The Electric Light Bulb

Overview

Anybody could write an essay of a few hundred words on the topic "What Would the World Be Like Without Electricity?". We all know, or think we know, that the electric light bulb was invented by Thomas Edison, "The Wizard of Menlo Park." But, as is often the case, what we all "know" to be true happens to not be true at all.

The electric light bulb was actually invented by Moses G. Farmer. Who, you ask? Never heard of him? Farmer, like Edison after him, was bedeviled by the problem of finding a material that glowed brightly enough to be useful, while lasting long enough to be economically and practically useful. The "competition" was natural gas, a plentiful and cheap source of light. It's interesting to note that the first electric light bulb burned out after less than a second!

Farmer's solution was to use platinum, a solution that was much too expensive. Edison picked up the idea, and developed, after thousands of failures, and years of toil, a carbonized silk filament that finally worked, and could be mass-produced. It was the seemingly endless frustration of trying to find a suitable material for the filament that led Edison to utter his famous remark about the nature of genius: "It's 1% inspiration and 99% perspiration!" Farmer certainly had the 1% inspiration, but for whatever reason, he did not persist with it. And that's why you never heard of him.

But this isn't the end of the story. In fact, it isn't even the most important part of it. Edison did something far more significant and far-reaching than the development of a light bulb. Edison was the first to recognize that having light bulbs that were cheap and reliable meant nothing unless people also had access to the electric power that was needed to operate them. Edison saw the problem of commercial success as one of having to invent an entire ***system*** of generation, distribution, installation, maintenance, and billing of electric power.

This "systems approach" to a problem was Edison's truly profound "invention." It was his way of looking at problems, of organizing his research, of building businesses to transform his ideas into commercial ventures. The "Edison Model" became the template for ALL the successful, major industrial companies of the late 19th and early 20th centuries. You know the names: Henry Ford adopted it to build his automobiles; Alfred Sloan and Charles Kettering endowed the Sloan-Kettering Cancer Research programs and adopted it to build General Motors; David Sarnoff adopted it at RCA; Theodore Vail at AT&T built the Bell

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System; and Frank Jewitt built Bell Telephone Laboratories. The list is long and impressive.

Before we leave Edison, it's also good to recall that people focus on his 1,093 patents, the most awarded to any individual, and are rightly impressed. What isn't so well-remembered are the over 10,000 failures he endured to get them. Some of them were monumental, too. Like the idea for making homes entirely out of cement, including closets and cabinets. He spent years and a small fortune trying to make it happen. He built 10 model homes and an entire business that did everything from mixing the cement to installing the lawn, and they were a huge bust. Nobody wanted them. He finally had to give them away, and all but two that stand today, were quickly demolished for the land value. And there you have the story about his iron mining and manufacturing business, but that's another story altogether...

Professions and Trades

Edison's success as an inventor and businessman was not due to his insightful genius. It was due to his ability to gather around him highly-talented professionals who shared his vision, his work ethic, and who, most importantly, filled the voids of know-how he lacked. Edison's habit was to develop a brief outline of an idea and hand it over to an assistant for refinement and initial development. He would then go off to another project and return periodically to check on progress and drop off some new ideas. Here is a list of some of the professions and trades Edison assembled to develop the light bulb:

- Biologist
- Chemical Engineer
- Electrical Engineer
- Glassblower
- Industrial Process Engineer
- Laboratory Technician
- Machinist
- Materials Engineer
- Physical Chemist
- Process Chemist
- Weaver

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