

Yagis which advertisers in this journal can offer you.

Straight up, then...

An important factor to emphasize to those constructors who propose to erect a vertical Yagi for VHF/UHF is: Do not mount it on a metal mast. Remember that its own elements are vertical. Any unrelated vertical object in its vicinity will affect its field strength lobe and probably its performance.

Here are practical solutions to this problem:

Obtain a length of non-conducting material such as a plastic waterpipe. Clamp its lower end to the station mast. Clamp the new-built antenna to its upper end. If the non-conducting section can be 4 to 5' long, so much the better, to clear the antenna limbs from any metal vertically.

By now, having mated up Yagi with non-metallic sub-mast into main mast the constructor will next turn his attention to methods of rotating that little lot. It is not difficult. As with professionally made antennas, there are professionally made rotating systems advertised in this magazine in profusion. Choose one that best suits your station circumstances. You may prefer to place the rotator at the base of the mast to keep it accessible in case it should go wrong: it will need to be strong enough to turn the mast and all that on it dwells.

But you may prefer to site the rotator up the mast. If you do, be sure that mast and fittings (and any chimney stack related thereto) will withstand the worst likely windage to be expected on the site.

Please do not think that your scribe has dismissed the subject of rotation in too summary a fashion. It is of great importance; but because it introduces mechanical complexities (by contrast with the relatively 'easy' electronic complexities of the antenna itself) there may be many readers who at this point say: "I don't think I can tackle this one".

If this should be the case why not offer up "antennas, directional, and their rotation" as a continuing project to be tackled by the local club? (And if there is not a local club then form one! Where twelve good men and true are gathered together, plus a few YL/YF operators, a club may readily be distilled from the combined en-

thusiasm).

Club antenna projects can embrace not only the solving of mechanical problems but also the provisioning of motors and of course the metal rod and tubing that makes up the member's own individual antenna system. Even planning permission aspects may be better tackled with a dozen heads bent towards them than with a single one... "in the silence of my lonely room".

Three times down

All of the foregoing applies as much to 'the next band up', meaning 70cm, as it does to 'Two'. All you need to do to build yourself an antenna for 433MHz is to divide the dimensions given above by a factor of three, and lo, you are go on a band which to many is more fascinating in a variety of ways than 'Two' — and much less crowded (at present!).

One of the many charms of 433MHz is that an antenna built for it, being three times smaller than its 2m counterpart, is that much lighter to turn, and that much less conspicuous. (If this consideration should be relevant, as it is in some urban localities). But never forget to fit good low loss coaxial cable to your 70cm antenna, eg, UR67 or equivalent. Television coaxial gives results — but good coaxial is a great improvement upon it.

But does a 70cm antenna *need* to be three times smaller than a 2m one? Consider these figures.

A boom length of 57" will accommodate four elements for a 145MHz Yagi, at the conventional spacing of 19" element-to-element; but — A boom length of 52" will accommodate nine elements for a 433MHz Yagi, at the conventional spacing of 6½" in element-to-element.

Clearly, for a given length of antenna the 70cm design will provide much greater gain than the 2m one, assuming constant power fed to the base of the feeder and identical feeder losses. We refuse to be drawn into *how much* more gain would be obtained (even some well respected textbooks refuse to dogmatise about antenna gains in actual figures, at VHF and UHF!). It is evident from the electrical size of the two designs under discussion that 70cm version shows up very well.

Yes, there are others

Should the reader think from the foregoing that there is rather too much concentration on Yagi designs and none at all on others, he would be quite right. The Yagi has been chosen as the subject of this piece simply because it is cheap, cheerful and chockful of easily-to-be-got gain. Equally important, it is almost self-matching (if built reasonably well).

Of the profusion of other designs of metre-wave antenna there is much in the current textbooks. Chapter 7 of the **RSGB VHF/UHF Manual** is especially informative on the subject. Readers can (and should) pick and choose what design of 'skyhook' suits them best — and tell your contributor so that your findings may be reported here, for the benefit of others.

How's your SWR today?

Something else it is not proposed to discuss here in any detail is standing wave ratios. Since the advent of Japanese black boxes and (in the vernacular) the 'swer bridges' which are often sold with them, many a metre-wave user appears to have developed either an obsession or a nervous tick about "...my SWR".

Certainly it is desirable to reduce to a minimum the voltage reflected back down the feeder to the RF source. In practice, much worse standing wave ratios may be tolerated than many operators believe. Often, the station transceiver continues blithely to function without shutting itself down (as it would if the SWR were unacceptable), yet the operator views with alarm the apparent poor reading on his external 'swer meter'.

The true criterion of performance is the report offered up by one's distant QSO-partner. If your SWR goes up when the antenna is wet, and your signal at the other end goes down, there may be absolutely no connection between the two phenomena. When it's wet VHF conditions are usually poor — and that, rather than your SWR, could be the cause of the signal reduction way out at Point X.

No, let us not be too traumatic about 'old man swer'. He may not always be telling you the truth. Let him be your servant, not your master!