

away again. Quite thrilling to listen to, even if you don't actually make the contact.

## Aerials

For best results on 160M you need a lot of real estate. Those of you who take QST (the ARRL Journal) might remember an article which described how to set up a Rhombic for Top Band using a baseball stadium. I suppose in this country the local football ground is a possibility, but you might have difficulty setting it up on a Saturday, ready for Sunday morning DX time!

Progressing down the ladder, a little, many aerials are in use, from tall verticals, to loaded verticals, half wave dipoles, end fed wires, balloon supported verticals etc etc.

## Compact Antenna

Most people have difficulty getting up any reasonable size aerial for 160 metres — the half wave dipole, or a decent sized vertical are usually out of the question, and the antenna all too often ends up as a random piece of wire with poor radiation characteristics.

vertical radiation needed so much for long distance traffic.

## Folding the Aerial

From the diagram, you can see that the antenna is effectively folded back on itself, enabling a full half wave to be accommodated in a garden only around 60-80 feet long — or less if you want! During the time the antenna was in use, and after a lot of experimentation, it didn't seem to matter how much the lower horizontal section was reduced in length so that it would fit in the garden (within reason), or the manner in which the lower leg was taken round the garden, providing that a loading coil was inserted in the end furthest from the transmitter to get the high current portion back into the vertical part. To enable this to happen, the portion from the shack to the centre of the vertical section needs to be a quarter wave in length — if you can't get this in one straight run, then you can happily lose some of the length by running it round the loft — this part of the aerial near the shack contributes little to the radiated signal.

When erecting the antenna, the shack obviously serves as one end of

## Pruning

Getting the current maximum into the vertical section is fairly easy — if you break the antenna at the midpoint of the vertical, an RF ammeter, or a car headlamp bulb can be inserted at this point, and the loading coil adjusted until either the bulb is glowing brightly, or the ammeter shows maximum current. If the latter option is used, a pair of binoculars/telescope will come in handy to read it!

The actual loading coil should have a fairly large diameter and be wound from 18 swg wire to keep losses down. 2" would be about the minimum — try starting with about 30 turns and work from there. The coil is best inserted about 15 feet from the far end — doing it this way also means that you can adjust the length of the wire to shift the current around if you want to.

## Earths

As the antenna is about a half wavelength electrically, the feed impedance is very high. This has the advantage that a good earth connection is not called for, and this gives the antenna a great advantage over a short loaded vertical, which would have a very low feed impedance and therefore require an extremely good earthing system. With the high feed impedance, the current at the shack end is small, so the loss involved in passing this through the average earth connection is small.

## Matching

Any matching unit capable of transforming a high impedance down to 50 or 75 ohms will be satisfactory. The author ended up using a 'Transmatch', which also allows the aerial to be used on other bands.

## 80 Metres

For 80 metre use, the antenna can of course be scaled down by a factor of 2. Alternatively, it will work on 80 metres as it stands, although the vertical section will no longer carry the current maximum — as it will now be a point of maximum voltage instead. The feed impedance is still high, as we are now dealing with two halfwaves when on 80 metres. It still works satisfactorily however, and is capable of reasonable DX from a limited garden space.

IOWA  
STORY COUNTY

# WONFL

160 meters

| Radio SWL | Date      | QNT  | RST | MHz  | Z way |
|-----------|-----------|------|-----|------|-------|
| A. 7054   | 10 MAR 71 | 0555 |     | 1802 | CW    |

Please QSL. Tax

73

James L Graham  
229 S Riverside  
Arcos, Iowa 50010, U.S.A.

The author is in the process of resurrecting an antenna which was found to be very efficient on Top Band, and seems to have been largely forgotten these days. It has the benefit of providing primarily vertically polarised radiation for best DX — but not needing a good earth connection unlike a short vertical.

The antenna is a slightly modified version of the G80N, which is basically a folded half wave and arranged so that the vertical section is carrying the maximum current, giving us the

the antenna, and the further support can either be a pole at the end of the garden (if so, keep the vertical wire at least 6 feet from the pole, and insulate the pole from earth if possible), or a suitable tree if one is available. With trees, it is vital to have some form of mounting device that will allow for the fact that the tree is likely to move in the wind! A rope passing over a pulley, the latter tied to the tree, with the free end of the rope weighted will do the trick nicely and ensure that your antenna stays up in the air.