



A WHISTLER is not a channel 9 T.V. series. It's an ultra low radio frequency emission -- in the frequency range from 300 to 15,000 cycles... naturally created by an unknown source or sources, not necessarily by visible lightning as was believed for a long time. The WHISTLER is so called because it sounds like a warble, or whistle....the sound rolling down the musical scale from 10kc in about one second.

The story of WHISTLERS starts way back in 1880 in Austria, when a scientist heard and made some notes about odd whistle like noises coming out of telegraph lines. Curiously, the paper in which he described the phenomenon didn't come to the attention of the scientific world until 1952. WHISTLERS were first actually recorded by a Bell Telephone scientist named Burton, in 1931 and 1932. (It might be noted that Mr. Burton was using an early model tape recorder--in which the tape was thin steel ribbon! He still has some of his recordings, which show quite reasonable quality in spite of the crude equipment.)

It was at the URSI meeting in Australia, in 1952, when L.R.O. Storey gave his now classic paper on the theory of WHISTLERS, that a Professor Morgan, attached to Dartmouth College's Thayer Engineering School, became interested in WHISTLERS and VLF phenomena. The Professor and his associates recorded and analyzed 2700 kinds of VLF signals. (Some go swish, some pop, and some make a sound like the fellows standing on the corner watching all the girls go by.) In order to study WHISTLERS more thoroughly, it was decided to generate one. Heading this project is Dr. Morgan, W1HDA. Accompanying Dr. Morgan are Mr. W.C. Johnson, W1FGO and Mr. B. Pratt W1RFP, as research associates, Mr. Sanderson W1VEG, technician, and in the early days, Dr. H. Curtis W1OKL, was actively engaged. At present, there is also D. Harlow W1ELJ, and L. Semprebon, K1UYH. Hence, hams are well represented in the group!

A transmitter at this frequency is no problem, but what about an effective radiator? Let's suppose you could build a half wave dipole (20 miles long), it would be, if suspended from a series of 50' telephone poles, the equivalent of a 20 meter antenna about a fifth of an inch off the ground.

The Slot antenna seemed to be the best answer to this problem. The Slot antenna which is, in essence, the reverse of the ordinary dipole concept is, by cutting a hole or placing an insulator in the middle of a large conducting surface, radio waves will be effectively radiated from the hole, or slot. Slot dimensions are comparable to normal dipole dimensions.

Dr. Morgan set about looking for a natural slot, in the area where WHISTLERS seem to emanate in great numbers, the South Atlantic. Deception Island seemed a most likely one. It's an extinct volcano just above the Antarctic Circle, north of the Palmer Peninsula. The island is shaped like a horseshoe and its total length makes it just about resonant in the "WHISTLER BAND".

On Deception Island wires were laid from the center of the ridge to the sea in both directions. The ends of these were bared for 50 feet, a rock tied on, and 50 feet flung into the water. The wires were paralled so that their impedance would not get into the act anymore than necessary. When the surge impedance was measured, it turned out to be amazingly close to 52 ohms!

P-3 OVER ON BACK!