Grote Reber Biography

Grote Reber

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Biography

Grote Reber was enthralled by radio. He built his own radio set and was a "ham" operator by the age of fifteen. When Karl Jansky (1905-1950) announced his discovery of radio noise from outer space in 1933, Reber became excited enough to further the work on his own. He tried to reflect radio signals off the Moon, but was unsuccessful. He was ahead of his time; this would not be accomplished until after World War II by the Army Signal Corps.

In 1937, Reber built what can be considered the first radio telescope in his backyard in Wheaton, Illinois, using rafters from the local lumberyard, galvanized sheet metal, and old automobile parts. The receiving dish was 31 feet (9.5 m) in diameter. The entire apparatus weighed nearly two tons (18 t) and cost $1300, which Reber paid for entirely out of his own pocket.

Although radio astronomy observations can be made during the day as well as at night, Reber worked from midnight to dawn. There was less traffic on the road at that time and electronic "noise" from automobile ignitions would be minimized. His curious apparatus made him the object of wild rumors among neighbors. His first attempts at detecting radio frequencies from space were disappointing. Reber had been looking at the 9 cm range, which would provide the best angular resolution, but he found nothing. He upgraded his equipment in 1938 and tuned for 33 cm wavelengths and still found nothing. It wasn't until the spring of 1939 that Reber found success at the longer 1.87-m (160 megahertz) wavelength.

Reber began making a complete survey of the sky in 1941. He used a chart recorder to collect data and plotted contour lines on a chart, creating the first radio map of the sky. There was a peak in intensity in Sagittarius which lies in the direction of the center of our galaxy. Other peaks were found and later matched to visible objects like the Crab nebula in Taurus. This, and another peak in Cassiopeia, turned out to be the remnants of a supernova explosion. Reber remained the only radio astronomer until after World War II when other scientists embraced radio astronomy following the adaption of radar tracking dishes for use as radio telescopes.