



Bigelow Green, W1EAE

12 Gloucester St.,
Boston, Mass.

arranged skeds. Only two decent contacts were possible however and both occurred while we were parked. Attempts at mobile QSOs gave poor to awful results, mainly due to flutter.

The following day, still vainly croaking "CQ", we drove to Orange, Vermont, near Barre, and dropped in to see Ann Chandler, W1OAK, and George, W1MMN. Ann, SCM and RM for Vermont, is a mainstay of the traffic nets and is active in CD. She is also a mighty hunter, town official, braided rug expert, dachshund fancier, maitresse de cuisine³ and a charming hostess. George, a communications engineer for the State, has a 30 element, 2 meter array perched sixty-odd feet up toward the tropopause.⁴ This beam is usually headed west looking for scatter from Hawaii, or maybe Japan or someplace, but we persuaded him to swing it around and try to work us on the way home. Again, only two contacts could be made and mobile results suffered from severe pediculosis.⁵

and HALO to You, Too

Introductory Notes

(a) This is not a technical dissertation. Not by a 93 kc dipole.¹ All tick-slippers and theoretical types can stop reading right here.

(b) It is, instead, a go-thou-and-do-likewise account of a quick and easy 2 meter halo antenna which works just dandy.

(c) The device was built in less than one hour with no pain and very little strain. It was, however, the result of acute frustration which came upon us in the following manner:

Prologue

Gonsetting up to the White Mountains with a vertical ground plane on the roof of the car we were unable to raise a single, solitary soul! Next day we met Gordon Pugh, W1JTB. Gordon is a TV engineer stationed on the summit of Mt. Washington and is a ham of the very highest type.² He was most sympathetic and

1. Mile (approx.)Ed.
2. Elevation 6,288 feetEd.

Design Considerations

Back in Boston, with a trip to Cape Cod coming up next day, the mobile antenna problem was given crash priority.

Verticals were out! We'd just *had* it.⁶ Beams? Not for mobile use. How about a halo?

We reached for the April '57 CQ and re-read Bishop's article on page 19. Just what the doctor ordered but, unfortunately, not to be built in one evening.⁷ Other references were consulted but all the designs we could find presented constructional problems or required precise matching adjustments which we just did not have time to tackle. Something disgustingly simple was needed.

We had a moribund⁸ TV Yagi with a folded element which could be chopped to size and plenty of $\frac{3}{4}$ inch mast stock;—but what about matching to the Gonset? A coax balun would perform the necessary 4 to 1 impedance transformation but working with coax can be messy and we did not like the idea of a great gob of feedline flopping around up topside.

At this point our eye fell on the family TV set which had been brought up to the shack for repair back in '54.⁹ In the antenna circuit there were two little matching coils,—BALUN COILS!

3. Good cookEd.
4. A place way up thereEd.
5. Look it up for yourselfEd.
6. But Good!BG
7. Not by us, anywayBG
8. Back to the dictionary, boysEd.
9. Nobody missed itBG

Construction

The coils¹⁰ were quickly mounted on a scrap piece of component board and installed in a 4 by 2½ by 1½ aluminum box¹¹ as shown in the close-up view. They were then series-connected to a pair of feed-through insulators in one end of the box and parallel-connected to a coax fitting in the other end, in accordance with fig 1. The BNC type connector was used only because it was handy; a standard AN type would, of course, be FB. The feed-throughs came from the junk box but there are several equivalent types available for pennies.¹²

The TV dipole happened to be made of ¾ inch tubing with 2 inch spacing and with 2½ inches between the feed points. After a slight struggle with the four-legged stool effect,¹³ we cut it down to something reasonably symmetrical which measured 38 inches overall when lying flat on the workbench. The photograph shows a short piece of aluminum angle which was used to fill in the chopped upper element. Any other strip of metal would have been just as good and, of course, if a dipole were to be made up from new tubing, no such piecing-strip would be necessary.

The folded dipole was circularized by wrapping it around a Tartan Toter.^{14, 15, 16} Allowing for a 1½ inch gap between the open ends, the diameter came out to be approximately 12½ inches. This topological monstrosity¹⁷ was then attached to a piece of scrap lucite which in turn, was bolted to the top of a six foot mast. The "balun box" was also bolted to the mast a bit lower down to keep it out of the horizontal radiation field we hoped would be there and, finally, 300 ohm twinlead was connected between the dipole and the feed-throughs.¹⁸ And that is all there was to it!

10. RCA Part 73591 list price \$1.50 per pair BG
- 10A. Millen makes miniature Balun coils complete with connectors too, see your distributor Ed.
11. ICA type 29377 about 70 cents any similar box would do BG
12. For nickels, anyway Ed.
13. The leg she's too long, you cut him off, she's too short Ed.
14. CAUTION: Do not attempt to bend around wastebaskets, they can't take it BG
15. You could use a tree, but would have to chop it down to get the halo off Ed.
16. It is suggested that the halo might be wrapped around the waist like a sarong, and then squirmed-out-of, like a girdle Janitor
17. Aw, skip it Ed.
18. The length of the twinlead does not seem to be critical. Originally 12 inches, it broke off in the field. We just moved the box up four inches and reconnected with no apparent effect on operation 19 BG
19. Better stay away from a quarter wavelength though. Things could start fouling up Ed.

Operation

For social considerations,²⁰ mobile operation was not attempted on the trip down to Falmouth, Mass. near the south west tip of Cape Cod. That evening, however, with the mast set in a gutter downspout at the corner of the house and the halo about 25 feet off the ground and 40 feet above sea level, we worked W1OQT over on the island of Martha's Vineyard (8 miles) and several Cape stations in various directions and up to 15 miles away. All reports were Q5 with the R varying from 4 to 9 plussity-plus depending on distance but not on direction. At 9:35 PM we nailed W1EC1, portable in Meriden, Connecticut, 110 miles to the west'ard.

Next day we celebrated the fourth of July by adding W1BDF on Nantucket Island (30 miles ESE), W1AJR in Middletown, R.I. (35 miles W), W1FVY, portable on Block Island (55 miles SSW), and W1ZPV in Niantic, Connecticut (85 miles SW) and nary a beam did we have to swing!

Mobilewise, the halo is a delight indeed. It is omnidirectional for all practical purposes and is essentially flat across the band. Flutter is greatly reduced and signal degradation due to cross polarization seems a bit less severe than when using a vertical. Finally, ignition QRM shows marked reduction both from one's own motor and from passing traffic. We have had a number of really comfortable, arm-chair

[Continued on page 160]

20. XYL said: "It's my vacation just as much as yours and I'm sick of that terrible squawking and, besides, I will not drive up to anyone's house with that funny looking thing on the car."

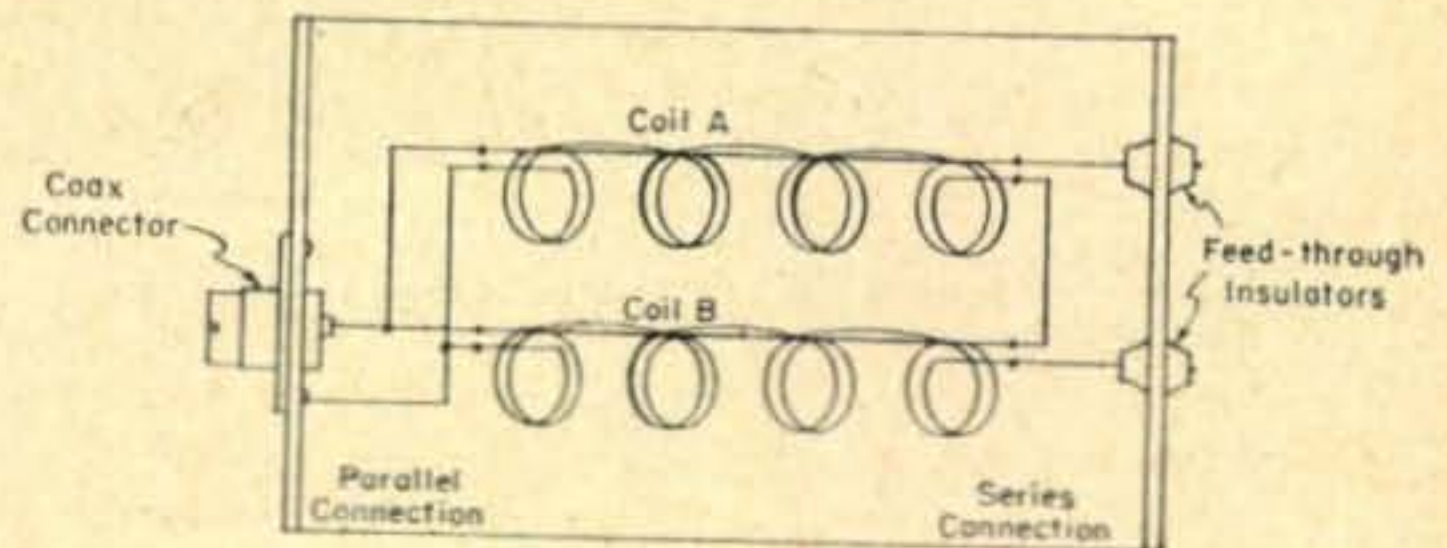
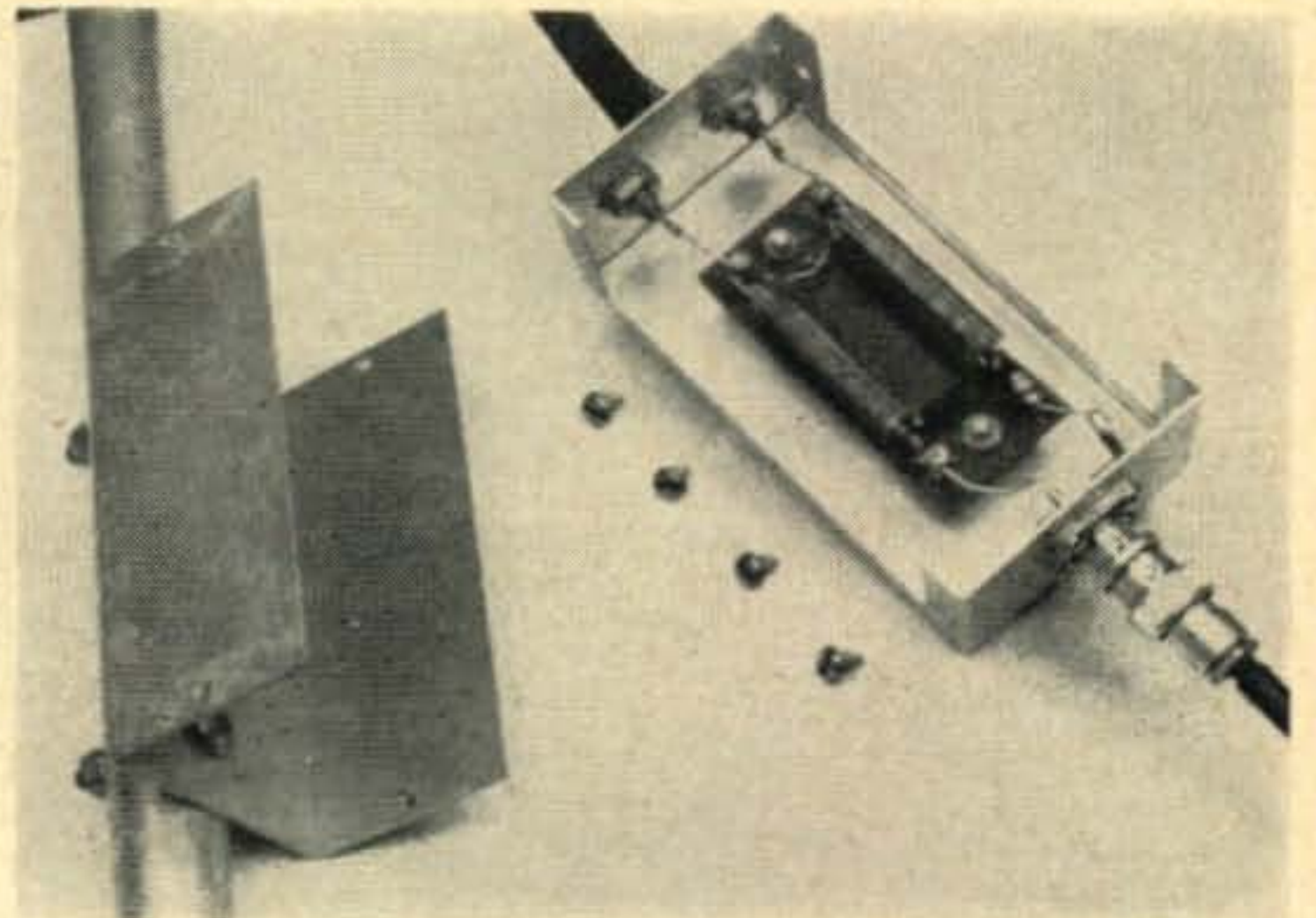


Fig. 1



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Halo

[from page 115]

type QSOs while in motion not only on the Cape but also in the more hilly Boston area. Notably with W1DBH in Arlington, Mass. who picked us up 15 miles out and talked us all the way into our Boston doorstep despite bridges, gas tanks, city buildings, and such. Also with W1UBF in Whitman, Mass. and with W1UCUY in Plymouth, Mass. who remotely directed us through some tricky twists and turns to a destination in that town.

Epilogue

While on Cape Cod we had the pleasure of giving the novice exam to Parker Boggs, the young son of the folks we visited. Three weeks later he got his ticket, KN1CZS. On the second of August we made another trip to Falmouth and set up the halo and the Gonset for his temporary use. His second QSO was with WN2MFC in Neptune, New Jersey, better than 200 miles. SSW

Valedictory Notes

(a) Admittedly this halo is no triumph of precise design. Anyone who wants to can go ahead and optimize it. He can engineer th' be-jeebers out of it and maybe come up with an extra db or two. One of the learned brethren blandly remarked: "So the band was open and you had an antenna and you worked people." He is so right; we had an antenna!

(b) Symmetry, regular spacing, and exact dimensions are to be desired but may not be too important operationally. The halo's slightly dizzy appearance in the photograph is due to the fact that we caught it on a low-hanging branch while under way. It ripped the branch right off the tree, buckled the 3/4 inch mast, and reduced the halo to the semblance of a pretzel. We just bent things back into approximate shape and carried on. This happened, by the way, before the second trip to Falmouth. It still works fine.

(c) The RCA coils were designed for TV reception and are wound with mighty small wire. They live quite happily with the Gonset Communicator but for transmitters of significantly higher power it might be well to make up a huskier set. See any recent edition of the Radio Amateur's Handbook under "Baluns."

(d) On Sat., Aug 24, 6:50 PM EDT was QSO W3ASD, Smyrna, Del. while mobile with Halo and Gonset just South of Boston, Mass. Distance 350 miles!!

(e) The distances mentioned are string-distances taken from road maps. They are probably OK within 10%.

(f) THROW AWAY THOSE BUGGY WHIPS, BOYS! THE HORSE AIN'T NEVER GONNA COME BACK. ■