100 watts plate input and the receiver was an old military ARR-7 (Hallicrafters reboxed SX-28.)

The above mentioned contacts were made with the vertical mounted several inches off the ground, without radials, with only a simple ground connection to the coaxial shield.

Daniel F. Onley, K4ZRA

K4ZRA's INSTALLATION

THAT WORKED WONDERS WITH A GOTHAM V-40 VERTICAL



FREE

Send a card for our valuable catalog of 50 different antennas with specifications and characteristics. Gives bands and frequencies covered, element information, size of tubing used, boom length, shipping weight, feed line used, polarization, and other data.

ANNOUNCEMENT!

GOTHAM proudly announces our appointment as an *AUTHORIZED FRANCHISED DEALER* for *ALL LEADING MANUFACTURERS OF TRANSMITTERS AND RECEIVERS.*

We feature a unique plan that absolutely guarantees proper installation and operation.

ORDERS AND INQUIRIES SOLICITED

WHY

THE GOTHAM V-80 IS THE BEST ALL-BAND ANTENNA

- If K6INI can do it, so can you.
- Absolutely no guying needed.
- Radials not required.
- Only a few square inches of space needed.
- Four metal mounting straps furnished.
- Special B & W loading coil furnished.
- Every vertical is complete, ready for use.
- Mount it at any convenient height.
- No relays, traps, or gadgets used.
- Accepted design—in use for many years.
- Many thousands in use the world over.
- Simple assembly, quick installation.
- Non-corrosive aluminum used exclusively.
- Multi-band, V80 works 80, 40, 20, 15, 10, 6.
- Ideal for novices, but will handle a Kw.
- Will work with any receiver and xmitter.
- Overall height 23 feet.
- Uses one 52 ohm coax line.
- An effective modern antenna, with amazing performance. Your best bet for a lifetime antenna at an economical price. ONLY $16.95.

73.
GOTHAM

DO YOU KNOW

1. YOU WILL HAVE NO DIFFICULTY INSTALLING YOUR GOTHAM VERTICAL ANTENNA IN JUST A FEW MOMENTS, REGARDLESS OF YOUR PARTICULAR PROBLEM, SO ORDER WITH CONFIDENCE EVEN IF YOU HAVE RESTRICTED SPACE OR A DIFFICULT SITUATION.
2. LOADING COIL NOT REQUIRED ON 6, 10, 15 AND 20 METERS. FOR 40, 80, AND 160 METERS, LOADING COIL TAPS ARE CHANGED MANUALLY EXCEPT IF A WIDE-RANGE PI-NETWORK OUTPUT OR AN ANTENNA TUNER IS USED; IN THIS CASE BAND CHANGING CAN BE DONE FROM THE SHACK.
3. EVERY GOTHAM ANTENNA IS SOLD ON A TEN DAY TRIAL BASIS. IF YOU ARE NOT FULLY SATISFIED, YOU MAY RETURN THE ANTENNA PREPAID FOR FULL REFUND OF THE PURCHASE PRICE. THIS IS YOUR GUARANTEE OF FULL SATISFACTION.

FILL IN AND SEND TODAY!

Airmail Order Today — We Ship Tomorrow

GOTHAM Dept. QST
1805 PURDY AVE., MIAMI BEACH, FLA.

Enclosed find check or money-order for:

☐ V40 VERTICAL ANTENNA FOR 40, 20, 15, 10 AND 6 METER BANDS..... $14.95

☐ V80 VERTICAL ANTENNA FOR 80, 40, 20, 15, 10 AND 6 METER BANDS. MOST POPULAR OF THE VERTICALS. USED BY THOUSANDS OF NOVICES, TECNI CIANS, AND GENERAL LICENSE HAMS... $16.95

☐ V160 VERTICAL ANTENNA FOR 160, 80, 40, 20, 15, 10 AND 6 METER BANDS. SAME AS THE OTHER VERTICAL ANTENNAS, EXCEPT THAT A LARGER LOADING COIL PERMITS OPERATION ON THE 160 METER BAND ALSO..... $18.95

HOW TO ORDER. Send check or money order directly to Gotham. Immediate shipment by Railway Express, charges collect. Foreign orders accepted.

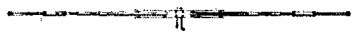
Name.....

Address.....

City.....Zone.....State.....

YOUR DREAM ANTENNA FOR 10-15-20-40 METERS WITH A PLANNED BUDGET

1



MODEL TA-31

Start today with the purchase of the inexpensive Model TA-31, and in three additional steps you can have the famous MOSLEY TA-33 TRAPMASTER BEAM plus the New TA-40K to add 40 Meters.

Amateur Net $25.85

\+ Mosley TA-31/32 Conversion Kit

NEXT purchase the Kit to convert the TA-31 to a TA-32. Kit consists of reflector element, seven foot boom and all necessary hardware.

Amateur Net $43.65

2

MODEL TA-32

This extra element gives your Antenna additional gain and directivity over the single rotatable dipole.

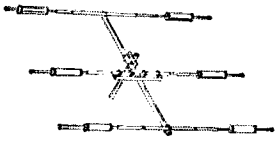
Amateur Net $69.50

\+ Mosley TA-32/33 Conversion Kit

For your third step to outstanding performance, purchase the kit to convert the TA-32 to a TA-33. This includes a director element, seven foot boom, boom splice and all necessary hardware.

Amateur Net $30.25

3



MODEL TA-33

This is model TA-33 MOSLEY TRAPMASTER famous world wide for mechanical construction quality and performance. *(for 10, 15 and 20 meter bands)*

Amateur Net $99.75

\+ Mosley TA-40K Conversion Kit

Finally, you can add 40 meters to your TA-33 without affecting the characteristics of the TA-33. Kit contains all necessary hardware. WITH THE 11-YEAR SUN-SPOT CYCLE in effect, 40 meter operation becomes more important than ever.

Amateur Net $39.95

4

MODEL TA-3340

NEW!

MOSLEY TA 3340 TRAPMASTER is now available as a complete package ready to install. Package contains TA-33 and TA-40K complete with all parts and hardware.

Amateur Net $139.70

ALL MOSLEY ANTENNAS CONSTRUCTED OF:

- *6061T6 Heavy Gauge Aluminum!*
- *100% Rust/Corrosion Proof!*
- *High Grade S. Steel Hardware!*

NOTE: A Model AK-60 Mast Plate Adapter for 2" OD Mast is available. Complete with aluminum angle and hardware.

Amateur Net . . . . $ 4.78

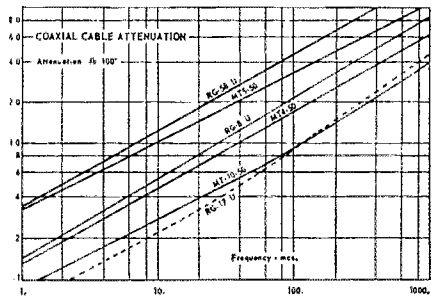
SEE YOUR DEALER TODAY OR WRITE

Mosley Electronics Inc.

4610 N. LINDBERGH BLVD. - BRIDGETON, MISSOURI

Power Lost in Coax is Gone Forever!

See article by Michael Ferber in April, 1959, Q.S.T.



Reduce This line loss with

Mosley Lo/Ten Coaxial Cable

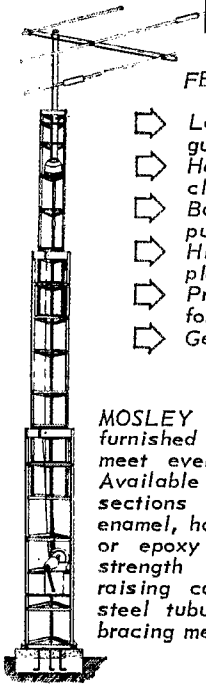
- Light Weight!
- Higher Tensile Strength!
- 30% Lower Attenuation!
- 20-Year Life Expectancy!
- Suitable For Direct Burial!

Mosley Type	Similar To
MT 4-50	RG- 8/U
MT 5-50	RG-58/U
MT10-50	RG-17/U

Lo/Ten is manufactured for Mosley by *Times Wire and Cable Company*, Division of International Silver Company, and is familiar to coaxial cable users as T-Line. Lo/Ten is distributed by Mosley through exclusive arrangement with *Times Wire and Cable Company*.

NEW! COMPLETE LINE OF MOSLEY TOWERMASTERS

see and hear



FEATURES:

- *Low friction section guides!*
- *Heavy steel safety clips!*
- *Ball bearing metal pulleys!*
- *Hinged steel base plate!*
- *Pre-drilled rotor plates for mast!*
- *Geared raising winches!*

MOSLEY TOWERMASTERS are furnished in many designs to meet every ham requirement. Available in 10 and 20 foot sections with triple coated enamel, hot dipped galvanized, or epoxy resin finish. Extra strength galvanized aircraft raising cables, high strength steel tubular leg and channel bracing members.

THE Mosley CM-1

receiver is the first low priced receiver with double conversion and crystal controlled first oscillator. It is also the first receiver with 5 dual-purpose tubes of one type and 4 semi-conductor diodes which perform all functions usually requiring 12 or more tube sections. See this really new design concept in amateur receivers now on display at your dealer.

CM-1 Receiver . . . . . Amateur Net $ 182.70
CMS-1 Speaker . . . . . Amateur Net $ 16.95

ASK YOUR DEALER FOR FULL SPECIFICATIONS

Mosley

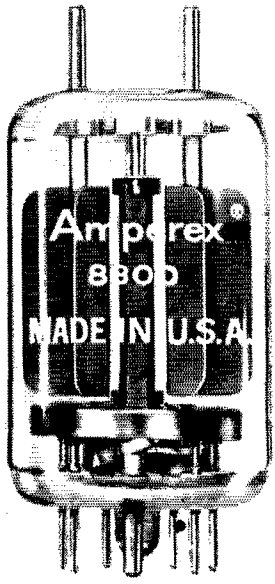
OR WRITE
Electronics Inc.
4610 N. LINDBERGH BLVD. • BRIDGETON, MISSOURI

push

wait
100
milliseconds

talk

Harp cathode in new Amperex SSB twin tetrode permits full talk-power in 100 milliseconds!



Now the AMPEREX harp cathode—fastest-heating cathode ever produced—has been incorporated in a twin tetrode specially designed to provide excellent linearity in parallel for PEP outputs up to 158 watts ICAS, with third order IM distortion better than 30 db down!

With the AMPEREX Type 8300 RF linear amplifier tube—instant-heating version of the 8117—fast warm-up, excellent linearity and high efficiency are provided for mobile and portable SSB systems in the VHF range up to 175 mc. When operated under intermittent conditions, the 8300 has a plate dissipation rating of 34 watts per anode. Either forced air or heat sink cooling may be used when operating the 8300 at or near the maximum ratings.

TYPICAL OPERATION—AB$_1$ LINEAR RF AMPLIFIER, BOTH IN PARALLEL

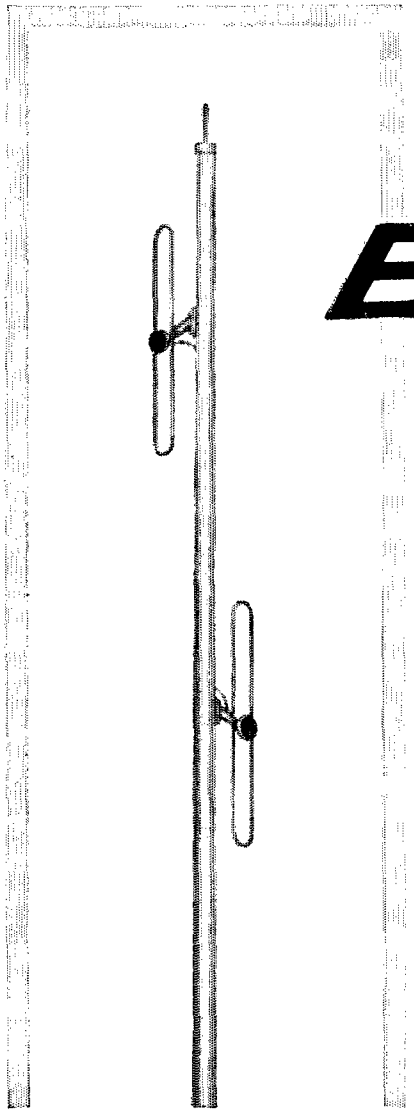
Frequency	30	30 Mc.
D. C. Plate Voltage	1000	800 volts
D. C. Grid #2 Voltage	250	250 volts
D. C. Grid #1 Voltage	−34	−34 volts
Zero Signal D. C. Plate Current	50	50 ma
Effective RF Load Resistance	3100	2300 ohms
Average D. C. Plate Current*	131	130 ma
Peak RF Grid Voltage	34	34 volts
Average Plate Power Output*	70.5	56 watts
Peak Envelope Plate Power Output*	141	112 watts
3rd Order IM Distortion	30	30 db

*Conditions under two-tone modulation.

Also available: Indirectly-heated-cathode Types 8116 and 8117 with 26.5 V and 6.3 V heaters, respectively.

For detailed data on Type 8300 and other SSB tubes, write: Amperex Electronic Corporation, 230 Duffy Avenue, Hicksville, Long Island, New York.
In Canada: Philips Electron Devices Ltd., 116 Vanderhoof Ave., Toronto 17, Ont.

Ask Amperex



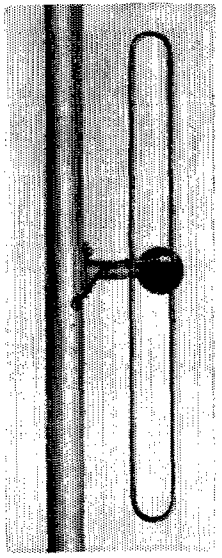
New from C-P!

FOUR ADVANCED DESIGN

BROADBAND

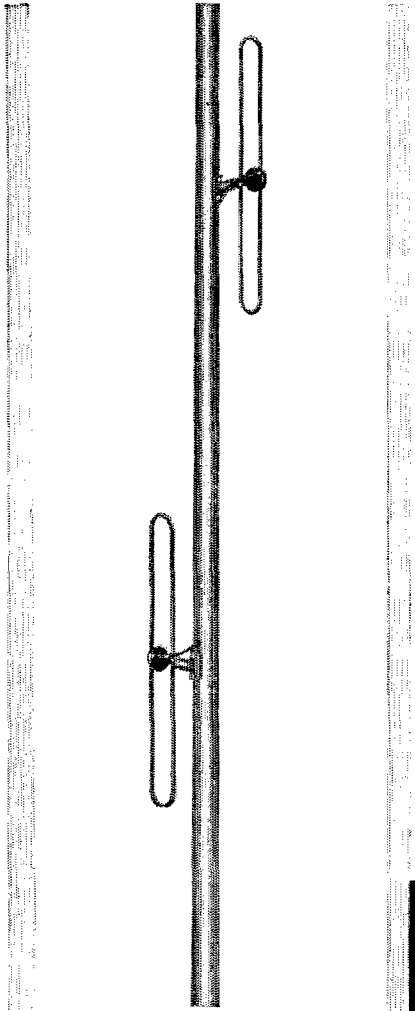
BASE STATION ANTENNAS

❶ ***CAT. NO. 340-509: 148-162 Mc 6 db Omnidirectional Pattern***
❷ ***CAT. NO. 341-509: 160-174 Mc 6 db Omnidirectional Pattern***
❸ ***CAT. NO. 342-509: 148-162 Mc 9 db Offset Pattern***
❹ ***CAT. NO. 343-509: 160-174 Mc 9 db Offset Pattern***



C-P proudly presents four new ***BROADBAND*** Base Station Antennas. Each Antenna consists of an array of four radiating elements mounted on a 2⅜" O.D. by 5/32" wall 6061T6 Aluminum Support Pipe fed by a sealed Binary Phasing and Matching Harness, factory installed inside the support pipe.

The folded dipole radiating elements are made of solid aluminum rod mounted on hi-strength pressure cast aluminum alloy bases. The radiating element assemblies are attached to the support pipe with 5/16" stainless steel hex head machine screws. The Binary Harness is installed completely inside the support pipe with the dipole feed lines brought out through grommeted holes at each dipole. Thus, this antenna presents the cleanest aerodynamic structure possible for an antenna of its type. Ninety-five percent of the solid dielectric cable in the feed harness is completely shielded from the weather. Also, the cable is not present on the outside of the support pipe to distort the pattern and impedance characteristics of the array.



Electrical Specifications:

Nominal Input Impedance	50 ohms
VSWR	1.5:1 maximum
Bandwidth	14 Mc
Maximum Power Input	500 watts
Flexible Terminal Extension	18" of RG-8 A/U
Termination	Type N Male
Gain	*
Vertical Beam Width (½ power points)	16°
Lightning Protection	Direct ground through support pipe

*6 db Omnidirectional pattern for Cat. Nos. 340-509 and 341-509.
*9 db Offset Pattern for Cat. Nos. 342-509 and 343-509.

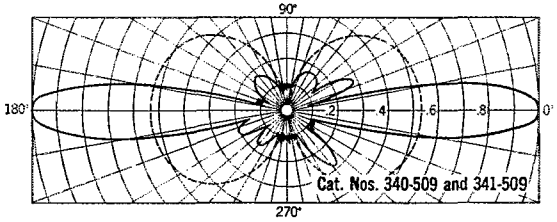
Mechanical Specifications:

Support Pipe	6061T6 Aluminum Pipe 2-3/8" O.D. by 5/32" wall
Radiating Element Material	6061T6 Solid Aluminum Rod 3/8" diameter
Feed Point Insulators	Molded Epoxy Resin
Rated Wind Velocity	100 M.P.H.
Lateral Thrust at Rated Wind:	
Cat. Nos. 340-509 and 342-509	118 lbs.
Cat. Nos. 341-509 and 343-509	110 lbs.
Bending Moment 6" Below Bottom Element:	
Cat. Nos. 340-509 and 342-509	1180 ft. lbs.
Cat. Nos. 341-509 and 343-509	990 ft. lbs.
Weight: Cat. Nos. 340-509 and 342-509	40 lbs.
Cat. Nos. 341-509 and 343-509	37 lbs.

All antennas are equipped with a special teflon insulated UHF female connector at the base of the support pipe. An 18" flexible terminal extension cable, with a Type N male connector and neoprene weathershield, is supplied as part of the antenna assembly.

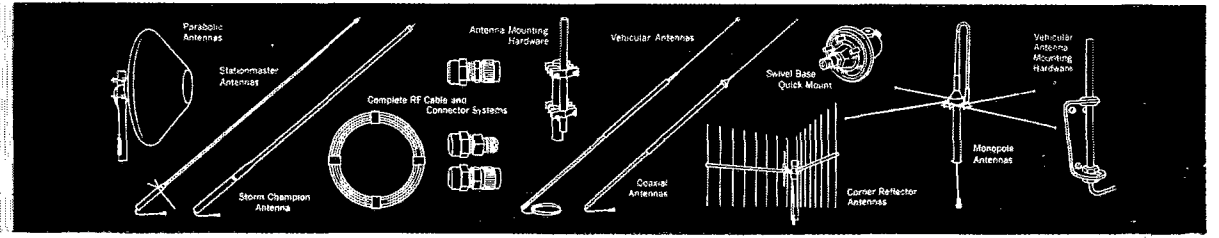
The use of a one-piece, large diameter support pipe extending throughout the entire length of the antenna provides maximum lightning protection. Possible lightning damage to the feed harness is greatly reduced by virtue of its installation inside support pipe.

Vertical field strength pattern of new *BROADBAND* Base Station Antennas. A dipole pattern is shown for reference.



SINCE 1933
COMMUNICATION ANTENNA SYSTEMS FOR AMERICAN BUSINESS

Communication Products Company
DIVISION OF
PHELPS DODGE ELECTRONIC PRODUCTS
CORPORATION
MARLBORO, NEW JERSEY – Telephone HOpkins 2-1880 (Area Code 201)
LOS ANGELES 65, CALIF. – Telephone CHapman 5-1143 (Area Code 213)



Station Activities

(*Continued from page 98*)

ORSs K4AKP, K4LPW, W4OQG, K4OUK, W4PL, K4WUG, W4ZJY and W4EET; OBSs W4SGI and W4WBK; OPSs W4PQP, K4LTA, K4WWQ and K4TAX; OESs K4KYL and K4UVU; OOs A4FPS, W4TDZ and W4RIN. Congratulations to the Loudon County Club making the ARRL Affiliated Club Honor Roll. Congratulations to K4PUZ and K4LPW on winning section honors in the SS Contest. W4PL celebrated his golden wedding anniversary. Traffic: K4AKP 1007, W4PL 751, K4WUG 169, W4OQG 96, W4OGG 81, W4PQP 81, K4OUK 41, K4WWQ 39, K4TAX 31, W4PFP 27, W4UIO 18, W4LLJ 17, W4PJV 13, W4GNK 12, W4TZG 10, W4TZJ 10, W4ZJY 9, K4CPC 8, K4VOP 6, K4LTA 5, W4GGM 4, K4KYL 4, W4SGI 4, W4EET 3, K4JXG 2, K4NZN 2, K4RQP 2, K4TAZ 2.

GREAT LAKES DIVISION

KENTUCKY—SCM, Elmer G. Leachman, W4BEW—Sec: W4BAZ. PAM: W4SZB. RM: W4CDA. V.H.F. PAM: K4LOA. Old-timers and newcomers met again at the 16th Annual Mammoth Cave Reunion. A hamfest was attended by 150 registered hams, including three of the four organizers, W4JFK, W4NGZ and W4CMP. There were 54 at the first meeting sixteen years ago, according to W4JFK. K4LOA finally hooked up with Lexington K4KJQ on 6 meters. The Central Ky. Emergency 6-Meter Net meets Mon. and Thurs. on 50.3 Mc. K4KJQ is NCS. W4BAZ reports a low count because of the pressure of work. W4CDA also had a low count. K4TQZ handled traffic for the Boy Scouts at Camp AVOCA along with K4CSH. K4KWQ, W4HOJ and W4KFI. K4KWQ made BPL again. W4JUI will be more active with school out. K4ZQR is testing on RTTY. He also is on 143.46 Mc. W4ISF lost his tri-bander and 6-meter beam in a storm, but still is on 143.46 Mc. K4HSB has a new Drake 2B. K4NYO is using home-brew 100 watts for OBS. K4GSU still made OOs in spite of the heavy exam schedules. W4RHZ transmits code practice simultaneously on four bands—51.0, 144.5, 220.8, 435.0 Mc. W4ITC is the new Owensboro EC, succeeding W4VJV. The SCM is sending each Official Appointee (ORS, OPS, etc.) a master list of other appointees so the official family will know who's who. W4JPV is founder of the East Kentucky Amateur Radio Society, not W4JPY as reported in June *QST*. Traffic: K4KWQ 501, K4CSH 158, K4HOE 143, K4HHG 77, K4TQZ 43, W4CDA 27, W4SZB 27, W4BAZ 20, K4LDA 19, K4ZQR 17, K4NYO 16, W4ISF 13, W4YYI 12, W4BEW 11, K4VDO 9, W4JUI 4, W4EON 3, K4KJQ 2.

MICHIGAN—SCM, Ralph P. Thetreau, W8FX—SEC: W8LOX. RMs: W8EGI, W8QQO, W8FWQ, K8KMQ. PAMs: W8CQU, K8LQA. V.H.F. PAM: W8PT. Appointments: W8ALG, K8MKG, W8TSG as ECs; K8LOS as OO; W8BAN, W8FZ, K8KQV, W8PT as OESs; K8KQV, W8OCC, K8QEX, W8YAN as ORSs; W8ALG, K8GJD, W8GOU, W8OCC, W8QPO, W8TIC, W8YAN as OPSs. BPL on originations and deliveries: K8ZZW, K8TDJ and K8KMQ. A new father-and-son team: WA8BAE and W8CXX. WA8CNT worked Wake Island on 50 Mc. K8TLX, K8TDJ and K8CSM get Wolverine certificates. The WSSB Net now is on 3935 kc. K8LQA is new pres.; K8VDA is secy-treas. W8GCP, W8YGI and K8QEH are leaving Michigan. W8WT got CHC 200 and USA-CA 500 Awards. W8CJT had a successful neck operation. Another father-and-son team, K8TXY and K8UDR, has a new 75S-1 K8SPU won the Alma Regency Scholarship to the U. of M. K8QEI got the Pres. Citation Award to M.S.U. W8TIJ is recovering from an operation. K8DUU made General Class. W8SDB can't keep his frequency-operated garage doors shut. W8SWF finally is going s.s.b. K8MEG now is in Radioman School, USN. As a result of that buffing accident, W8YAN has lost the use of an eye. All our sympathies to the W8OCCs, who recently lost their son. W8TBP and family were in their car when it rolled over but were not seriously hurt. W8GJH is working on a weather net in the Flint Area with 46 check-ins during the Apr. 30 alert. W8USZ got photo recognition in a paper put out by Buick, called *6 Bits*. W8DTZ still is doing a great job as Genesee County EC. The Michigan 6-Meter Club gang again took a lot of traffic at the VA Hospital, Dearborn. Those active in this worthwhile effort were K8AMA, W8AOY, K8BCM, WA8CNT, K8HER, K8JGF, K8KIX, K8LUY, W8MBH, K8MDV, K8OIB, K8OMZ, K8PJT, K8VFR and K8VRJ. WOOD-TV put on a ham program called "Unit 8" with K8JHA, K8IWI, K8LQA and K8NTE in it. W8NXZ is after the 2nd-class telegraph license. K8KCD, Kent County EC, gets the AREC Net started on 3838 kc. Only half of the OESs are reporting by the 5th of each month. Traffic: (May) W8IXJ 286, K8TDJ 242, K8KMQ 232, K8ZZW 145, K8HLR 120, W8FWQ 92, W8HKT 86, W8BEZ 79, W8EU 66, K8QLL 66, W8RTN 63, K8TFE 62, W8TBP 50, W8FX 48, W8JTQ 40, W8EGI 39, K8PYW 36, K8WQV 35, W8AUD 33, W8MPD 30, K8SHQ 26, W8DSW 22, W8USZ 20, W8EOI 19, K8RQO 18, W8SWF 13, K8MEG 11, K8TJH 11, W8AHV 10, K8KQV 10, K8YVV 7, W8MAI 5, W8ZHB 5, K8CKD 4, W8EMD 3, K8GJD 3, K8NHC 2. (Apr.) K8QKY 82, K8YAY 10, K8WPI 4.

OHIO WORLDWIDE CONTEST

September 8-9

The Cleveland Amateur Radio Convention, Inc., sponsors of the Mid-America Radio Convention, invite all amateurs to participate in the Ohio Worldwide Contest.

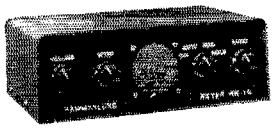
Rules: (1) *Time:* 1700 GMT September 8 to 2259 GMT Sept. 9. (2) A station may be worked twice on each band, once on phone and once on c.w. (3) *General Call:* CQ Ohio. (4) *Exchange:* All contestants send RS(T) report, name of county, and name of state. DX stations send name of Laan, DOK NR, Canton, etc. (5) *Suggested frequencies:* 3600, 3860, 7100, 7250, 14,100, 14,250, 21,050, 21,350, 28,050, and 28,750. (6) *Scoring:* Ohio stations multiply total contacts by total number of states, provinces, and ARRL countries worked during the contest period. Non-Ohio stations multiply contacts by total number of Ohio counties worked during the contest. (7) *Certificates:* Highest scoring station in each state, province, and foreign country (with 5 or more contacts). Three highest scoring Ohio stations. The Ohio Amateur Radio Soc. will award the Cardinal E certificate to any U.S. or Canadian amateur working 45 counties during the contest, and to any DX station working 25 counties. Those submitting logs may claim contact credit toward any of the Cardinal Awards at a future date. (8) All logs must be postmarked no later than Sept. 30 and sent to the contest manager, Jack Siringer, W8AJW, 2972 Clague Road, North Olmstead, Ohio.

OHIO—SCM, Wilson E. Weckel, W8AL—Asst. SCM: J .C. Erickson, W8DAE. SEC: W8HNP. RMs: W8BZX, W8DAE, W8VTP, K8ONQ. PAMS: W8VZ, K8KSN, K8UBK. Ohio Intrastate Contest scores: W8VZ 5-145, K8HDO 4-747, W8BQV 4-550, K8ZPC 3-526, W8RQ 2-952, K8ITH/8 2774, K8HTM 2-442, W8CJN/8 2-046, K8ECK 1-815, W8YPT 1-456, K8ZSU 1-170, W8AL 968, W8YGR 950, W8KMF 660, W8KCD 494, K8ANA 247, K8EUY 192, K8WUN 165, K8BFZ 91. There were three stations operating portable, two from Monroe and one from Perry. Notice to all Ohio amateur stations seeking the hard-to-get Worked All Ohio Counties certificate: W8IBX/8 and K8MTI/8 will be operating portable from Vinton County from 1500 GMT until 2355 GMT Sat. Aug. 11 on 3580-, 7036- and 14,012-kc. c.w. and 3860-kc. phone. Each station will QSL, but would like to have an addressed, stamped envelope sent to them. Remember, they are helping you to work a rare county. W8QIJ received his Technician Class license. Sandusky High School RC received the call WA8DLN and has an Eico and an NC-270. K8AGN received his General Class license. K8MAZ was in the hospital. K8ZQJ is in the hospital. W8BZX received WACAN. Toledo's *Ham Shack Gossip* names W8FPU as its Ham of the Month and tell us Toledo hams are getting ready to establish communications in the 42nd Mills Trophy Race. K8LVP was married. W8MUK gave a talk on antennas to the mobile club. K8TVX received her General Class license. WN8CWN is a new Novice and W8NBD has a new baby boy. Dayton ARA's *R-F Carrier* informs us that W8ZOA told what all the data given in a tube manual means. South East ARC's *Ham Fax* relates that Mr. Finneburg, of Finco Co., spoke on antennas. K8BBH and K8SQC received their General Class licenses and the twin sons of W8KCZ are now Novices with the calls WN8DRA and WN8DRN. WA8CXP is a new Novice and Technician in the Findlay Area. Massillon ARC's paper informs us that K8HTM is on active duty in the Navy. K8EKG received the WAT award. W8FSM has a new TA-33 and the stork brought a baby girl to W8VYU. Inter-City RC's *IRC News Bulletin* says Dr. Richard Howe of Dennison U. spoke on and demonstrated beam operation and efficiency. the club elected officers for the year. K8HFJ received his DXCC. W8BIW is a new ham in Ashland. W8LSA and W8VTP are conducting theory and code classes. K8ZDD moved to Colorado and W8UOW moved to California. The Seneca RC saw the Ohio Bell film Time and heard W8POH speak on meters and meter shunts. Springfield ARC's *Q-5* states there was a nice attendance at the annual banquet. K8DCR and K8BOK are now General

(*Continued on page 114*)

A New Dimension in Amateur Radio

The Hammarlund HQ-110A looks like the 110—but basic design changes create the subtle difference between excellent and exquisite! A joyful performer as the HQ-110, the new HQ-110A reaches new heights of operating pleasure by including such extras as:



"Personal Touch" Electronic Keyer—HK-1B

Twice the value—half the cost. The all-transistorized HK-1B is comparable feature-for-feature with keyers costing **twice as much.** Adjustable "personal Touch" ratio for dots/dashes. Suitable for automatic, semi-automatic (bug) or straight key operation.

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- Significantly tighter mechanical and electrical stability
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This 12 tube, dual-conversion superheterodyne receiver covers all amateur bands, from 160 to 6 meters—with optimum reception of CW and SSB signals through a separate linear detector.

You have to try this receiver to see just how good it really is—but if you can't—send for the new, informative brochure on the HQ-110A—or pick one up at your local Hammarlund distributor.

Still only
$249.00

24 hour clock timer $10 optional

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Class. Cincinnati ARA's Mike and Key tells us that W8AKW is a Silent Key. W1ICP spoke to members of all greater Cincinnati clubs at a special meeting and W8LAQ showed color slides of previous club hamfests. Don't forget to mark Sept. 23 on your calendar for the big Cincinnati Stag Hamfest. Parma RC's *P.R.C. Bulletin* informs us WN8ACY is editor of a weekly column called *The Ham Shack* in the *Brooklyn-Parma News*, W8YPT discussed coax relays and K8BFT is back in the hospital. The Miami Valley Radio Contest Society, in competition with the Ohio Valley ARA during the 1961 SS Contest, is awaiting a dinner to be given by the loser, the OVARA. W8CJN received WAVE and WACAN awards and K8DDB has a new 75S-1. WA8APS is now General Class. KN8WMD, the XYL of K8TVE, became a Silent Key. W8IBX received DCO and VA-CWC Awards. W8AL received USA-CA500 Award. W8DAE, W8UPH and K8RXD made BPL in May. Wish that all amateurs in the larger Ohio cities would contact their museums to find out if they would be interested in displaying antique wireless (radio) gear. To those Ohio amateurs with wireless gear dating from 1900 to about 1923: *Please* don't throw these scarce items away. Will write more of what I have in mind next month. Traffic: (May) W8DAE 955, W8UPH 541, W8CHT 294, K8SQK 283, K8DDG 223, W8BZX 222, K8RXD 120, W8ZYU 87, W8CXM 62, K8ONQ 61, W8AL 32, W8QCU 32, W8LZE 30, K8RYU 28, K8WBL 16, W8ILC 10, K8PBZ 9, W8EEQ 6, K8KLA 5, K8KXS 4, W8IBX 2, W8WYS 2. (Apr.) W8BZX 213, K8AAG 173, W8ZYU 49, K8WBL 12, K8JSQ 7, W8AZL 2, K8ZDE 1.

HUDSON DIVISION

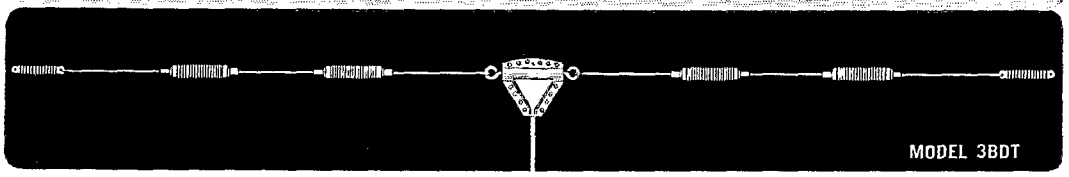
EASTERN NEW YORK—SCM, George W. Tracy, W2EFU—SEC: W2KGC. RMs: W2PHX and K2QJL. PAM: W2IJG. Section nets: NYS on 3670 kc. nightly at 0000 GMT; NYSPTEN on 3925 kc. nightly at 2300 GMT; ESS on 3590 kc. nightly at 2300 GMT; MHT (Novice) on 3716 kc. Sat. at 1800 GMT; Inter-club on 28.690 Mc. Mon. at 0130 GMT. Appointment: WA2MHY as OES. W2GTC received the Schenectady Club's Broughton Award for exceptional service. The club's new officers are K2HNW, pres.; K2ONF, vice-pres.; W2AZH, secy.; W2DAG, treas.; W2FBS, W2BXC, K2SDU and K2OIC, directors. The Albany Club held an auction May 11 with K2OTC the man with the gavel. Among those helping the Saugerties fallout shelter program were K2YRY/2, WA2PNV, WA2VJV, K2VYN, W2NTU and WN2ACI. New calls in New Rochelle are WA2TIA, WA2USF, WN2AQH and WN2ATW. Congratulations. The Schenectady Club printed a digest-size history and by-laws for new members and a roster of members all in one month under the direction of W2LCB, editor of its *SARA News*. K2RRZ, of New Rochelle, editor of CCNR's *Communicator*, leaves for Princeton. This fine news sheet is looking for a new editor. The "Happy Gang" held its third picnic at Garrison. Attending were K2SJN, K2RRZ, WA2QEG, W2KCX, WA2QAO, WA2PCM, WA2TCA, WA2UMG and WV2RRK. Lightning burned up the power line at W2DQW but with no damage to the rigs. K2BGU reports a new 432-Mc. rig was used for the June V.H.F. Party. Traffic: (May) W2THE 140, WA2MID 127, W2EFU 114, W2DQW 111, WA2UZK 99, K2TXP 78, WA2HGB 75, K2SJN 45, W2PKY 31, WA2TJX 25, K2HNW 10, WA2LOJ 10, A2TDK 7. (Apr.) W2PKY 45, K2EIU 9.

NEW YORK CITY AND LONG ISLAND—SCM, George V. Cooke, jr., W2OBU—SEC: W2ADO. RM: W2WFL. PAM: K2HCU. V.H.F. PAM: W2EW. Section nets: NLI, 3630 kc. at 0015 nightly; NYCLIPN, 3908 kc. at 2230 nightly; V.H.F. Net, Tue-Wed.-Thurs. on 145.8 Mc. at 0100 and Fri. through Mon. at 146.25 Mc. at 0000; Mike Farrad Net, 7238 kc. at 1700; All Service Net at 1800 Sun. on 7270 kc. All times are GMT. In the reorganization of the NYCLIPN, WA2KKB has been appointed OBS to cover news to that group. Three stations earned BPL certificates for May traffic. WA2GPT, W2EW, who made the BPL for the 26th consecutive time, and WA2TQT, who attained his by originations and deliveries. The Bronx High School of Science RC elected WA2BQK, pres.; WA2OBQ, vice-pres.; WA2UXZ, secy.; WA2KCH, act. mgr. The NLI Net has welcomed WA2-1UQ, Bronx, and WA2QJU, Brooklyn, for better coverage in those areas. The NLI Net can use help in all areas of the section. K2ASP announced his engagement to the jr. operator of WA2HTA. The Sunburst group, WAs GFP, YMN, LOP, ZTK, SNQ, LOD and ZYA, have started work on slow-scan 420-Mc. TV. WA2YMN keeps 1-mile 1215-Mc. skeds with WA2GFP on antenna tests using APX-6s on both ends. W2DBQ received a new ORS appointment exactly 30 years after the first one back in '32. WA2EXP is back in the swing again after 1½ years of recuperation and is now using a DX-20 and just received his 30-w.p.m. certificate. W2PF has just been elected a director of the SSBARA and is extremely QRL

(*Continued on page 116*)

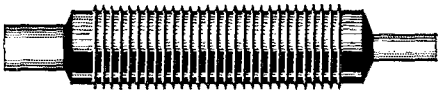
hy-gain multi-band DOUBLETS

...the doublets that are different!



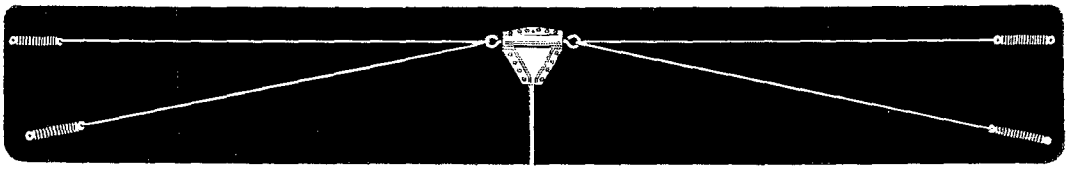
TRAP DOUBLET takes up to 500 Watts AM, 1 KW PEP

Here's the answer to unsurpassable doublet performance—new Hy-Gain Trap Doublet—engineered to deliver true half wave resonance at every design frequency. Featuring a matched set of Hy-Gain Slim Line traps for each band, various sections of the doublet are effectively isolated so that a true electrical ½ wave length exists on all bands. Antennas can be adjusted for phone or CW. SWR 2:1 or less at resonance on every band. Fed with 52 ohm coax (not supplied).



Traps used in doublet are reliable Hy-Gain Slim Line traps that have merited user acclaim from daily use in over 100,000 units throughout the world. Complete unit guaranteed to equal the performance of any multi-band doublet system and to withstand winds up to 100 mph. The Hy-Gain Trap Doublet is the ideal system for any Ham with multi-band capability.

Trap Doublet for 10-15-20-40-80M, Model 5BDT.....**$34.95**
Trap Doublet for 10-15-20M, Model 3BDT.....**$17.50**
Trap Doublet for 10-15-20-40M, Model 4BDT.....**$24.50**



TRAPLESS DOUBLET takes unlimited power on 40 & 80M

Complete antenna system, single 52 ohm coax fed, and constructed of copper clad steel stranded wire, cycolac insulators and coax center insulator assembly. Fan configuration eliminates traps, increases band width and is virtually impervious to all weather conditions. Takes unlimited power. SWR less than 2:1.

Fan Doublet for 15-40-80M, Model 2 BDP.....**$19.95**

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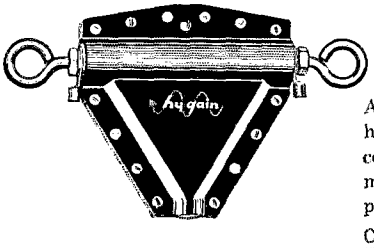

Lightweight, strong, weatherproof Hy-Gain doublet insulators are available separately for the Amateur who wants to construct his own doublet. Insulators are molded from high impact cycolac plastic. Center insulators accept either ¼" or ⅜" diameter coax cable and are furnished with iridite-treated hardware in accordance with military specs. 7" end insulators feature heavy serrations increasing leakage path to approximately 12".

Center Insulator, Model CI, Wt.: 4 oz.....**$ 3.95**
End Insulator, Model EI, Wt.: 3 oz.....**$ 1.00**

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on the Golden Anniversary Celebration of the Amateur Licensing Committee with arrangements being made for a banquet on Oct. 13 at the Hudson Division Convention with the new League President, Herbert Hoover, jr., W6ZH, accompanying him on the rostrum. Both will be principal speakers at the affair. WA2KER spent two weeks in July at the CAP encampment in Rome, N.Y. The Crossbanders, a new net in these parts, announces an Achievement Award for anyone checking into the net ten times, time 1900Z on 50.310 Mc., according to WA2-PMW. A new call in Manhattan is WB2AOP running a Gonset III with a homebrew dipole out the window. WA2GAB and her OM, K2SLD, have set up a station in the Brooklyn VA Hospital and are originating loads of traffic for the inmates using the call WA2GAB/2. WA2-TAQ tell of the Rockaway ARC receiving approval and setting up gear in the Peninsula Hospital as an AREC endeavor during power or phone failures caused by storms or floods. May was the second best month for the 2-Meter Traffic Net with a traffic total of 566 and an attendance of 305 as compared to totals of 726 and 325, respectively, for April. K2JWT took the second place prize in the recent Connecticut Mobileers V.H.F. Contest. Wally also worked VE2AOR/VE1 in N.B. on 2 meters. WA2TVB is a new call in Huntington, formerly K1COY in N. H. The Amateur Radio Club of the State University of New York, WB2AYD, will be operating next semester from its new campus at Stony Brook with WA2OHM as president and K2YOV as vice-president. WA2RMP earned the W-Del certificate and came in first in New York State in the Del. QSO Party. W2MGV now is operating a new s.s.b. Marander and together with W2III, MZB and K2LOT spent a lot of time tracking Oscar III. Traffic: (May) WA2GPT 610, W2EW 503, W2UAT 480, K2UBG 473, WA2TQT 221, W2GKZ 140, W2WFL 121, WA2RMP 119, WA2RVU 100, WA2QAT 74, WV2VKK 63, W2JGY 61, K2KYS 59, K2ASP 54, WA2IUQ 53, WA2GFP 41, WA2PUE 37, WA2QJU 36, WA2LJS 30, WA2EFN 23, WA2GAB 23, W2DBQ 16, WA2EXP 13, WA2QEB 11, W2OME 10, K2AAS 9, W2IAG 6, WA2IMH 5, WA2WFW 5, W2PF 4, W2EC 3, K2RGZ 2, WA2KER 1, WV2TKS 1. (Apr.) W2OME 9.

NORTHERN NEW JERSEY—SCM, Daniel H. Earley, WA2APY—SEC: K2ZFI. RM: WA2GQZ. PAM: K2SLG. V.H.F. PAM: K2VNL. The section nets in the National Traffic System are: NJN daily at 2300Z on 3695 kc.; the NJPN Mon. through Fri. at 2200Z on 3900 kc., Sun. at 2300Z; the NJ 6&2 Mon., Thurs. and Sun. at 0200Z on 51.15 Mc., Tues. and Sat. at 2100Z on 146.70 Mc. Net sessions, attendance and traffic for May: NJN, 31-505-274; NJPN, 31-387-97; NJ 6&2, 18-101-13. Congratulations are in order to the new appointees: WA2-OVK and W2BSC (W2BSC is the voice of Stevens Institute) as ORSs; K2OKA as OBS; K2DQT as OES. K2MFX renewed his OPS appointment. K2UKQ is waiting for the deed to the land she got in Nebraska. All I can say to W2ABL is that traffic will pick up when everyone gets to the shore. K2AGJ has received some rare DX cards; that last antenna must been a power sucker. W2NIY got third place for N.J. in the R.I. QSO Party. W2NKD didn't say anything. Hold on, men, W2CFB is working on a kw. linear. New Mexico is going to be graced by W2BVE again this year. W2EWZ met W2YFM at a church meeting after more than ten years. Do we have an actor in our midst with WA2KRC? I hear that WA2OVK now has a v.f.o. and MARS and NJN benefit from it equally. I didn't understand WA2JHQ; I heard of traffic suffering from QRM but never *girls*. W2CVW is now the editor of *Sideband Splatter*, bulletin of the Raritan Bay Radio Amateurs. WA2CCF and WA2NVG drove mobile units in the Memorial Day Parade. W2-OPB/2 made BPL on the message service they offered the visitors of the Scouting Exposition in West Orange. I have to tear it in half and give part to WA2KKH. K2UCY had another big month of traffic. WA2EDG is on the 13th floor of the Stevens Center with two separate kw. stations. W2BSC is pres.; W1CLL, vice-pres. The ECs of NNJ had a meeting at Lake Hopatcong. The SCM, RMs and the V.H.F. PAM had a pre-NJN outing meeting. We all went on a fishing trip in WA2-KRJ's beautiful boat. The NJN outing will be held Aug. 4. The SCM gave a talk on appointments to the South Amboy Radio Assn. One OES report out of a possible twenty was received. BPL certificates went to K2UCY, WA2CCF and W2OPB/2. Did you send in your building fund donation yet? The Monmouth County V.H.F. Club is a newly affiliated club. The club house donated by WA2WEM is on five acres in Wall Township. Meetings are held the 1st and 3rd Tue. of each month at 8 P.M. The address for information is Box 5, Belmar, N.J. Traffic: (May) K2UCY 463, W2OPB/2 276, WA2APY 227, K2-VNL 182, WA2CCF 134, W2CVW 133, WA2JTZ 104, WA2-JHQ 43, W2QNL 43, WA2SRK 39, K2SLG 32, K2SBS 27, WA2LUD 24, WA2ZQH 21, WA2OVK 19, K2JTU 18, WA2KRC 18, WA2IGQ 16, WA2QYC 11, W2EWZ 6, W2-

(Continued on page 118)

Gonset gets its second OSCAR

When OSCAR II was launched on June 1st Gonset Communicator IVs were standing by in tracking stations throughout the world – from London to Sunnyvale, from Rome to Auckland – to monitor and track the satellite.

As with OSCAR I, participating tracking stations had specified, as an integral part of the program, the use of Gonset equipment.

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BVE 5, W2CFB 4, W2NKD 4, W2OXL 4. (Apr.) WA2-GQZ 58, W2BSC 40, WA2KRC 14, K2MFX 3.

THIRD NEW JERSEY QSO PARTY

August 25 and 26

The Garden State Amateur Radio Assn, invites all amateurs the world over to take part in the Second New Jersey QSO Party.

Rules: 1) The time of the contest is from 2200 GMT August 25 to 0400 GMT August 27. 2) Phone and c.w. are considered the same contest. A station may work another station twice per band, once on phone and once on c.w. The same station may be worked on other bands. New Jersey stations may work other New Jersey stations. 3) General call is "CQ New Jersey." N. J. stations are requested to identify themselves by signing "DE NJ" on c.w., and "New Jersey calling" on phone. Suggested frequencies are 1815, 3530, 3900, 7030, 7250, 14100, 14240, and 21100 kc. 4) Exchanges consist of QSO number, RS(T), and QTH (state, province, or country). N. J. stations will send county for QTH. 5) *Scoring:* Outside stations multiply number of complete contacts times number of N. J. counties (maximum of 21). N. J. stations multiply number of complete contacts times total number of states, provinces, and countries. 6) Awards will be sent to the highest scoring station in each state, province, and country. N. J. stations will receive first and second place awards in each county. Novice and Technician awards will be issued when two or more logs are received. 7) Logs must also show GMT time, date, band, and emission, and be postmarked no later than September 11, 1962. Logs go to GSARA, Red Cross Building, Broad Street, Shrewsbury, New Jersey.

MIDWEST DIVISION

IOWA—SCM, Dennis Burke, WØNTB—SEC: KØEXN. PAM: WØPZO. RM: WØDUA. This SCM has considered retiring but will do his best to carry on as long as health permits. Iowa is most happy with our new ARRL President. I thank all of you who have been so nice to me in my official SCM capacity. Your continued support will be appreciated, also that for the finest Emergency Coordinator in the land, KØEXN, and our OO and OES appointees. WØPZO, WØDUA and WØBLH are "anchor men" in Iowa organization, and our 160-Meter and 75-Meter Nets put our section out in front on the map of the nation. We welcome every net and traffic report and your applications for station appointments. A notable in our section is WØPFP, professor of EE at Ames; he is one of the rather scarce WACs on 6 meters! 160-Meter Net report for May: QNI 550, QTC 47, the first report ever for May. Other net reports are late. Traffic: (May) WØLGG 1999, WØSCA 963, KØMMS 319, WØCZ 190, WØBDR 108, KØTEY 73, KØAFG 48, WØJDV 22, K6SXA/Ø 17, WØBTX 14. KØHBD 9, KØYDV 9, KØKAQ 8, WØFMZ 7, WØJPJ 7, WØNGS 7, WØPTL 7, KØUAA 7, KØAFI 5, KØJXZ 5, KØMYU 4, WØQVZ 4, KØUAB 4, WØGQ 3, KØOTV 3, KØQKD 3. (Apr.) WØCZ 281.

KANSAS—SCM, Raymond E. Baker, WØFNS—SEC: KØBXF. Asst. SEC: KØEMB. RM: WØSAF. PAM: KØEFL. V.H.F. PAM: WØHAJ. Nets: KPN, 3920 kc. Mon., Wed., Fri. 1245Z Sun. 1400Z. 17 sessions, QNS high 50, low 14, total 443, average 26; QTC high 11, low 0, total 92, average 5.4 NCSs KØYTA, KØQKS, KØLHF, KØGII, WØORB, WØIFR. QKS, 3610 kc. daily 0030Z 27 sessions reported QNS 163, high 11, low 2, average 6.1; QTC 68, high 12, low 0, average 4. KSBN, 3920 kc. Sun. 1330Z 4 sessions. QNI high 16, low 10. QTC 3. KWN, 3840 kc. Mon. through Sat. 701 QNI, 20 regular sessions, 9 emergency sessions NCSs KØLHF and KØEMB. The Topeka Hamarama KVRC was well attended with 116 registrations and 230 present. The Plains Picnic of the Hi Plains Club had 210 registrations with the total present estimated at 400. The CKRC, Salina, had 230 registrations with an estimated 400 present. There was an average of about 50 mobile units at each of these. Our good friend WØAXZ retires from the State Highway Patrol after 23 years service. We hope Wendell doesn't retire from KPN, where he serves as Hays outlet very faithfully. The Emporia Radio Club station WØFTB worked 11 states and 231 stations on its Waubansee County emergency drill. KØLHF and KØBJO have new Swan S.S.B. 75-meter mobiles. Two of our best reporting OESs are KØGIC and KØRWC. Our best

(Continued on page 120)

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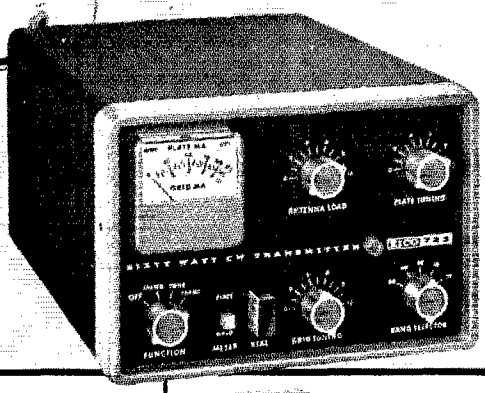

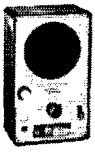

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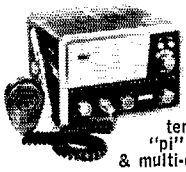

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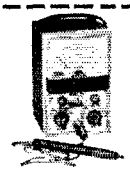

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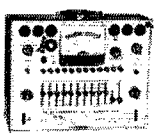

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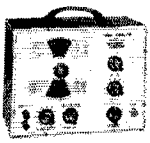

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c.w. netter is WØABJ. Our best reporting OO is KØSHB. Traffic: (May) WØSAF 270, WØIFR 116, WØFNS 65, KØYTA 57, WØABJ 43, KØHVG 26, KØEFI, 22, WØTOL 19, KØGII 14, WØALZ 8, KØQKS 8, KØLHF 7, KØEMB 4, WØFDJ 4, KØJID 4, KØRWC 4, WØWFD 3, KØZHO 3. (Apr.) WØFNS 56.

MISSOURI—SCM, C. O. Gosch, WØBUI—Net reports: (May) PON (Mo.) (3810 kc., 2100 GMT, M-F) 22 sessions; QNI 218; QTC 102; NCSs: KØPIQ 7, WØHVJ 8, WØTXC 4, KØBWE 3. MSN (3715 kc., 2200 GMT, M-F; 1400 GMT S) 30 sessions; QNI 114; QTC 142; NCSs: KØONK 7, WAØABL 5, KØGFA 5, KØVPH 5, KØFZY 5, KØFPC 3. MON (3580 kc., 0100 GMT Tu-S) 27 sessions; QNI 163; QTC 138; NCSs: WØOUD 10, KØVPH 8, WØKIK 5, KØFPC 2, WØRTW 2. SMN (3580 kc., 2200 GMT, Sn) 4 sessions; QNI 17; QTC 36; NCS: WØOUD 4. Mo. S.S.B. (3963 kc., 2100 GMT, Tu-Th) 10 sessions; QNI 147; QTC 42; NCSs: WØOMM 4, WØPXE 5, WØTPK 1. MEN (3885 kc., 2400 GMT MWF) 13 sessions; QNI 329; QTC 89; NCSs: KØONK 6; KØVPH 3, KØIHA 3, KØWNZ 1. HBN (7280 kc., 1805 GMT and 3880 kc., 1905 GMT M-F) 30 sessions; QNI 325; QTC 604; NCSs: KØLTJ 2, WØIFR 2, KØWNZ 2, WØTPY 2, KØRWZ 2, KØYWT 2, KØICB 2, K5EWA 2, K9IVG 2, KØHGI 2. KØONK 1. Attention is called to the 1905 GMT (3880 kc.) session of the Ham Butchers Net, added because of poor conditions and long skip on the 7280-kc. meeting. Further evidence of this is the fact that so many NCSs were involved in handling this net during May. KØFPC reports WØWAP is in a new house with no room for antennas! KØOJC continues Official Observer work by receiver only while attending Missouri U. WØEPI reports a special RACES drill was held in May. WØEOJ had SM5CZF as a visitor; and has a new 6900 and triband quad. KØJPL reports club station (KØAXU) is at a new QTH with a 70-ft. tower in place. K4ROB/Ø will be located in the St. Louis Area. KØUWZ reports DX good between 0500 and 0700 on 14 Mc., mostly Pacific and So. Pacific. Traffic: (May) KØONK 1425, KØLTJ 835, WØTPK 216, KØFPC 182, WØKIK 108, WØOUD 103, KØVMZ 88, KØVPH 75, KØGFA 63, WØOMM 60, WØRTW 47, KØUWZ 44, KØWNZ 42, WØMKJ 41, KØFZY 40, WØBUL 38, KØRPH 35, KØVIQ 31, KØVNB 25, WØKCG 14, WØAYB 13, KØGOB 13, WØEPI 8, WØOVV 7, WØBVL 6, WØPXE 6, WØGBJ 2. (Apr.) WØEPI 9, KØOJC 1.

NEBRASKA—SCM, Charles E. McNeel, WØEXP—The Nebraska Morning Phone Net, KØDGW NC, reports QNI 709, QTC 117. The Western Nebraska Phone Net, WØNIK, reports QNI 767, QTC 123, 100 percent check-in WAØAES, WØDVB, WØGGP, WØMIK. The Nebraska Emergency Phone Net, WØHXH NC, reports QNI 476, QTC 15, new members WAØBES and WAØBSH. WØKQX has moved to his summer home in Estes Park for the summer. The Pine Ridge Amateur Radio Club Annual Picnic was held at Chadron State Park on June 3 with about 100 in attendance. The North East Nebraska Annual Picnic was held at Stanton on June 10. The Central Nebraska AREC Net has changed its drill time to 0830 CST on 3960 kc. each Sun. All AREC members of the Nebraska section are urged to check in: KØPZS is NC. Traffic: (May) KØPTK 276, KØOAL 140, WØGGP 100, KØDGW 84, KØRRL 37, WØLOD 35, WØFNH 34, WØNIK 28, KØMSS 26, WØEGQ 22, WØBOQ 18, WØFSX 17, KØKTZ 16, KØYDS 15, KØROP 14, WØYFR 13, KØFJU 12, WØVEA 12, WØGCJ 11, WØAHB 10, KØUWK 10, WØWKP 8, WØKLB 6, KØEYZ 5, WØCIW 4, WØHQR 4, WØOCU 3, WØRIH 3, WØHOP 2, WØVJF 2. (Apr.) WØCCD 7.

NEW ENGLAND DIVISION

CONNECTICUT—SCM, Henry B. Sprague jr., W1CHR—SEC: W1EOR. RM: W1KYQ. H.F. PAM: W1YBH. V.H.F. PAM: W1FHP. Traffic nets: CPN, Mon.-Sat. 1800, Sun. 1000 on 3880 kc.; CN, daily 1845 and 2000 on 3640 kc.; CVN, Tue., Thurs. and Sat. 2030 on 145.98 Mc.; CTN, 0900 on 3640 kc., all local times. K1GGG has installed an all-band mobile rig for his vacation trip. W1CHR blew up his antenna match network. K1s HUH and QAL now have their Generals. W1UWY gets 2½ watts from her Sixer after modifications. K1JKJ is an engineer on WNAB. K1SPA has a 6-meter v.f.o. and K1KQR is getting one, too. K1LOM has been working So. Pacific DX. The Milford RC members were guests of the Stratford RC. W1LIG's idea for accurate zero beats between the BC-221 and receiver will appear in "Hints & Kinks." W1s OJR and NUB are installing zener diodes in their BC-221s for voltage regulation. K1TGX has his General, is organizing a radio club at his school and has many construction projects going. Mobileers active in the Waterbury tornado disaster were W1HJG/M, KN1TOH and K1s HJV/M, DDY/M, SBM/M, SSB. K1PKQ is modifying his 2-meter Gonset

(*Continued on page 122*)

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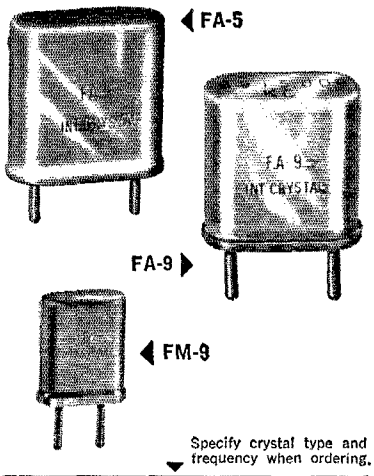

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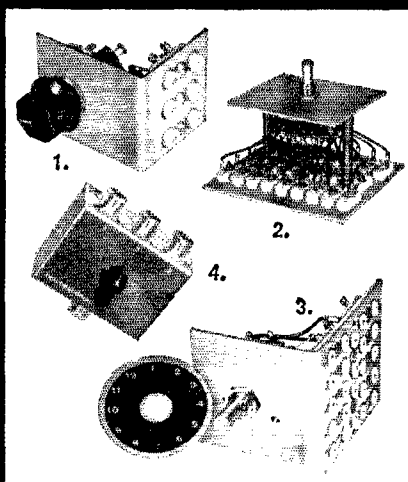

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for c.w. W1RAN still is acknowledging FP8BX QSLs and is finishing up a v.f.o. and power pack for FP8AP. W1YYM should be active soon. K1QCR is having v.f.o. troubles in his DX-100. W1CTI has gone "de luxe" with an NC-303, a Johnson Invader and a Matchbox. W1-EFW is back on CN. K1MZM advises he and K1PQS, who has become a most active hound, can be found on 3636 kc. at 1530 local time Fri. and they invite all teen-agers to join them. While in G-Land W1QV visited RSGB Hq. W1NJM says CWA code practice now is using the call W1EIA Mon. at 0130Z. K1MBA is having trouble neutralizing his 304TH. K1RTS finds 2 meters improving. W1WRG joined his local c.d. setup. W1VW had daily Connecticut s.s.b. contacts for 3 months from Florida as WA4FVB, K1SRF, Gales Ferry, is a new station on CPN. W1ZGO enjoys DXing on 6 and 2 meters. W1QJM should be relieved from Navy duty in August. Traffic: K1PQS 220, W1NJM 213, W1RZG 170, W1KYQ 163, K1GGG 162, W1AW 141, K1PPF 139, K1JAD 113, K1PUG 112, K1IFJ 103, W1YBH 99, W1BDI 73, W1LUH 49, K1MBA 39, K4MUT/1 39, K1DEH 36, W1EFW 29, W1CTI 26, K1HTV 25, K1QCR 17, K1DGK 12, W1FXS 12, K1DNZ 5, W1CHR 4, W1QV 4.

MAINE—SCM, Albert C. Hodson, W1BCB—The month of May developed very little in the way of news items for this column. Traffic: (May) K4BSS/1 102, K1BZD 23, W1EPN 18, K1MZB 18, K1MDM 16. (Apr.) K1MZB 48.

EASTERN MASSACHUSETTS—SCM, Frank Baker, jr., W1ALP—SEC: W1AOG, W1EPA is a new OES. The Massasoit ARA meets the 3rd Tue. at Hanson Grange. Officers are K1HNP, pres. and act. mgr.; W1ULJ, vice-pres.; K1HFG, secy.; K1JJJ, treas. W7HUV, ex-1HUV, is a Silent Key. K1AEK is on 2 meters. W1QO1 is moving to California. Our sympathy to W1s QON and BB on the death of their mothers. We wish to extend to our new ARRL President, Herbert Hoover, jr., the best of luck. I have been reelected as your SCM and would like to hear more from the affiliated clubs and would ask that each club president appoint someone to send in reports. K1OCD is NC for our 6-meter net. K1QAG is home from Tucson. W1BGW has a WAP certificate. W1BWJ is a Silent Key. W2TLL/1 is in Natick. W1DPO is feeling better. K1MOQ/W8IWK has a KWM-2, a KWS-1 and an S-76 receiver. W1CTW spoke at the QRA. The Middlesex Club showed two ARRL films. K1OGA and K1OLQ have 1 kw. on an Invader 2000. The T-9 Radio Club met at Toof's QTH. K1OPQ has a Mohawk. W1JNV got TOPS, FOC, DUF4 and BERTA Awards. K1OPQ is trustee for K1UGO, Needham High School ARC. K1TWI, Tech. Class, will be on 6 meters. W1SS spoke at the Middlesex ARC. New officers of the Norfolk County RA are W1IDV, pres.; W1NOV, vice-pres.; K1PBI, treas.; W1AGR, secy. W1AGR is on all bands. The Minuteman ARC, Burlington, is a newly affiliated club with W1TTD, pres.; Peggy O'Neil, secy.; K1AHH, vice-pres.; KN1RXA, treas.; K1PLX, act. mgr. The North Shore Radio Assn. also is affiliated. K1PXS is secy. K1s MVN and KZU built 432 transceivers as per May *QST*. W1HGT says 6 meters opened up and lots of DX was heard. The Framingham Club was shown a movie on Transistors from Texas Inst. Co., also had a transmitter hunt and cook-out at W1ZWJ's QTH. W1EAE presented the ARRL charter to the Earl C. Batchelder Radio Club at a supper meeting. Earl's wife and sister and W1ALP were present. The EM2MN had 23 sessions, 247 stations, handled 184 pieces of traffic. W1ELP has a Marauder on the air. The Mass. V.H.F. Society met at W1IME's QTH. K1JFQ is General Class. K1PLJ worked XE1OE on 6 meters. W1PEX made BPL. K1TSD is ex-W8ZVE-W9HGW. W1AOG is on 40-80-meter c.w. KN1UZB is on 40. K1UEA will be on from Yarmouth, Me., for the summer. KN1VHS, Marlboro, has an NC-88 and a homemade transmitter on 80 meters. K1NDD has a "Sixer," a Knight R-55 and a five-element beam. KN1VHZ has an SX-99 receiver and an Eico 720 transmitter. KN1VPJ has an S20-R and an HT-40. Appointments endorsed: W1s AR Belmont, MOJ Millis, PSG Gloucester as ECs; W1AR and K1MEM as OPs; W1UE as ORS. New officers of the Wellesley ARS are K1IOG, pres.; K1LKR, vice-pres.; W1AFD, treas.; W1EOA, secy.; W1s HRG, OQP and K1BEC, directors. W1GOU

(Continued on page 124)

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HERE'S THE VHF COMBINATION THAT BEATS 'EM ALL!

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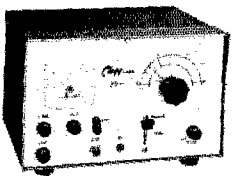

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is home from the hospital. W1s BA and CSZ are new Dim Light boys. W1WK has a new antenna for 40/80 meters. W1FQA has a new receiver and rotator. New YLS *on 6 meters:* K1s MGP, UPD, RZO *on* 15. W1LDT is home after an illness. The Chelmsford ARC now meets at Town Hall. K1RZN has a "Twoer". W1JLI has an 80-meter portable rig. W1FON won a Hy-Gain doublet and is on 40-80-meter c.w. K1JBL won a Hy-Gain tribander beam. W1AFP will have 300 watts on 2 meters. W1SZB has a Colinear array for 2 meters. K1BSM has a Drake 2B receiver and a 70-ft. tower with a 32-element beam on 2 meters. W1ALK is building a 420-Mc TV station. K1KMN is on 2-6 meters. K1OSU is building 420-Mc. Nuvistor transceivers. W1JSM will be on 220 Mc. W1JMK has a 522 on 2 meters. W1RHN is on 2 meters with a 522 into a 829B. W8UDL is moving to California. W1LMU *has a 832 rig on 6 meters.* W1QMU *is on* 2-6 meters. Traffic: (May) W1PEX 1043. W1OFK 350, W1AWA 295, W1ZSS 141. K1TSD 111, W1DOM 63. W1SIV 63. W1AOG 40. K1DGI 34. W1VYS 33. K1CMS 11. W1AUQ 10. W1GKA 10, W1GEK 8. K1GTX 8. K1OCD 7. K1LFA 3. W1BKI 2. K1LJK 2. K1UEA 2. (Apr.) K1BYV 113. W1DOM 57. (Mar.) K1BYV 1. (Feb.) K1BYV 21.

WESTERN MASSACHUSETTS—SCM, Percy C. Noble, W1BVR—SEC: W1BYH/K1APR. RM: K1IJV. On *May 26 the Pittsfield C.D. group put on a very realistic* drill involving a simulated plane crash. W1USS was control with mobiles W1JDB, W1HPA and W1UUJ at local hospitals. Sixty bandaged Boy Scouts were taken to the hospitals. Congrats to W1BKG on a very excellent project. K1GCV is very busy at college. K1JQT passed the General Class exam and now is on 20-meter c.w. K1LNC has a new Hornet Tribander. RM K1IJV reports that WMN handled 67 messages during May in a total of 27 sessions. K1PES again was top man in attendance, followed by K1IJV, W1AMI, W1BVR, K1LBB, W1DVW, W1OSK, W1BKG, W1MNG, W1ZPB, W1HNE and W1AJX *in that order.* WMN lost out in attendance on 1RN to Eastern Massachusetts. At Auction Night of the Hampden County Radio Association 108 were in attendance. K1NDJ has moved to St. Louis. W1BVR was the speaker at the Pittsfield Radio Club at its May meeting. That's all from the reports received this month, and I'm not supposed to make up a lot of fiction to fill out this report. You sendum information; I have it printed! Traffic: K1IJV 207. W1BVR 84. K1PES 56, K1LBB 34. K1JQT 28. W1AMI 10. W1DVW 4.

NEW HAMPSHIRE—SCM, Ellis F. Miller, W1IIQ—SEC: K1GQK. PAM: K1JDN. GSPN meets Mon. through Fri. at 2300 and Sun. at 1330 on 3842 kc. CNEN meets Mon. through Sat. at 1030 on 3842 kc. NHN (c.w.) meets Mon. through Sat. at 2330 on 3685 kc. Endorsements: W1IQD as OES. During the 6-meter band opening on May 9 K1PDA reports working 20 DX stations and heard Alaska and California. Dave really is getting hot *on 6 meters. Good luck, OM.* The Manchester Radio Club is rebuilding the club station and quarters. It appears that vandals did considerable damage which the club hopes to repair and get the rigs going again. W1ET, the Dartmouth College Radio Club station, will be torn down until next fall. At that time it will be back on the air on the high frequencies and on 6 meters. The members have acquired a model 28 teletype unit and plan to have that in operation also. Congrats to KN1TGZ, who graduated from high school in June. From the mail it appears that all of the representatives and senators from New Hampshire are solidly against the proposed *license fee measure now before the FCC.* Traffic: W1TA 56. K1DQM 47. K1JDN 29. W1QGU 21. K1EEN 13, K1CIG 2. K1BYS 1. KN1TGZ 1.

RHODE ISLAND—SCM, John E. Johnson, K1AAV—SEC: W1PAZ. RM: W1SMU. PAM: W1TXL. The RISPN reports 31 sessions, 495 QNI, 110 traffic. K1JNJ's OES appointment has been endorsed. K1NJT is a new OES. Section Net certificates were issued to K1s SXY, NJT, RCW, RVE, TPK, VEX, ICX K,2RHS/1, WA2YEX/1 and W1IAG. The W1AQ Club of Rumford issued the following WRI certificates: No. 21 to W1DMD, No. 22 to K4GLA, No. 23 to K1LDK and No. 24 to W8UMR. The

(*Continued on page 126*)

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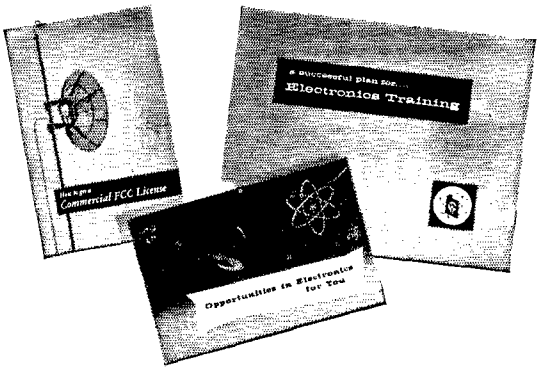

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QT-8

Blackstone Valley ARC of Woonsocket operated from Slatersville during Field Day. K1LNS donated a complete set of technical literature dating back to 1948 to the club. K1QFI is the publicity mgr. K1PYO and K1SGY helped 11 students make Novice this season at the Hope High School ARA of Providence. K1TJO thanks W1ULS for conversion of an SCR-188A for the work of the group. The NCRC of Newport elected K1GUD to full membership and Fred Spaulding to associate membership. The nominating committee submitted the names of W1TXL as pres. and K1PDY as vice-pres. W1WGL conducted the meeting. YUT received his WAS certificate. Traffic: W1TXL 705, K1PZY 45, K1DZX 38, K1JOD 19, K1GRC 15, K1LSA 12, K1SXY 9, W1WED 6.

VERMONT—SCM, Miss Harriet Proctor, W1EIB—SEC: K1DQB. PAM: W1HRG. RM: W1KRV, W1FRS, of Brattleboro, operated portable in Grand Isle County during the CHC/HTH QSO Party. The Mike & Key Club of Middlebury had a successful transmitter hunt. K1DKN is chairman of the committee on club projects for the CVARC. We have eighteen colored slides in our set for loan to clubs and individuals. Please help us get this up to fifty by October. And please send in more news of individual and club activity. Traffic: W1FPS 13.

NORTHWESTERN DIVISION

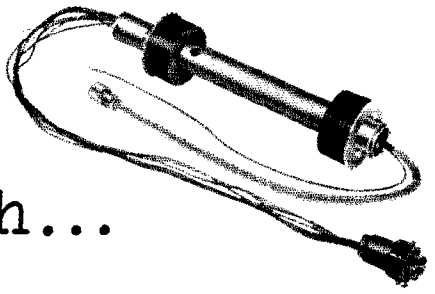
IDAHO—SCM, Mrs. Helen M. Maillet, W7GGV—The W1MU Hamfest will be held at Macks Inn Aug. 3, 4 and 5. W7DWE will take charge of Breakfast-in-the-Pines. The Shelley Club will provide a monitor station on 3935 kc. and K7GQE will control 2-meter operation on 145.44 Mc. The GEM Net, 3580 kc. 0300Z, needs Moscow and Mountain Home check-ins. W7JFA and his electronics graduates demonstrated ham radio at the high school assembly with W7s DWE, GGV, YAD, K7s NPT, BQB, ECF and KBD furnishing contacts. The Third (District) Emergency Net held an AREC simulated drill using mobiles and fixed stations with W7SGS as net control. K7GQE became honorary member of the Ft. Worth Cowtown DX 6-Meter Club. New Conditionals are K7-QKV and K7QIE. W7VQC was hospitalized with a light heart attack. W7GDA and his XYL, W7GCX, have a new son. K7KBV and family are vacationing in Illinois. FARM Net traffic: 64; GEM Net traffic: 60. Traffic: K7KBY 66, W7EMT 59, K7HLR 55, W7FBL 31, K7OAB 22, W7GGV 20, W7JFA 11, W7EEQ 8, K7QIE 2.

MONTANA—SCM, Ray Woods, W7SFK—SEC: W7-BOZ. PAM: W7YHS. RM: K7EAZ. The MPN meets on 3910 kc. at 1800 hours MWF; the MSN meets on 3550 kc. at 1830 hours TTs; TSN meets M through F at 1200 hours on 7230 kc. Many hams in the state were saddened to hear of the passing of Blanche, W7IUM, of Ekalaka. W7FTO was injured when a furnace exploded at the school where he was working. W7LVJ is working on missiles. K7LUC is working in Oregon Forest Service this summer. W7NPV and W7OOY are on 6 meters. A new call in Harlo is KN7TCP. A new call in Columbia Falls is K7MGX. K7GHK reports a real fine c.d. emergency drill. W7CTM and W7TGM made short visits out of the state. Mobiles heard from Missoula are K7IMZ, K7LZF, K7MGL, W7IPB and maybe W7MAK. W7RIL is leaving for a shift in Formosa. K7IHA reportedly has a new Heath receiver. W7RLL, of California, paid a pleasant visit to W7SFK and W7TGG. A Phoenix station reports he has heard and logged 16 Montana stations on 6 meters. 6 meters is picking up in Montana. New appointments: K7GYE as EC; W7CGG as EC; W7NPV as OES. W7RZY tracked Oscar 2 on its orbits over Montana. Traffic: K7EWZ 104, K7GHK 53, K7OGF 8.

OREGON—SCM, Everett H. France, W7AJN—Appointees certificates endorsed: K7IWD and K7CLL as ORSs; W7SO, K7CJB and W7DTT as ECs; W7DEM as OPS; W7GUH as OES. Nets: OSN C.W. Traffic, 3585 kc. 0230 GMT, Tue. through Sat. OAREC C.W. Emergency, 3585 kc. 0330 GMT, Wed. and Thurs.; AREC Phone Emergency 3875 kc. 0300 GMT Tue. through Sat.; OEN Phone Emergency, 0200 and 0300 GMT daily. Your participation is invited in any or all of these nets. W7PRA has worked 122 stations on 2 meters with Seattle north and Eugene south. K7IMH, as OES, states that 50 Mc.

(*Continued on page 128*)

Outshining the heliograph...



In the old days, the U.S. army did the Indians one better by using the sun's rays for line-of-sight communication. The instrument, with a mirror and movable shutters, was called a heliograph.

If there's anything new under the sun today, it's the laser, which works fine whether the sun is shining or not.

In fact this man-made source of coherent light outshines the sun.

So, communications by light may be coming back into its own, but in a form heretofore undreamed of.

For instance, Sylvania has developed a gas laser (Type GL-6211) that generates continuous waves and is easily pumped by an r-f generator operating around 27 megacycles. Energy is concentrated in a narrow band of the infrared region, yet the bandwidth is sufficient to accommodate as much information as all radio channels combined...including unlimited Ham operation! And the laser signal can be keyed or modulated.

So much for transmission...but how about reception? Well, Sylvania has also developed a Microwave Phototube (Type SYD-4302) that can be used as a broadband optical receiver or an optical superheterodyne.

The Microwave Phototube (illustrated) is a combination photosensitive element and traveling-wave tube. The photosensitive surface responds to light in much the same way as a diode does to a radio signal. The "traveling-wave" section provides amplification. By adding a laser to the circuit as a "local oscillator," the Microwave Phototube acts as the mixer and i-f section, to detect and demodulate coherent light signals over a bandwidth from 1.5 Gc to 4.5 Gc.

The Sylvania Gas Laser and Microwave Phototube make up, we believe, the first complete light communications package in the field.

Both devices are expensive, and are intended principally for commercial and laboratory use...but we can't escape the conviction that, one day, communication by continuous light waves will play an important part in Amateur activities. And we'll work to promote that day.

73 Bob Lynch K2RMN

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is open almost every day with 1, 4, 5, 6, 7, 9, Ø heard and 3 states on 2-meter s.s.b. confirmed. W7GUH has been listening to v.h.f. scatter and working California stations. K7JVN, on 6 meters, is working sporadic E skip to east and south. W7ADR, as OES, reports hearing on 6 meters 17 states east and southeast with XE Mexico and Florida, and is putting in a constant 2-meter signal into the Puget Sound Area. K7EZP, as OES, has been doing the same as the above v.h.f. men. This tends to show that Oregon v.h.f.ers are doing their share in v.h.f. propagation work. K7IWD, as OO, has been busy mailing signal discrepancy reports and also is a regular on RN7. The OAREC Net had 10 sessions; 9 stations on the roster made a 60 total QNI, traffic 12. OSN reports 23 sessions, QNS 216, traffic 60. BRAT Awards went to W7AJN, W7BVH, W7MTW, W7ZFH and K7IWD. The Southern Oregon Radio Club of Grants Pass assisted the newspaper in election returns and Memorial Day Boat Races. Sorry, gang, our allotted space is used up and other reports will appear next month. Traffic: W7ZB 119, W7ZFH 105, K7IWD 49, K7CBA 46, W7RVN 38, W7MTW 20, W7AJN 19, W7BVH 16, W7DEM 12, W7GUH 10, K7JVN 8, W7MAO 6, K7CJB 3, K7IMH 1.

WASHINGTON—SCM, Robert B. Thurston, W7PGY —The annual Bremerton Hamfest was attended by 239 persons, the top prize going to the daugher of W7JWJ and W7QGP. K7PJF received a Nevada card, his 50th state, for WAS. K7s AZG and EUE will attend Washington State College in the fall. W7EBU still is after his first phone. W7IEU will work portable from the San Juan Islands during the latter part of August. W7AMC reports that with the hamfest over he can get back to handling traffic. K7OFW and K7OFX are QRL assembling their new HX-10 Marauder. W7OIH and W7YFO are haunting 20 meters. W7CXJ was Field Day chairman for the Benton County gang. K7NIH has a KWM-2. K7s PVJ, PVG and KSF are active in the 75-Meter XYL Net. W7RGL returned from W6-Land and again is transmitting Official Bulletins on 50.2 Mc. K7JXX is visiting in California. The Spokane Radio Amateurs Annual Banquet has been postponed until fall. CWN is building a new v.f.o. W7JEY will be off the air during June and July. K7CHH worked CP3CA for No. 125. W7IST has had two contacts with K7IRR on 220 Mc., running 12 and 20 watts, respectively. W7HMQ and W7WHV are QRL building houses. W7BJV is in a new QTH near Federal Way. K7PIY is very regular with his OB skeds. W7PUA is home from N.Y.U. K7PIG and K7MQF are active on 6 meters. K7IEY is awaiting a new HQ-110. W7UYZ is now home in Forks convalescing from a bout with polio. The Northwest Slow Speed Net (NSN) is picking up in activity with 23 members and a total of 197 QNIs and 72 QTCs during 31 sessions. We wonder what K7OXL has on K7CTP. K7QKG worked W1AW. W7CHI is trying out new cars. K7JNS received a scholarship to Seattle U. W7GVC works for Safeway Stores in the Walla Walla Area. W7SSQ celebrated his 21st wedding anniversary while attending the Bremerton Hamfest. K7KBZ is going to Chicago on business. W7-FAS was appointed Radio Officer for the Star Dust Races Net. W7WTG says that the 6-meter gang again will provide communications this year for the Seattle Seafair Parade activities. K7OSM and K7OSN landed their first QSO with Colorado on 6 meters. K7s KHU and BAG are moving to a new QTH high on a hilltop near Bothell. K7USA and KL7SOA/7 are the two stations being operated from the Fair site at the Seattle World's Fair. W7ZVY renewed as OES. Traffic: (May) W7BA 930, W7DZX 874, K7JHA 502, W7PGY 269, W7-GIP 125, W7APS 117, W7OEB 56, W7GYF 53, W7EHH 27, K7PXV 25, W7AMC 13, W7AIB 12, W7IEU 11, W7-BTB 8, K7CWO 3, W7EBU 2, W7JEY 2, K7JRE 2, W7ZVY 2. (Apr.) W7JC 25.

PACIFIC DIVISION

NEVADA—SCM, Charles A. Rhines, W7VIU,—W6-AWP, Los Angeles District, FCC Engineer in Charge gave a talk on TVI and repeaters at the recent SNARC meeting. The SNARC voted to contribute one dollar per member to the ARRL Building Fund. W5NXF was awarded Nevada Achievement Certificate No. 79. K7-KBN, K7MER, K7KEC, K7RMM, K7JPC and K7BRW

(Continued on page 130)

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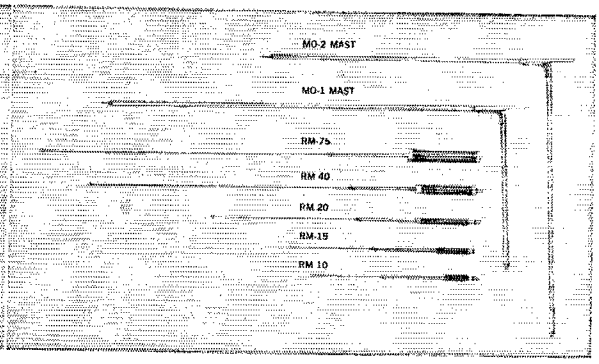
10-15-20-40-75 METERS

NEW-TRONICS MOBILE ANTENNA



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The 54-inch fold-over, heat treated, ½-inch aluminum mast permits instantaneous interchange of resonators. Mast folds over for garage storage. When opened to full height, the two sections of the permanently hinged mast are held rigidly in position by a shake proof sleeve arrangement. Mast has ⅜-24 base stud to fit all standard mobile mounts. Power rating is 75 watts dc input A.M. — 250 watts PEP input for SSB.

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MO-2	54" Mast folds at 27" from base	(For Bumper Mount)	7.95
RM-10	10 Meter Resonator	Maximum 80" — Minimum 75"	5.95
RM-15	15 Meter Resonator	Maximum 81" — Minimum 76"	6.95
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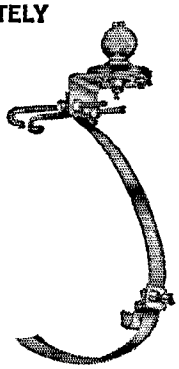

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all graduated from high school. K7ICW has moved to new QTH in Las Vegas. K7KBN has completed his c.w. WAC. The SNARC held a picnic at Willow Beach, Ariz., on May 6. Las Vegas 2- and 6-meter nets are going strong with W7YQW, W7VYC, K7RLX, K7RSQ, K7QPK, K7NSN, K7JPC, K7ICW and K7TDQ. The XYL of K7RLX is now K7RLW. W7KHU now has a KWM-2 and a 75S-3. W7KOI is a new CHC member. K7PEE, RACES station at Arden, has just received 6- and 2-meter gear. Traffic: (May) W7PBV 15, K7KBN 12. (Apr.) W7KHU 148.

SANTA CLARA VALLEY—SCM, W. Conley Smith, K6DYX—Asst. SCM: Edward T. Turner, W6NVO. SEC: W6ZRJ R.M: K6KCB. PAMs: W6ZLO, WA6EIC. May reports from all clubs and many individual stations indicate the greatest interest ever in the 1962 Field Day. Running a close second was the tracking of Oscar II. The Sequoia High School ARC (Redwood City) learned a lot about the operation of Murphy's Law (if anything can go wrong, it will) during Public Schools Open House. It seems none of their 2-meter gear would work but they stuck with it and finally managed to unload their traffic on the air to W6DEF without resort to landline. The NPEC has started a class in traffic-handling with W6WPM as instructor. W6UW (SCCARA) is logging operation time at a great rate. The station is open for members use on Sat. and Sun. nights. The Hewlett Packard ARC is now an ARRL affiliated club. W6RSY is rebuilding the transmitter. W6AUC has a new Collins linear. WA6BYA reports several exciting 6-meter openings with good DX. WA6PUX, Burlingame, has a new Hy-Gain gertical. W6MXO, Pacifica, has a new 75A-4. All are saddened by the death of W6FON. "Pop" was a very active member of MTN, a member and former treasurer of the SCCARA and had held an OPS appointment since 1953. Traffic: (May) W6AIT 165, K6GZ 163, W6DEF 76, WA6NAV 67, W6YBV 66, W6AUC 54, W6UW 43, W6RSY 33, K6DYX 26, W6OII 25, K6YKG 22, K6ZCR 20, W6RFF 19, W6ZRJ 10, K6EQE 6, WA6OLQ 6. (Apr.) W6HC 42, WA6TDI 6.

EAST BAY—SCM, B. W. Southwell, W6OJW—SEC: WA6MIE. ECs: W6NOP Napa, W6WAH Vallejo, K6OSO E. Contra Costa, WA6MHJ W. Contra Costa, K6EDN N. Alameda, K6HJT S. Alameda, WA6RGD Merto Oakland, W6LDV Acting Lake County. SEC WA6MIE has moved to P.O. Box 1122, Concord, Calif. Send Oscar II reports to Oscar, Box 183, Sunnyvale. K6UTK is a new ham in Dixon. K6GK is in VK-Land on a World tour. W6JI is eyeing a new Collins s.s.b. transceiver. W6OJW got 8 new certificates and is working on USA-CA-500. WA6LGE got 2 new certificates and made 2880 points in the V.H.F. Test. The Vallejo gang is active on 145.46 Mc. WA6WRH is starting a 6-meter AREC Net in the Livermore Area. If interested, contact Bob. K6OSO is being called by Uncle Sam's Navy in August. WA6CVY and W6NPZ are new ORC members. W6FDJ has a new KWM-2. WA6PTU and WA6QZA visited the Seattle World's Fair on their vacation. WA6GIQ is a new HARC member. W6ICR and W6IIF are holding Novice and General classes at Castro Valley High School. WV6NGH won a summer scolarship at the U. of Nevada in Atmospheric Physics. WA6KUN is in Viet-Nam. W6NYK is now a grandpa. Congrats. WA6LTG reports 3 new HARC members received Novice and Tech. Class tickets. K6YBS has a new PRM-7 mobile receiver. WA6RGD is a new ORS and checks in NCN-RN6. WA6HKD. W7QOH/6 and WA6IE are NCN check-ins. W6OLO and K6JTC gave an FB talk on Project Oscar at the ORC's May meeting. W6TQF is in Kaiser Hospital suffering from a heart attack. Get well, OM. The Hayward Club challenged the Livermore Club on total FD points. K6LRN and WA6ANE were co-chairmen for the MDARC FD team. WA6MXI is putting up a 130-ft. tower with a 36-ft. spiralray on 6-meter s.s.b. WA6ECF is up to 97 for DXCC, and got SCM-73 certificate No. 2. Traffic: (May) WA6MIE 147, WA6ECF 4. (Apr.) WA6RGD 37. (Mar.) WA6ECF 4. (Feb.) WA6ECF 5.

SAN FRANCISCO—SCM, Wilbur E. Bachman, W6BIP —Three outstanding movies were shown at the monthly meeting of the San Francisco Club—a film on astronaut

(*Continued on page 132*)

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Allen Shepard's suborbital flight in '61; one on X-15 Documentary-rocket tests for high altitudes and speed on underground tests and the third on Project Echo, all in color and sound. W6SLX reports that the Humboldt Radio Club meets in Civil Defense Headquarters the 1st and 3rd Fri. A joint meeting is planned with the fellows in the Fortuna Club. WA6JYB, from Castro Valley, now is a member of the Humboldt Club and WA6TFB has a new QTH in the Bay Area. W6SLX visited the Seattle Fair ham station when he took a trip to that city to visit his four grandchildren. W6GQA topped the West Coast stations in the FMT scors published in June *QST*. He worked all three (NSS, WAR and AIR) on Armed Forces Day again this year. WA6MDL expects more activity in traffic nets. W6ACN has taken on the job of sending out a bulletin on the clubs in the Central California Radio Council. W6ZQK, K9OVQ, WV6RWH and WV6BSA placed second in the 75-meter hunt in Fresno. WA6ROJ monitored Oscar II and made tapes of shift so that recorded information could be reduced to t.c.a. and slant range. He has moved to a new QTH. W6KZF reports: "During the sunspot cycle's low propagation conditions for the next few years the 10-meter band stands mostly unused. The lack of occupancy may lose all or part of this band to the CBers. The CBers do fine on 11 meters with handy-talkies so why not get your group started with a handy-talkie net on 10? Such units are very flux and excellent for emergency work drills, etc. Great for leading visitors to your hamfests and club picnics this summer." K6VXI says new operators on 6 meters are WA6WPZ and WA6BPN. WA6IWH is putting in a good signal from Santa Rosa on 6 meters. W6CQC is moving to a new QTH near Twin Peaks. K6SCQ again is active after a year of inactivity. Marin Club nets: Red Cross, 3885-kc., Sun. A.M.; RACES Civil Defense, 1995-kc. Mon. 7:45 P.M. The club supplied communications for the Red Cross Disaster Alert held in San Rafael recently. K6LHN worked K7AUM in Phoenix with his 1 watt and was active on the Scout-O-Rama at Cow Palace ham station. Congratulations to K6DXC on winning two scholarships from the University of California. WV6VIO and his XYL are moving to a new QTH in San Bruno. The S. F. Club has a new project—a bowling team. Traffic: K6NCG 30, WA6MDL 23, W6JWF 10, W6GGC 8, W6BIP 4.

SACRAMENTO VALLEY—SCM, George R. Hudson, W6BTY—SEC/Asst. SCM: Antone F. Buzdas, K6IKV. ECs: WA6OXK, K4VPN/6, K6BNB, K6GOT, W6LSW. OBSs: W6AF, W6WGO, K6HHD. PAM: W6GQS. OOs: W6WLI, K6ER, W6ZJW, K6EIL, WA6NAU, W6TFH. ORSs: W6WGO, W6CEI, K6YZU. OES: W6PIV. OPSs: W6WGO, K6EIL, W6PIV, W6GQS, WA6PVT, WA6OXK. Congrats to W6LSW, our new EC in Camino! Welcome to W8TEK/6 and his XYL K8IYW/6, newcomers with Philco at McClellan AFB. Field Day was a real bash in the Valley with 6 clubs reporting a large attendance; it was 8000 ft. "Grouse Ridge or Bust" for the Northhills ARC gang; the Sierra Foothills ARC held down the underbrush at Mt. Howel and the downtown Sacto ARC battled the poison oak at Willow School near Grizzley Flats! The MARS group traveled to a bluff overlooking the American River for a fine site and lots of contacts, and last year's *mobile champs*, the RAMS, mobiled to 3 different sites to set another record. New officers of the Aerojet ARC are WA6VEH, pres.; WA6SJD, vice-pres.; K6UKC, treas.; and WV6VCY, asst. chairman, who says the club sponsored "on-the-air" code practice and "in club theory classes" drawing big crowds. The Golden Empire ARC furnished communications for a hot rod and dragster meet at Vina. W6TFH, our newest OO, suggests that we push 10-6-2 meters for local QSOs instead of 75-40-20. Sounds like a good idea! Friends of W6AF will be glad to know that Bill is recovering fine from his roken ribs. WA6OXK changed his antenna to 52 ohms and mounted a new 813 final and power supply in the rack, snagged Wisconsin and Vermont for WAS and, as one of our newest ECs, reports AREC recruitment in his area is doing fine. The Mount Shasta Amateur Radio Club, Inc., on May 20 enjoyed a potluck dinner at Mount Shasta City Park. Out-of-town hams present were W6MKV, McCloud; W6NCV, McCloud; K6MOE, Weed, W6JVF, Hilt; K6IVD and WA6IVR,

(*Continued on page 134*)

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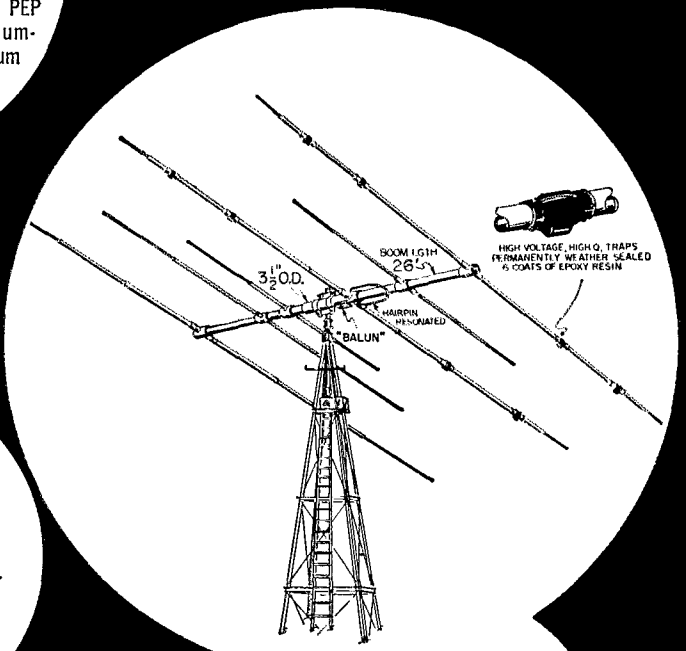

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Dusmuir. The Eldorado ARC donated to the ARRL Building Fund; have you done your part yet? Traffic: (May) K6EE23. (Apr.) K6YZU 274, K6EE 34, WA6PVT 34, WA6NAU 4. (Mar.) K6YZU 139, WA6NAU 18.

SAN JOAQUIN VALLEY—SCM, Ralph Saroyan, W6JPU—The 20th Annual Fresno Amateur Radio Club Hamfest was held in Fresno, May 12, 1962, with 385 in attendance. K6QPE won an HT-37 and is on 40-meter s.s.b. The XYL of W6JPS won a French toy poodle. W6PPO has a G76 on all bands mobile and is concentrating on 6 meters. W6UBK and his XYL both won prizes at the hamfest. W6LRW won the 75-meter hunt at the hamfest. W6WBZ is experimenting with XTL filters. W6CHI is a new mobile around town. WA6DAU chased the bugs out of his s.s.b. exciter. W6OUX is building an s.s.b. transceiver. W6HYG was heard on 20 meters chasing DX. WA6IMA is working 6-meter DX. WA6URV has an HT-37 and an HT-41 on s.s.b. The Delta ARC meets every Thurs. on 50.4 Mc. at 2030 hours, PDT. W6HSX is on 6 and W6NLY and W6COB are planning to get on 6 meters. The TARC, with K6ODA assisting, furnished communications for the boat races in Modesto. The Modesto Amateur Club held its organizational meeting June 13 at Modesto Jr., College. The San Joaquin Valley Net meets every night except Sun. at 1830 hours on 3915 kc. The net needs check-ins from Hanford, Selma, Fowler, Dinuba, Modesto and vicinity to handle some traffic. The SJN reports for May: 716 check-ins, 72 contacts, 13 traffic, 9 QST, 9 phone calls and 14 bulletins. The Tulare Co. Amateur Radio Club is running code and theory classes every Fri. night at County Court House at 7:30 P.M. in the c.d. room. Traffic: W6ARE 32, W6ADB 28, W6EFB 25.

ROANOKE DIVISION

NORTH CAROLINA—SCM, N. J. Boruch, W4CH—SEC: W4YMI. RM: K4CPX. V.H.F. PAM: W4ACY. Ye SCM really enjoyed meeting with the many members of the Tar Heel Emergency Net at its recent fine Goldsboro Picnic. Summer QRN is showing its effects on NCN activity with traffic falling off. Congratulations to our v.h.f. boys for giving such a good account of themselves in SS activity. OO reports from WA4FJM and W4FUI reveal a need to suppress clicks and parasitics. Those who are interested in the Oscar II project can contact W4OAB. K4JYN sent in an excellent account of his OES activity. K4FMW states Wake County ARA with support from the City of Raleigh and its c.d. office, completed plans for a large scale Field Day. The following ECs made their usual reports: W4BAW, W4MFK, K4FMW. New Official League appointees: W4BUZ as OBS; W4PCN as ORS; K4QFV/WA4ZH as OBS and OPS; W4COJ as OBS; W4LEN as EC for Durham County; K4WLV as EC for Stanly County. Our appreciation to W1HDQ for a most informative and enjoyable talk at the Greensboro meet. From all reports received, congratulations are in order to the Virginia boys for putting on such a successful convention at Roanoke. Traffic: K4CPX 158, WA4FJM 149, W4BAW 100. K4YCL 20. K4TPK 9.

SOUTH CAROLINA—SCM, Dr. J. O. Dunlap, W4GQV—SEC: K4PJE. RM: W4PED. PAM: K4KCO. Dr. Jo retires as SCM after over 4 years and requests that we all give the new SCM and his officials the same assistance and support in maintaining organized amateur radio in the state that he received. K4ROB has graduated from college and is now living in St. Louis. The Charleston ARC is looking for new quarters. W4AKC and W4PED journeyed to Roanoke to take part in the traffic forum. W4VIW has been endorsed as Class I OO. We are sorry to lose the excellent services of K4HQK as OO in the state but know that he will continue his activities from his new QTH in Florida. Active on Field Day were the Rock Hill Club and the Greenville Mike and Key Club, operating W4YJT atop Paris Mountain. W4TLC and W4VIW continue interest and activity on the v.h.f. bands. Several reports on Oscar II indicate that it had a strong signal. Traffic: K4OCU 71, K4WJR 28, W4AKC 26, K4YFK 15, K4PJW 12, W4YPD 12, WA4CSO 1.

(Continued on page 136)

VIRGINIA—SCM, Robert L. Follmar, W4QDY—Asst. SCM: H. J. Hopkins, W4SHJ. SEC: W4VMA. RMs: W4LK, K4MXF, W4SEJ, W4IA, W4QDY. PAMs: W4BGP, K4JQO, K4PQV. As expected the Roanoke Convention was a big success and a good time was enjoyed by Ye SCM, Asst. SCM and W4FOR, who journeyed as a group and mobiled all the way with W4QDY's new installation! K4TFL has been running a healthy traffic count lately but says she will be off the 40-meter daytime nets for the summer. The Virginia school boys are back and it is hoped they'll take up some of the slack in the nets. K4RNH is the new VN NCS on Sun. night. W4PVA is coming back with a 200-watt rig on c.w. Ken Bay, ex-W4DVT, is due to return to Lynchburg in the near future. W4BZE reports that receiver troubles and varying work hours are causing temporary anguish. K4RUQ, Richmond EC, reports 35 AREC members with 6 Official Mobiles and 6 Asst. ECs. W4PFC and W4DIA made the first application for the new Va. Traffic Awards; PFC received the first "Doctor of Traffic" and DLA the first "Bachelor of Traffic" awards. W4NVX finally is reporting from his new QTH in Falls Church. W4OWV reports a new General, WA4FEI in Harrisonburg. K4BAV listened to Aurora 7 Spacecraft on May 24. W4JUJ received his DXCC 160 sticker and was active in the VP9 and Richmond Spring Tune-Up Contests. W4WBC is busy travelling so was on the air only once in May. K4ORQ is building a new kw. rig. The new "Virginia-Locator-Directory" is meeting with much favor among the traffic men. W4FOR, one of our "iron-men," apologizes for a "low" traffic count—421. Traffic: (May) W4DLA 474, W4PFC 459, W4FOR 421, W4NTR 228, K4FSS 204, K4RNH 173, W4LK 154, K4PQL 137, K4MXF 135, K4TFL 109, W4RHA 98, W4BZE 82, W4IA 74, WA4BIK 34, W4MYA 29, W4LRN 28, K4PRQ 28, W4SHJ 23, W4TE 23, K4YZT 22, K4AL 21, W4QDY 19, W4HFH 18, K4TSJ 12, K4HP 11, K4IAN 10, K4ITV 9, W4NVX 8, W4KX 6, K4ORQ 3, K4LTK 2, W4OWV 2. (Apr.) W4IA 49, W4MYA 31. (Mar.) K4RUQ 48, W4MYA 8.

WEST VIRGINIA—SCM, Donald B. Morris, W8JM—SEC: W8SSA. RM: K8HID. PAM: K8CFT. The West Virginia C.W. Net meets on 3570 kc. at 1900/0000; the Phone Net at 1830/2330 on 3890 kc. It is with regret I announce the passing of W8FGL, of Parkersburg. A former PAM and NCS of the W. Va. Phone Net, Ken was quite active until his illness, which resulted in his death on May 18. W8SSA is sporting a new Chevy station wagon, with mobile to match. W8MN, K8PJC, K8PJS, W8DFC, W8UJO, W8SSA, K8HID, W8GXO and W8JM attended the Roanoke Division Convention at Roanoke. W8RXO's XYL won the Invader at the Dayton Hamvention. Congratulations to the following for organizing the emergency network to serve industrial plants in the Mid-Ohio Valley: K8BLR, K8HKW, W8HRQ, W8MZZ, K8HYE, W8IBF, K8PCF, K8LTS and W8PAP. K8CSG is looking forward to a return to home and ham radio after Army service. WA8CCX, WA8CMK and WA8AGF are new amateurs on 6 meters in Kanawha Valley. K8QYG of Martinsburg, has two new operators in the family, XYL WN8DOY and son WN8DWN. Congratulations. Traffic: W8NYH 152, K8CSG 42, K8LOU 22.

ROCKY MOUNTAIN DIVISION

COLORADO—SCM, Donald S. Middleton, WØNIT—SEC: WØSIN. PAMs: WØCXW, WØIJR, WØGNK. RMs: WØFEO, KØDTK. OBS: KØDCC. KØDCW, the state RO, gave an informative talk on RACES at the May meeting of the Western Slope Radio Club. WØGDC had an interesting QSO with the USS *John Pierse* on May 27. This is the ship which picked up the Aurora capsule. WØETT is now at the halfway mark on DXCC. Ken started operation in Colorado last Sept. WØFEO is the new Asst. EC for the Denver Area. WØMYB and WØETT operated the Boy Scout Exposition station during the Jamboree in Denver. KØRTI now has MTHC for both CCW and TWN. The Martin Amateur Radio Club of Denver is now an official ARRL affiliated club. The new Columbine AREC Net has changed its frequency to 3990.5 kc. WØSIN states that although this net is particularly for ECs or Asst. ECs, all Colorado amateurs are welcome to check in. This is primarily an s.s.b. net.

(*Continued on page 138*)

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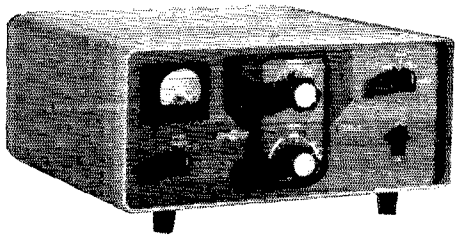

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UTAH—SCM, Thomas H. Miller, W7QWH—Asst. SCM: John H. Sampson, jr., W7OCX. SEC: K7BLR. RM: W7OCX. The Utah, Ogden, Oquirrh and Bountiful Amateur Radio Clubs competed for a trophy on Field Day. The trophy is given by the Utah Council of Amateur Radio Clubs. K7ODM, in St. George, is a new net member on BUN and already has taken over as NCS when conditions are bad. K7MPQ has volunteered for NCS duty to fill in for W7QWH. K7HVF has had to resign as EC in Utah County to leave for his mission for the LDS Church. K7s HVF, OWJ and JVI and W7OHR, K9JSC/7, WA6TTO/7 and W7IPY assisted in the communications for annual "Y" Days celebration for BYU. TWN has moved to 7060 kc. W7QWH, W7OCX, W7VTD, K7BGU and K7MPQ earned BRAT awards on BUN. Conditions have not been good and the work of K7s MPQ, BGU and ODM has been appreciated. Traffic: K7NWP 444, W7OCX 72, W7QWH 18.

NEW MEXICO—SCM, Carl W. Franz, W5ZHN—SEC: K5QIN. PAM: W5ZU, V.H.F. PAM: W5FPB. It is with deep regret that we must note the passing of W5VC, in El Paso. Dave was NCS of the EC NM Net for many years prior to his move to Texas. K5ECO, W5YSJ and YLS are busy with phone traffic out of the Pacific Area test grounds. K5CXN, K5SFU, K5FWU and W5WZK passed their requirements for RACES membership during a field test covering a 24-hour period on May 6 and 7 in the Albuquerque Area. K5UYF and W5CK had a fine time at the Southwestern Division Convention. W5UYF worked over 300 stations on 6 meters from May 6 to 20. K5TPU, OO of Clovis, is doing a fine job. Twelve Albuquerque hams signed up for the Rocky Mountain Division Convention. The LASL ARC furnished communications and official timing for the Rio Grande White Water Boat Races. W5PDO also is doing a fine job working the South Pacific on phone. K5GOJ had to resign as RM because of business pressures. The Albuquerque Chamber of Commerce is supporting the ARCC bid for the '63 Division Convention. Let's all lend a hand and put New Mexico over on this one. Traffic: W5ZHN 275, K5FMF 45, W5WZK 16, K5HTS 2.

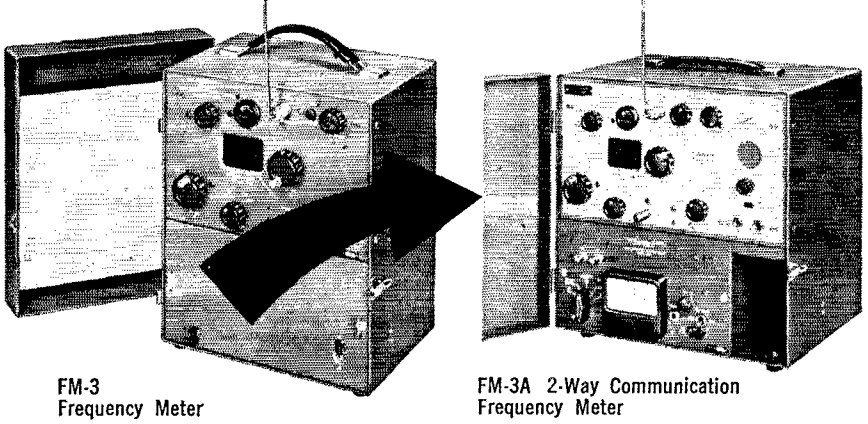
WYOMING—SCM, Lial D. Branson, W7AMU—The Pony Express Net meets Sun. at 0800 MST on 3920 kc. The YO Net is a c.w. net on Mon., Wed., Fri. at 1800 MST on 3610 kc. At the Casper Radio Club meeting on June 5 one of the ARRL's high frequency experimental awards was presented to W7UFB for his outstanding experimental work in high frequency radio. W7ONK has a new daughter. W7AEC has a new grandson. K7GDW is sporting a Swan mobile rig. K7MGM is having transmitter trouble. W7NMW is sporting a very nice new signal. K7OUX is busy building a new rig. W7EUZ has a new sideband rig. K7MAT is busy with frequency measurement. W7YWW is service technician for the Wyoming Highway. W7HH is back home from San Francisco. W7BHH is busy with the traffic nets. W7DXV is back on the traffic nets. K7IAY still is remodeling and has a nice ham location. K7KMT is working at Fleming Radio Supply. K7DKZ has a new linear final. Traffic: W7DXV 56, W7GZG 32, W7BHH 30, W7AMU 13, W7HDS 12, W7NMW 11, W7HH 9, K7ONK 9, W7CQX 6, W7HLA 5, W7AEC 4, K7MAT 4, W7YWW 2.

SOUTHEASTERN DIVISION

ALABAMA—SCM, Harvell V. Tilley, K4PHH—SEC: W4FQQ. RM: K4YUD. PAMs: K4BTO, K4PFM. S.S.B.: K4KJD. New appointees: EC—K4ZYO, AENT; K4ZTT, AENP; K4KDE, AENM. WA4FWP is now on with a Ranger, a BC-312 and a Windom antenna. K4FTC is attending summer school in Jackson, Tenn. WA4BQK contacted W1AW on 50.7 Mc., May 11. K4KJD was presented with a new linear and a pair of 4-65As in grounded grid, given by members of the AENM. K4PHN is now on 6 meters in Jasper. W4CIU is on with 8 watts. K4IAB is

(Continued on page 140)

YOUR GERTSCH FM-3 FREQUENCY METER CONVERTED TO MEET FCC REQUIREMENTS



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now mobile on 75 meters with a new Swan. WA4EDW, NM for AEND, reports that new stations from Jasper, Huntsville and Birmingham are now checking in. New officers of the Huntsville ARC are K4WSU, pres.; K4IKR, vice-pres.; W4UVM, secy., W4YIZ, asst. secy. VQ2AB was the special guest. K4LGF and K4BLO are recuperating after operations in a Memphis hospital. The Huntsville ARC is now offering subscriptions for its club bulletins to amateurs living outside Madison Co. The rate is $1.50 for 12 issues. Make check payable to the club and mail to P.O. Box 423, Huntsville, Ala. Congrats to the teen-ages on the AENT for their excellent net procedures and traffic handling. Traffic: (May) K4AOZ 141, K4WOP 58, K4PFM 51, K4YUD 51, K4DJR 44, WA4BDW 33, K4FQG 31, K4FZQ 23, K4ZYO 22, K4BTO 16, K4GXS 16, K4PHH 15, K4KDE 14, K4WHW 14, K4TDJ 12, K4YTT 12, W4CIU 10, K4BRZ 9, K4KJD 8, WA4AVM 7, K4SUY 7, K4RIL 6, W4YRO 6, W4ZNI 6, WA4BTA 5, K4WVD 5, K4ZTT 5, WA4BQK 4, K4PBY 4, W4WGI 4, K4JDA 3, W4VWG 3, K4FTC 2, WA4DQZ 1, WA4FWP 1. (Apr.) K4LNA 67, W4YLH 6.

EASTERN FLORIDA—SCM, Albert L. Hamel, K4SJH—SEC: W4IYT. RM: K4KDN. RM RTTY: W4EHU. PAMs: 40 W4SDR; 75 K4LCF; V.H.F. W4RMU: S.S.B. W4CNZ. The Manatee Club had a fine transmitter hunt and picnic. W4ZZZ, our former Alachua County EC, will add prestige to Miami. K4AHU resigned as manager for the Gator Net and K4SJH is back in the saddle. Kent is now well enough to work and go to school again. K4KGB, Martin County EC, engaged in a joint AREC/-RACES drill portable. K6SXX/4 got his General Class license but now the landlord says no antenna. Among the missing this summer are K4KDN, K4COO, K4DAX and K4OZS, all good traffic men. No OES report, no appointment, you v.h.f.ers, so come on let's get them in. The same goes for other appointees. Traffic: (May) K4SJH 915, WA4BMC 562, W4TUB 456, W4KIS 305, K4BY 238, W4AKB 233, W4NLX 158, K4KDN 145, W4EHW 108, W4VLH 108, K4COO 107, W4LDM 103, W4DFU 99, K4RNG 89, W4CNZ 35, WA4AME 78, K4LCF 75, K4LB 67, W4CWD 66, W4TRS 65, K4FMA 62, K4DBT 61, K4AHU 59, W4EAT 59, WA4CJC 57, K6SXX/4 57, WA4DCI 55, W4IYT 51, WA4COR 50, K4YOQ 44, W4DVR 42, K4AX 39, K4DAX 38, K4ENW 38, K4TBG 34, W4BKC 31, WA4BGW 30, K4RDX 30, K4VNA 29, K4MTP 25, W4HLE 23, K4LVE 23, K4AKQ 22, K4JZU 22, K4QQE 20, K4PPX 19, W4ZAK 19, W4IMC 18, W4LMT 16, K4KGB 14, W4SMK 14, W4BNE 13, W4CNT 12, W4AYD 11, W4LSA 11, W4SVB 11, WA4HCK 10, K4ZIF 10, K4BHL 9, K4GUE 8, K4OII 8, K4OSQ 8, WA4AZZ 7, K4JZX 7, W4SVI 7, WA4BGL 6, W4DTS 6, W8LDU/4 6, K4LML 5, K4OZS 5, K4PVP 5, WA4AII 4, W4BBZ 4, K4IWT 4, WA4KZX 4, W4YPX 4, WA4AMV 2, K4CMK 2, WN4FNF 2, W4OHA 2, WA4AIH 1. (Apr.) W4KIS 202, W4SDR 171, WA4HCK 54, K4LLI 46, WN4FNF 36, W4YPX 30, W4UHB 27, WN4BSH 25, K4FMA 16, WA4HCJ 14, K4RHL 8, W4SVB 6, W4OHA 3, W4EGL 2. (Mar.) W4SDR 141.

WESTERN FLORIDA—SCM, Frank M. Butler, jr., W4RKH—SEC: W4MLE. PAM: W4WEB. RM: K4UBR. Tallahassee: W4CMG is moving to New Orleans. K4YPI/m, with the aid of W4MLE assisted a motorist disabled with car trouble recently. K4UDD gave an interesting technical talk at a TARC meeting. This year's official State of Florida road maps publicize 29,560 kc. as the statewide amateur radio mobile calling and emergency frequency. WA4AZR is building a 500-watt amplifier for the DX-60. Panama City: K4VFY, WA4FIJ and WA4FJF now are OPSs. The section-wide v.h.f. drill on 10, 6 and 2 meters was a success. Traffic was relayed between Pensacola and Tallahassee by stations in Fort Walton, Crestview, Panama City and Wewahitchka. W4CCA, W4WEB, WA4FIJ and WN4DYN QSO regularly on 145.2 Mc. up to 100 miles. Fort Walton: W4ZGS, W4TJO, W4RKH, K4CZA, K4CUC, W4BPJ, K4JSJ and W4UXW furnished communications for the Billy Bowlegs Festival. Pensacola: K4DDD won the 10-meter transmitter hunt at the Mobile Hamfest. W4HKK is recovering from an operation. W4AXP took in the LO and CD Parties. Traffic: (May) WA4FIJ 30, W4GAA 29, K4BDF 20, W4ZGS 7. (Apr.) W4MLE 204, K4BDF 132, K4CNY 132, K4KHC 106, W4CMG 29, W4ZGS 20. (Mar.) K4CNY 167.

GEORGIA—SCM, James A. Giglio, W4LG—SEC: W4TJS. RM: W4DDY. GSN meets Mon. through Sun. on 3595 kc. at 1900 EST and 2200 EST. GCEN meets on 3995 kc. at 1800 EST Tue. and Thurs., 0800 on Sun. W4LNG has a miniature one-watt transistor transmitter operating on 73 Mc. The Columbus Amateur Radio Club is hard at work on a mobile emergency unit. Congrats to W4VSW on the jr. operator born May 5. The 4th Region Day Net meets daily on 7125 kc. with W4PIM as net manager. The Confederate Signal Corps has a top-notch certificate known as the "Colonels Award." K4JSV now has RTTY capability. W4HYW will be on 6 and 2 meters soon. The GPYL Net meets each Thurs. on 7620 kc. with K4KIH

(Continued on page 142)

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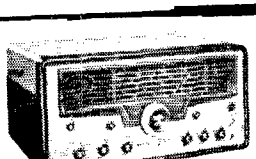

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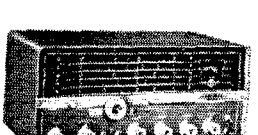

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75A3	$355.	Mark III	305.	HQ 180	360.
75A4	440.	SX 110	225.	**National**	
75S1	425.	SX 111	278.	HRO 5	$210.
Drake		SX 140	205.	HRO 7	232.
2A	$285.	**Hammarlund**		HRO 50	270.
Hallicrafters		HQ 110	$270.	HRO 60	355.
SX 28	$208.	HQ 129	215.	NC 183	250.
SX 43	201.	HQ 140	260.	NC 183D	285.
SX 71	225.	HQ 145	285.	NC 270	270.
SX 96	250.	HQ 150	270.	NC 300	285.
SX 100	278.	HQ 160	300.	NC 303	355.

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75A1	$220.	S 40	115.	NC 60	$105
75A2	255.	S 53A	122.	NC 88	130
Drake		S 76	145.	NC 98	145
1A	$205.	S 85	136.	NC 109	155.
Hammarlund		S 107	130.	NC 125	140.
HQ 100	$170.	S 108	143.	NC 173	155.
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as NC. The GPYL Round-table meets each Wed. at 1630 EST with K4RHU as net manager, around 3900 kc. ASTRO will sponsor the Ga. Cracker Radio Club meeting in Atlanta on Aug. 6. Congrats to K4ZYI for the highest score in the R.I. QSO party. The GC Mobile Net meets each Sun. at 1330 EST with W4LG as net control. K4WWY has been elected treasurer of the Calhoun High School Science Club. Welcome to new ham WA4GZG; Doris is the XYL of K4TTM. The Ga. S.S.B. Net meets Mon. through Sun. on 3975 kc. at 2200 with W4RZL as net manager. New appointments: K4YRL, W4RZL and K4QWX as OPSs; W4MLA and K4RHU as ORSs; W4TTD as OO Class III; W4YSU as Class III and IV. Traffic: W4DDY 206, K4MCL 183, W4PIM 107, K4WWY 96, K4ZYI 53, W4MLA 45, K4NGI 24, W4RZL 24, K4QPL 18, K4RHU 9, K4BAI 8, K4YRL 8, W4LG 4.

CANAL ZONE—SCM, Thomas B. DeMeis, KZ5TD —KZ5TF and KZ5HF have moved to Gatun. KZ5AC was reassigned to the U.S. New ham: KZ5SN. Vacation time is here and we find a lot have gone to the U.S. KZ5CD will be around Illinois, KZ5JD around North Carolina, KZ5FL/ML will be visiting near Washington, D.C., KZ5ST is going to Michigan. KZ5SS also went to the U.S. KZ5VR/RV flew up to New York and will spend their vacation around the Northeastern States. KZ5OB completed his Heath HX-10 S.S.B. and had quite a bit of praise for this new addition to sideband. KZ5SW and KZ5RW have shifted the scene to Coco Solo. KZ5TD is on the air with an HT-32 until completion of his HX-10. KZ5SE is revamping a jungle-worn Globe King. KZ5KR is working over a BC-610 for use as a linear. KZ5JT is up again with a neater looking quad. Army MARS has been very active. Traffic: KZ5JW 67, KZ5SS 58, KZ5OB 51, KZ5AD 40, KZ5AO 36, KZ5FG 12, KZ5CD 9, KZ5KR 6, KZ5HF 3.

SOUTHWESTERN DIVISION

LOS ANGELES—SCM, Albert F. Hill, jr., W6JQB—Asst. SCM: Lyle G. Farrell, W6KGC. SEC: K6YCX. RMs: W6BHC, WA6ROF. PAMs: W6ORS, K6PZM. The following stations earned BPL in May: K6EPT, W6WPF and W6GYH. Congrats, fellows! The Southwestern Division Convention was great; many nice visits were made and a wonderful crowd was present. Oscar II was timed perfectly during the convention! WA6QKG has a new Drake 2B receiver. W6FNE spent some time in the hospital. Glad to see you out again, Pete. K6MDD reports the starting of the Hummingbird Net, which meets on 50.57 mc. at 1500 PDST daily. K6PLW is getting married and will attend San Jose State this fall. Congrats, John! WA6KVA is putting in long hours leaving little time for net operation. K6COP has been accepted for Officer Training School, USN at Newport, R.I. Congrats, Howard! W6VOZ finally made WAS and WAC after 30 years! W6SRE has a new G-76 to keep in touch with home with all the "road-running!" K6AHL and K6UYK handled messages for the Rotary International Convention in Los Angeles. W6NKR has a new Valiant and added an AP5JA to the list! WA6DJB is getting settled in the new QTH in Compton! Support your section nets. On c.w., the Southern California Net (SCN) meeting at 0300 GMT on 3600 kc. daily; on phone, the Southern California Six Net (SoCal 6 Net) meeting at 0230 GMT and 1200 PDST daily on 50.4 Mc. Traffic: (May) K6EPT 840, W6WPF 735, W6GYH 687, K6IWV 377, WA6DJB 312, K6OZJ 299, K6MDD 270, W6QAE 236, K6YVN 169, WA6ODF 116, W6BHG 102, WA6TYR 49, WA6CKR 34, WA6TYX 21, K6HOV 18, W6NKR 16, W6SRE 12, W6USY 10, WA6QMC 7, W6VOZ 7, WA6MFH 4, W6UGA 4. (Apr.) K6IWV 252, WA6OUK 51, W6CG 15, W6NKR 10, K6UMV 4.

ARIZONA—SCM, Kenneth P. Cole, W7QZH—Asst. SCM/SEC: George Mezey, K7NIY. PAM: W7OIF. RM: W7LND. The Copper State Net meets at 1930 MST Mon. through Fri. on 3880.; the Grand Canyon Net Sun. at 0800 MST on 3880; the Tucson AREC Net Wed. at 1900 MST on 3880; the Cochise County AREC Net Sun. at 1400 MST on 7260; the Tucson 2-Meter Net at 10000 MST on 145.35 Mc; and the Arizona Interstate Net, C.W., Mon. through Fri. at 1900 MST on 3555 kc. The outstanding event of the year was the Southwestern Division

(*Continued on page 144*)

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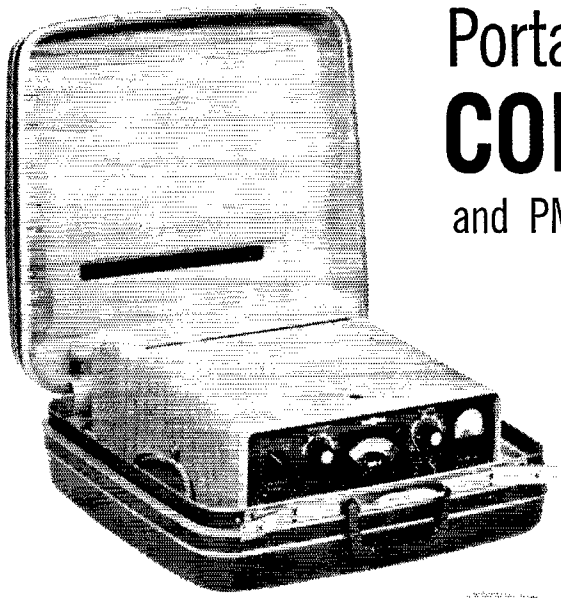

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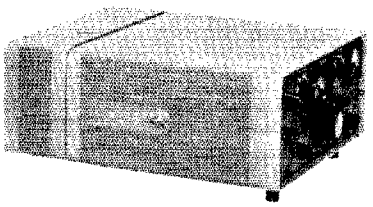

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Convention held at Disneyland in California. Among those attending from Arizona were W7CS, W7FQW, W7JPY, W7QZH, K7AWI, K7DVO, K7LKL, K7NIY, K7NOA, K7PLO and K7PRS. K7AWI, K7NIY and W7QZH attended the ARRL luncheon given by Ray Meyers, Southwestern Division Director, and had the pleasure of meeting ARRL President Herbert Hoover, jr. The ARRL session was educational as well as entertaining. The Sun City Radio Club, established in Arizona's retirement community by retired amateurs, is now an ARRL affiliated club. Congratulations! K7NIY, a retired New York business man, has been elected its first president. The Arizona Amateur Radio Club of Phoenix, by a unanimous vote of members present, are sending their check for $50 through Ray Meyers to the ARRL Building Fund. K7CET, Pima County EC, is conferring with newly-appointed c.d. officials in that county regarding communication requirements. Traffic: (May) K7TBB 321, WØWHE/7 183, W7AMM 36, K7CET 16, K7RUR 3. (Apr.) K7TBB 307.

SAN DIEGO—SCM, Don Stansifer, W6LRU—Many of the San Diego Area hams enjoyed the Southwestern Division Convention the first week end in June held at the Disneyland Hotel. Your SCM met many of the Orange County gang, and plans are under way for a joint meeting of all Orange County clubs in the fall, with W6DEY as coordinator. A "well done" to all those working to make the convention the success it was. See you all at the 1963 Convention in San Diego, date to be announced. W6RCD worked NSS on Armed Forces Day, exactly 20 years to the day from the day he enlisted in the USNR. WA6OZL, in La Jolla, is a new DXer in the area running 90 watts. WA6SBO is up to 130 countries, 91 confirmed. The American Radio Club of El Cajon received the call WA6YNN. W6UFS spoke at the Newport Club in late May on "Marine Electronics." Three 9th-graders at Dana Junior High in San Diego passed their Novice Class exams in June and are awaiting their calls. WA6s BUX and FJD held Field Day in Mono County in the San Joaquin section. W6HAW, of HKØAB fame, showed movies of the DXpedition at the DX session during the convention. Traffic: W6IAB 2541, K6BPI 2139, W6YDK 1792, W6UUS 610, W6EOT 435, K6KGR 108, WA6CDD 107.

WEST GULF DIVISION

NORTHERN TEXAS—SCM, L. L. Harbin, W5BNG—The NETEN held its Annual Picnic at the Dangerfield State Park May 20. RACES, AREC and the detection of radioactive fallout was the main subject of discussion. W5FJP won the big transmitter hunt held at Grand Prairie May 13. W5BCB gave a demonstration of amateur radio to the students of the Richland Elementary School in April and much interest was displayed by the students. W5TOO has a new son and it looks like Ed will have to delay the installation of his mobile rig in the new station wagon. Congratulations to the Knights of the Round Table Club of Dallas on their affiliation with the League. The Arlington Radio Club held Field Day at Grapevine Lake. K5ZKS is back on the job after a brief stay in the hospital. K5VIM claims the record for receiving the largest QSL card; it is 48 inches long and 20 inches wide, hand painted on half-inch plywood covered with plexiglass and framed with aluminum. The card was designed and constructed by W5HNG, confirming daily contacts for 1961. RACES indoctrination drills are being conducted each Monday evening at 6:30 P.M. CST on 3987.5 kc. and *all* amateurs are invited to participate. You do not have to be a RACES operator to take part in this drill. Traffic: W5BKH 264, K5JTQ/5 175, W5GY 150, K5LBG 90, W5LR 50, K5PXV 43, W5BOO 24, W5CF 18.

OKLAHOMA—SCM, Adrian V. Rea, W5DRZ—A note from K5LZF states that the Shawnee Club is taking on new life. This has always been a good club and we are sure that more and better things are in store. Tulsa has another father-and-son team, WN5BZQ and WN5BYA. W5ODM, EC, has been transferred to Texas. W5JMQ is back on the air after an extended visit to Oregon because of a death in the family. K5MBK sends greetings from Germany. New officers of the Lawton-Ft. Sill Club are W5FEC, pres.; K5DLP, vice-pres.; K5CBG, secy.:

(*Continued on page 146*)

W5PML, treas. K5HQP is sideband mobile. K5CAY is putting his 2-meter tower to good use; raises woodpeckers about two-thirds of the way up. Cecil Cash is on the air with his old call, W5PML. The recent hamfest sponsored by the Oil Capital Mobile Club was well attended. The fellows at Tulsa had a good program and lots of good prizes. The C.W. Net, OLZ, meets at 1900 hours CST on 3682.5 kc. This is a good net, with a good list of check-ins. It needs a little better coverage, however so brush up on your c.w. fellows, and get in there and help the c.w. boys out. Traffic: (May) W5DRZ 104, K5TEY 68, K5AUX 42, W5VVQ 39, K5IBZ 38, K5OCX 36, K5ZCJ 30, W5CCK 29, W5FKL 28, W5FFW 18, K5JOA 17, K5INC 14, K5VNJ 14, K5ZEP 14, W5PML 11, W5ECH 9, K5FSU 9, W5PNG 9, W5WAF 6, K5OOV 5, W5JMQ 1. (Apr.) W5JMQ 105.

CANADIAN DIVISION

MARITIME—SCM, D. E. Weeks, VE1WB—Asst. SCMs: A. E. W. Street, VE1EK, and H. C. Hillyard, VO1CZ. Deepest sympathy is extended to the families of VE1ADV and VE1UJ, who have joined the ranks of Silent Keys. Two-meter operators should take note that VE1PV plans aeronautical mobile "Operation Collins" 10,000 ft. over Halifax early in September. VEØMJ has been operating on 75 and 20 meters from CGS Baffin while VEØMN has been heard on 20 meters from the trawler *J. T. Cameron.* VE1WL has worked 200 countries and there is quite a battle going on between VE1WL and VE1PQ for s.s.b. DX. VE1OC is active on 6 meters. Congratulations to VE1KX on passing the A3 examination. VO2NA reports that to date 287 WAG (Worked All Goose) certificates representing 26 countries have been awarded. New calls include VE1AJG. Clubs contemplating expansion of their code training facilities for would-be amateurs are reminded of the recent "Notification to Inspectors" (Department of Transport) whereby stations *participating in a club training program* are to receive permission to transmit code practice on request. Traffic: VE1AEB 8, VE1OM 6.

ONTARIO—SCM, Richard W. Roberts, VE3NG—VE3AML has won his WOC-50. VE3DRF is now an OPS. VE3YA has a new Drake 2-B, VE3CFR has his 2nd BPL certificate. The London ARC held a picnic in July. VE3DFA is now MB. VE3CFI is trying for the Keystone Award (100) QSLs. VE3AYR/3 is in Haldiman County. VE3DKH has a new Ranger. VE3BIV is at Lake Muzinaw. VE3ARF commutes via mobile week ends. VE3EPM is on phone. VE3CNM is back on the air after a long illness. VE3CJJ has a Twoer. AXK is on 2 meters. VE3RCS (Kingston) and VE3ARC are in good shape with traffic from Gaza and VE8s and worked with the Kingston ARC on Field Day. VE3EUP is mobile. VE3BBW is on 2 meters. VE3CJA was in the hospital. The Toronto AREC was active on an SET in June. EC VE3DSM was in charge. The following were in attendance: W4BNM/-VE3, VE3DSM, CSE, LQ, DVG, RN, BSY, LI, CPJ, BWO, BIJ, CRM, EPM, FAS. VE3DPO still edits an FB bulletin for the Gray-Bruce ARC. Scarboro likewise has come up with an FB paper. The editor is VE3CIL. Their classes have new hams. Messrs. Fuller, Wilton, Tribbeck, Walker and Jeffries are now Class A. The club picnic (Scarboro) will be held in Aug. VE3BWL is on 6 meters and is one of our new OOs. VE3DGX now has 100 countries. VE3DKE has 92. Nortown has elected the following for '61-'62: VE3UN, pres.; VE3KA, vice-pres.; VE3CUS, treas.; VE3EWM, secy. Plans for the Ontario ARRL Convention are in the making. More details later. Later on this season the Boy Scouts again will be operating their Radio Jamboree. Your assistance is requested when contacted by your local Scouter. Traffic: VE3CFR 172, VE3DPO 136, VE3CYR 134, VE3NG 103, VE3RN 62, VE3BSY 51, VE3FAS 51, VE3AML 50, VE3NO 45, VE3AYR/3 35, VE3CFI 30, VE3ELQ 28, VE3DRF 24, VE3AKQ 23, VE3FES 23, VE3EHL 14, VE3DWN 9, VE3DH 5, VE3YA 5.

QUEBEC—SCM, C. W. Skarstedt, VE2DR—Asst. SCM: J. P. Achim, VE2ATL. I believe the gang wants me back for another term as SCM. If elected I'll say

(*Continued on page 148*)

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the NEW STARFLITE T.M.
90 WATT PHONE and CW TRANSMITTER KIT

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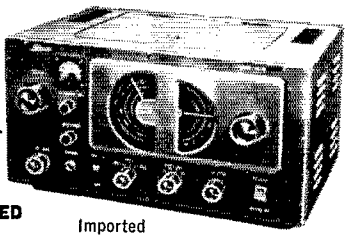

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Sensitivity is 1.0 microvolt for 10 db, Signal to Noise ratio. Selectivity is ± 0.8 KCS at —6db with Q-MULTIPLIER. TUBES: 6BA6—RF Amp, 6BE6 Mixer, 6BE6 OSC., 6AV6 Q-Multiplier—BFO, 2-6BA6 IF Amp., 6AV6 Det-AF Amp. ANL, 6AQ5-Audio output, 5Y3 Rectifier.

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The Communications Receiver that meets every amateur need—available in easy-to-assemble kit form. Signal to noise ratio is 10 db at 3.5 MC with 1.25 microvolt signal. Selectivity is —60 db at 10 kc, image reflection is —40 db at 3 MC. Tubes: 3—6BD6, 2—6BE6, 2—6AV6, 1—6AR5, 1—5Y3.

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- Highly Sensitive Superheterodyne Receiver Section for 50-54 Mc
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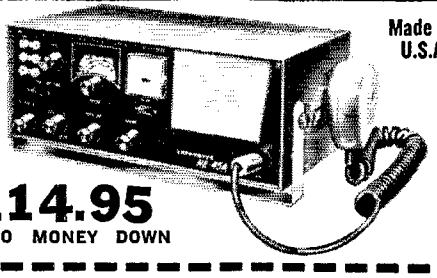
Provides maximum convenience and flexibility in either mobile or fixed operation.



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Similar to above except for 10 meter operation **109.50**

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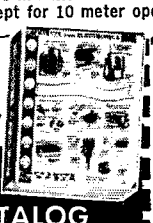

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thanks and will do my best. VE2DR took VE2OR on a fishing trip but the skip was wrong. A repeat performance with VE2JE was not much better. VE2UQ as Oscar II coordinator received much TV and newspaper publicity. VE2TA showed poetic ability in an ode to the P.L. (Professional Loafers). His son, VE2BN, is enjoying a stay in SM-Land. VE2SI is active with a Viceroy 2 and Drake 2B and is putting up a Windom for wider coverage. VE2AGJ, our blind friend, will be active from Val Morin during the summer. VE2NI is erecting quite an antenna farm. VE2XX is raising a Rohn tower. VE2QC works VE8OX. VE2AYY enjoys soaring at Hawksbury. VE2GL moved to Strathmore. VE2BGO may have trouble working locals on 75 meters but has good QSOs with VE2BFE/VE8. VO1T was heard mobiling in VE2. VE2AUU's brief hospital visit did not deter him from keeping in touch via 2 meters. VE2UW's new TH-4 is getting results. VE2WR and his XYL may have welcomed the arrival of a second harmonic by now. Mrs. VE2WT presented the OM with a baby boy. VE2AJD will get an ORS appointment. VE2FY invited some of the OTs cruising. VE2QG enjoys fresh air and hamming at Lake Memphremagog. VE2AGI and VE2VI are attending Civil Service courses. Welcome to newcomers VE2BLT and VE2BME. VE2AIO sticks on 6 meters and hears South Americans but no QSO. Director Eaton's news letters are much appreciated. Don't know what happened to our French correspondent. Maybe gone fishing! Traffic: VE2DR 96, VE2EC 74, VE2AGM 37, VE2AJD 20, VE2BG 16, VE2CP 16, VE2TA 3.

ALBERTA—SCM, Harry Harrold, VE6TG—SEC: VE6FS. PAM: VE6PV. RM: VE6AEN. ECs: VE6IU, VE6SS, VE6FK. OOs: VE6PL, VE6DZ, VE6HM, VE6LQ, VE6MJ. OBS: VE6HM. ORSs: VE6BN, VE6BR, VE6SX, VE6WG. OPSs: VE6CA, VE6NX, VE6PB, VE6PV, VE6WL. OESs: VE6DB and VE6HO reports some activity on the higher frequencies. All nets report some drop-off for the summer. Come on, Edmonton boys. Get together or the Calgary boys will out-number you soon. We now have a new club in Vulcan with VE6AFJ as president. Congratulations, Gene, on your club station. The province-wide EC test turned out very successful with the boys preparing for a bigger and better one later on. The Calgary Club is starting to get inquiries from all over the world regarding its Stampede City certificate. Nice going, fellows. VE6AB was given a life membership in the CARA. Congratulations, John. No reports were received from the North this month. Don't forget the Boy Scout Jamboree coming up in October. We would like as many stations as possible to help out with this project. Traffic: VE6HM 95, VE6BR 51, VE6TG 17, VE6AEN 13, VE6CA 8, VE6BA 5, VE6SS 4, VE6VE 4, VE6NF3, VE6PV3, VE6PZ 2, VE6UH 2, VE6AGR 1.

BRITISH COLUMBIA—SCM, H. E. Savage, VE7FB —Some worthwhile reading is the Annual Report of the League for 1961. Anyone may borrow my copy. VE7GR is heard most everywhere on the coast on 2 meters. VE7AIK is real active on s.s.b. VE7DH comes on once in awhile on 75 meters but on 20 or 15 meters he is real active. Eva's new phonetics are VE7 Become Badly Berserk. Why? In the middle of a c.w. QSO two front wheels of a compact car appeared through the wall above Eva's head. She did QRT with W5AE. A car above one's head is a good excuse for that. VE7AQV just returned from a trip to Japan and has some real good films to show. The Royal City Amateur Radio round tables on 3755 kc. at 8 P.M. Mon. are well attended. All are invited. VE7ANE is our EC for Vancouver mobiles, so come on, sign those Forms 7. The North and West Amateur Radio Club has been gathering speed since its reorganization. Come on, North Shore, it is yours. A big transmitter hunt is coming up in the fall conducted by the RCARC. Watch for details, it's going to be big. The BCARA's Annual Picnic will be held Aug. 19 at Bear Creek Park. The very active committee has many surprises. Watch for it. Traffic: VE7ARK 22, VE7BGF 14, VE7AMT 11, VE7AOY 1.

MANITOBA—SCM, M. S. Watson, VE4JY—Ron, ex-VE4TA, now in the U.S. Air Force and the first winner

(*Continued on page 150*)

Excitingly New! WRL Meteor Transmitter

AT A PRICE EVERYONE CAN AFFORD

Enjoy All Modes! SIDEBAND-AM-CW

Powerful 175 Watts—Mobile—Compact—Fixed—Factory Wired

Now, the experienced operator or beginner can enjoy a powerful economical, factory wired and fully guaranteed Transmitter • 175 Watts-CW, 100 Watts-AM, 140 Watts (PEP) Double Side band • Simple-Switch for 75 Watt novice power •

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of the WAW Award, was a welcome visitor at the May meeting of the ARLM. The most recent WAW Award was won by DLZAB, in the Ruhr Valley, and VP9DC, of Bermuda. The ARLM Spring Social was enjoyed by all under the able leadership of VE4RY. VE4WR reports that on May 8 history was made in Manitoba when he had a QSO with VE4BJ on RTTY teletype the first in Manitoba. VE4BJ had the honor gaining the high score for Canada in a worldwide RTTY contest. Our Canadian Director advises that Morse practice transmissions and bulletins by recognized clubs are now legal and can be authorized by the RI. The May meeting of the ARLM was favored with two good films on radio navigation aids and some field day activities by VE4ZX, VE4RP, VE4CX and VE4PE. Traffic: VE4QD 52, VE4JV 18, VE4JA 12, VE4KN 11, VE4SE 3, VE4HF 2, VE4TE 2, VE4UC 2.

SASKATCHEWAN—SCM, Jack Robinson, VE5BL—A number of mobiles assisted at the Davidson Sports Car Races in May, among them being VE5TI, VE5TO, VE5HV, VE5TG and VE5JS. VE5TP finally got his tower moved and three-element beam up with the help of some of the local gang. VE5JW won the transmitter hunt held in Regina June 3 with VE5TI as the hidden transmitter. New calls being heard are VE5IR, VE5GM, VE5IP; also VE5EO and VE5LK are now on phone. The southern part of the province has VE5JR, VE5EQ, VE5LV and VE5HD on sideband. VE5UK is under the weather and in the hospital. VE5GI and VE5GG have been working south of the border on 6 meters. Saskatchewan now has 170 subscribers to *QST* with the total for Canada being 3273 as shown on the latest newsletter from Noel Eaton. Traffic: VE5HP 102, VE5LM 48, VE5HQ 13, VE5FX 4.

Correspondence From Members

(*Continued from page 86*)

an active relay satellite for use by amateurs themselves, I believe that only the highest qualified should be allowed to use this system — Amateur Extra Class only. I wonder if the ARRL is considering this area of thought? — *Gary Apgar, K6RIR, Woodland Hills, Calif.*

SECOND THE MOTION

¶ I think WN9DUF has a FB idea in the June issue [Correspondence, page 85]. A CQ just before the final K would save a lot of guessing and get better results. — *Owen Cook, KN8SJL, Beaver Falls, Pa.*

WELL-WORN

¶ Everytime I see a picture of a ham station there are stacks of *QST*s which are in very good condition with no dog ears, etc. When I get my *QST*, I open it and it is not closed again until the next one comes, and occasionally after that. As far as I am concerned, I read every word in the magazine, and by the time I am through with it, it isn't in too good shape. But *my QST*s are to use, not to look impressive in pictures! — *James D. Cain, WA9AUM, Richmond, Ind.*

Happenings of the Month

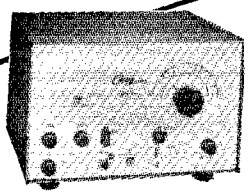
(*Continued from page 75*)

The success of this program to date has been very good. This Committee can only urge upon all directors that the plans above outlined be followed, or improved upon. The Award is new, and so are the methods of presentation. One thing only remains to be said — each Director, thus far, who has been called upon to make this presentation has had the same reactions: it is a very rewarding experience and deserves fullest cooperation.

This Committee's thanks go out to Ralph Charbenau, W8OLJ and his efforts with the S.S. *Hope*. The color films of this project have had wide distribution and have done

(*Continued on page 152*)

BULLSEYE BUYS at ARROW!



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Transmitter section has an ultra-stable crystal oscillator which also may be controlled by external VFO.
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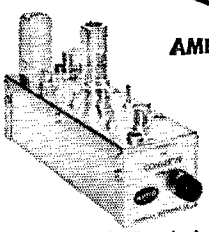
Amateur net price **$159.95**



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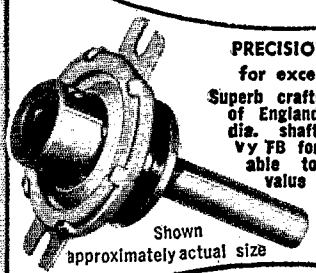
Choice of separate models for 50, 144 or 220 mc bands. Output frequency easily changed for present and future requirements. Three RCA 6CW4 Nuvistors used, two as RF amps, one as mixer with 6J6 oscillator. Noise figure: 2.5 db for 50 mc model, 3.0 db for 144 mc, and 4.0 db for 220 mc model. Image, spurious and IF rejection better than 70 db. Power required: 100-150 V @ 30 ma, 6.3 V @ 1 amp.

Specify desired IF output for converter model selected.

Kit: CN-50K, CN-144K, or CN-220K, each **$34.95**
Wired & Tested: CN-50W, CN-144W or CN-220W, each **$49.95**



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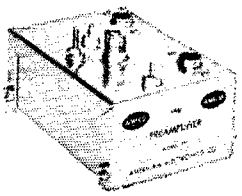

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FOR 50, 144 or 220 mc. Over 20 db gain plus a lower noise figure, 2 tuned ckts, 6CW4 Nuvistor completely neutralized. Noise figure is 2.5 db @ 50 mc, 3.0 db @ 144 mc and 4.0 db @ 220 mc. Power requirements: 100-150 v. @ 8 ma, and 6.3 v. at .13 amps. Specify frequency desired.

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Same as used in W2EWL SSB Rig — March 1956 QST. Three sets of CT windings for a combination of impedances: 600 ohms, 5200 ohms, 22000 ohms. (By using center-taps the impedances are quartered.) The ideal transformer for a SSB transmitter. Other uses: interstage, transistor, high impedance choke, line to grid or plate, etc. Size only 2" h. x ¾" w. x ¾" d. New and fully shielded.

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much to gain stature for amateur radio.

Several independent producers of movies, TV scripts and other promotions of similar nature were investigated during the year; for the most part, the vagueness of the project or the expense involved hardly appeared justified for League consideration at this time.

Good public relations for the League for Amateur Radio are not exactly like a "push button" on a vending machine, where a properly labeled button produces the expected results. Usually a little looking in all divisions will produce an individual who will gladly give of his time and talents, especially if he is an amateur. Try to find him or her; when you do, you have a candidate for an assistant director, and put him to work — the results will surprise you. Everything comes alive, including membership.

We have gained excellent public relations, in many divisions. There is however, plenty of room for considerable improvement, generally.

Respectfully submitted

D. E. CARTWRIGHT, W8UPB, *Chairman*
JOHN G. DOYLE, WØGPI
CARL L. SMITH, WØBWJ

How to Solder

(Continued from page 76)

ing some of the components.

As a matter of fact, with the more delicate components such as transistors, crystal diodes, ¼-watt resistors, and so on, good workshop practice dictates the use of a heat-sink to drain away excess heat before it can reach those delicate components. The photo on page 76 shows the use of such a device.

In Summary

Good soldering is easy, but must be done properly. Remember these steps:

a) Clean the surfaces to be soldered, having both them and your soldering iron tinned.
b) Make sure the solder *flows* into and around the joint.

Just one thing remains for you to do, now that you have read this. Heat up your iron and practice a bit. QST

Strays

K4FPF (758 Hills Rd., Mt. Pleasant, S. Carolina) would like to hear from ham members of Kappa Sigma.

—...—

VE3GG, 78 years young and the veteran of some 45 years of ham radio, has an extensive collection of anecdotes about his wireless experiences. If you'd like to *hear* some of these, send a 5-inch roll of tape and a dime to Mike Cavency, VE3GG, 29 Byng Ave., Willowdale, Ontario, Canada, and receive a 45-minute recorded chat.

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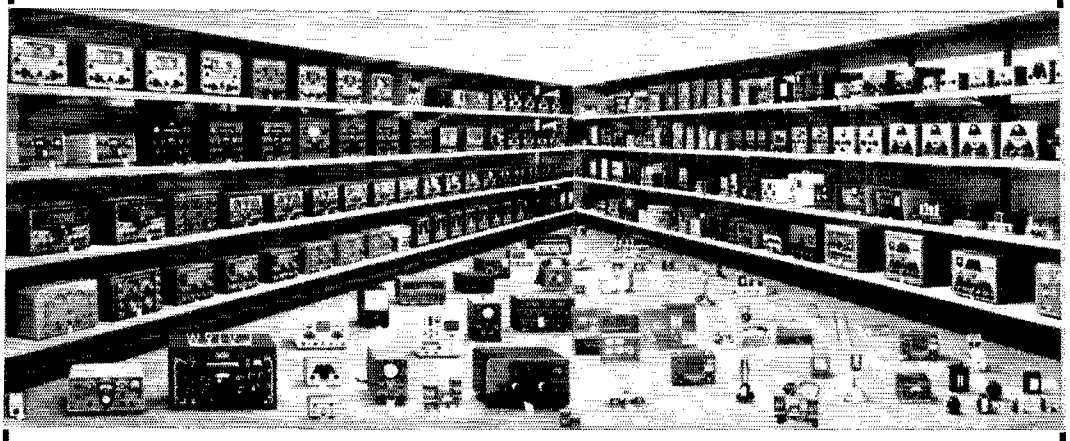

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NEW BOOKS

Basic Mathematics, by Norman H. Crowhurst, Vol. 3. Published by John F. Rider Publisher, Inc., 116 West 14th St., New York 11, N. Y. 6 by 9 inches, 152 pages, soft paper cover. Price, $3.90.

This third volume of the Basic Mathematics series treats the various branches of methematics involving algebra, geometry, trigonometry and calculus.

First-Class Radiotelephone License Handbook, by Edward M. Noll. Published by Technical Book Division Howard W. Sams & Co., Inc., 2201 East 46th St., Indianapolis 6, Indiana. 304 pages, 5½ by 8½ inches, paper cover. Price, $4.95. Cat. No. BON-1.

This Handbook provides all of the information necessary to progress from a second to a first-class FCC radiotelephone license holder.

Troubleshooting Amateur Radio Equipment, by Howard S. Pyle, W7OE. Published by Howard W. Sams & Co., Inc., 1720 East 38th St. Indianapolis 6, Indiana. Cat. No. AMP-1. 5½ by 8½ inches, 128 pages, including appendix of commercial ham-equipment schematics. Price, $2.50.

Who would ever have thought that radio amateurs would have to be told how to troubleshoot their own equipment? Nevertheless, here is a book which covers just about all the equipment that could break down in the ham shack: receivers, transmitters, antenna systems, accessory equipment, mobile equipment, and more. Information is also given on preventive maintenance, component color codes, schematic symbols (although they aren't the IRE-ASA standards) and some schematics are given for some popular commercial equipment.

New Shortcuts to TV Servicing, Vols. 1 and 2, by Leonard C. Lane. Published by Gernsback Library, Inc., 154 W. 14th St., New York 11, N. Y. Cat. No. 95. 5½ by 8½ inches, 160 pages each, including index, paper cover. Price, $3.20 each or $5.90 for both.

A book based on a home study course prepared by a leading electronics training school for a prominent TV manufacturer. It gives tricks and shortcuts for finding TV troubles.

Two-Way Mobile Radio Maintenance, by Jack Darr. Published by Howard W. Sams & Co., Inc., 1720 East 38th St., Indianapolis 6, Indiana. 5½ by 8½ inches, 255 pages, including index. Price, $4.95. Cat. No. TWD-1.

A practical guidebook on maintenance and installation for the two-way radio technician. Chapters include information on planning a two way radio installation, receiver, transmitters, remote controls, towers, installation of mobile units, noise elimination, test equipment and FCC tests and measurements.

(More on page 156)

Tube Substitution Handbook, by the Howard W. Sams Engineering Staff. Published by Howard W. Sams & Co., Inc., 1720 East 38th St., Indianapolis 6, Indiana. Volume 3, cat. No. TUB-3. 96 pages, 5½ by 8½ inches. Paper cover. Price, $1.50.

Contains a directory of receiving tubes numbering over 1600 and has substitutions for over 2700 types. Included are industrial and European tubes.

Electronics Math Simplified, by Alan Andrews. Published by Howard W. Sams & Co., Inc., 1720 East 38th St., Indianapolis 6, Indiana. 5½ by 8½ inches, 224 pages, including index, paper cover. Price, $4.95. Cat. No. MAT-1.

A simple course in mathematics including algebra, trigonometry, logarithms and Ohm's law for the engineer, student, technician, or radio amateur who requires a knowledge of mathematics as it relates to electronics.

Industrial Electronics Made Easy, by Tom Jaski. Published by Gernsback Library, Inc., 154 West 14th St., New York 11, N. Y. 288 pages, 5½ by 8½ inches, paper cover. Cat. No. 99. Price, $3.95.

A description of just what industrial electronics is, along with comparisons of maintenance techniques with home entertainment servicing. There are descriptions of counters, recorders and other readout and display devices used in industrial electronics. Finally, there is a discussion of the techniques and instruments used in industrial electronics maintenance.

Principles of Applied Electronics, by Ralph S. Carson. Published by McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36, N. Y. 485 pages, including index, 6½ by 9¼ inches, cloth cover. Price, $9.95.

An introduction to the principles which govern the operation of vacuum, gas, and semiconductor devices. Information is also given on the atomic clock, maser amplifier, negative-resistance and amplification.

Electricity and Electronics for Aerospace Vehicles, by the Northrup Institute of Technology Technical Development Staff. Published by McGraw-Hill Book Co., Inc., 330 West 42nd St., New York 36, N. Y. 392 pages, including index, 8¾ by 11¼ inches, cloth cover. Price, $13.95.

Written especially for the technician or mechanic who will be concerned with the repair, maintenance and assembling of aircraft or space vehicles and their components.

Analysis of Bistable Multivibrator Operation, by Dr. I. P. A. Neeteson. Published by John F. Rider Publisher, Inc., 116 West 14th St., New York, 11 N. Y. 6 by 9 inches, hard cover, 104 pages. Price, $2.90.

The text is based on the Eccles-Jordan flip-flop circuit and is directed toward the engineer and technician who is working with, or interested in, bistable electronic trigger devices.

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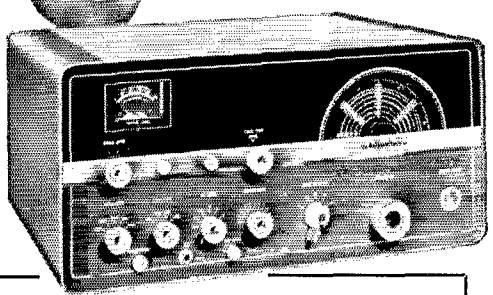

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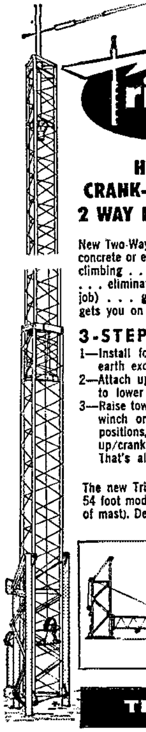

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Tri-Ex

All Tri-Ex Towers and accessories feature a triple coated finish for maximum weather protection; (1) iron phosphate rustproof undercoating, (2) newly de signed durable epoxy resin prime coat, and (3) baked auto-type enamel finish coat.

HM SERIES CRANK-UP/CRANK-OVER 2 WAY HINGE OVER TOWER

New Two-Way-Hinge-Over Pilot Base, either in concrete or earth mounting models, eliminates climbing . . . eliminates cranes or A-frames . . . eliminates "antenna parties" (one man job) . . . gets your beam up faster . . . gets you on the air faster.

3-STEP INSTALLATION

1—Install foundation unit either directly in earth excavation, or concrete, as desired.
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3—Raise tower to vertical position with 9-to-1 winch on pilot base, swap holding bolt positions, and you have a hinged, crank-up/crank-over SELF-SUPPORTING tower. That's all there is to it!

The new Tri-Ex series is available in 37 and 54 foot models (actual full height is exclusive of mast). Design of tower permits use without guying, and the unique 30-degree bracing of alternating design assures highest degree of strength and wind resistance.

Tower Raising and Lowering and Rotating Unit for HZRN Series
Model RLRH-50

HEAVY DUTY SERIES

Model HDM-237	2 Section	37 feet
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See your distributor for complete literature and prices on the complete line of Tri-Ex Towers, or write direct to:
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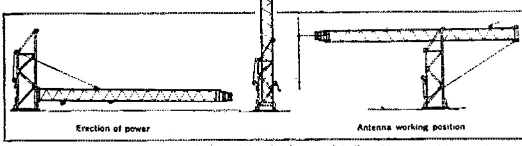

Erection of power | Antenna working position

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The new HZRN Rotating Tower is completely redesigned for smooth, frictionless rotating and raising and lowering. Featuring increased strength and greater weight, it meets and surpasses RETMA and UBC Building Standards.

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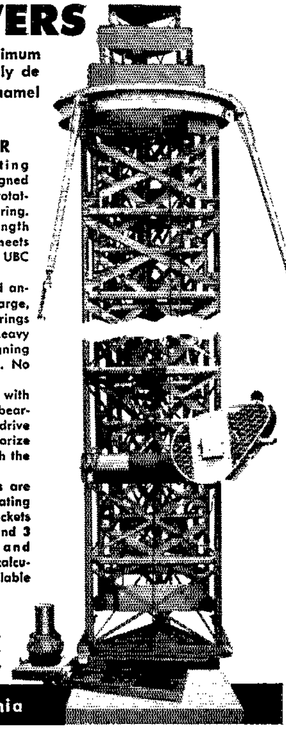
The tower is equipped with a 35 to 1 Timken roller bearing, sealed worm gear drive raising winch. You can motorize for full remote control with the aid of Tri-Ex accessories.

All HZRN Series towers are shipped complete with rotating base, 2 roller chain sprockets and drive chain, crank, and 3 concrete anchor rods and braces. Full engineering calculations and data are available upon request.

Model	Height	Weight
HZR-237N	37'	510 lbs.
HZR-354N	54'	805 lbs.
HZR-471N	71'	1235 lbs.



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11 METER

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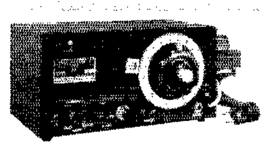

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RANGE 0.1 TO 175 MC AND UP. ACCURACY BETTER THAN 0.0025%.

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At no obligation to me, please send me free booklet "HOW to MAKE MONEY in MOBILE-RADIO MAINTENANCE"—and data on Lampkin meters.

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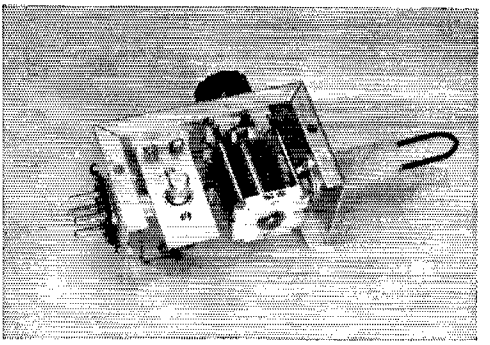

Fig. 21-15—Grid-dip meter covering the range 1.7 to 275 Mc., with the 90-165 Mc. coil in place. The power supply and transistor meter booster are a separate unit (see Fig. 21-17). The split-stator tuning capacitor is made from a single-stator variable. The Nuvistor tube socket is mounted on a small bracket, and a tie point under the bracket supports associated capacitors and resistors that aren't supported by socket and tuning-capacitor terminals.

THE GRID-DIP METER

Here's a really wide-range grid-dip meter that has many uses around the amateur station. Complete details on its construction and use appear in the 1962 *Radio Amateur's Handbook*. And that's not all! The twenty-five chapters of this 39th Edition cover the entire field of amateur radio communications: receivers, transmitters, v.h.f., antennas, mobile, operating, etc. Get your copy of the big new 1962 Handbook now: 744 pages, over 1300 illustrations, charts, diagrams and tables. It's a "must" for every amateur station!

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West Hartford 7, Connecticut

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(1) Advertising shall pertain to products and services which are related to amateur radio.
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(3) The Ham-Ad rate is 35¢ per word, except as noted in paragraph (6) below.
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(5) Closing date for Ham Ads is the 20th of the second month preceding publication date.
(6) A special rate of 10¢ per word will apply to advertising which, in our judgment, is obviously noncommercial in nature. Thus, advertising of bona fide surplus equipment owned, used and for sale by an individual or apparatus offered for exchange or advertising inquiring for special equipment, takes the 10¢ rate. Address and signatures are charged for. An attempt to deal in apparatus in quantity for profit, even if by an individual, is commercial and all advertising so classified takes the 35¢ rate. Provisions of paragraphs (1), (2) and (5), apply to all advertising in this column regardless of which rate may apply.
(7) Because error is more easily avoided, it is requested copy, signature and address be printed plainly on one side of paper only. Typewritten copy preferred but handwritten signature must accompany all authorized insertions.
(8) No advertiser may use more than 100 words in any one issue nor more than one ad in one issue.

Having made no investigation of the advertisers in the classified columns except those obviously commercial in character, the publishers of QST are unable to vouch for their integrity or for the grade or character of the products or services advertised.

HAMFESTERS Radio Club's 28th Annual Hamfest to be held Sunday, August 12, 1962, at Santa Fe Park, near Chicago. Write to Larry Finnan, K9EEC, Picnic Chairman, at 1209 W. 74th St., Chicago 36, Ill. for further information.

PEORIA Hamfest September 16th. Exposition Gardens, Peoria Area Amateur Radio Club. Tickets $1.00 until Sept. 8th. Write to Stan Kajawa, K9JSB, 1612 West Columbia Terrace, Peoria, Ill.

WANTED: Early wireless gear, books, magazines, catalogs before 1922. Send description and prices. W6GH, 1010 Monte Dr., Santa Barbara, Calif.

MOTOROLA used FM communications equipment bought and sold. W5BCO, Ralph Hicks, Box 6097, Tulsa, Okla.

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RECEIVERS: Repaired and aligned by competent engineers using factory standard instruments. Factory service at reasonable prices on Collins, Hallicrafters, Hammarlund, Gonset, National, Harvey-Wells. Our 26th year. 90 day guarantee. Douglas Instrument Laboratory, 176 Norfolk Ave., Boston 19, Mass.

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WANTED: Military or Industrial laboratory test equipment. Electronicraft, Box 399, Mt. Kisco, N.Y.

WANT 1925 and earlier ham and broadcast gear for personal collection. W4AA, Wayne Nelson, Concord, N.C.

MICHIGAN Hams! Amateur supplies, standard brands. Store hours 0830 to 1730 Monday through Saturday. Roy J. Purchase W8RP. Purchase Radio Supply, 327 E. Hoover St., Ann Arbor, Michigan. Tel. NOrmandy 8-8262.

CHICAGOLAND Amateurs! Factory authorized service for Hallicrafters, Hammarlund, Johnson, Gonset. Service all amateur equipment to factory standards. Heights Electronics, Inc., 1145 Halstead St., Chicago Heights, Ill. Tel. SKyline 5-4056.

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KWS1, $900. W2ADD

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QSLS *Three and four colors on lustre coat stock, 100* $3.85 or 200 for $6.90 combination mixture—five days service—satisfaction guaranteed or order our sample catalog showing over one hundred designs. $1.00 (refundable). Constantine Press, Bladensburg, Maryland.

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DELUXE QSLS. Petty, W2HAZ, Box 27, Trenton, N. J. Samples, 10¢

QSL Cards. Call letter D-cals. Samples 10¢, or send 25¢ for extra large selection and free "Danger, High Voltage!" card. Dick, W8VXK, Rte. 4, Gladwin, Michigan.

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QSLS, SWLS, WPE. Samples 5¢. Nicholas & Son Printery, P.O. Box 11184, Phoenix 17, Ariz.

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DON'T Buy QSLs-SWLs until you see my free samples. Bolles, W5OWC, Box 9445, Austin, Texas.

SUPERIOR QSLS, samples 10¢. Ham Specialties, Box 823 Bellaire, Texas

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QSLS. Samples free. Phillips, W7HRG, 1708 Bridge St., The Dalles, Oregon.

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QSLS, Kromekote 2 & 3 colors, attractive, distinctive, different. Free ball point pen with order. Samples 10¢. K2VOB Press, 62 Midland Blvd., Maplewood, N.J.

QUALITY QSLS, New designs monthly. Samples 10¢. Giant, 25¢. Savory, 172 Roosevelt Rd., Weymouth, Mass.

RUBBER Stamps. $1.00. Call and Address. Clint's Radio, W2UDO, 32 Cumberland Ave., Verona, N. J.

QSLS *2 color glossy, 100.* $2.50 samples dime. Ramsbottom Print Shop, Box 237F, Kirksville, Mo.

QSLS. Stamp and call brings samples. Eddie Scott, W3CSX, Fairplay, Md.

MAKE Your own QSLs with quality rubber stamps. Sample impressions (stamp appreciated). Vanguard Industries, Box 1386, St. Thomas, V.I.

QSLS. Real gassers. Dime. Filmcrafters, Box 304, Martins Ferry, Ohio.

QSL-SWL Samples 25¢. Spicer, 4615 Rosedale, Austin 5, Texas.

QSLS. *Samples, dime. Printer, Corwith, Iowa.*

QSLS-SWLS. 3-colors 100 $2.00. Samples dime. Bob Garra, Lehighton, Penna.

1½" CALL QSLS (2 sides printed), 100, $2.75. Sample free. Gariepy, 2624 Kroemer, Ft. Wayne, Ind.

HUNDRED QSLS: 80¢. Samples, dime. Meininger, Jesup, Iowa.

RUTGERS Vari-Typing Service, 7 Fairfield Road, Somerset, N.J.

QSLS, Free samples, W6EZL Press, 12622 South 8th St., Garden Grove, Calif.

RUBBER Stamps, 3-lines, $1.00. Travis, Box 612, Austin 63, Texas.

ATTRACTIVE QSLS: Large variety of styles, cartoons, colors. Personal ham stationery. Samples 25¢ (deductible). Paul Levin, K2MTT, 1460 Carroll St., Brooklyn 13, N.Y.

RUBBER Stamps for hams, sample impressions, W9UNY, Hamm, 542 North 93, Milwaukee, Wis.

CANADIAN Used, surplus and new gear. Giant catalog, 25¢. Low prices, thousands of items. ETCO, Box 741, Montreal, P.Q., Canada.

TOROID Bonus: Free .033 (space) and .068 (mark) 200 V. mylars during June, July; August 1962 with order of five toroids. 88 mhy., uncased, like new, with mounting hardware; information sheet, $1.00 each. 5/$4.00 postpaid. KCM, Box 88, Milwaukee 13, Wisconsin.

304TL tubes wanted. Also other transmitting and special purpose tubes. We will buy military or commercial transmitters and receivers with designations ARC, GRC, URR-51 and MN. Air Ground Electronics Co., 64 Grand Place, Kearny, N.J.

CASH For Vantron Q-probe; CQ all issues 1945. W4ID, 461-3rd Ave., Sea Park, Eau Gallie, Fla.

CUP-CORE Inductances, excellent for sharp or band-pass 50 to 100 Kc, I.F. or B.F.O. Very high Q. Unused, cased, adjustable; solder terminals, Type 1, 2.9 Mh., Type 17, 3.7 mh. Dollar each postpaid U.S. Circuit suggestions included. H. Woods, 2346 Clover Lane, Northfield, Ill.

WANTED: Ham gear. Will trade Chore-Master garden tractor, electric welder, Lionel train set, Delta 24 in. scroll saw. Write for details to Jim Lundy, WA5BMM, Box 26, Deming, N.Mex.

PROCEEDINGS Of the I.R.E. 1914 through 1949, 1923, 1928, 1931, 1932 complete. Will sell any copy or copies. Excellent price on entire lot. Mrs. Miriam Knapp, W1ZIM, 191 Beechwood Rd., West Hartford 7, Conn. Tel. 521-2055

COLLINS 75S-1, $380; 32S-1 with AC, $520; 399C-1, $120; 516E-1, $180. K8YEI.

WANTED: KWM-2 Transceivers and any old issues of QST from inception through 1925. Al T. O'Neil, Camp Lakeview, Lake City, Minn.

KWS-1, with station control center, also 75A-4. Both used very little. In mint condx. Latest modification by factory authorized service. If you want a real clean, new condition station, write W8BPB, 5210 Three Mile Drive, Detroit 24, Michigan, for photo or demonstration. Detroit area parties, phone TU 4-3800 days for appointment.

BEFORE You buy receiving tubes or electronic components, send now for your giant free Zalytron current catalog featuring nationally known Zalytron first quality TB-Radio tubes, Ham, Hi-Fi Stereo equipment, kits, parts, special purpose tubes, antennas, etc. All priced to save you plenty. Why pay more? Zalytron Tube Corp., 220-Q W. 42nd St., N.Y.C.

HAM Discount House. Write us for lowest prices on ham equipment. Factory sealed cartons. H D H Sales Co., 327 Greenwich Ave., Stamford, Conn.

SELL: HT32, $375, used very few hours, new condition. K2-SJJ, 4058 Herman Ave. S.W., Grand Rapids 8, Mich.

SELL Hallicrafters HT-37, $350.00; SX-96, $100; R-47, $8.00 Dow-Key Antenna relay, $3.00. All for $450.00. W9AEN, 4629 No. 100th St., Milwaukee 18, Wis.

FOR Sale: Collins 51-S-1 receiver (same coverage as 51J4) to the highest bidder. Will accept other commercial gear as part pay on this brand new item. M. E. Smith, K8GDR, 5760 N. High St., Worthington, Ohio. Tel. TU 5-6886 after 0200 GMT.

FOR Sale: QST runs: 1942-1961 complete, random issues 1939-1940. Best offer. W9MHE, 724 Park Ave., New Haven, Indiana.

6 & 2 METER FM gear. Surplus police units. Receiver strips, $15.00. Transmitter strips $10.00. Write for details. Two-Way Radio, 11 5Ward St., Boston 20, Mass.

McMURDO-Silver masterpiece VI 20-tube model. Urgently require schematic. Finch, 1343E, 5935S, Salt Lake City 17, Utah.

FOR Sale: Hi-Pass filter (1 KW), $5.00; Collins KWS-1 TX, $900; Collins 75A2 RX, $240.00; Astatic mike, 10-D, $20; CDR Ham-M rotor, $90; Cesco reflectometer (CM 52-2), $20.00; Headset $4.00. All equipment in exc. condx. Contact Bill Borden, W5ZMR/8, 61 Darlington Ave., Ramsey, N.J.

FOR Sale: Complete instructions including 28 p. booklet and 26" x 36" schematic for converting the ART/13 transmitter to AM and SSB. $2.50. Satisfaction guaranteed. Sam Appleton, K5MKI, 501 N. Maxwell St., Tulia, Texas.

JOHNSON Valiant: HQ-170 C, RCA push-to-talk mike. Many extras. $550 takes all! Jack Siegel, SW 9-1486, Princeton, N.J. All gear in excint condx.

HQ-170, in mint condx, $270. Edwin Lauster, WA2MXW, 209-14 82nd Ave., Queens Village 27, L.I., N.Y. Tel 8-5320.

CAREFULY Wired DX-60. Ship collect, $80.00. K5VHH, 1425 16th Ave. North Texas City, Texas.

A-1 RECONDITIONED Equipment. On approval. Trades. Terms. Hallicrafters S-107, $69.00; SX-99, $99.00; SX-100, $199.00; SX-111, $199.00; SX-62, $159.00; SX-101 III, $249.00; SX-101A, HT-37, HT-32B, Hammarlund HQ-100, $129.00; HQ-110, $179.00; HQ-170, $259.00; HQ-180, $349.00; Heath MR-1, $79.00; MT-1, $99.00; Collins, Central, Elmac; Gonset, Heath, Johnson, RME, many other items. Write for free list. Henry Radio Co., Butler, Mo.

BUFFALO Area: Spotless HQ-170C w/spkr, $285. Want used rcvr and xmitr like DX-40 and SX-140. Also want VFO. Jim Lewis, K2URN, Grand Island, N.Y.

TRI-STATE Amateur Radio Society Hamfest, Ecco Valley on the Vanderburgh-Posey County line, Indiana Highway 66 West of Evansville, Indiana. Kearnie Smith, K9QLB, P.O. Box 492.

NO Time to operate. Sell for cash: complete 2 KW PEP station, 75S1, 32S1, 516F2 AC, SM-1 mike. Collins. Less than a year old, 4-1000A GG 80-10 tabletop amplifier with latest cathode tuning, 3500V 500 Ma. pwr. supply. High quality throughout. C-E MM-2 'scope. HD-11 Q-Mult. Pennchron clock and WRL Comet desk. Picture on request. Pick up at my QTH for $1200. Ike Lee, W4EXP, Rte. 1, Box 623, Orange Park, Fla.

QUITTING: DX-35 w/VF-1, $50; NC-88 w/OF-1, $65. Vibroplex bug, $7.00. All A-1. Communicator I (xmtr repairable, rest OK), $40.00; LW-50 $15.00. SCR-522 (new 832-A's) $12.00. K2-PNY, 245 E. Main St., Moorestown, N.J.

WE Pay cash for used 2-way radio equipment. State model, price, quantity and condition. Communications Service, 3209 Canton, Dallas, Texas. Tel. RI 7-1852.

SELL: Thunderbolt 2 KW P.E.P. Final, $325.00; 2-KWM-1 Mobile Mounts, frame and cables, $25.00; complete, $40.00. W2ALK, 4 Crest Circle, Murray Hill, New Jersey.

XTAL-CONTROLLED 21 Mc converter for sale. See November 1959 CQ, p. 100, $15.00. Precision machining (Swiss type machinery), small and medium quantities. Send drawings for quotes. W3GHS, Hauff, 420 S. Lewis Road, Royersford, Penna.

FOR Sale: Gonset G-76 transceiver with AC and DC power supplies; booklet. Hardly used. $450.00 F.o.b. K4PMB, Charles Lindsley, Jr., P.O. Box 639, Asheville, N.C.

WANTED: VFO with its own power supply suitable for use with Eico 720. WA2KKI, 2 Meridian Road, Levittown, N.Y. Leonard Meinwald, DDS.

JOHNSON Invader $490.00 F.o.b. Used very little as second station transmitter. In original carton. J. Jones, Box 101, Vicksburg, Miss.

SELL HQ-100C in excint condx. Can't tell it from new. $150.00. K7JYR, 210 North 24th Ave., Yakima, Wash.

SWAP For gud SSB equipment and latest HRO, any following new merchandise left from quitting business: 5-22-40 HP Scott motors, two Browning shotguns, forty casting reels, tackle, sporting goods, couple movie, still cameras, transistor sets, 21" TV, appliances, 10" picture tube. Like new automatic washer, electric range, 21" TV, Eyeomatic movie camera, HT-9, HT-18, SX-100, NC-173. W9AOL, Walter Rabe, 233 No. Taylor, Oak Park, Ill.

RECEIVER, Hallicrafters SX-96 (1956 model). Original price $250.00. Ten tubes plus rectifier and voltage regulator. Selectable sideband feature. Tunes 540 Kc to 34 Mc. See write-up in "Recent Equipment" column in QST, June 1955. $150.00 cash. Also want, for personal collection, QSTS January through August 1916; ARRL Handbooks Editions 1 and 5. W1CUT, Box 1, West Hartford 7, Conn.

HQ-145 with speaker, $225; Eldico TR75, perfect, $50. Various meters and ham gear from the estate of W4JS. Mrs. Wm. P. Brown, Rte. 6, Box 292, Orlando, Fla.

SELL: Hammarlund receiver 140-XA with matching speaker, in mint condx, $150. Albert C. Roat, K3GLL, R.D. 2, Jim Thorpe, Penna.

FOR Sale: NC-88 receiver, $60.00; 100 amp. 6 volt Leece-Neville alternator, $25.00. K5AON, 867 Berkinshire, Dallas 18, Texas.

SELL: Johnson Thunderbolt, factory-wired, $400 Johnson KW Matchbox with SWR mtr., $95, both like new. W2PLB, 314 East 52nd St., Brooklyn, N.Y.

COLLEGE Bound. Must sell! Viking Challenger transmitter, SX-110 receiver, both new, best offer. Write George A. Sucich, 6000 Tyler Place, West New York, N.J.

TS-27/TSM slide wire bridge, $30; Heath AV-2 AC-VTVM, $20; Heath S-2 electronic switch, $10; Measurements 79-B pulse generator, $30; Clough-Brengle I.-C-R bridge, $30. All are in gud condx and each with manual. Roy Cone, W9YLU, 7007 Sheridan Road, Chicago, Ill.

FOR Sale: New Hy-Gain beam. In original carton. Model TH-2 $45.00; used P&H linear, in exc. condx, 800 watts P.E.P., $170.00. Call Sidney Levinson, WA2OOG, 387 South 4th St., Brooklyn, N.Y. Phone EV 4-7564.

VIKING Ranger, late model, factory wired. RME-4300, both like new. D-104 mike, tubes, transformers, etc. Everything goes. $300. K5MGO, 9910 Chireno, Dallas, Texas.

SELL: S-85, DX-20. Heath VF-1 with power supply. All $110. College bound. Ronald Schulte, K2ZSY, 3013 Valentine Ave., Bronx, N.Y.C. SE 3-6152.

ONE Kilowatt plus custom-built 600 watt high level modulated transmitter. Eighteen General Electric meters. Inspect it and make your bid. Hubert E. Ingalls, W1NQ, McCrillis Road, Nottingham, N.H.

WANTED: Old wireless gear, tubes, magazines and catalogs before 1925. Amateur or ship equipment only. Please give complete information including prices. My purpose is to buy this equipment, put it in first-class shape and make it available either on a museum or demonstration basis to all amateurs who didn't live and operate during this era. W5VA, T. Frank Smith, P.O. Box 840, Corpus Christi, Texas.

ARC-3 top condx T67B xmtr and R77A rcvr. Schematics and instrs. for 2-meter rig. All accessory parts, 115v pwr. supplies, cables, connectors, spare tubes. First $75 takes all. John Griswold, Catalpa Rd., Morristown, N.J. Tel. JEfferson 9-6617.

NEED Money for school. Will sell DX-100, $125.00; HQ-145C, $170.00. Both in excint condx. WA2DMM, Harvey Rubin, 299 E. 94th St., Brooklyn, N.Y. Tel. HY 5-4482.

MILLEN Antenna Bridge, $30; Bendix 150W VHF xmtr, $25; Tecraft 144 Mc. and 220 Mc. xmtrs, $30; Johnson 2 meter VFO, $18, pair 4X250B's, $20 each, Supreme audio generator, $17; VeeDX rotator, $15; 6 meter transceiver, Heathkit test sets, Hi-Fi, list excess to needs. W4API, 1420 South Randolph, Arlington 4, Va.

HEATHKIT Mohican general coverage receiver, GC-1A, 9 mo. old, $150 or best offer. Bob Duran, Box 63, McAlester, Okla.

SACRIFICE! Excellent Matchbox, Heath S.W.R. meter, $39; excint Johnson Challenger, Knight VFO, $80; fine NC-98 spkr, Heath QF-1, $75; Alliance U-98 rotator, $9; Hy-Gain 3-element 10-meter beam, $9. All unmodified. W1LFQ, 322 Beach Road, Hampton, N.H.

2 KW P.E.P., SSB transmitter, L/N. Thunderbolt, Pacemaker VFO, mike, connecting cables. Connect antenna—U r on the air. Best offer. W2DTD, 29 Charles, Merrick, L.I., N.Y.

HEATH DeLux VTVM, professionally wired, perfect condx, $20; antenna relay, $2. WA6MEQ, 10706 Pinole Ct., Cupertino, Calif

SELL Transcon 6M transceiver, $60; DX-35 on 6M, $40; both excint condx. WA2AIC, 64 Campbell Road, Suffern, N.Y.

WANTED: KWM-1 and compact medium power linear. Give condition and lowest cash price. K5CHL, Tomlinson, 1810 Peavy Road, Dallas, Texas.

COMANCHE, Cheyenne, UT-1 power supply and spkr, never used mobile $200. K5GXA, 4222 So. Victor, Tulsa, Okla.

FOR Sale: Seneca $170; SX99, $80; HB six meter converter 115AC, $15; 50W CW xmtr relay, $28; Instructograph $30. Works $300. K9TMQ.

SELL: HQ-100C, $130. Robert Grubbs, 2940 N. Kolmar, Chicago 41, Ill.

1 KW plate transformer (Chicago); primary 230V sec. 3.000 v. each side (c.t.), rated at 700 mils, 10,000 v. test. First certified check or m.o. for $40 takes it. Pick up deal only. 1 KW plate transformer (Chicago) primary 230 v. Sec. 2500 v each side (c.t.) rated 1 amp. 7,500 v. test. First certified check or m.o. $45.00 takes it. Pick up deal only. New SX-101, uncrated, used 48 hrs; first certified check or m.o., $250. Will ship with book. J. B. Sample, W4SOX, 6525 Barmer Dr., Jacksonville, Fla.

HEATH DX40 transmitter, in excint condx, nearly wired, $40 or trade for 2 meter transceiver. BC312 rcvr 1.6 kc. to 18 Mc. with AC pwr. supply in perfect condx, $28.00. K3IBO, 608 Maple, Southampton, Penna.

COMPLETE Station: DX-100, Hammarlund HQ-100 rcvr with clock and cal., Heath SWR Bridge, best offer. 10 M mobile/fixed xcvr with whip and pwr. supp., $35; 2M mobile/fixed xcvr, $30. Both xcvrs 2E26 finals. All in xclnt condx. Tecraft 6M converter (needs alignment) $10. Need money for school. K2VGG, 155 Washington Ave., Westwood, N.J.

SALE: Viking II, factory-wired, $140.00; Knight VFO, $15, K5UYF, 408½ Cornell Dr., S.E. Albuquerque, N.M.

WANTED: Harvey-Wells T-90 xmtr. Also original Harvey-Wells AC power supply. Must be in good shape. KØTDD, Broad, Grinnell, Iowa.

BEST Offer! Complete Morrow station: MB-560, MB-5, RTS-600s AC, DC supply, MLV-50 ant. tuner, FS-1, microphone, jiffy mounts. All in very good condition. K6ZGI, 715 North Crescent Heights Blvd., Los Angeles 46, Calif.

WANTED: Heathkit SB-10 SSB adapter. Will pay price plus shipping. K6BBJ, 1851 43rd Ave., San Francisco, Calif.

COMPLETE Collins Station KWS1, 75A4 with two mechanical *filters, latest factory modifications. Wattmeter. Forty-foot home*-built tilt-over steel tower with prop pitch rotor, W3DZZ Triband beam, Variac, selsyns for indicator. Mike, key and all cables complete. No shipping, sry. Come and operate it and take it with you; $1800. C.o.d. Write or call for appointment. Bob Longtin, 5352 Onondaga Rd., RD #1, Camillus, N.Y. Phone Syracuse HOward 8-4944. K2MAP.

SELL: Gonset Communicator II, 2 M., 12v/110v. A-1 condx. Gonset Super Six converter, 12v, never used. Powercon converter, 12v dc to 110v ac, 100 watts continuous, like new condx. Will sell separately. QSTs 1952 thru 1961; CQs, 1954, 1956 thru 1961. Will sell any year. Best offer by Sept. 1 takes. R. E. Holt, W8MBZ, 1920 Bond, Niles, Mich.

TUBES Wanted. All types, highest prices paid. Write or phone. Lou-Tronics, Inc., 131 Lawrence St., Brooklyn 1, N.Y. Tel. UL 5-2615.

RECONDITIONED! Terms! (24 months!) Trials! Trades! Write for free list: Collins 75A-3, $379.00; 75A-4, $599.50; 75S-1, $379.00; 32V-3, $375.00; 32S-1, $479.50; KWM-1, $499.50; 30S-1, $999.50; Transcon 6, $49.00; Chief D1X, $57.50; Gonset G66B, $119.00; G77, complete, $179.50; Commander Mobile, $79.00; G28, $129.50; 3275 6M 12V converter, $39.95; Hallicrafters SX-88, $349.00; SX-100, $199.95; SR-34AC, $199.50; HT-37, $375.00; Hammarlund HQ-170, $274.50; Johnson Valiant, $329.00; Thunderbolt, $399.50; Challenger, $99.50; std. 250 Matchbox, $39.50; Morrow Falcon, $79.95; Elmac AF-67, $114.95; National HRO-60T, $299.50; NC-270, $199.00; HFS 27 to 250 Mc., $79.50; WRL SS-3, $11.95; TC-6, $39.50. World Radio Laboratories, Box 919, Council Bluffs, Iowa.

4—400A fil. xfrmr 5V 13A 115V pri. $3.50 ea. K2EGI, 5 Stratford Pl., Babylon, L.I., N.Y.

WØCVU the first and only amateur awarded The Empire DX Certificate on Two Way SSB. WØCVU thanks those amateurs who helped make this award possible.

SELL: Viking Ranger, $150.00; Mosley CM-1 with matching speaker, $100; Clegg 99'er, $90, and Lafayette LT 650 FM tuner, $35. All above equipment in operating condition with instruction manuals. Fred Salzman, 293 Monmouth Ave., New Milford, N.J.

SELL: Johnson Viking K.W. amplifier and Matchbox, $825.00; Mims 10-20 meter beam rotator and indicator, $125.00. No shipping, sry. W5GHB, R. N. Weekes, 3545 Thomas Blvd., Port Arthur, Texas.

WANTED: Cabinet and/or matching speaker for Hallicrafters SX-28 or S-36 rcvr. Sell: Minifone pocket wire recorder, 2.50 Mc. Motorola FM xmtrs (sry, no rcvrs), 100 watt, Elmac all-band mobile rcvr and pwr. supply. Morrow 5 band converter w/Gonset IF and audio unit w/squelch, noise limiter and BFO. Pair never used Johnson cit. band units. Make offer. W9DSV, Box 87, Webster, Wisc.

ARMY Reservist sacrificing 1959 75A-4. Excellent condx. B-filter, $450.00. W4AFS.

CUSTOM Building. Ham gear. VHF specialists. Converters, power supplies, etc. Free quotes. Frontier Electronics, Orr 1, Minnesota. Frankie S. Hoard. WØHPS/WØPYC.

SELL: Perfect 75A-1, $200. Richard Sonsire, 1441 53rd St., Brooklyn 19, N.Y.

FOR Sale: TA33 Jr., $40; TR4 rotator, $20. 6 El. Telrex 2M beam $5.00. Seymour Kaftan, HY 3-5773, Brooklyn, N.Y.

SELL: SX28A, $70; Temco 250 watt AM, $70; push-talk mikes, $5.00; Heath VFO, $18. Louis Grill, 3317 West Ave., Ocean City, N.J.

VIKING I, TVI-suppressed, on air, in gud condx, $90. W2NKH, Huntington, L.I., N.Y.

COLLINS 75A4 two filters, $419; 100V, $95; both look like new; 4-1000A built-in 32V3 cab. with power in KWS-1 cab.; looks pro, $319; Collins new noise blanker with instructions for 75A4 and S/line $49.00 ea.. Collins wen VFO for 75A4, KWS-1, S/line, $39.00 ea. RTTY radio frequency lab, model 146 converter, $200, new. Northern radio type 164, Model 3 kever and converter, new, $500. WØNHP, Richard E. Mann, 7205 Center Dr., Des Moines, Iowa.

ALUMINUM For every ham need. Write to Dick's, 62 Cherry Ave., Tiffin, Ohio, for list of tubing, angle, channel, castings, plain and perforated sheet, and complete beam kits.

SELL: Harvey-Wells T-90, Morrow 5BRF converter with FTR crystal controlled IF strip, Heath transistorized supply. Master Mobile center-loaded ant. 80-10 with bumper mount and body mount. All cables and harness. Also, T-90 and power supply instruction manuals. Package deal—will not sell as separate units. $210 f.o.b. K2BFQ/9, 3101 North Christiana Ave., Chicago 18, Ill.

ATTENTION Mobileers! Heavy-duty Lecce-Neville 6 volt 100 amp. system, $50; 12 volt 50 amp system, $50; 12 volt 60 amp system, $60; 12 volt 100 amp. system, $100, Built-in silicon rectifier alternators 12 volt 60 amps, $100; 12 volt 100 amps, $125.00. Guaranteed no ex-police car units. Herbert A. Zimmermann, Jr., K2PAT, 115 Willow St., Brooklyn 1, N.Y. Tel. DEwey 6-7388.

COLLINS Transmitter 32V2 TVI-suppressed: receiver 75A3 with *Deluxe speaker, xtal calib., Vernier dial, 800 and 3100 cycle* filters. Howard Eddy, K6SHB, 72-17th Court, Hermosa Beach, Calif.

WANTED Complete station less receiver 80-40-20-10 for $175. WB2BEG, 950 South Main St., Elmira, N.Y.

SALE: Viking Ranger II, fw exc. condx, 130 watts output (ampl.) Braverman, WA2UXL, 3150 Rochambeau Ave., N.Y.C.

WANTED: Transmitter, brand name, over 100 watts 80-10, mostly c.w. Describe. Sell or trade: Tecraft 6-meter converter, excint condx, schematic $22.00. George Lindemulder, 2585 Knapp St., Grand Rapids, Mich.

FOR Sale: LWS1 six meter transmitter and modulator, factory-wired, used only few hours, $50.00. RME 152A converter, ten, six and two meters. $35.00. Meissner Signal Shifter with power supply and phone modulator, 160-meter coil. $30.00. W8FZ, 10945 Whitehill, Detroit 24, Mich.

FOR Sale: KWS-1 with accessories in excint condx, best offer over $900. Dave De Armond, 3024 Seminary, Oakland 5, Calif.

FOR Sale: Hallicrafters S-108 receiver. In beautiful condx. Only $100. WV2ZRP, Jerry Hennev, 1215 Washington Ave., Manville, N.J. Phone RA 2-2078.

APACHE $210.00; SB-10 $70—both for $275. Excellent condition. Will ship F.o.b. or will deliver within 75 miles Detroit-Toledo-Cleveland. K8JIC, Box 182, Allen Park, Michigan.

OSTs, complete run (highest bidder); Electrical Experimenters, 1913-1920; Science & Invention (complete run); Radio News, 1919 to date; Popular Radio 1922 to 1928 (complete); Radio Craft 1929 to date. Antique equipment. Send for list and prices. Mrs. Dorothy Simpson, 85-39 152nd St., Jamaica 32, L.I., N.Y.

COLLINS New 516F1 12v supply, $195.00; KWM1 mount, $40; 75A4 filters, 800 cycles, 6000 cycles, $25.00 ea.; Hallicrafters SX62A, $225; E-V 15TRX hi-fi spkr, $125.00; Ampex 960 recorder with tapes, $350; Western Electric 633 mike, $35.00; RCA WA44 audio osc., $55.00; WR49 RF osc. $45.00; Wv98 volt-ohmyst, $45.00; Hickock 385 portable 'scope, $195.00; Cornell-Dubilier BF 60 bridge, $35 (Simpson 380 field strength). Wave-modulation indicator, $19.00). Ed O'Brien, W2GFY, 86-10 34 Ave., Jackson Heights, N.Y.

NEW And used ham gear. Top trades. Norm, K9HRI, at Dahn Electronic Supply, 14 Jayne St., Algonquin, Ill. Mail orders welcome.

FOR Sale: Hy-Gain three element Tribander, $50; Hy-Gain Roto-Brake, $125.00; NC-109, $100; BC348 with AC supply, International 2-meter converter, $50; Bogen 30 watt P.A. amp. with two 36 in. horns and drivers, $100; Hy-Gain 5 element 6 meter beam $10, S-38B, $15; Vibroplex bug, $10; Babb Elec. 6 meter transconverter, $50; NC-300 $200; Viking 2 WRL VFO ant. Changeover and muting relay and coax switch, $250; mobile base, spring, 57 in. whip, $10. K5JPY, Hinkle Blevins, 418 North Beard, Ada, Okla.

WANTED: Commercial or surplus airborne, ground, transmitters, receivers, testsets, 18S, 17L, 51R, 618S, BC611, 180L, GRC, PRC, ARN14, Bendix, Collins, others. Ritco, Box 156, Annandale, Va.

WANTED: High serial number 75A-4. Sell HQ-140X with matching speaker, and Heathkit crystal calibrator, $130. K1QHT, Rockland Rd., Damariscotta, Me.

RADIO Control: Will trade 10 channel 6 mtr. Orbit transmitter, relayless receiver, transistor power supply, five "Transmite" Bonner Servos, new Torp 45 and misc. for 40 mtr. Swan or KWM 1. Will pay cash to boot on latter, or any commercial gear that can be traded even at Henry's for Swan. K6COO, 16352 Celtic St., Granada Hills, Calif. Tel. EMpire 3-5431.

SELL: SX101MK3, like new condx, $230; Fisher 101-R stereo tuner, $125; Bell 3030 stereo preamp and amp, $90; Roberts stereo 4 track record and playback, with amps, $250; Tungsol 6550 tubes—2 for $8 (have no use); 600 D mike, $5.00. Lamb, 527 Rutherford Ave., Trenton, N.J.

FOR Sale: 100 mfd. 3500V DC G-E Pyranol filter capacitors, New, $35.00. F.o.b. Minneapolis. Certif. check or money order. Wanted: 5U3 to 5U4 conversion kit, and filters. KØJMJ, Robert Wolfe, 3408 Aquila Ave., Minneapolis 26, Minn.

SELL: *Valiant w/Dow relay, Johnson* low pass filter, PTT D-104, SX-42, all on air in excellent condition, first check over $500.00. W. Joe Lewis, P.O. Box 652, Thomasville, Ga. W4ZDP.

WANT: 2J70, 721-B, OK-159, RK-159. Have 2J29, 730-A, 2J49, 2J61-A. ID-6A/APN-4 indicator. Make offer. W5JGV.

SELLING Station for Fall semester. DX-40, $45.00; VF-1, $15.00; NC-125, $120.00. National speaker, $10. One or all. W4UHF, 809 Grandview Dr., Alexandria, Va.

SELL: HT-37, perfect, scratchless, very few hours use; log available, $375. Will deliver lower Conn. and New York, Phila. and Wilmington areas. Buzz Mack, W2EEK, 178 Seven Bridge Rd., Chappaqua, N.Y.

DX-40, best offer over $45.00. Bill, Box 181, Lanett, Ala.

FOR Sale: Gonset G-76 with 12V pwr. supply and Electro Voice mike, $400. Mosley TM5 all-band mobile antenna, $50. W7YHS, 319 North 26th St., Billings, Montana.

WANTED: Collins 310A exciter. *F. M. Whitaker, 816 Wilkerson Ave., Durham, North Carolina.*

SELL: Hallicrafters SX-101 Mk III in mint condx. $225.00. Original owner, K1BUR, 1 Bradley Pk. Dr., Hingham, Mass.

COLLEGE Bound, for sale: SX-99, $85; power supply, 980v, 500 mils, $18.00. Almost new Superior #80 V.O.M. with capacity scale, $25.00. WA2DKY, 1745 Amherst, Buffalo 14, N.Y.

SELL: Gonset, G-66B and 12VDC thin Pack, $129.00; Elmac PMR-7, $99.00; Elmac PSR6-12, $12.00; Gonset Communicator II, 2-meter, 6V, 117VAC, $120.00. All above are in excint condx. WA2TFC, Yonkers, N.Y. Tel. YO 5-0388.

WANTED: All types military aircraft ground radios, teletype and test equipment, GRC, PRC, etc. Have all types amateur gear for trading, purchases or cash. Phil Rickson, K2HJC, Morrisonville, N.Y.

HAMMARLUND BC779B w/pwr. supply and converter for 15-10, $125.00; DX-40 plus VFI—$65; Vibroplex Blue Racer, $15; TV-450A multi-signal generator, $35. All in exc. condx. Dick DeMarco, K1HTW, Fairlea Rd., Orange, Conn.

JOHNSON Valiant, FW, exc. condx. $325.00. All offers considered. Richard Larson, KØVTG, Glencoe, Minn.

STOP! Sell NC-183 for best offer over $110, or trade for SB-10. K3QVL, 21 E. 5th, Bloomsburg, Penna.

COLLINS 75A4 receiver serial No. 4921, exc. condx, $500. Kenneth H. Engstrom, W5CUM, 833 Oak Forest Dr., Dallas 32, Texas.

SX-101/III, cash and carry for $200. Russell Black, WA2NWG, 141-43 73rd Ave., Flushing, N.Y. BO 3-2811 after 7 PM.

A.C. Instructograph, 10 tapes, key and headphones, $35. Regency ATC-1, 10-80 meters transistor converter, $35. Dick Hade, K9HSK, 132 So. Euclid Ave., Princeton, Ill.

COLLINS 32V3 with spare final, 75A3 with speaker and one filter, manuals, excellent condx, no scratches, $330 each. WØRVN.

304-TL, two brand new, never fired up, best offer, all replies ansd. W8FKL, L. L. Pfahler, 1784 Glenn Ave., Columbus 12, Ohio.

NC-300 excellent, with manual, $200: 6 meter converter, $20; 2-meter converter, $20.00; calibrator, $12; ART-13 with dynamotor, mike, cables, $50; BC-645 new $10. W9BTS 4509 Guildford Rd., Rockford, Ill.

KWSI vernier dial, new 4X250BS, perfect, $875; Eldico 300 watt rf section, $90; NC240D extensively updated, $100; 32V2, $190; AF67 w/dynamotor, $90. W2HAE, 85 Franklin St., Northport, L.I., N.Y. Tel. AN 1-8474.

SELL-Swap: BC-654-A transmitter-receiver with new PE-103, $35; BC-499-A FM receiver with 12V. Dynamotor, $10; new HRO speaker, $12. new, $14: 10½" table cabinet, $8. Want: ART-13, Lettine, antique phonos or radios. Crum, W9LC, 751 N. Central, Chicago 44.

HT-37 like new, $350; Thunderbolt (2000 PEP), $325; both with Johnson attenuator, $650; home brew 20-A VFO and QT-1 as is, $75; TA-33 and miscellaneous items. Local only. K2VVP, 630 Hempstead Ave., West Hempstead, N.Y. Tel. IV 3-7209.

SACRIFICE 4 months old, Drake 2B with calibrator, extra crystals, $210; Ameco 90 watt TX86 transmitter 6-80, $70; 250 watt Topaz transistor 12v supply 600/300, 0-120V, $60. Fred Breidbart, WA2JJJ, 1725 Broadway, Brooklyn 7, N.Y. Tel. GL 5-2222.

COLLINS 75A3, in excint condx, $300; Hy-Gain 14AVS vertical antenna, $18. Fred Norton, Dunes Trailer Park, Muskegon, Mich.

HALLICRAFTERS HT-37, in excint condx, $350.00; SX-111, brand new, $250. K1JXX, 48 E. Street, Lowell, Mass. Tel. GL 3-3554.

SALE: Viking II, 755A VFO, new Heath Twoer. K5WIC, 1015 James Pkway, College Station, Texas.

COLLINS Filters wanted, F455J-05/08, F455J-21 and F455J-60. Peter Romans, W7QLC, 2330 Salem Ave., Albany, Oregon.

200V, like new, with original crate. Best offer. F.o.b. W1RUU, Robert Strid, 234 Washington, North Easton, Mass.

GERMAN OM, looking for any job in USA. KP4, KZ5 or KH6. Want to spend about one year in America to Study the language. Age 23. From electronics. Please write to DJ5PN.

COLLINS: KWM-1, AC power supply, DX adapter for sale: $585. Will trade for KWM-2, or S/Line. State terms. WA2VXF, 302 Buckhout St., Irvington, N.Y.

GONSET Supersix: S-38E, 2 meter converter, speaker for NC-300; 2 B&W low-pass filters; Hy-Gain 2, Saturn 6 halos (no masts) K2IKZ.

SELL: Collins 75A-3 with matching speaker, two filters, crystal calibrator, $350; Valiant, $275; Johnson TR switch, $20; Heath reflected power meter, $15; D-104 mike with stand, $20. All in exc. condx. John Rogers, 207 Motley, Valley Stream, N.Y.

SELL: R-55, excint for beginner. KN1TKS, 71 Boardman Rd., Bristol, Conn.

SELL Or trade: HT32A and SX-101A, Mk III. Want: Tektron IX 'scope and General Radio signal generator, W4IWA, 105 Lynnhaven, Hampton, Va.

ALL New! Polycomm 62B with 5 xtals and 2M whip, $275; Telrex 2M 3-el. beam, $3.00; Hy-Gain 2M 5 el. beam, $5.00; Dow-Key 110VAC coax relay, $8.00; 813 tube, $10. F. S. Eggert, 11833 Wisconsin, Detroit 4, Mich.

WANTED: Commercially built ham equipment in trade for my resort area vacant lot worth $1890 near Los Angeles. I want to get on the air and go first cabin and can very easily be had by some sharp horsetrader. W6YTA, 1109 Harvard St., Santa Monica, Calif.

SELL: 6146, 6883, $2.00; Monoscope RCA 1698, $2.50; blowers, $7.00; Variacs, $7.00; 500W 6M final, $60; polar recorder, $300. H.P. Aud. osc. $60.00; Stud sil. rect., 35¢ up. Free list. A & B Eng., 4206 Ave. U. Brooklyn, N.Y. De-8-3313.

HEATHKIT GC-1A transistorized communication receiver, $85. Robert Meyer, 6015 5th Ave., Brooklyn, N.Y.

WANTED: Navigator. Sell: Challenger/PTT, 1-C condition. Best offers. K5FJZ.

WANTED: 312B4, 516F2, late 32S1. W6CLY/9, 2249 S12th, Springfield, Ill.

RANGER: Factory-wired, push-to-talk, perfect, $175.00; Drake 2A, $175; KWS-1, $875. George Barnes, 3451 Ridge Ave., Dayton 14, Ohio.

RME4350 Receiver. Excellent condition, $125.00. Ship prepaid U.S.A. W9JVF, 1849 East 49th St., Indianapolis 5, Ind.

SELL: Ranger, perfect, $150. Trade or sell two new surplus double-shielded 500 watt transmitters. W3AXK, Philadelphia RE 9-1753.

DRAKE 2B, 2AQ Q Multiplier/spkr, 2AC xtal calibrator, new, $265.00; 7094 tubes, new, $12.00. Bud 100 KC xtal calibrator, $10.00, 100TH, $7.50. Williams, 72 Prospect Ave., Apt. B-3, Hackensack, N.J.

CRYSTALS Airmailed: SSB, Marine, MARS, Net, CD. Novice, etc. Custom finished FT-243, .01% any kilocycle 3500 to 8600. $1.49 (10 or more FT-243, same frequency 99¢). 1707 to 20,000, $1.95. Overtones above 10 megacycles. Fundamentals 10 to 13.5 megacycles, $2.95. Add 50¢ each for .005%. Add 65¢ each for HC-6/u hermetics. Airmailing 10¢ per crystal, surface 5¢. Write for specific information. C-W Crystals, Box 2065-Q, El Monte, Calif.

G-66B 3-way power supply. Going sports car. No room. Excint, $139.95. KØDHH.

SALE: Hammarlund Super Pro rcvr BC1004C. Frequencies: 10.0-20.0 Mc; 5.0-10.0 Mc; 540-1160 Kc.; 2.5-5.0 Mc; 1160-2500 Kc. Super Pro supply; Radio frequency converter RME VHF 152A. Frequency range: 27.0-29.8 Mc; 49.5-54.2 Mc; 143.8-148.2 Mc. In excint condx, $150.00; transformer modulator, RCA Prim 5500 ohms 114 KVA; sec. 5500 ohms 198 amps D.C. Never used, $25.00; BC-312 rcvr, A.C. power, $20.00. Claude M. Phillips, 444 Hammond Ave., San Antonio, Texas. RadAm Sta. W5KJ.

LEECE-NEVILLE 75 amp. rectifier, new, $7.50; 110 volt selsyns, $2.00; ¾ amp. Thyratron 5000 volt, $1.50; 150 amp. Leece-Neville alternator, $4.00. B. J. Kucera, 10615 So. Highland Ave., Cleveland 25, Ohio.

TRI-BAND Quad: Bamboo; new, homebrew, Barrington Specialties. Stamp appreciated. $25.00 f.o.b. John, 1916 Sandusky, K.C., Kansas.

SELL: Viking Ranger II, factory-wired. Also HK-1B keyer and Johnson low-pass filter. In exc. condx. Bought Oct. 1961. All for $200.00. But you must pick up personally. Sry, no shipping. Bob Ebert, WA2OZU, 52 Waller Ave., White Plains, N.Y.

VALIANT, LP filter, $240.00; 75A2, $230.00; Hornet Tribander, 37 ft. Rohn tower, AR-22, $70. Prefer pick-up deal. W8JRB, 3286 Rinda Lane, Cincinnati 39, Ohio.

COAXIAL Relay, ideal for mobile CB and ham transceivers. BNC connectors for antenna and receiver, lug for transmitter. Coil for 6 VDC or 12 VDC with resistor supplied. Government surplus, bargain: $8.00 each, 3 for $20.00 postpaid. Electronic Laboratory Supply Co., 7208 Germantown, Phila. 19, Penna.

BARGAIN sale: New Broadcast quality velocity mikes with stand. Regular $90. While they last. $29.95 prepaid. Radiation Equipment Co., 469 E. Ohio St., Chicago, Ill.

COLLINS 30K1 revamped complete with PP 4-400As-810s Mod, full gallon plus $495.00 or your best offer. Collins 32S1 with 516F-2 AC pwr. supply, $550; Chicago 2500 V. 350 Ma. trans., $22.50. Collins 200 watt mod. trans. $22.50; Collins 866 fil. trans., $5.00; Collins 500 Ma chokes, $7.50 ea. Link base station chassis w/829B and pwr. supply suitable for 6 meters $25.00; Collins 5V, 20 amp. fil., $7.50; 12V, supply 450 v. 450 Ma., $8.50. 250TH, 100THs, 872s. Telrex deluxe ten-M beam $20.00. New condx. All f.o.b. Gwynn, Va. K4AET.

WANTED: 32S1 or HT32B. State lowest acceptable price, condition, when originally purchased, and serial No. Contact K8VEQ, 3792 Susanna Dr., Cincinnati 39, Ohio.

BARGAINS, Builders, cleaning shack. Example: G-E 3" round meters, $2.25; Chicago fila. transformers, from $1.20; Hammarlund variables, from $1.00. Many, many more. Stamp for list. W9AZA, 256 Robert, Burlington, Wis.

SELL: FB condition 20A with extra stage for better VOX, $185; $260 with Lakeshore Bandhopper VFO, CE "B" slicer and Q-multiplier combination, $45.00. Also KW linear and pwr. supply (worth $500) in 5 ft. rack. Your best offer. Write for details. W3DVX, 65 N. Church, Carbondale, Penna.

SELL: Two BC-611 transmitter-receivers complete, three extra new chassis, two 1E-37 tuning cases. A-82 antenna unit. 1-135 test unit, few spare parts, $55 or trade for Millen 90881, Harvey-Wells TBS-50-D, TTY equipment or what have you? W4NZY, 119 N. Birchwood, Louisville 6, Ky.

SELL: NC-300, $210; 6M and 2M converters for NC-300, $20 each; Johnson Ranger, $150; 6N2, $100; 120 watt pwr. supply and modulator, $25.00. K5GNA, 2220 18th St., Galena Park, Texas.

SELL: Hallicrafters HE-40 transmitter, $65; Knight V-44 VFO, $25; both $85. Perfect condition. Will ship F.o.b. K8YTG, Jim Lockhart, Manchester, Ohio.

APACHE TX-1, latest, $195; Heath VF-1, $13; Vibroplex Vibrokeyer and home-made keyer, $29. W6IIA, 425 Tufts, Burbank, Calif.

WANTED: Hallicrafters S-36, 10-B, 6 ft. relay rack and RBL receiver. S. J. Prewitt, WØTUT, Hayden, Colorado.

HAMMARLUND HQ-100AC with clock, speaker, scarcely used, in original cartons: $145.00. A. Gorman, 110-45 71 Road, Forest Hills, L.I., N.Y.

VALIANT, in perfect condx, $240.00; NC-300, perfect with xtal cal., $200. John Kane, K2QIL, 27 School Lane, Haddonfield, N.J.

WANTED: Collins 51J, R-390A, Hammarlund, SP-600, Teletype and Kleinschmidt, and test equipment. Cash or trade for new amateur equipment. Alltronics-Howard Co., Box 19, Boston 1, Mass. RI-20048.

TRANSMITTING Equipment: Johnson Adventurer, $39.50; BC-459A, 7 to 9.1 Mc., $9.50; TU-8-B, 6.2 to 7.9 Mc., $3.75. All unused and in like-new condx. Chambers, 3019 Jefferson, Davenport, Iowa.

SELL: HT-37, perfect condx. $360.00. WA2NLL, Levow, 137-56A 68th Dr., Kew Gardens Hills, Flushing 67, N.Y.

MOBILE Station. Gonset G66B and G77A. Center loaded Master Mobile antenna with 900 Aristocrat coil, heavy-duty bumper mount and Micro-Z Match. Cabeling for mobile and fixed use. Shure 505C mike. Factory cartons and manuals. All exc. condx. $345.00. K3JHX, 109 Spring Valley Rd., Wilmington 7, Del.

WANTED: Old 12" National "DX" variable; Gordon or Coto 2¼" hand wheels. Sell: "Baldies", highest bidder; two Collins 6 ft. enclosed rack cabinets, $25.00 each. W8PA, 6305 Flushing Rd., Flushing, Michigan.

CHANGE X-tal frequency, including plated type. Safe method, ammonium bi-floride, containers, holders, instructions, complete, $1.00. Deluxe model, $2.00. Ham-Kits, Box 175, Cranford, N.J.

APACHE, W/PTT; NC-300 speaker, calibrator; D-104 mike, G-stand; T-R switch; low-pass $450.00 or offer separately. Dick Loftin, K4RJM, 190 Fifth St., NW., Atlanta, Ga. Tel. TR 6-4735.

B&W 5100B mint, $275.00 SX-101A mint, $290; Heath SWR Bridge, $12.00; Heath Conelrad, $5.00; B&W GDO, $25.00. Megaw, W4ZBU, 5727 Antilles, Sarasota, Fla.

HT-37 and HQ-150. First certified check for $500 gets them shipped express charges collect. Paul Bauer, 1362 Hillcrest, Colorado Springs, Colo.

WANTED HRO50T coils E, F, A and AC. Have DSB100 like new, will swap or sell. Wells Chapin, 118 Woodmancy Lane, Fayetteville, New York.

TRADE: Super Six converter (12 volts) for 75A-4 6 Kc. filter. K5JCC.

SELL: HT-33A. Has just been reconditioned at Hallicrafters K9VAR, Joe, 1851 North Rutherford, Chicago 35, Ill. TU 9-7703.

GETTING Married: Sacrifice new Globe Champion 350. Used less than ten hours. Original crate. $375.00. WA2KCK, Joe McKlosky, 219 Lakeview Ave., Syracuse, N.Y.

"HOSS-Trader" Ed Moory is "Hossing" to give you a good deal for cash. No reasonable cash offer refused for the following items Used. Swan 75 & 20 meter transceiver, SX-101A, Drake 2-B, KWM-2, 30L-1, 32S-1, 75S-1, Viking Invader, HT-37, 75A-4, 75A-3, KWS1, 75S-3, Johnson Thunderbolt and B&W LPA-1 linear. Will pay top cash dollar for perfect KW-1 Collins. Package deal new Ham-M rotor and used TH-4 beam, $179.00. Repossessed month old HT-37, $329; immediate delivery Swan's and Sonar transceivers. Used HT-41, $295. New Hammarlund HQ-180-C, best offer. Terms cash. "Ed Moory" Wholesale Radio, Box 506, DeWitt Arkansas. Phone WHitney 6-2820.

QSTs need all early issues; CQ all issues 1945. W4ID, 461 3rd Ave., Sea Park, Eau Gallie, Fla.

HAM BUERGERS—Used equipment. Money-back guarantee: B&W 51SB, $174.95; Drake 1A factory perfect, $184.95; Eico 720, $84.95; Globe Linear, $74.95; Globe 90A, $44.95; Gonset Communicator IV, 2-meter, $284.95; HQ-170, $274.95; Heath Seneca, $175.00; Heath Apache, $250.00; Johnson Viking I TVI suppressed, $125.00; Johnson Pace-Maker, $324.95; Johnson 80-10 meter Thunderbolt Demo, $494.50; Mohawk RX1 with speaker, $274.95; National NC-300, $244.95; National NC183D, $239.95; National NC-303 perfect, $369.50; Phasemaster 2 with Bandhopper VFO, $289.00; Polycom 6 and 2 transceiver demo $339.00. Trades. Write for free list. Ham Buergers, Wyncote, Penna. Tel. CA 4-1740.

SELL Pair BC-611 walkie-talkies, 3885 KC A-1 and manual, $50.00; Simpson Mod. 303 VTVM, $30.00; Gonset Super Six $20; M1070 supply, $12.00. K9PYY, 3255 N. 45th St., Milwaukee 16, Wis.

FOR Sale: Complete station, S-77A, $50.00; GPR-90, $330.00; 500W home brew, $150.00; 90W homebrew $45.00. All four, $525.00 cash and carry deal. K2CCG. Tel MO 2-3863 New York City.

FOR Sale: BC610E and BC614E manual and spares, $200; 32V3 and 35C-2 filter manual spare 4D32, perfect $350; B&W L1001A linear amplifier, $150; factory built B&W pwr. supply for L1001A for above, $85; extra plate xfrmr used in B&W L1000A supply, $15; 4 mfd. at 10,000 volt filter condensers, $10 each. W1DBS, John Savonis, 11 Dwight Court, New Britain, Conn.

FOR Sale: Gonset Mobile Twins, G-77A and G-66 (factory modified)! In mint condx! Complete with mike, cables, and all band whip. Price $325. Stanley Cokas, W1ULR, 16 Edgehill Road, Swampscott, Mass.

SELL: Gonset Communicator III, 6 meter transceiver, in exc. condx, $175.00. K90YB, 306 N. Seminole, Ft. Wayne, Ind.

RCA Closed circuit TV camera: telephoto lens, like new; used only 100 hours. Can ship. Will take $375; cost new over $1000. Walt Manola, W3LGW, 1322 Spring Road, Carlisle, Penna.

MORROW Twins, MB-560 xmtr, Falcon rcvr, $125.00; 12 volt homebrew 28-28 ten meter xmtr, Dynamotor, convertette, TNS, $40. Gonset 10-11 meter converter, $10. W3STA, 1633 Thayer Dr., Norristown, Penna. Tel. BR 7-1065.

COLLEGE Bound! Must sell: Hallicrafters SX-100, $185; Hallicrafters S-85, $60; Hy-Gain 14-AV vertical with radials, $15; General Crystal five band doublet antenna, $15; Globe AT-3 antenna tuner, $10; ten meter ground plane, $10; Heathkit Cheyenne with mic and HP-20 AC power supply, $115; Regency ATC-1, $55. KØKGQ and KØRNM, Frank Brodale, 708 1st Ave., South, Humboldt, Iowa.

GONSET Super 12 Converter, $35.00. Shipping extra. W2PZS, Phone Trenton JU 7-3509. 21 Holt Circle, Trenton 9, N.J.

FOR Sale or Trade: Heath Apache in mint condx. low log hours for gud rcvr. Prefer Drake 2B or SX-101, Mark III or "A". What have you? How will you trade or bid? Eugene Robbins, K1NHJ, Piermont, N.H.

SK-20 Tunable Preselector, calibrated 3.5-30 mc., boosts reception 3 "S" units. Complete kit, cabinet, built-in pwr. supply, $18.98 postpaid. Holstrom Associates, Box 8640-T, Sacramento 22, Calif.

Index of Advertisers

"WES" FLEURDELYS, WØBIG/K1UAR, takes a break from riding herd on a new microwave project to check out his temporary QTH set-up.

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J. W. "Old Wes" Fleurdelys, WØBIG/K1UAR, enjoys off-time QSO-ing with his fellow hams — including many members of the Raytheon field engineering team out on far-ranging assignments. Continental U. S., South America, Europe . . . their beat is world-wide.

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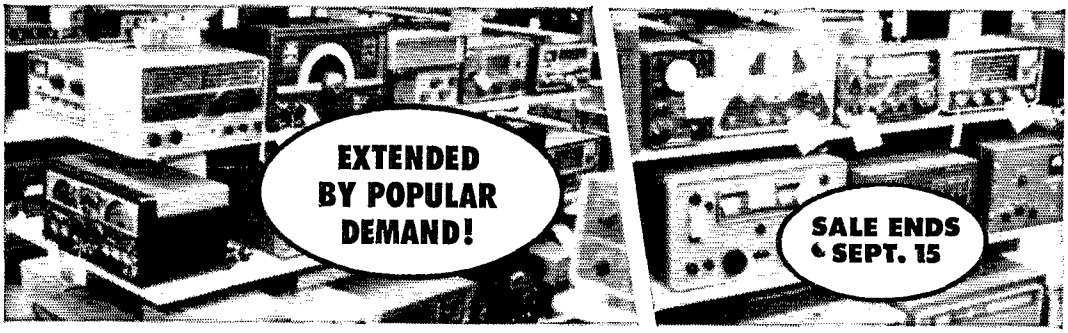

MOBILE EQUIPMENT SPECIALS

Gonset	
G-66B Receiver	$129.50
G-77A Transmitter	169.00
3175 6-Meter Converter	49.00
Super-6 Converter	29.00
Commander Transmitter	49.00
Eico	
720 Transmitter	69.00
Heath	
Cheyenne Transmitter	89.00
Comanche Receiver	99.00
Morrow	
560A Transmitter	119.00
Falcon Receiver	89.00
Multi Products	
AF-67 Transmitter	99.00
PMR-7 Receiver	89.00

NOVICE/SWL BARGAINS

Globe	
Chief 90A Transmitter	44.95
Scout Deluxe Transmitter	124.00
Hallicrafters	
S-20R Receiver	25.00
S-85 Receiver	79.00
SX-99 Receiver	99.00
SX-110 Receiver	109.00
SX-140 Receiver	99.50
HT-40 Transmitter	74.00
Hammarlund	
HQ-105TR (comb. SW Receiver and CB Transceiver)	189.00
HQ-140X Receiver	149.00
HQ-129X Receiver	119.00
Heath	
DX-35 Transmitter	35.00
DX-40 Transmitter	45.00
Johnson	
Adventurer Transmitter	29.00
Ranger I Transmitter	179.00
Knight	
R-55 Receiver	$ 59.00
R-100 Receiver	79.00
T-60 Transmitter	49.95
V-44 VFO	19.95
Lettine	
240 Transmitter	39.00
Millen	
50-Watt Transmitter (w/pwr supply built-in)	29.00
National	
NC-88 Receiver	89.00
NC-109 Receiver	109.00
NC-188 Receiver	89.00
NC-190 Receiver	189.00
NC-270 Receiver	189.00

SSB EQUIPMENT VALUES

Central Electronics	
MM-1 Scope	69.95
Collins	
30S-1 KW Linear	995.00
32S-1 Transmitter	449.00
75S-1 Receiver	395.00
KWS-1 Transmitter	895.00
Drake	
2A Receiver	229.00
Gonset	
G-28 10-Meter Transceiver	159.00
Globe	
DSB-100 Transmitter	89.00
Hallicrafters	
HT-31 500-W Linear	99.00
HT-32 Transmitter	350.00
HT-33 Linear	289.00
SX-100 Receiver	179.00
SX-101 MK1A Receiver	199.00
SX-101A Receiver	289.00
Heath	
SB-10 SSB Generator	79.00
Hammarlund	
HX-500 SSB Transmitter	479.00
HQ-170 Receiver	259.00

VHF EQUIPMENT

Gonset	
Communicator IV 6-Mtr.	$289.00
Communicator III 6-Mtr.	179.00
Heath	
Seneca (6 & 2 Meter) Xmtr.	169.00
Lincoln	
6 Meter Transceiver	39.00
RME	
VHF-126 1¼, 2 & 6 Mtr. Converter	179.00
Hallicrafters	
S-95, 152-174 mc FM Receiver	49.00
SR-34, 6 & 2 Mtr. Transceiver Universal Model	299.00

OTHER USED GEAR SPECIALS

Collins	
310B Exciter/Transmitter	99.00
32V-1 Transmitter	189.00
Eico	
730 Modulator	49.00
Hallicrafters	
SX-42 Receiver	129.00
SX-71 Receiver	119.00
SX-96 Receiver	129.00
Hammarlund	
SP-400 Super-Pro Receiver	165.00
HQ-160 Receiver	239.00
Johnson	
KW Matchbox (standard model)	89.00
Valiant I Transmitter	289.00
National	
HRO-60	369.00
RDF-66 Direction Finder	12.95
RME	
HF-10/20 Converter	39.00
4300 Receiver	119.00
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The National NC-303 is *not* for every amateur...

Frankly, the NC-303 is an expensive receiver. And not every ham is willing to spend [illegible] to enjoy the maximum in receiving convenience and performance. The NC-303 is not a "compact" lightweight. It's packed with 76 pounds of husky components to provide a little bit better reliability and performance than the next receiver. The NC-303 offers certain advantages. Sensitivity, for example, is an honest 1.0 microvolt or better for 10 db AM signal-to-noise ratio—this is not a misleading CW measurement or one based on a 6 db S/N, and the NC-303 is quiet — no operator fatigue from background noise [illegible].

Selectivity is remarkable: [illegible] tuned circuits at 80 KC result in [illegible] on SSB and CW . . . and the 303 offers the widest selectivity choice available in any standard receiver — 400 cycles through 5 KC. Stability, both mechanical and electrical, is [illegible]. No need to [illegible] the shack. In fact, tune in a CW signal and apply the classic "boot test" to see for yourself. Incidentally, we consider 100 cycle thermal drift after a short warmup to be normal. "This is all very well," you may say, "but [illegible]" We agree — for four hundred and fifty dollars you should expect much more than this, and so we give more to you. [illegible] in the industry to provide smoother, more [illegible] tuning than any receiver on the market, regardless of price. The NC-303's band switch mechanism even employs a Geneva movement . . . you just start it on its way . . . it does the rest of the job by itself. No wiggling back and forth to make sure every contact is engaged. This switch snaps in with a satisfying click and stays there. Try tuning a signal on one band, then flip to another band and back again.

Other points include complete coverage from 160 (by the way, the 303 is the only SSB ham band receiver now on the market which incorporates 160) through 10 meters with separate 12" slide rule dials for each band, and accessory converters are available for the three VHF bands. Even a separate converter socket is provided. Dial calibration is to 1 KC on the lowest band, to 2 KC through 15 meters.

The 303 also offers the best SSB AVC you've ever heard. No pops, thumps or distortion . . . just a constant gain level through local or DX QSO. There's an audio resonance control for CW peaking or VHF search work . . . an active nulling Q multiplier for 50-60 db notches, complete with depth control . . . an unusual noise limiter which cuts impulse noise without signal distortion, plus adjustable CW/SSB tuning. Even external provision for RF gain control [illegible] and an accessory socket for receiver accessories or adapters are included.

The NC-303 was not designed to meet competitive price or performance, but to provide maximum honest performance for every type of operation. Not just SSB, not just AM, not just CW . . . but every mode. As a result, it costs more than the average ham receiver. On the other hand, if your requirements are for more than "the average", perhaps the 303 should be your next receiver. Why not operate one soon and find out?

NATIONAL ONE YEAR GUARANTEE

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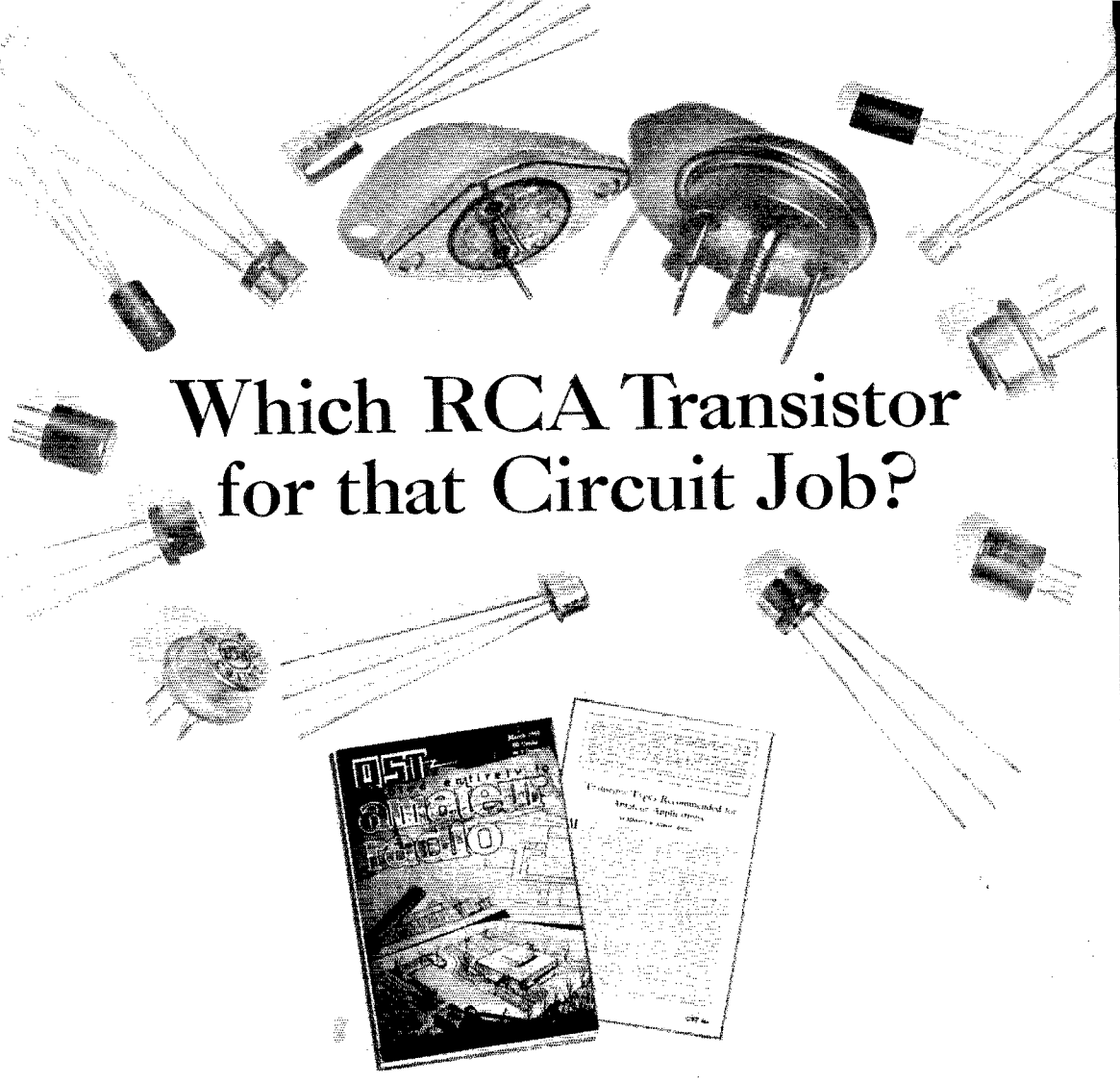

Which RCA Transistor for that Circuit Job?

See the article by W2OUY

The article appeared in QST, March, 1962.

It will serve as a dependable and valuable guide when you are choosing from nearly 100 transistors and silicon rectifiers for specific applications. W2OUY covers the transistor types recommended for receiver rf, preamplifier, if, local oscillator, and converter stages. He points out the types to use in transmitter oscillators and rf amplifiers. In addition, the article lists types for audio stages, inverters, dc/dc converters, and voltage regulators. And there is a handy chart classifying 17 rectifiers having ratings ranging from 50 to 800 volts (PRV)—at dc loads of 500 and 750 milliamperes.

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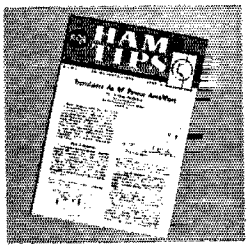

HAM TIPS

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