

The Radio Hotel - What is Old is New Again -

The Hex Beam and The Moxon Rectangle

By Rick Hiller -- W5RH

In the past 20 years or so, a couple of antennas have been at the fore front of attention of Amateur Radio participants. They are the Hex beam, or "spider beam", and the Moxon Rectangle....and rightly so. Both are a great way to reduce the size of a multi-element Yagi-Uda with some added benefits, too boot. Most of us have probably thought that the Hex Beam and Les Moxon's rectangle were new and unique ideas, but who would have thought that they are not. There are interesting correlations between the modern designs and those from 1937. Maybe these newer antennas were conceived for different reasons, but if it looks like a duck...well, you know the rest. I will let you decide for yourself, below.

On the left, **Figure 1** - QST October 1937 Page 29 -- W8CPC "The Square Signal Squirrel" - bending the element ends of the driven element and the reflector into a rectangle. Similar to a Moxon Rectangle.

Figure 1

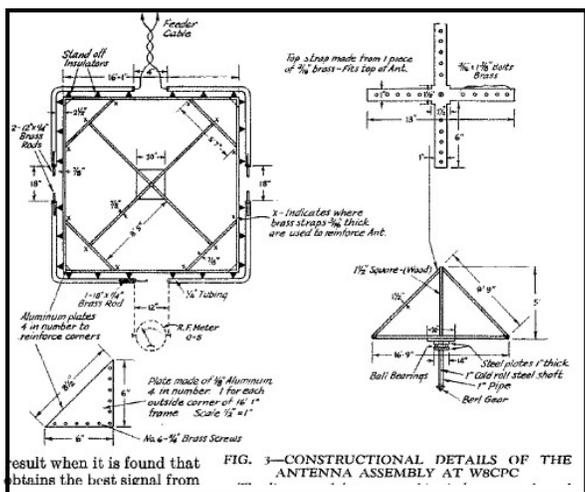
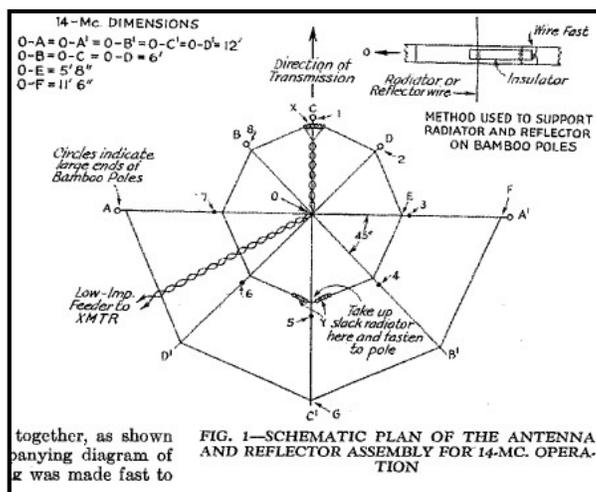


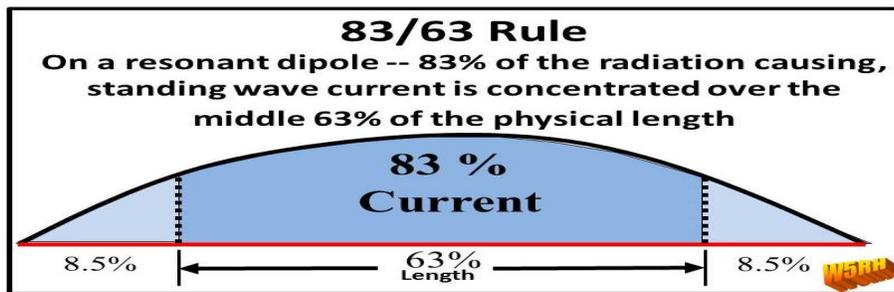
Figure 2



On the right, **Figure 2** - QST December 1937 Page 25-26 W8MRR "Spider Web Loop Antenna" - combining 1/2 wave elements bent around a multi-sided Hex shaped structure. Similar to the Hex beam.

Note: Please check out the original articles from 1937 using the QST search engine (a favorite watering hole of mine) at <http://www.arrl.org/arrl-periodicals-archive-search>

Both the Square Signal Squirrel and the Moxon utilize, coincidentally, my W5RH "83/63 rule"which states that 83% of the total radiating current amplitude on a half wavelength element is located in the middle 63% of the physical element length. This allows orthogonal folding of the element ends, with little degradation in pattern strength.



Remember this about antennas -- the physics does not change over time, only the construction materials used and the implementations. For example: Working with the newer digital modes is quite fascinating. Some that do play with them might think that old school antenna work as antiquated. However, nothing could be further from the truth. The development of antenna theory and physical implementation back in the 1920's and 30's is just as relevant today in the digital world, because as soon as you place that digital modulation on a carrier and send it via the coax to the antenna, it is just as much RF as a simple CW signal. The antenna does not care what the modulation scheme is. It could be JT65 or A1. It will radiate the one just as well as the other.

Enjoy your hobby. GL ES 73 DE W5RH

Next time.... The Other Antenna Attributes *The purpose of The Radio Hotel is to give you a practical kickstart into exploring the workings of antenna systems Google the buzz words and find out what they mean. Read up on antenna system theory to see how it all works together. You will be glad you did.*