AWESOME stories

THE END and BEGINNING of an ERA

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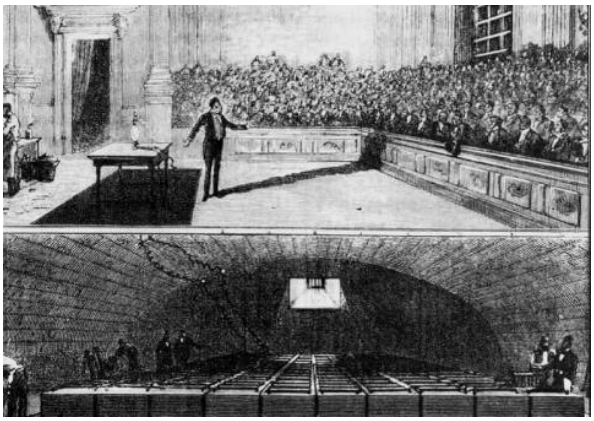

Humphry Davy demonstrates his new electric light for members of the Royal Institution of London, circa 1809. The brightness of his light, powered by a huge number of Voltaic piles situated in the basement immediately below the lecture hall, absolutely stunned the audience. (Note how the light is connected to the Voltaic piles.) It took very little time for the Voltaic piles (batteries) to be drained, however. At the time of this demonstration, electric light was more a scientific curiosity than a practical solution. Image from the Collection of Dr. Bayla Singer; online via "The Thomas Edison Papers" at Rutgers University.

Weeks after Alessandro Volta made his discovery, other scientists in Britain (such as William Nicholson and Anthony Carlisle) were learning what an electric current could do. Its effect on *water* was totally unexpected.

Nicholson and Carlisle found that the constant stream of electric charge, into water, ripped-up the water into its constituent parts: the gases oxygen and hydrogen. This process—which we know as electrolysis—would prove very useful, very quickly.

No longer just a curiosity, used by electricians in interesting crowd-pleasing experiments, electricity could now become useful in everyday life. With constantly flowing electricity, new chemical elements could be isolated. This laid the foundations for chemistry, physics and modern industry.

In short ... Volta's pile changed the world and made its creator an international celebrity. A basic measure of electricity— the volt—was named in his honor.

Galvani, meanwhile, did not fare as well. He died poor and depressed, having been dismissed from his position as Chair of Obstetrics at the Institute of Sciences (for refusing to take an oath of allegiance to Napoleon, after the French Army occupied Italy).

What had seemed so promising, to Galvani, did not result in the impact created by his rival theorist. Nonetheless, his contribution to the world of medical science was significant. His work, with frog legs, established the groundwork for bioelectrogenesis and the scientific field of study known as electrophysiology.

What happened next, in the discovery of electricity, occurred in London. One era ended and another began with a man called Humphry Davy.

Fascinated by the possibilities of electrical current and electrolysis—which he used to isolate potassium, chlorine, iodine and sodium—Davy built the world's largest battery around 1808. Filling an entire room, underneath the Royal Society's building, it had over 800 individual Voltaic piles attached together. One can only imagine the sulphurous fumes it must have emitted.

In a darkened room, lit only by the candles and oil lamps which people had used for centuries, Davy connected his giant battery to two carbon filaments. Then he brought the tips of those filaments together. The continuous flow of electricity, from the battery through the filaments, leapt across the gap and gave rise to an *incredibly* bright spark.

Out of the darkness of the room came ... light! It was an astonishing moment for everyone who witnessed it. Davy's arc-light began the era of electricity.

There's an interesting twist to this story.

In 1803, Galvani's nephew (Giovanni Aldini) performed a rather macabre experiment. George Forster, a

convicted murderer, had been hanged at Newgate Prison (in London). His body was brought to the lecture hall where Aldini had a Voltaic Pile.

Applying an electric current to the corpse, in two places, Galvani's nephew and his current caused poor dead George to bolt upright, into a sitting position. Initially, it seemed like the dead body had been resurrected. This event made a profound impact on a young woman named Mary Wollstonecraft Shelley.

Remember Frankenstein?

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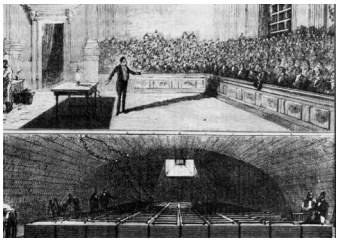

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Discovering Electricity - Humphry Davy and the Arc Light
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