This Month's Stiff: Heinrich Rudolph Hertz

Entered Mortal coil: 22 February 1857

Assumed Room Temperature: 1 January 1894

Heinrich Rudolph Hertz

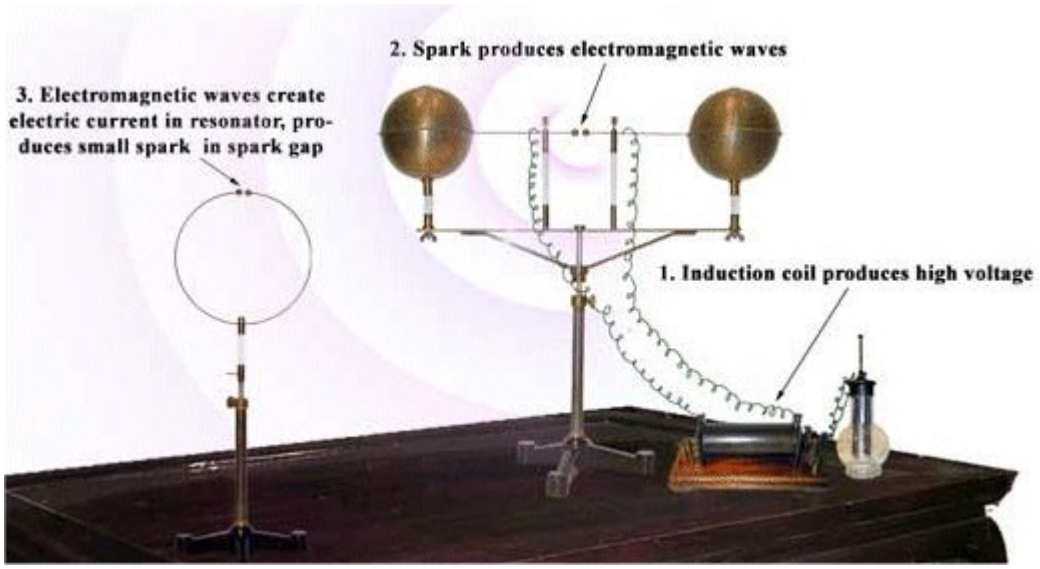
Perhaps the burning question on my mind is why did a lot of the early electrical pioneers sport such interesting beards? Put a rifle in the picture and I can just imagine Heiny walking out of the piney woods after distilling a few hundred gallons of 'shine.

As you may recall, the existence of electromagnetic waves was predicted mathematically by James Clerk Maxwell and was discussed in the first of this series of irreverent articles. Mathematicians, physicists, and scientists will, on occasion, develop elegant formulae that don't amount to much except to illustrate some arcane concept with no practical application. However, such was not the case in this particular instance. Heiny took Maxwell's headache-inducing formulae and proved that they did, in fact, describe a natural phenomenon.

Hertz was born in Hamburg, Germany. At an early age it became apparent that the boy was scientifically inclined. Young Heiny enjoyed building instruments of various types in the family workshop. Hertz began his formal education in 1877 at the University of Munich where he studied engineering. Only a year later, Hertz abandoned engineering (blasphemy!) and began his study of natural sciences at the University of Berlin, studying under Helmholtz and Kirchoff (sound familiar?) where he earned his Ph.D, with magna cum laude honors. His mom must have been a very proud woman! A topic of intense interest in the scientific community at the time was determining whether or not Maxwell's equations were valid. In 1883, the young scientist also directed his attention to this course of research.

In 1887, Hertz conducted his now famous experiment in which two antennas were placed a few feet apart. The first part of the device consisted of essentially a crude spark gap transmitter

connected to the first antenna. The receiving antenna was a loop with a couple of electrodes on the wire ends placed very close together. Hertz activated the transmitter and it generated sparks. Sparks were also seen leaping across the electrode gap at the receiving antenna. Further experiments were conducted in which it was determined that the invisible waves could be reflected and refracted in a manner similar to that of light waves, and finally that light waves were also electromagnetic in nature. Maxwell's theories were finally vindicated eight years after his death! Hertz's findings were published in 1892 in his book, **Untersuchungen Ueber Die Ausbreitung Der Elektrischen Kraft** (*Investigations on the Propagation of Electric Energy*).



Mockup of Hertz's Classic Experiment

Unfortunately, Hertz died young at the age of 37 from blood poisoning. Associates and friends remember the professor as amiable and modest, and people seemed to be naturally attracted to him. In his honor, the unit of frequency measurement, the **Hertz**, was named after him.

A young Italian boy read about Hertz's experiments and it galvanized his attention. I'll give you three guesses who that boy was!

References: The Spark Museum, http://www.sparkmuseum.com/

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