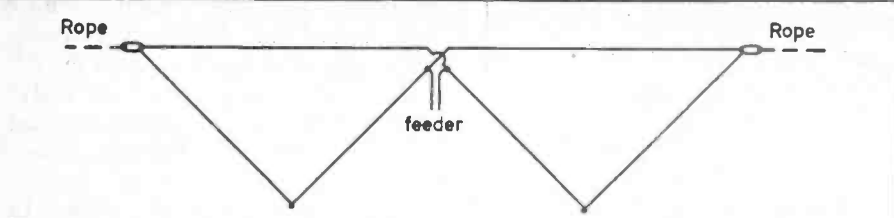
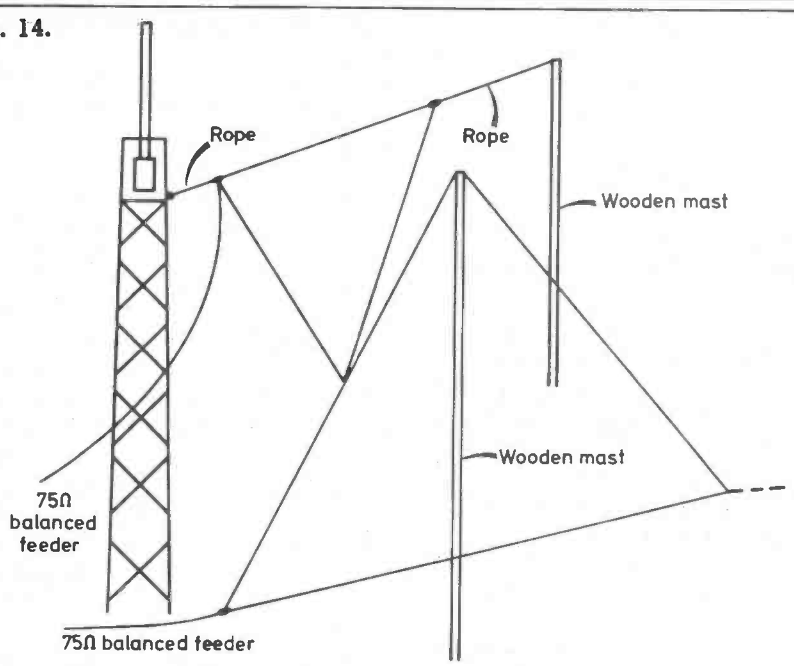
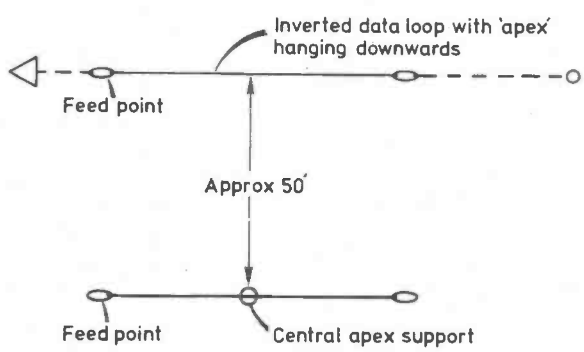


Fig. 13. Conlinear inverted delta loop.

Fig. 14.



Phased 3.8 MHz delta loops at G2PU



Plan view of phased delta loops

efficiency fall alarmingly with a severely shortened element. Therefore good insulation, heavy gauge conductors to minimise ohmic losses as well as a first class earth system are mandatory for DX working with a short vertical.

After considerable experimentation the writer decided to use a quarter-wave radiator excited against ground. As it was not practicable to get the radiator wholly vertical, one eighth of a wavelength is vertical with the remaining one eighth of a wavelength horizontally suspended between two masts. (See **Fig. 15.**) This arrangement can either be regarded as a bent quarter-wave or as a shortened vertical with assymetrically mounted top hat capacity loading. Polarisation is mainly vertical but of course there is also some horizontal polarisation. Eight radials each 1/8 wave long are used at ground level.

The feeder used is a buried 75Ω heavy duty co-axial cable about 100m long. At 1.90MHz the VSWR is approximately 2:1 but no concern is felt about this because the co-ax loss at this low frequency is insignificant.

For those with sufficient mast height the ¼ half-sloper can provide good results (reference 7).

One way of getting the meagre power we are permitted on top band into radiation, and not lost in warming the ground connection, is to use a loop aerial design. For example if an 80m Delta loop is fed by open wire feeder coupled to an ATU it can be current fed in its normal mode but voltage fed on the 1.8MHz band. Earth connection losses no longer play a part in determining the amount of power in the radiating element (but earth characteristics of course affect the polar diagram).

A full wave Delta loop is beyond the resources of most amateurs except for those living on suitable sites in the country. The writer knows of one American amateur who uses one with outstanding results.

The object of this article has been to outline the practical difficulties which confront the average amateur contemplating an efficient aerial for DX working on the lower frequency bands. The author has tried to develop ideas for arriving at acceptable compromise when only modest resources are available. It is intended more as a thought provoking exercise than as a detailed constructional article. ●

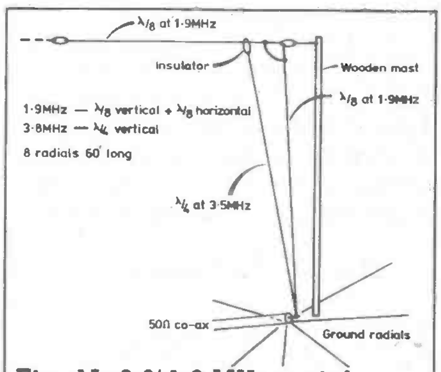


Fig. 15. 3.8/ 1.9 MHz aerial system at G2PU

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6) *40m sloper system.* The ARRL Antenna Book — 13th edition — p200-201.
7) *Putting the quarter-wave sloper to work on 160* — Atchley — QST July 1979 — p19-20.
8) *Additional notes on the half-sloper* — Demaw QST July 1979 — p20-21.
9) *The half sloper — successful deployment is an enigma* — Belrose — QST May 1980 — p31-33.