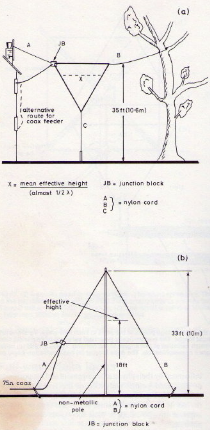

Fig 45. (a) A practical delta-loop antenna for 14MHz based upon the type shown in Fig 44(e). It is suspended from two supports. Its radiation angle is only 20°. (b) This version uses a single support mast and is the arrangement shown in Fig 44(b). Its effective height is, however, only 18ft (5.5m) whereas the antenna shown in (a) has an effective height of almost a half-wavelength

Practical delta loops

Two of the several ways to set up a delta-loop antenna are given in Fig 45, both of these being 14MHz designs. The example shown in (a) has a mean effective height of almost a half-wavelength, and is arranged to provide low-angle radiation. The rather awkward position of the feedpoint is overcome when it is placed not too distant from the house. The feeder must not drop down vertically when using this arrangement, or it will unbalance the system and detune the antenna.

In Fig 45(b) a single 33ft (10m) support pole is all that is needed, the lower ends of the delta being held in position by nylon cords. In this antenna arrangement the feeder can safely drop down and run along at ground level or be buried. Conventional insulators are not required, as the voltages at the corner angles of delta-loop antennas are not high. Nylon or Terylene cords are fine as both insulators and supports. The junction blocks are also located at points of low RF potential; they can be made from almost any insulating material which will shed moisture.

iA variation of the antenna shown in (b), which can be used when the physical size of the loop and its support are very large at the lower frequencies (7 or 3.5MHz), is one where the two upper sides of the loop come down from the centre support at an angle of about 45°. This will allow the use of a shorter support mast; on 7MHz a mast height of about 50ft (15m) will suffice.

Trees can also be employed as delta-loop supports, and some amateurs have had fine operating results when the complete loop was positioned actually inside the branch system of large trees. Such antennas then virtually disappear through the summer months; the leaf growth does not seem to affect their performance.

Fig 46 illustrates a suitable connection block for delta-loop antennas. Almost any insulating material which is weatherproofed will do for this – the actual end of the coaxial feeder cable and the soldered connections must also be thoroughly weatherproofed. The use of 75ohm coaxial feeder (which must be taken to an ATU when 50ohm input/output equipment is used) is not essential, and, like many other antennas so far described, a tuned feedline can be employed.

The use of delta loops on frequencies far removed from their design frequency is not recommended. They are not multiband antennas. One radio club which is well known to the author put up a big delta loop cut for use on the 3.5MHz band one Field Day, and the operators soon discovered with some dismay that their efforts with this on the higher-frequency bands were unrewarding! Their score rate was so low that, in desperation towards the final hours of the contest, a trapped dipole was pressed into service.

The grounded half-delta antenna

This antenna was developed by John S Belrose, VE2CV, and described by him in the American magazine *Ham Radio* in May 1982. It has received scant attention in Europe, for a large plot of land and a very high support tower are needed when the antenna is designed for 1.8MHz use as in the original article.

The basic features and dimensions of the half-delta are shown in Fig 47. The most important element in its design