possibilities of the very limited space available for aerials. After some thought I decided that the masts to support my putative aerial system would have to be self-supporting. Guyed masts, although easier to erect to a useful height, would severely reduce the span of antenna possible between them, owing to the need to allow space for sets of guys. Two self-supporting masts could be placed tightly into the far corners of the plot thus maximising the possible antenna span. Guyed masts, I also surmised, tended to be unsightly and might antagonise the neighbours.

Two larch poles, some 8m long, were purchased very cheaply from a local woodyard. Plastic eyes, from a local hardware store, were screwed to the tops of the masts in order that nylon halyards could be threaded through, to allow easy erection of antennas. The larch poles, after a good coating of wood preservative, were mounted in holes made by an auger drill, hired for the day from a local garden centre, A halyard was also fitted to a vacant chimney — mounted TV aerial mast, conveniently located halfway between the two masts and about 8.5m high.

The horizontal approach

Single band '80m' operation was initially opted for and a full size ½ wave dipole was duly erected. The centre of the antenna was supported by the chimney-mounted mast and the legs of the dipole were stretched between the two larch poles, with some 21m of the aerial in a straight line. See **Fig. 2.** The remainder of the antenna at each end was sloped semi-vertically downward and fastened to conveniently located garden fencing. The antenna was then adjusted for minimum SWR at 3.7MHz and had an SWR of under 2.5:1 across the 80m band. The dipole was fed with 75 ohm twin feeder direct from the transmitter output. Even with only some 60% of the aerial in a straight line 5 and 9 plus signal reports were obtained from all around Europe and, with some patience, all continents were worked with 100W input of SSB. Of course my signals were never the strongest in the pile of stations competing for the DX but I usually got through eventually and even the odd American station came back to my CQ DX calls — at 6am on a Winter's morning!

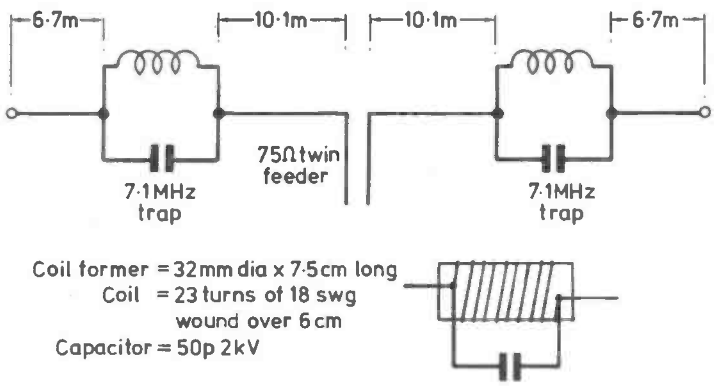

Fig. 3. Trap dipole for 80m and 40m

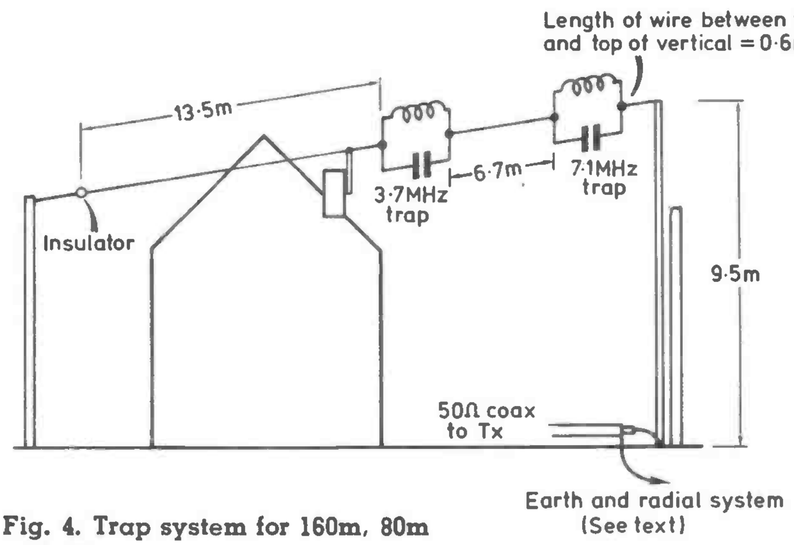

Fig. 4. Trap system for 160m, 80m and 40m

After some time of operation on 80m it was decided to see how a low dipole would work on 40m DX. As 80m operation was still required a W3DZZ type trap dipole antenna was constructed from data (1) as in **Fig. 3**. The coils were wound on offcuts of plastic drainpipe, adjusted to resonance on 7.1MHz with a grid dip oscillator and coated with varnish for weather protection.

The parallel tuned circuits present a high impedance at 7.1MHz, effectively isolating the end sections of the aerial, allowing it to function as a ½ wave dipole on both 80 and 40m. On 80m the traps present a low impedance to the transmission and give some inductive 'loading' to the antenna, effectively shortening the length of aerial required for resonance. Thus a trap dipole aerial is effectively shorter than a regular 80m dipole, in this case about 12%. Similar results were obtained on 80m as with the full size dipole. North America and New Zealand were worked on 40m CW with 100W DC input.

The vertical approach

Around this time I was lent a commercial trap vertical aerial by a visiting American amateur. This aerial, working on the principle previously described, covered 40 through to 10m. The aerial, working against a ground plane of two ¼ wavelength radials per band stapled to the garden fencing and three 1m x 4cm lengths of copper piping driven into the ground a few feet apart, was mounted on a 2m length of steel pipe attached to a garden