

The Radio Hotel- Antenna Origins -- Part 3(fin)

Beverage and Uda and Yagi, Oh My!

By Rick Hiller -- W5RH

In the later portion of the 20's decade, the frequencies Hams used were reaching beyond 14 MHz. The distances communicated by even the average Ham were steadily increasing. Station to station transcontinental and transoceanic QSO's were becoming commonplace. Antennas were getting quite a lot of attention in both the Ham Radio and commercial worlds.

During this time period, RCA had communication stations on most of the continents that relied heavily on HF to pass thousands of traffic handling messages. With the varying HF propagation and the varying HF noise levels due to nature itself, radio men were concentrating on how to get the message thru. RCA's Dr. Harold H. Beverage, W2BML, was at their Riverhead, NY location experimenting with very long receiving antennas (miles long). He found that these receive antennas had significant noise reduction or even strong station reduction qualities. QST, November 1922, contained an article by Dr. Beverage about his "Wave" Antenna. This Wave Antenna is known today as the Beverage Antenna and is still used for low band reception.

The United States was not the only country interested in radio. Japan had its' own radiomen: two in particular. Dr's Shintaro Uda and Hidetsugu Yagi were working on an antenna Dr. Uda called a "shortwave projector". They showed that by using multiple dipoles in a parasitic fashion that you could indeed increase the forward effective radiated power of an antenna system [and also improve the receiving signal strength – "reciprocity"]. Yagi received the US patent for this antenna in 1932 ["Variable directional electric wave generating device" – US Patent 1,860,123] and this "Yagi" or "Beam" antenna invention inspired antenna configurations that are in use by the millions around the world today. Uda, the actual inventor, was left behind the dash: Yagi-Uda.

Since the inventions of the Beverage and Yagi-Uda antennas, their designs have been refined and improved by others. Additional antenna configurations have been invented and developed, for example: the Rhombic, the Windom, the W8JK, the G5RV, the Cubical Quad, the Helix, the Turnstile, etc. This antenna development continues even today where we have had the newer Ham antenna variations such as the LFA or the OWL (Google them). All types of new tricks of the antenna trade are being modeled, tried, implemented and sold to the ever expanding Ham Radio market generated by a Ham's desire to continually improve their station's capability. These new designs are just part of the 100 year long timeline of antenna development, all originating with the large "capacitive" antennas of the Spark era.

[End of the Antenna Origins 3 Part Series]

Epilogue – Have a look at QST magazines of the past, available online at ARRL from 1915 to the current day. See what Hams were doing back in the days without Gigaparts or DX Engineering. Although it is not always good to live in the past, a gander back will show you that your own inventive, inquisitive, imaginative Ham spirit has always been a foundation quality of those that partake in this great hobby. Bask in the glow of knowing that your desire to know how things work and how to make your station work better emulate those of the Spark-era radio pioneers. Enjoy your hobby. GL ES 73 DE W5RH

Next time.... Antenna Efficiency

*The purpose of **The Radio Hotel** is to give you a practical kickstart into exploring the workings of antenna systems. It is a series, so go back and read the previous columns to get the whole picture, as one month relies on the previous month's information. 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.*