



Heinrich Rudolf Hertz

1857-1894

Heinrich Rudolf Hertz was the brilliant German physicist who discovered radio waves. His name was given to the unit of frequency. One *hertz* is equal to one complete vibration per second.

Hertz was born in Hamburg into a wealthy and intelligent family. His father (Jewish in origin) was a barrister and later a senator. His mother devoted herself to her children and supervised their lessons. As a child, Hertz was interested in practical things, and at the age of twelve he had a workbench and woodworking tools. He had an uncommon gift for languages. While at the Gymnasium he achieved a First in the study of Greek and he took private lessons in Arabic.

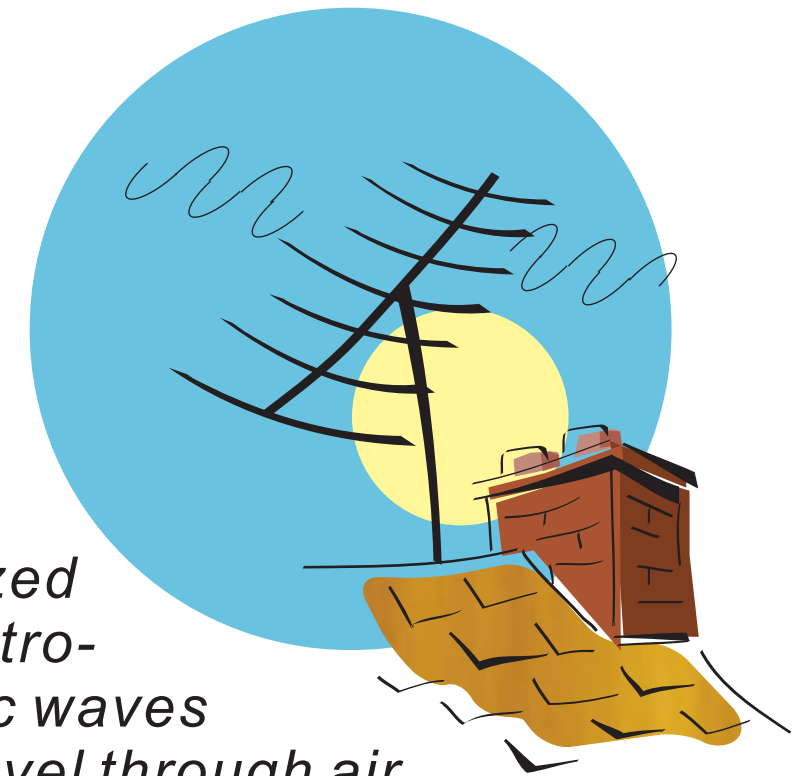
Hertz prepared for a career in engineering, but later turned to physics and entered the University of Munich. From the beginning he was very interested in physical and mathematical problems.

After a year in Munich, Hertz moved to Berlin and there he met Hermann von Helmholtz, who became his teacher and colleague and had a great influence on his career.

Once, in 1879, Helmholtz advised him to try for the prize offered by the Berlin Academy. The prize was for the solution of a problem concerned with Maxwell's theory of electricity. Hertz declined, feeling that it would take him three years to do and instead he wrote a doctoral dissertation on electromagnetic induction in rotating conductors.



He realized that electromagnetic waves could travel through air



It was not until five years later, on his move to Karlsruhe in 1885, that Hertz found the time and facilities to work on Maxwell's theory.

In 1888, he realized that Maxwell's equations implied that electromagnetic waves could be produced and travel through air. To confirm his idea he constructed an open circuit powered by an induction coil with an open loop of wire as a receiving circuit. As a spark was produced by the induction coil, electric waves travelled to the open loop, creating a current in the loop and causing a spark in the air gap of the detector. By moving it to different parts of the laboratory, he measured the length of the electromagnetic waves, and then their velocity. Hertz found to his excitement that this velocity was enormous - in fact equal to the velocity of light.

The most spectacular application of '*Hertzian waves*', as they were called, came eight years later. It was tragic that the early death of Hertz did not give him the opportunity to develop his achievements and to see G. Marconi and others translate his discovery into a worldwide method of communication across great distances.

Hertz died when only 36 from blood poisoning. He left behind his wife and two daughters, all of whom emigrated from Nazi Germany, in 1937, to settle in Cambridge, England.

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