

Fig. 16 A single radial is insufficient for a ground mounted vertical even though the VSWR may look good.

frequencies, verticals are generally loaded, often with traps for multi band operation in the case of commercial units. Of course, there are losses inherent in even high quality traps; but one fact I have only rarely seen mentioned is that if the vertical is not *physically* one quarter wavelength or more, then the angle of radiation goes up, as well as the useable bandwidth being reduced.

For inter-G working on 80 and 40m, verticals — especially the multi band compact type — give poor results although they do come into their own further afield. Dipoles are the opposite so unless there is room for more than one aerial, I would recommend an inverted vee which copes with both local and DX contacts very well. Naturally when chasing the DX, receiving close-in signals is a disadvantage. That is the price to be paid for making do with one aerial. As with horizontal aerials, it is possible to get multiband operation from inverted vees with traps or parallel elements as well as open wire feeders — for example see Fig. 17.

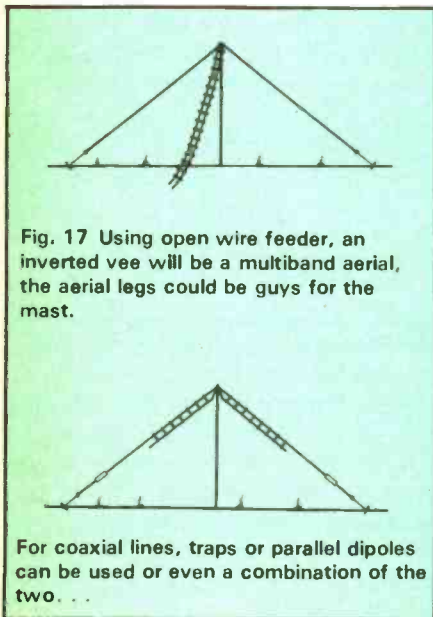


Fig. 17 Using open wire feeder, an inverted vee will be a multiband aerial, the aerial legs could be guys for the mast.

For coaxial lines, traps or parallel dipoles can be used or even a combination of the two.

Using Trees As Aerials

Back in the early 1970s, the US army experimented with the use of trees as vertical radiators. The results were reported in the technical press and claimed up to 20dB advantage over a tuned whip in tropical rain forests in the 4 to 10MHz range. Before everyone gets too excited remember that the tuned whip in question was probably one of those very short ones fitted to a manpack type radio, so 20dB up on that could still be well down on a full size dipole. Nevertheless where a suitably large tree is available and where outside aerials are definitely taboo, the technique could well have some use. The tree was 'loaded' with a 'Hemac' coupler, as illustrated in Fig. 18, formed from a length of large diameter coax.

I remember an article by G8PG appeared in the Short Wave Magazine giving the results of his trials with a homebrew version. He used his portable QRP transceiver, producing about 2W, but was very pleased with the results he obtained on 20m. I have seen no other mention of experiments with this technique since that time.

On The Air

I would be the first to admit that none of the simple aerials described will enable you to "burn a hole in the band" no matter how much power is used. When first licensed, I initially ran almost the legal limit but found it to be more trouble than it was worth. Although the signal was only marginally stronger than with 100W I had terrible trouble with high levels of RF getting into the mains wiring with inevitable results. Given limited aerial facilities far more benefit will be gained by using some nous, and lady luck smiles far more often than many give her credit for.

With the present state of the sunspot cycle, 20m seems the highest band capable of producing consistent DX during daylight hours. If working in the shack monitor 15m and 10m; you may find a DX station on an otherwise dead band before the 'hordes' do. On the odd occasion that this pays off, the resulting smug feeling as

others start to squabble is very satisfying indeed!

One benefit of the low solar activity is the increased effectiveness of the LF bands, particularly during the winter months. My own love is 40m CW but this would not be everyone's choice due to the problems with adjacent commercial signals at very strong signal strengths. Most amateurs I speak to refer to 40m after dark as "wall to wall noise" but this is often due to the receiver's front end suffering under vast amounts of RF — switching in the 20dB attenuator

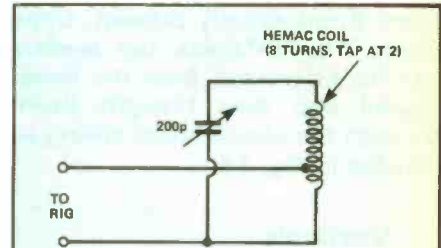
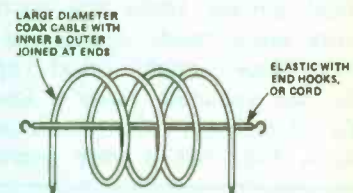
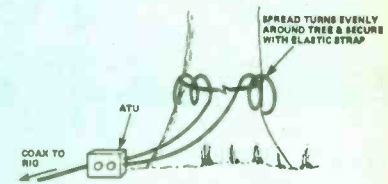


Fig.18 Circuit diagram of G8 PG's 'minimal ATU'.



The Hemac coil.



The Hemac coupler in position.

results in a world of difference. There is still rather a lot of noise, yes, but signals can now be heard in it. My own favourite time is the hour after midnight, when a goodly number of the commercial stations seem to disappear and the band generally seems quieter. I have an inverted vee up 9m and if I call CQ and don't get a stateside station come back then it's a sure sign that conditions are not up to much. This is on CW I hasten to add, which will be a necessity in the small hours if an indoor shack is used with the keying gap fairly close and the headphones on.

Using CW

Considering all of the time and