

Thomas Edison

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Thomas Edison



Written by Joanne C. Wachter

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Thomas Edison

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Title page: Very early version of a telephone



Written by Joanne C. Wachter

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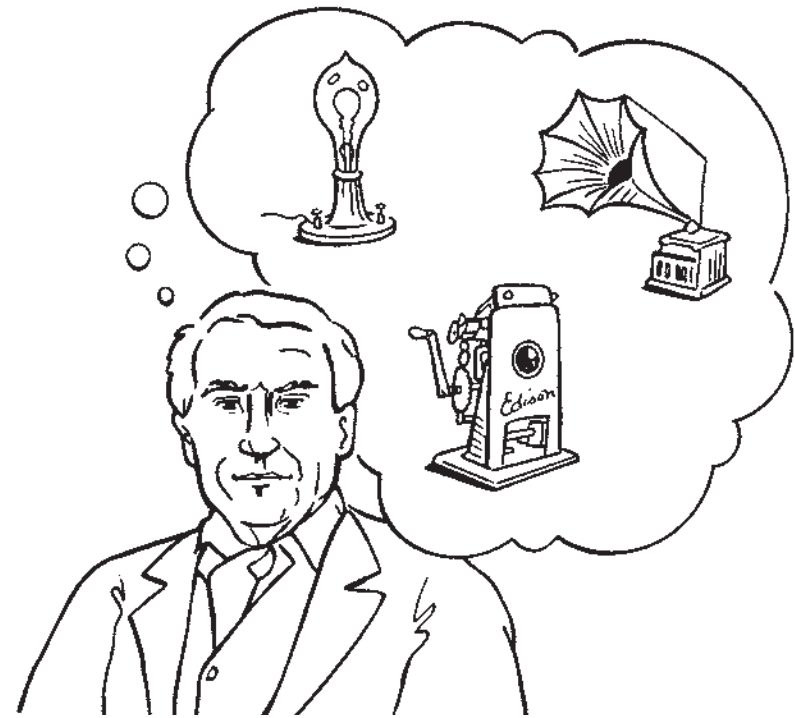
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Edison once said, "I never pick up an item without thinking of how I might improve on it."

A Curious Boy

"Why?"

That was Thomas Edison's favorite question from the time he learned to talk. He spent his whole life exploring why and how things work. Once he knew how something worked, he tried to figure out how to make it work better. Thomas Edison invented or improved over a thousand things, some of which we use every day.

Young Al

Thomas Alva Edison was born on February 11, 1847. He was the youngest of seven children. Al, as he was called as a boy, lived in Ohio with his family until 1854, when they moved to Michigan.

Although he was smart and curious, Al did not do well in school. In those days, students memorized facts, and this bored Al, who wanted to ask questions and explore. After several months, Mrs. Edison took her son out of school and taught him at home. Al's mother taught him to love reading, and his father encouraged his

Do You Know?

As a child, Edison developed a hearing problem. By the time he was an adult, people had to shout in his ear to be heard by him. Edison did not consider his deafness a problem, though. He said it helped him work without **distraction** and allowed him to sleep better.

reading by giving him ten cents for every classic book he read.

At ten years old, one of Al's favorite books was a collection of science experiments. He took the book to the basement, set up a simple lab, and did every one of the experiments. He also built working models, including a steam-powered

sawmill, a railroad engine, and a simple telegraph machine.

Not only did young Al develop the skills of an inventor, but he also learned to be a businessman. He grew vegetables on his parents' land and sold them. Al's parents allowed him to take a job with the railroad when he was just twelve years old. He sold food and newspapers to the passengers. Al used the money he earned to buy books and science supplies. The young boy's hard work impressed his boss, who liked him so well that he allowed Al to set up a science lab in a baggage car.

When he was fifteen, Al got another idea for making money on the trains. He bought an old printing press, a machine used to print books

and newspapers, and published his own paper. He included stories about world events along with jokes, train schedules, and other articles to interest train riders. People bought the paper for eight cents a month.



Young Thomas Edison

That same year, Al's quick thinking saved a young boy's life. Al saw the boy wander onto the tracks as a train steamed toward him. Al raced to the tracks, scooped up the child, and carried him to safety. The child's grateful father, who was a telegraph operator, offered to teach Al his job.

Edison the Inventor

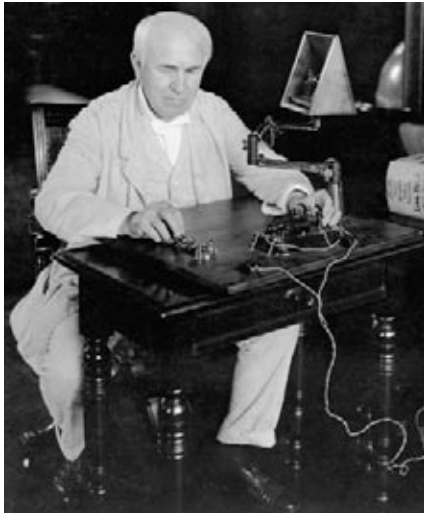
After a few years, Thomas Edison decided that what he really wanted to do was become a full-time inventor. Some of his early inventions were improvements on the telegraph machine. For example, he found a way to send four messages at once instead of just one.

The first **patent** that Edison received was for an electric vote counter. Edison thought that state lawmakers wasted a lot of time counting votes by hand. He made a machine that allowed lawmakers to press a button to tell whether they were for or against a bill. The results of the vote showed on a large board. The lawmakers were not enthusiastic, though. One said, "Young man, that is just what we do not want."

Such a critical response would have upset most people, but not Edison. He once said, "I never allow myself to become discouraged under any circumstances."

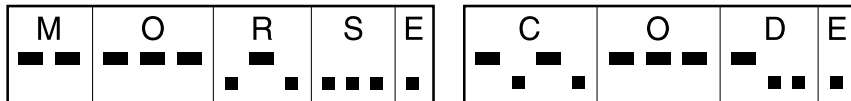
A New Lab

As ideas continued to flood his brain, Edison needed a new place to work and people to help him. He built a lab for his science experiments in Menlo Park, New Jersey, in 1876 and called it his "invention factory." This barnlike wooden



Do You Know?

The telegraph was a way to communicate before the invention of telephones. It used a code of dots and dashes to form letters to make a message sent over wires. The code was called Morse code. Here are the words "Morse code" in Morse code.



As Edison grew older, he traveled around the country as a telegraph operator. He now preferred to be called Tom. He continued to be interested in science, and spent much of the money he earned on books and supplies. He liked to work the night shift and use his days for experiments.



Edison in his lab, which he called his "invention factory"

building was the first **for-profit** research lab in the world. There, Edison worked twenty hours a day, only stopping to take short naps on a cot.

Thomas Edison believed that teamwork was a key to success. Edison sketched his ideas in notebooks and gave the sketches to his twenty-five workers, who then made working models. Edison filled 3,500 notebooks with ideas for inventions. Not all of these ideas worked, but Edison said, "Negative results are just as valuable to me as positive results. I can never find the thing that does the job the best until I find the ones that don't do it."



Edison improved existing devices, including the telephone.

Important Inventions

The first big project Edison and his team did at Menlo Park was finding a way to improve Alexander Graham Bell's telephone. People had to shout into the first telephones to make themselves heard. In 1877, Edison found a way to make a caller's voice louder and clearer.

Do You Know?

In 1871, Edison married Mary Stilwell. The couple had three children, Marion, Thomas, Jr., and William. Mary died in 1884, and Edison married Mina Miller a few years later. There is a story that Edison used the telegraph operators' code to ask Mina to marry him. Their children were Madelaine, Charles, and Theodore.

From what Edison learned by working on the telephone, he got another idea. Could he find a way to record voices to listen to later? He sketched an idea and gave it to one of his workers, who then made a model. The words to the nursery rhyme "Mary had a little lamb," were recited into the machine. Much to everyone's amazement, the machine played back the words.

This invention, called the phonograph, was very simple compared to modern tape recorders and CDs, but it was quite exciting to people in the 1800s. As soon as people heard about this invention, Edison became famous.

The only problem was that no one was sure what to do with the invention. Edison tried experiments such as putting a tiny phonograph inside a doll to make it "talk," but the toy soon broke. It was not until years later that Edison realized that his invention could be used to record and play music.



Thomas Edison with first phonograph

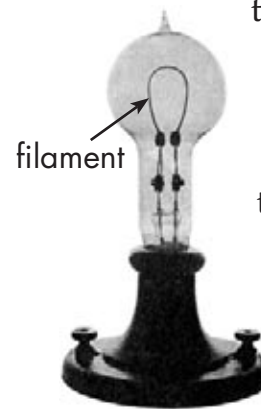
A Special Project

Edison wasted no time getting started with his next project. For fifty years, people had tried to find a practical way to use electricity to make light. Many inventors created light bulbs, but the bulbs either burned too brightly, too dimly, or burned out too fast. In 1878 Edison became determined to solve this problem and boasted that he would produce a practical light bulb in six weeks.



Edison with his experimental bulb

Edison said, "The three things that are most essential to achievement are common sense, hard work, and **stick-to-itiveness**." The Edison team stuck to the task as they worked around the clock. The challenge was to find a material to use for the **filament**, the part of the light bulb that glows. Edison's workers tried thousands of different materials until they found one that worked. The discovery took longer than six weeks, but Edison's team had succeeded.



The finished bulb

Edison opened the lab for visitors to see what his team had accomplished. People were amazed as they walked up a path lined with electric streetlights and entered the lab brightly lit with electric lights. Soon, everyone wanted electric lights.

In 1881 Edison moved to New York City to help start the first electric power plant. Before long, power plants in hundreds of communities were making it possible for people to switch from dangerous, smelly, dirty gas and oil lamps to electric lights.



Edison's lab was the first building to be lit by electricity.

Other Exciting Ideas

By 1886, Edison needed more space, so he moved into a larger lab and hired sixty workers. The team turned its attention to another exciting project. Edison found that if he recorded many still pictures and then showed them very fast, the images looked as if they were moving. This led to the invention of the movie projector, which



Thomas Edison with film projector

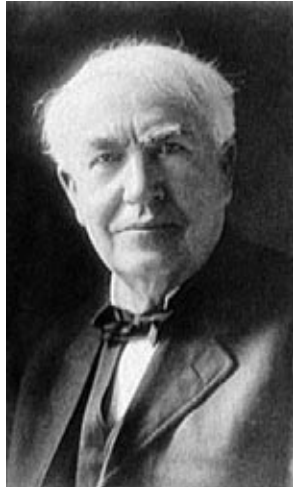
played many images quickly.

The first films Edison recorded were only thirty seconds long.

He tried to link

the phonograph with this new invention but found it too hard to get the sound and pictures to match, so his films were silent.

Edison continued to pour ideas into his notebooks and work with his team to make his dreams come true. Some of his other inventions included machines for mining, improved batteries, and new uses for cement, such as building Yankee Stadium.



These are just a few of Edison's important inventions:

- 1868 Electric vote recorder
- 1869 Universal stock ticker (kept track of stock market)
- 1872 Improved telegraph to send more messages
- 1877 Improved the telephone to be easily heard
Phonograph
- 1879 Electric light bulb
- 1891 Motion picture camera
- 1896 Fluorescent electric light
- 1900 Alkaline battery
- 1914 Electric miner's head lamp

A Remarkable Man

Throughout his life, Edison obtained 1,093 patents, which is more than anyone else, even to this day. He continued to work until he was more than eighty years old.

Thomas Edison died on October 18, 1931. President Herbert Hoover asked everyone in the country to turn out his or her lights for a short time to honor Edison. Sitting in the dark for a few moments, people could think about the great changes Thomas Edison had made in their lives.

As Edison once said, "If we did all the things we are capable of doing, we would astound ourselves." Thomas Edison's accomplishments still astound us today.

Glossary

- distraction** (*n.*) something that takes a person's mind away from the task at hand (p. 5)
- filament** (*n.*) threadlike part of a light bulb that glows (p. 12)
- for-profit** (*adj.*) set up to make money (p. 9)
- patent** (*n.*) a document granting the right the get profit from an invention (p. 8)
- stick-to-itiveness** (*n.*) continuing to work on a problem until a solution is found (p. 12)

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