

February 2006 Meeting - PORTABLE AERIALS Tom Robinson G3SBW

Making his third visit to the Club, Tom as usual, came laden with all manner of interesting items to show us, most of them hand made. He also came with lots of experience of operating under differing conditions in both mobile and fixed modes. He called his talk 'Picnic Table Operation' inferring that lightweight, /P minimum equipment operating was the aim. As with any operation, pre-planning always pays dividends and Tom would decide beforehand what bands he would use, the type of antennas, where and how to deploy them and with weight limitations in mind, how to get there.

Describing UHF/VHF antennas he discussed in turn a 'rubber duck', a 'J' pole, a Slim Jim and a Yagi. The first, generally suitable for local use only. The 'J' pole, made from ladder-line, could be rolled up for transport or fixed to a pole or hung up in use. Tom took one out on a five-mile walk and using a GPS system was able to make a plot of his position at various points along the route. Although the Yagi produced the best overall results, it was only suitable for fixed operation. The Slim Jim was Tom's favourite and he found it to be the most efficient of all the single element antennas and very light indeed, as it was made from plastic pipe and aluminium tube. All bar the rubber duck, Tom had made.

Turning next to HF operation, the choice is wider, but in most cases, if not all, an Antenna tuner is a necessary item, as is a good earth. Lightweight supports are also required. Choosing between horizontal or vertical operation is the next decision and ground conditions and whether local or DX operation is required come into the picture. Tom has found that the horizontal is better on average ground and salt marsh, where as the vertical is not so good on average ground. Tom showed us a number antenna plots giving the various lobes. The vertical however was much easier to deploy requiring only one support, and using either $\frac{1}{2}$ wave or $\frac{1}{4}$ wave elements and tapped coils, they can be very efficient.

A good earth and a tuner are necessary. For his earth system Tom uses so called 'pigtailed': these are large corkscrew type devices which are used to keep caravans tied down in windy weather, and are easy to get in and out of the ground. Counterpoises, which are generally a $\frac{1}{4}$ wave long, can in cases be much shorter without a too drastic change in results. Tom showed a number of counterpoise wires taped together in groups for various bands. Supports take various forms and can be fishing rods, aluminium painter's poles or trees, but in that case a catapult or a bow and arrow might be required.

Tom then showed in detail some of his handmade antennas and ancillaries, in many cases made from household items or adapted from other uses. A practical vertical using a collapsible Roach pole, jumbo size coil with tails at each end and croc-clip tapping points. The coil was constructed with centre hole made to fit halfway down the pole in use, to form a centre loaded $\frac{1}{4}$ wave antenna. Together with a 4:1 balun and the ubiquitous tuner and a counterpoise it made a very effective lightweight device.

Moving on to Mobile antennas, these could be horizontally polarised, long wires, inverted Ls, (V3EDP) Doublets, and dipoles: plain and loaded. The doublet is a simple device but could be made multiband, but again with the use of a tuner. The radiation pattern varies according to the band in use, and may be predicted. The well-known G5RV is a form of doublet. Tom had a number of such tuners, one of which was an auto-tuning device made by LDG Electronics. A collapsible Dipole then made its appearance, made from plastic tubing in the form of a T. Ex Army collapsible 8-foot whips were fixed to each end of the T section and could

quickly be assembled to form a very efficient antenna. Again, it has the advantage of requiring only a single support.

Tom passed round the audience numerous other artefacts, all of which raised favourable comments. One such item, purchased this time, was a wind-up device for drawing chalk lines in building work. Normally containing chalked string, Tom had removed the string and replaced it with thin wire. This provided a very quick and easy way to lay and then retrieve a counterpoise. Attaching the free end to the central earth point, the right length of wire could be pulled out and easily and neatly wound up again and the end of the QSOs. We saw a number of Baluns and special connectors he had constructed for his special requirements. During the break we had more time to examine the items and ask questions.

Tom's fine talk was very well received by an enthusiastic audience, some of whom came some distance to learn more about lightweight radio operating on the move and stationary.

Our Thanks to Tom for another interesting and well illustrated presentation.

Report by Colin GOTRM