Aerials for DX working Part 2

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Many amateurs have a metal mast or tower to support their 14/21/28MHz rotary beam and do not want to erect more supports. A number of articles have been written on the use of the tower as a vertical radiator by shunt feeding, as shown in **Fig. 5.** However I have found that intermittent contact between the sections of telescopic tower coupled with undesired resonance effects of the many cables attached to the high band aerials and rotator can cause problems and I therefore prefer the use of sloping wire aerials attached to the top of the tower.

Two types are in common use, the half-wave centre fed sloper and the quarter-wave sloper often called the half sloper. The former is illustrated in **Fig. 6.**

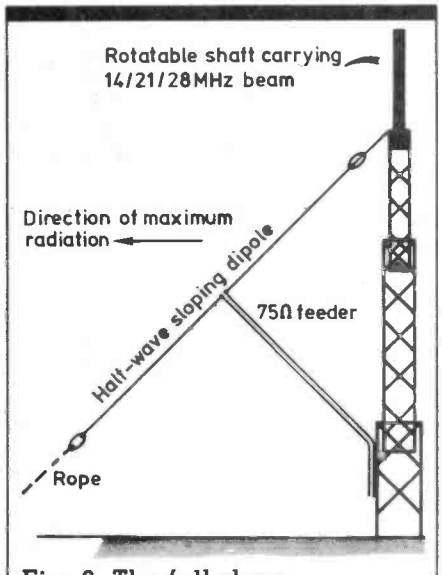

Fig. 6. The full sloper

Best results have been achieved by using a slope angle of about 45° with the bottom end pulled out in the direction to be favoured. The metal tower tends to act as a reflector reinforcing vertically polarised radiation in the plane of the tower and dipole as shown in the diagram. A horizontally polarised component exists which is beneficial should short skip contacts be desired but, of course, gives rise to more

interference when working DX than when using an aerial which is solely vertically polarised.

In practice the half-wave sloper is an effective DX aerial and by using four equi-spaced around the tower, each with its own feeder, it is possible by appropriate phasing and switching to select coverage of any part of the world (ref 6).

The half-sloper is illustrated in **Fig. 7.**

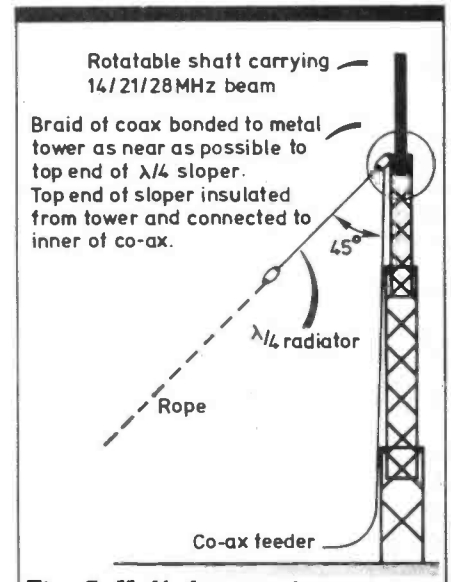

Fig. 7. Half sloper using a tower for support

In this case the tower becomes a virtual vertical ground plane against which the ¼ sloper is energised. On the face of it the half-sloper should be less efficient than the full size ½ sloping dipole. However there are two mitigating factors:

(i) The current loop is higher on the half-sloper and
(ii) The lower end of the aerial is at a greater height than for the sloper and therefore obstructions should have less effect.

The author has found the half-sloper to be less directional than the full size sloper. This is because the current loop (ie the point of maximum current) cannot be spaced from the tower. It may still be useful to use three or four half-slopers around the tower but do not expect spectacular directivity when switching. Full wave loop aerials make excellent radiators for use on the lower frequency bands. For the 7MHz band a total wire length of about 43m is required. A rectangular loop fed at