

**This Month's Stiff: Joseph Henry**

**Entered Mortal Coil: 17 December 1797**

**Assumed Room Temperature: 13 May 1878**



**This Month's Inductee - Joseph Henry**

This month's inductee blasts my earlier assertions with respect to beards totally out of the water. The kind reader will take note that the late Mr. Henry is sitting pretty in this portrait sans facial hair. So now we have two extremes starting with Mr. Maxwell, who could've been an honorary member of Led Zeppelin, to this baby faced Dude. Insert foot in mouth!

Ole Joe started out his professional life as a worker in a small general store, like many kids of subsequent generations (this one too). At age 13, he was apprenticed to a watchmaker in Albany, New York. Later, the theater attracted him, and he was offered employment as an actor. In 1819, concerned influential friends persuaded young Joe to turn down this offer and attend Albany Academy. Such was Joe's mind that by 1826 he was offered a professorship at the Academy in mathematics and natural philosophy. It was during Joe's tenure that his gray matter started producing interesting little gadgets.

Joe had an idea that sprung from his interest in electromagnetism. Everyone at the time knew that a current flowing through a wire would deflect a compass needle. What Joe did was wind an iron core with wire....lots of it. The effect was phenomenal, and the rod acted as a powerful magnet when current was flowing through the circuit. More wire was added...then more still. Joe's masterpiece was a monster attractor that could lift over a ton of ferrous metal. One of the

formulas governing electromagnetism is simply  $F = N \times I$ , or magnetomotive force equals ampere-turns. Add more turns of wire, and this force will increase proportionally. Joe gave the magnetic behemoth to Yale before leaving Albany Academy, where it attracted much attention.

A peculiar property was noted when the current was interrupted to the electromagnet. A spark would jump across the contacts. The arc was the result of the magnetic field collapsing around the core...i.e. the energy had to go somewhere. Henry call this effect self-inductance, or the inertial characteristic of an electric circuit. The self-inductance of the coil impeded any changes in current. For Joe's discovery, the unit of inductance, the **Henry**, as denoted by the capital letter "L", was named after him. Some confuse his discovery (at least I did at first) with the work of Faraday. It should be remembered that Faraday invented the transformer, but that's another Dude story for another day.

Joe had a distinguished career even after his work with electromagnetism made him famous. The U.S. Congress appointed him as the first chairman of the board for the new Smithsonian Institution, which was established in 1846. Henry's funeral was attended by the President of the United States and cabinet, the justices of the Supreme Court, and other big shots. Needless to say, ole Joe had some powerful friends. I guess this was due, in part, to his magnetic personality.

Reluctantly kids, I couldn't stop myself. By the way, Reluctance is also expressed as ampere-turns per Weber. Shoot me now please.

References: *Alexander Leitch, A Princeton Companion, copyright Princeton University Press (1978).*

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