WIRE ANTENNAS ON 2m — a practical proposition?

A VHF antenna doesn't have to be a Yagi, quad or co-linear. Graham Packer, G3UUS, shows how good old wires can be used.

To the newcomer on VHF, 'antenna' means a series of rods, either 'parasitic' to a radiating element, such as in a yagi or quad, or stacked and fed in phase, such as the various forms of co-linears.

It is true that beams, quads and co-linears have their place; they provide easy-to-mount and rotatable structures of predictable performance. However, they can be very expensive and certainly create aesthetic problems in built up areas.

Much early VHF work was done on the antennas amateurs already had erected for their HF activities — and their signals did 'get out!' Their transmitters were simply adjusted for maximum power into whatever impedance their antennas presented and that was that.

Then the war came and amateur operating ceased for a number of years. Development of antennas progressed particularly in military laboratories and by the time operations re-commenced after the war the scene was set for an almost universal take-over by the 'yagi' — which has remained until this day.

Not all amateurs were convinced, however, and much early moon-bounce work was done with VHF rhombics. The gain available can be immense but the disadvantage for moon-bounce is that the array is not steerable, giving you a narrow time-window for operation. *(The array is not only highly directional but has a very low angle of radiation; it is useful only when the moon is on or near the horizon and in the direction of fire of the antenna — Ed).*

For fixed links, however, the rhombic came into its own — see **Fig.1**. Amateur and commercial meteor-scatter circuits still use the rhombic and, as a cheap, high-gain antenna, it is hard to beat.

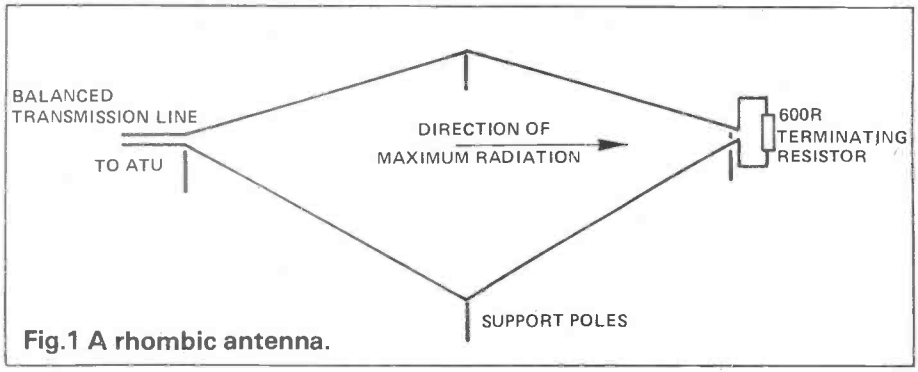

Fig.1 A rhombic antenna.

A simple version is the end-fed inverted Vee or 'half rhombic' shown in **Fig.2**, which needs only one support mast in the middle.

Both these antennas require a terminating resistor for wide band operation with the optimum front-to-back ratio. Suitable terminating resistors for VHF are shown in **Fig.3**.

The half rhombic requires two earths, not a simple matter at VHF. Theoretically an earth is an infinite conducting sheet or surface; this can be approximated by laying two sheets of copper-clad board, aluminium or even cooking foil, about 1 metre square at each end of the aerial!

Operation of both these antennas without terminating resistors is possible, but be prepared for your RF to go in any direction!

Many amateurs are experimenting with G5RV's, HF dipoles, long wires and Vees; in fact a Vee-wire antenna is included as an option for the Clansman, the British Army's latest VHF transceiver. The Army certainly realises the advantages of an almost

Table 1 Alternative resistor values for the VHF load resistor; note that all should be 2 W carbon types.

For 600 ohms	For 300 ohms
4 × 2k2	4 × 1k2
or	or
5 × 3k3	5 × 1k5
or	or
6 × 3k9	6 × 1k8

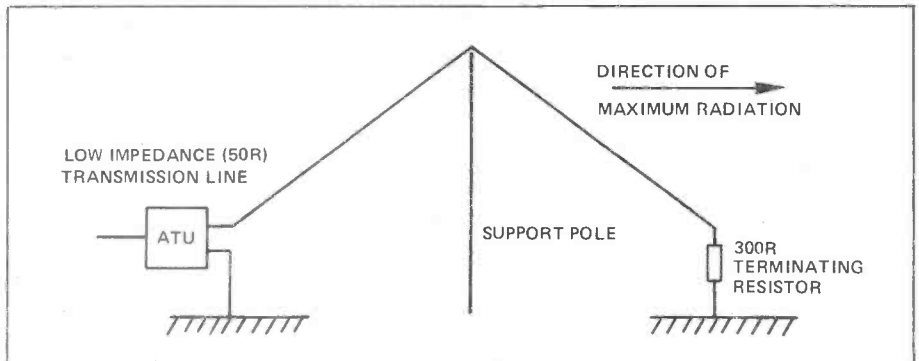

Fig.2 End-fed inverted-V or half-rhombic