Bedtime Biography: Edison

A look into the unknown stories of Thomas Edison's life

By Edmund Morris

9-minute read

Synopsis

Edison (2019), tells the story of Thomas Alva Edison, the most famous inventor of all time. Edison is seen by many as an almost mythical figure; an untouchable genius of invention rather than a fallible human being. In *Edison,* we learn about the real Thomas Edison, the flawed family man, the clever business leader, the creative whirlwind.

Who is it for?

- Anyone interested in how the most famous inventor approached creativity
- Those who want to know how the modern world was shaped
- Fans of inventors and engineers

About the author

Edmund Morris (1940-2019) was a prolific writer and author. In 1980, he won the Pulitzer Prize for his first book, *The Rise of Theodore Roosevelt*. He famously authored *Dutch,* a crucially acclaimed but controversial biography of Ronald Reagan. The last biography he wrote was *Edison,* published in the year of his death.

Introduction

Bedtime Biographies are best when listened to. Check out the audio version to get the full experience!

When Thomas Edison was born in 1847, the world was a different place. There was no electric light. No recorded music. No moving pictures. No high-speed vehicles. Life was dictated by the rhythms of the natural world: get up at sunrise, go to bed at sunset. Walk to school, ride a carriage to work.

By the time Edison died in 1931, everything had changed. Buildings shone brilliantly throughout the night, illuminated by dazzling incandescent lightbulbs. People danced to jazz and big-band music, recorded forever on vinyl discs and played loudly from whirling phonograph machines. Viewers around the globe flocked to "movie palaces," staring up in awe at the silver screen. The world had been electrified, all thanks to inventions by Thomas Edison.

Who was this relentlessly creative man, an inventor so prolific he averaged one patent every ten days of his adult life? What drove Edison to create the lightbulb, the phonograph, the power grid, the motion picture camera, the X-ray? How did Edison do it? How did he keep churning out invention after invention?

Few people have changed history quite like Thomas Alva Edison. So sit back, dim the lightbulbs, and enjoy the story of Edison, inventor of the modern world.

Chapter 1

Thomas Alva Edison was born in 1847 in the small town of Milan, Ohio, the youngest of seven children. His father, Samuel, was a lumber trader. When Thomas Alva was only seven years old, Samuel relocated the family to Port Huron, Michigan, chasing business opportunities that came with the explosive growth of railroads across the United States.

Not everyone expected great things from young "Al," as he was affectionately called. In fact, Alva's school teachers in Port Huron told his parents he might be "addled." He was incapable of paying attention in class. He'd rather live in his own world, inside his head.

Al's parents grew worried about him. One day, they came home to discover he had burned down the family barn. "Why?" they demanded, angry and distraught. "Just to see what it would do," Alva answered. Entranced, he'd sat alone in front of the burning barn, watching the fire consume the wood.

By second grade, his parents decided to pull him out of school. It just didn't seem to be working. Alva's mother, Nancy, a former schoolteacher, would oversee his education from here on out.

At home, reading books with his mom, Alva received the mental stimulation he needed to thrive. In later years he would tell reporters, "My mother was the making of me."

Together, they read every book they could get their hands on. Robert Burton. Edward Gibbon. David Hume. But the book that especially caught young Alva's attention was a textbook called *Natural Philosophy*, by Richard Green Parker.

Parker's book gave an overview of all the different fields of science that were known in the 1850s: electricity, electro-magnetism, chemistry, mechanics, and optics. It was almost like a preview of the fields Alva would go on to revolutionize. Thumbing through the pages, Alva fantasized about the experiments he might one day perform.

Only he wanted to get started now.

Hoping to avoid another barn-burning incident, Alva's parents decided to let him take over their downstairs basement and turn it into a personal laboratory. Using Parker's book as his guide, Alva began building small devices and ordering bottles of chemicals, conducting his first experiments. Within a year or two, he had a collection of two hundred compounds, all labelled "poison" to keep neighboring kids away.

Alva spent every spare minute in the basement, tinkering and mixing. By age eleven, he'd managed to set up a telegraph system between his house and a friend's. Using copper wire, nails, and some brass keys, Alva could tap out messages in Morse code to his friend Joseph, one-and-a-half miles away.

Edison was already on his way to becoming an inventor.

Around this time, for reasons that remain unclear, Alva stopped being able to hear ambient noise. One ear had gone permanently deaf, and the other could only hear with difficulty. This hearing impairment would grow worse and worse as Edison aged.

The chug of the train, the blast of shipping horns, the hum of insects under the stars – all these things were lost to Edison. "I haven't heard a bird sing since I was twelve years old," he wrote later in life.

But Edison never seemed to worry about his loss of hearing. In fact, he insisted it made him a better inventor. Being nearly deaf set him free from distraction, he claimed.

During his adult life, it was typical for Edison to put in eighteen-hour days at the laboratory. While working furiously to develop his lightbulb, Edison sometimes labored 100 hours straight without stopping to sleep. Cocooned in a world of his own, free from distraction and ambient noise, Edison could tune in to the wavelength of his own dazzling mind.

Chapter 2

It's 1860 and Thomas Alva Edison is piloting a train from Port Huron to Detroit. He's only thirteen years old, yet somehow he has convinced the train engineer to let him drive the engine all by himself.

At least that's how Edison would tell the story later in life. More likely, the engineer was hovering over his shoulder, making sure he didn't crash the train. But the enthusiastic Alva was too excited to notice.

The engineers loved their precocious young employee. Alva had begun working on the train a few years earlier, after his father's business collapsed during the economic Panic of 1857. To help his family make ends meet, Alva became a newsboy on the Grand Trunk Railway. His job was to hawk daily papers to railroad customers making their morning commute. At eight in the morning, Alva would jump aboard in Port Huron. Three hours later, the train would arrive in Detroit, where Alva had a couple of hours to kill before making the journey home.

Unlike most of the other newsboys, however, Alva didn't loaf around during his spare time in Detroit. He maximized every minute.

At first, he focused on stocking up his basement laboratory, purchasing chemicals and electrical parts from machine shops scattered around the city. Soon, Alva realized he could use his time in Detroit to expand his newspaper business into other markets. He started buying fresh vegetables from the city's grocers, fresh bread from the bakers, and fresh fruit from the local markets. On the ride back to Port Huron, he'd sell his wares at a mark-up, earning as much as fifty dollars per week.

The canny entrepreneurial spirit Alva developed during his newsboy years was something he'd retain for the rest of his life.

After a few years on the Port Huron line, Alva had an army of boys working under him, selling everything from butter to blackberries, bread to tobacco. Whatever customers wanted, Alva supplied.

When the Civil War broke out in 1861, Alva realized customers desperately wanted news from the battlefront. So he convinced the train engineer to let him commandeer an empty baggage car, and he turned it into a mobile printing shop.

Soon, Alva was producing the world's first onboard newspaper, *The Weekly Herald*. Its masthead made the bold declaration: "Published by A. Edison."

The war also prompted another discovery. Alva noticed that after big battles, demand for his newspapers was higher than ever. And since he was coming from the major city of Detroit, he had the advantage of knowing the results a few hours before people upstate.

So Edison had an idea. Telegraph lines always ran parallel to the train tracks. What if Edison bribed the telegraph operator to send a message ahead of the train, announcing that a major news story was coming down the tracks? He could use the power of electrical currents to build up anticipation, selling more papers than ever before.

The strategy worked. By the end of the first day, Alva had earned massive amounts of money. More importantly, he'd discovered what he wanted to do with his life, at least for the time being: he wanted to devote his energy to the telegraph.

It was good timing, because he was about to lose his job. Not content with running a mobile newspaper, Alva had expanded his baggage-car printing shop into a mobile lab, conducting chemical experiments while his young "employees" sold produce and newspapers up and down the train. One day, a stick of phosphorus fell to the floor and exploded, blowing out the windows of the baggage car.

The next thing Edison knew, he was sitting on the station platform, fired from his job. The engineers had finally had enough of precocious young Alva.

Chapter 3

Fifteen-year-old Alva had no trouble finding a job as a "tramp," a traveling telegraph operator relaying messages about train movements. With so many adults off fighting the Civil War, there was plenty of work available. And since Alva had taught himself Morse code, his skills were in high demand.

Like other tramps, Edison moved up and down the train tracks, living for short stints in cities such as Louisville, Nashville, and Cincinnati. He built a reputation as one of the fastest operators in the country. Messages came down the wire at forty words per second, and Edison could translate them flawlessly, for hours at a time, as if he were in a trance. He was soon hired by Western Union, America's top telegraph service.

Meanwhile, he was keeping detailed notebooks, full of inventions for improving the country's telegraph circuits.

In 1868, Edison was summoned to one of the main branches of Western Union, located in Boston, Massachusetts. Here, working the telegraph wires at night, he launched his inventing career.

His first patent was for an electric vote recorder. This was a brilliant idea – legislators could press a button and their vote would be displayed on a central indicator – but there wasn't much of a market for it. Legislators employed the hemming and hawing between votes as an opportunity to lobby each other. Edison hadn't thought about the commercial viability of his idea. He vowed to never make that mistake again.

Soon, he quit his job at Western Union and resolved to become a full-time inventor. His first focus was on developing the stock tickers that displayed a company's latest stock prices. Edison's improvements allowed the tickers to be synchronized. Since Wall Street was the center of the stock market, Edison moved to New York City to sell his patents.

In New York, Edison's ideas quickly drew attention, and a circle of investors encouraged him to create his own lab. His career as an inventor was about to explode.

It's Christmas Day 1871, and Thomas Edison is on his honeymoon. He's twenty-four years old. A few months earlier, he'd fallen for an enchanting young woman named Mary Sitwell. After begging her father for permission to marry, the newlyweds have travelled to Niagara Falls to celebrate.

But Edison is preoccupied. He can barely enjoy himself. His mind is whirling with inventions, and after only a few days, he insists on returning to their home outside New York.

This won't be the last time Edison's personal life takes a backseat to his career.

But what a career he's having! In the year following his marriage to Mary, Edison applied for a mind-boggling thirty-nine new patents. Invention after invention poured from his brain, all of them brilliant improvements on telegraph technology. The automatic telegraph printer, which could process 1,000 words a minute. The duplex system. The diplex system. The quadruplex system. The innovations kept coming.

In 1876, on the cusp of thirty years old, Edison was successful enough to create his own research facility. In Menlo Park, New Jersey, Edison bought thirty acres of land and built a cluster of small laboratories where he could test out new inventions. He built a glass-blowing lab, a carpenters' shop, a blacksmith shop, and more.

This was a radical idea – the world's first research and development facility. And radical things were about to emerge from Menlo Park.

Edison had been intrigued by Alexander Graham Bell's recent invention of the telephone, and he was keen on improving the diaphragm and transmitter mechanisms that made the telephone work. He also hoped to use the diaphragm technology to generate his own inventions. In a blizzard of activity, he tested out various innovations.

For weeks on end, Edison hardly slept. He put in twenty-hour days at the lab, trying to improve Bell's creation. By this point, Mary was accustomed to rarely seeing her husband when he was on an inventing blitz, but this was a new low. One day she entered a spare bedroom and saw Edison passed out on a bed, covered head to toe in soot. He was so dirty she mistook him for a chimney sweep.

Then one day, experimenting with the diaphragm, Edison had an idea. It was unconnected to Bell's telephone, but it harnessed the same powers of the human voice he'd been experimenting with. In a flash of insight, Edison drew a sketch and handed it to one of his assistants. "Make this," he said.

The assistant went and manufactured the strange device Edison had drawn up: a cylinder wrapped in foil, with a handle on one end and a horn sticking out from the middle. Attached to the horn was a diaphragm with a needle at the end. Everyone gathered round to watch as Edison tested the strange device. "Mary had a little lamb," he shouted into the horn while cranking the handle. The needle carved a groove into the spinning cylinder covered in foil. Then Edison cranked the handle in reverse and played the needle back through the groove.

"Mary had a little lamb," the foil repeated in a crackling tone.

Everyone's jaws hit the floor. Edison had just recorded his own voice on the strip of foil. He had created the world's first phonograph.

Chapter 4

From today's perspective, it's hard to imagine how radical an invention the phonograph was. For the first time in human history, you could say something into a speaker and play it back. You could save your voice for years, decades, even centuries.

Naturally, Edison's invention caused a huge stir. Demonstrations of the device raced across the world, from San Francisco to London. Edison was given a new nickname, the "Wizard of Menlo Park," and his laboratory was soon overflowing with newspapermen and sightseers. For the rest of his life, crowds of journalists would track his every move.

But Edison had no intention of stopping there. He quickly patented a carbon microphone that made Bell's telephone a far more effective device – and would remain a key part of phones into the 1980s. He also secured patents for his phonograph and improvements related to it.

More significantly, he invented a device for measuring infrared radiation, and decided to travel west to Wyoming with a team of scientists to test it out on a rare solar eclipse. The tests didn't go very well – Edison experienced technical difficulties and couldn't get the device fixed on the sun in time. But it was in Wyoming, staring into the totality of the solar eclipse in the year 1878, that Edison decided to focus his attention on light.

It was a decision that would change history even more than the phonograph.

Within twenty-four hours of returning home from Wyoming, Edison had sketched the broad outlines of a

new invention. In fact, it was more than a single invention. It was a whole system for "electric light," as he called it.

Other people had manufactured lightbulbs before. The problem, however, was that they burned out very fast, and required huge amounts of power to stay lit.

Edison thought he could revolutionize this process. He believed that one central dynamo – what we now call a generator – could subdivide its power into tens of thousands of lights, so long as the lights were designed the right way.

He was so confident about his new idea that he summoned one of the reporters who was covering his every move. "With the process I have just discovered," he told the journalist, "I can light the entire lower part of New York City, using a 500-horsepower engine." He described in detail how such a system might work: "The same wire that brings the light . . . will also bring power and heat. . . . You can run an elevator, a sewing machine, or any other mechanical contrivance that requires a motor."

This was a shockingly grand vision. A system of electricity, powering every household in the world!

When Edison's announcement was published, gas prices around the world plummeted. Who needed gas lamps anymore? Excited financiers competed to throw money at him. J.P Morgan and Western Union won out, and helped Edison form the Edison Electric Light Company, which would later become General Electric. In the meantime, the world waited breathlessly for Edison to deliver on his grand idea.

There was just one problem: Edison hadn't actually invented any new devices yet. His lightbulb didn't work.

Four months later, many had grown skeptical. Some newspapers were already announcing that Edison was a fraud.

But the "Wizard of Menlo Park" was hard at work, deep in another of his maniacal inventive drives. Staying up all hours of the night, laboring hundreds of hours straight, Edison and his team tried variation after variation of the lightbulb.

Nothing seemed to work. The problem was simple: Edison's plans had called for incandescing a titanium filament inside a vacuum-sealed glass bulb. But the titanium wouldn't stay lit. No matter how they designed the bulb, it would glow for a few seconds, then burn out.

Finally, Edison decided to try something different. What if he used a carbon filament instead? In October of 1879, his team tested the idea. Without any grand hopes, they blew a glass bulb and stuck a carbon filament inside.

To everyone's surprise, the bulb stayed lit for 13 hours. The rest was history. By Christmas, they'd refined the design, and the bulbs would stay lit for weeks on end.

Edison planned the big unveiling for New Year's Eve, inviting scores of journalists to Menlo Park for a "Festival of Light." Awed newspapermen crowded into Edison's lab. With the flick of a switch, 59 lamps burst into incandescence.

The world had been electrified.

In 1884, Edison suffered a tragedy. His wife, Mary, neglected during his decades of maniacal concentration, died of a suspected morphine overdose.

Edison was deeply bereaved, and for the first time in his life he took a break from inventing to spend time with his three children. A year later, however, he fell in love again, this time with a young woman from Akron, Ohio, named Mina Miller. Edison fell head over heels for Mina, and they were married in 1886. They would eventually have three children of their own.

Once again, Edison's marriage set off an explosive period of invention – in the six weeks after their honeymoon, he jotted down four hundred ideas in his notebook.

He would continue churning out dazzling inventions over the coming years, ranging from the kinetograph in 1888 – the first camera to take "moving pictures" – to the rechargeable alkaline battery, to the fluoroscope, a precursor of modern X-rays.

But not all of his ideas were successes. He spent much of his forties convinced he could revolutionize the mining industry, becoming obsessed with building a massive facility for processing iron ore in Ogdensburg, New Jersey. This project was such a failure it became known as "Edison's folly." Even so, he would apply the lessons from Ogdensburg to a cement-manufacturing venture that eventually became one of his most profitable enterprises. In 1922, this company supplied the cement for Yankee Stadium. The walls made with Edison's durable cement formula stood until the stadium was torn down in 2010.

When Edison was dying of complications from diabetes, in 1931, the entire world paid attention. Even the pope attempted to get in touch via telegraph wire, expressing his concern.

The day Edison died, America went into mourning. Wanting to pay tribute to the departed inventor, President Herbert Hoover had an idea: What if the United States shut down its electrical system for one full minute? What a great way to illustrate Edison's accomplishments!

For a few moments, his advisors loved the idea.

Then everyone realized something. In the year 1931, shutting down the nation's power would be disastrous. Not only would the nation be immobilized; people

might actually die. It was no longer possible to recapture the world that had existed 84 years earlier, when Edison was born.

His inventions had changed it forever. There was no going back.

The End

You've reached the end of this Bedtime Biography. Thank you for listening. Why not pause listening now so you can stay in a relaxed state? And if you're off to bed now, I wish you a good night's sleep.