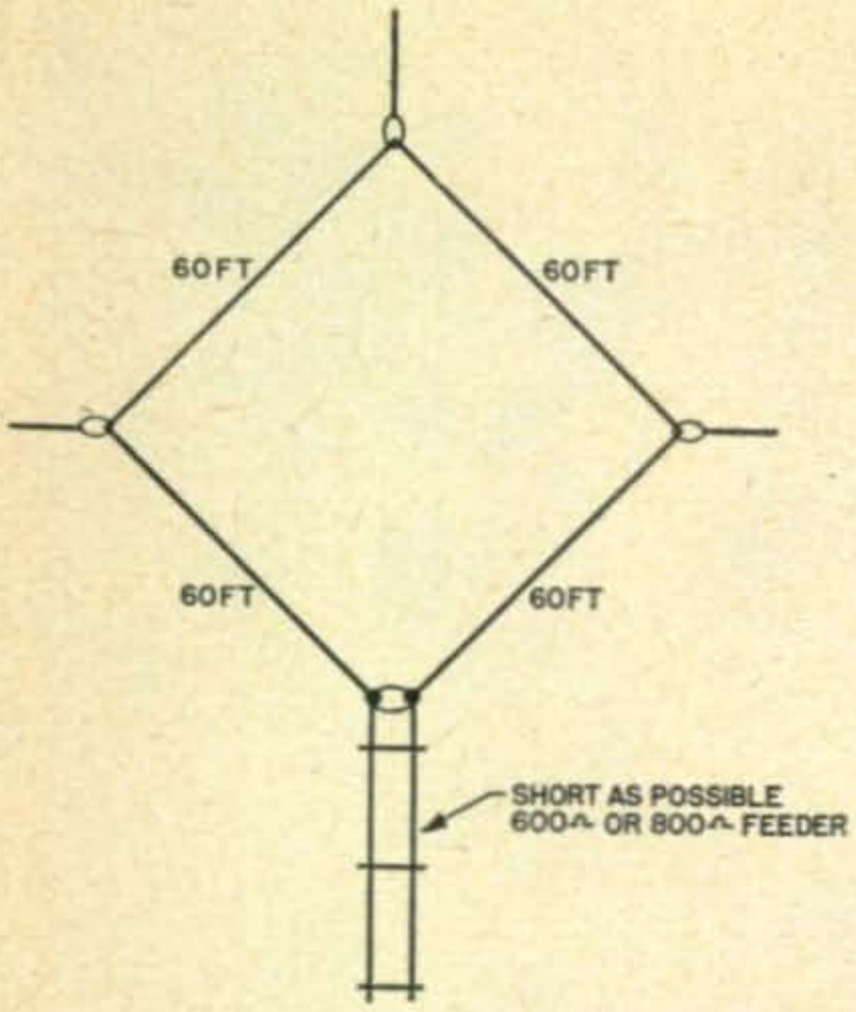

Work Locals with a

Lazy Quad

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Since the opening of the 75 and 20 meter phone bands to General Class use, the QRM situation has become so severe that the old familiar phrase, "Armchair Copy", is being heard more infrequently as time passes. This seems to be particularly true on the 75 meter phone band. Night time band conditions seem to be especially trying these days. The most fortunate operators who do maintain a higher average of solid contacts are equipped with the higher power and more elaborate antenna systems. But what of the fellows with restricted space for antennas? Those of us who for either economical or various practical reasons, do not run high power, in fact in many cases run less than 100 watts input? Generally speaking, unless being blessed with an occasional run of good fortune (such as enjoying a particularly good location or one of those crazy unexplainable hot antennas) we just don't stand a chance when conditions are crowded.

The antenna to be described is not new in principle nor is it difficult to erect or use. However, it seems to be one of the most neglected ideas of the present era. The antenna will not produce any unusual results as far as DX is concerned, but on statewide contacts up to 400 miles it has proven itself to be far superior to the half wave doublet 45 feet in the air and much more desirable than a 375 foot, wave and a half long wire. The antenna in question is the full wave loop (closed loop type). This antenna erected in a horizontal plane produces principally high angle radiation, don't wince when you read this. I realize that the modern day trends seem to be more and more toward low angle radiators for DX work. This article is intended for those who want to maintain more solid local and net QSO's.

The natural properties of a full wave loop indicate that the maximum amount of radiation occurs at right angles (or perpendicular) to the plane that the antenna is mounted in. Therefore it is safe to assume that if the loop were mounted parallel to the ground, the maximum effective radiation would be straight up into the sky. This situation upon further thought seemed like an ideal condition for those good solid, local, short haul contacts. After making a few simple calculations I rounded up 240 feet of antenna wire and some insulators and went to work. A few natural supports such as trees and buildings were well situated for erecting the antenna in a square configuration. The maximum available height was only 25 feet, but for the sake of experimentation I decided this would be adequate for the initial check. The completed antenna was 60′ on a side and as nearly level with respect to the ground as possible. A short length of 600 ohm open wire line was used to feed the antenna from the upstairs location of the shack.

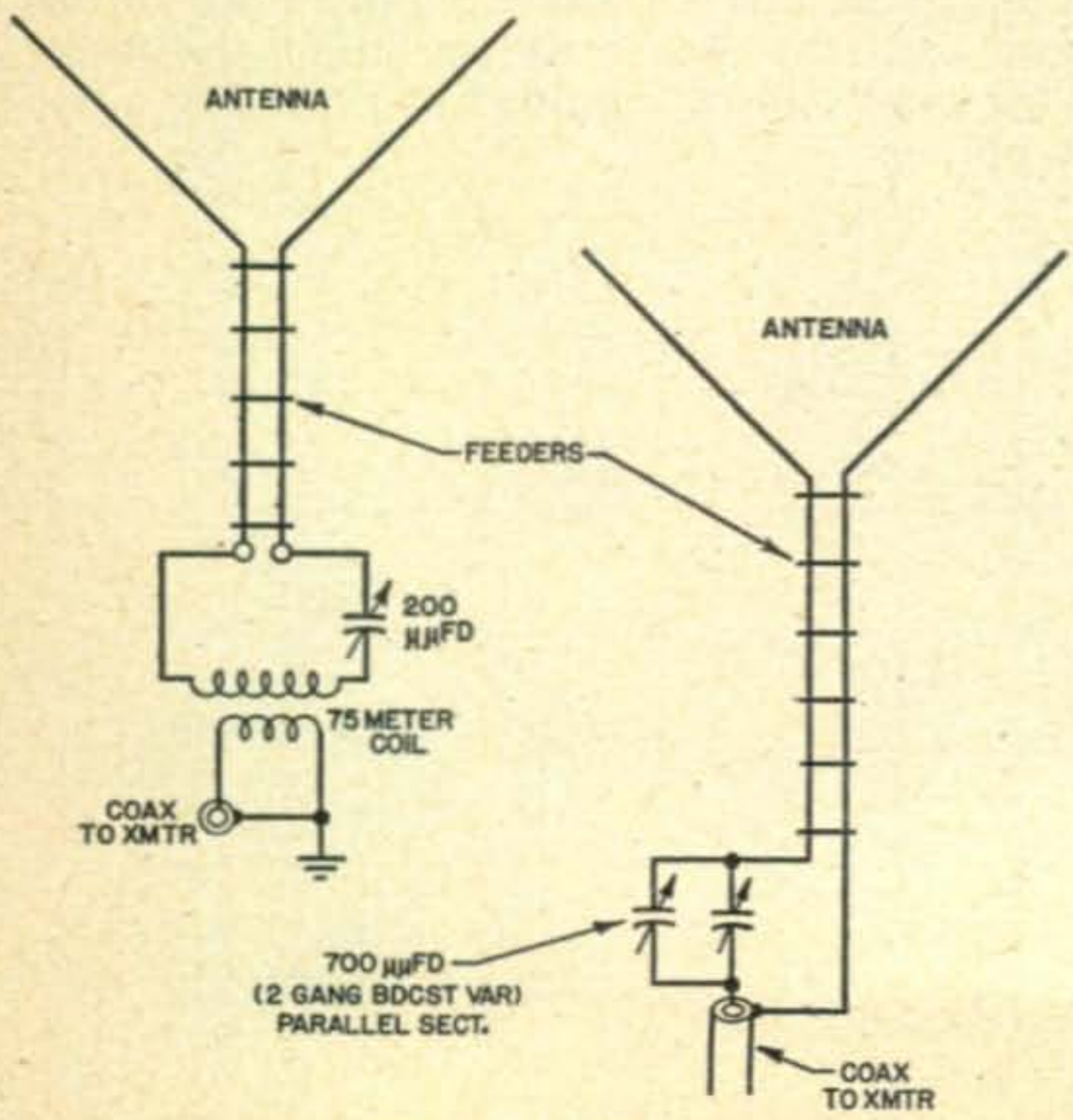

Fig. 2. Loading.

Coupling Methods and Loading

Considerable experimentation became necessary in order to achieve proper antenna loading. *Figure 2* shows the two most desirable methods used. The antenna manual states that the feed point impedance on a full wave closed loop is in the vicinity of 50 ohms. This was tried with RG8-U and proved to be totally unsuccessful. A system of series tuning was finally decided upon and the transmitter loaded readily.

[*Continued on page 120*]

Lazy Quad [*from p. 38*]

Results

A CQ at 5 PM immediately raised a station in Detroit, a distance of 200 miles. The signal report with 50 watts input was 40 db over 9 in Detroit. Very little or no QSB was evidenced on our signal. The received signal of the Detroit station was free of noticeable QSB and 35 db over 9. After these figures were established, I immediately connected the regular station antenna (referred to in Feb. *CQ* as a drooping doublet or here in Michigan as a modified inverted V) to the transmitter and made a most gratifying check. Our signal in Detroit dropped to 15 db over 9 and severe QSB was present on the signal with so called, "selective fading". The received signal exhibited the same reduction in strength. Heavy QSB was also noticed. (I am by no means selling the inverted V short. This antenna for general use and DXing on 75 is still tops with me). Several additional contacts have been made within a 400 mile radius and the same results by comparison with the regular station antennas has been observed. Further, during nighttime conditions I find that outside signals are greatly reduced in amplitude and nearby signals are stronger thus aiding greatly in QRM reduction.

This antenna might be compared in principle to the driven element of the cubical quad with the ground acting somewhat as the missing reflector. The great difference being that the signal is radiated skyward rather than toward the horizon. This being the case, it would seem ideal that the loop should be mounted .2 wavelength above ground (48′) for the optimum gain figure of the quad antenna. Or perhaps an even better idea would be to construct a reflector of wire and place it below the driven element. The same tuning procedure should apply through the use of a stub. Placing a field strength meter beneath the reflector it should be possible to tune the stub for minimum backward radiation.

Another useful innovation of this loop which I have tried is to open the far end and treat the system as a small rhombic for the higher frequencies. This worked out most satisfactorily on 10 and 15 meter DX contacts even though the antenna was not electrically the proper length. Incidentally, full wave loops do not have to be square in layout. They can be diamond shaped or round or what have you and seem to work equally well. They can also be reduced in size by winding the wire double. I experimented with one which was only 2 feet on a side and contained 6 turns. I worked into Detroit (200 mi.) at mid-day and was copied Q5 and S9. This was only 3 S-units less than the reference antenna. This might show some good promise for mobile and portable installations.

I don't know what you will think of the whole idea, but it won't cost much to try it. If you want more solid communication locally and want to reduce outstate QRM you should find this most acceptable. ■