

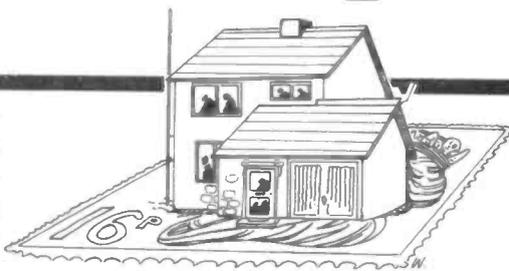
# A Compact PERFORMANCE Aerial System

By Steve Ireland G3ZZD

This article is the result of ten years operation from a fairly typical semi-detached suburban location — where the plot the house stood in had a length of some 21m and a back garden space of 8.5m square. From this apparently unpromising QTH all continents have been worked on 80m with 100W of SSB and on 40m with 10W (DC input!) of CW. This was without scaring the neighbours to death with huge aerial masts or digging up the back garden to bury large quantities of earth radials. The article, however, does not set out to offer a 'magic' recipe for LF success that must be slavishly followed, but to offer closet LF enthusiasts some encouragement and guidance in making the best of their locations. Fig. 1 shows a plan view of the G3ZZD location.

## Horizontal or vertical?

For a workable efficiency an antenna must be at least an elec-



**For a radio amateur who is interested in LF operation a large garden is usually taken to be necessary, particularly if intercontinental DX contacts are desired. Not true.**

trical quarter wavelength long at the required operating frequency. Also, unless the height of the aerial approaches a half wavelength above ground at the operating frequency the radiation from the aerial will be predominantly at a high angle (ie.

greater than 30 degrees). This is fine for distances up to 10,000km, that is to say for UK and European QSOs, but fairly poor for DX. The signal from a low, horizontal antenna will have to bounce off the ionosphere and the Earth's surface many times before reaching the required DX station and will thus be severely attenuated, especially over a predominantly overland path such as the 'short' or direct path to Japan.

In contrast, a quarter wavelength vertical, correctly fed against a reasonable earth, virtually guarantees a considerable amount of low angle radiation and DX. The disadvantage is in the height, particularly on 160 and 80m. How many amateurs in suburbia interested in 80m DX could erect, let alone *dare* erect, an aerial that is 66' high!

On obtaining my call sign and opting for LF operation, 160, 80 and 40 metres being my favourite bands since my earliest days as a short wave listener, I considered the

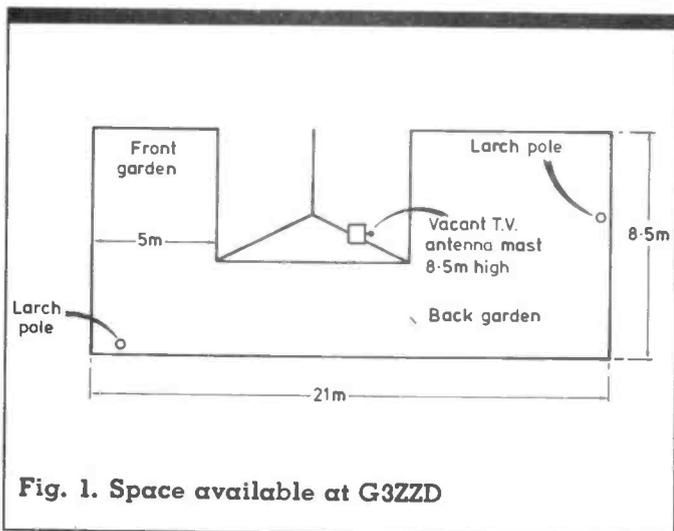


Fig. 1. Space available at G3ZZD

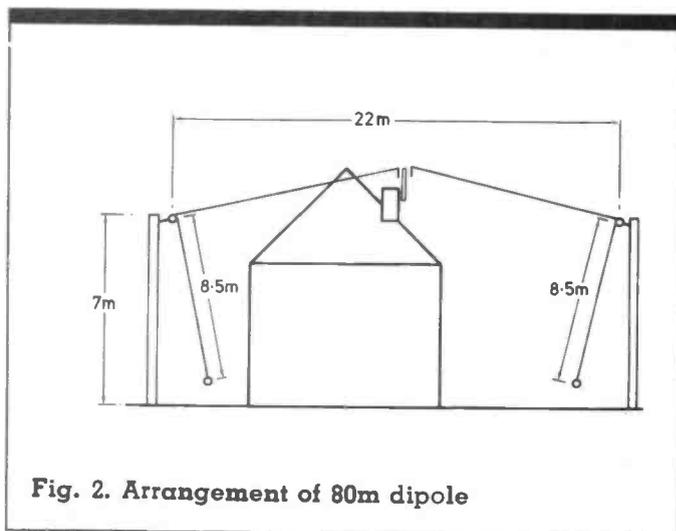


Fig. 2. Arrangement of 80m dipole