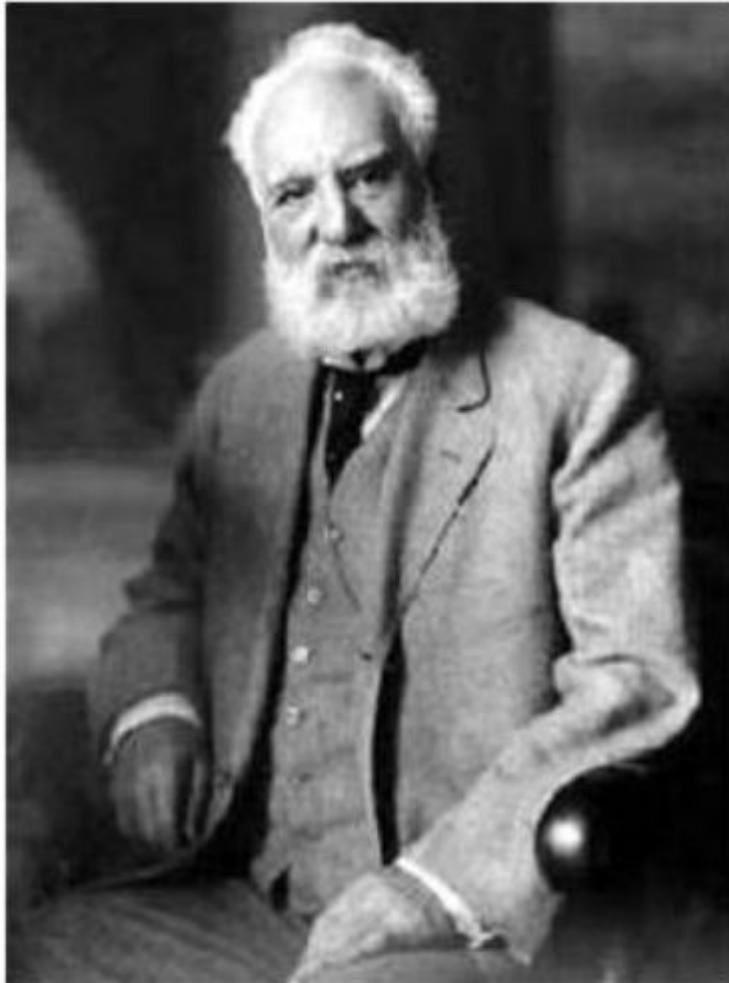


Alexander Graham Bell

by Noah Remnick



Alexander Graham Bell was in his laboratory, working on a device that would allow people to talk to one another through wires, even when they were not in the same room, or even the same city. Today, we take for granted that we can communicate in real time with people around the corner and around the globe. But in the 1870's, when Bell was experimenting with his new project, such an idea was like a fantasy.

On March 10, 1876, that fantasy came to life. It is unclear what exactly unfolded that day, but one story says that while working on his voice transmitter, Bell accidentally knocked over a bottle of transmitting fluid, burning his skin. Instinctively, he called out to his assistant, Thomas Watson, to come help: "Mr. Watson. Come here. I want to see you."

Watson heard those words and was startled. They had come crackling across the earpiece of what the two inventors had labeled the telephone. The experiment was successful. It was the first telephone call.

Alexander Graham Bell's interest in communications devices traced back to his childhood in Edinburgh, Scotland. He was born on March 3, 1847 to a father who was an expert in speech production and a mother who was a gifted pianist despite being profoundly deaf. The perseverance

and success of his mother in the face of such adversity taught young Alexander that problems were surmountable and that he could help people to overcome them.

From a young age, Alexander's curiosity propelled him to find solutions to problems. When he was 12 years old, he came up with his first invention. While playing in a grain mill with a friend, he was frustrated by the lengthy time it took to remove the husk from the wheat grain. He went home, thought about it, and created a gadget that used rotating paddles and nail brushes to strip the husk off the grain. It was the first of dozens of varied devices that Bell would invent.

Bell's curiosity and ingenuity were nurtured by his grandfather, a teacher of speech and elocution. When Bell was 15 years old, he went to live with and care for his grandfather, who was aging and ailing. The two grew very close, and the grandfather encouraged Alexander to pursue his inventive streak.

In 1870, the Bell family's life changed rather abruptly when they moved to Canada. Bell's two older brothers had died of tuberculosis, and Alexander's health had been failing, too. His parents were convinced that America would be a healthier environment and moved, first to Ontario, Canada, then to Boston. Bell thrived. His health improved. Eventually, he began to tutor deaf students in Boston.

The parents of two of his students were excited by Bell's idea to invent a device that transmitted multiple signals over a single wire. One of the parents learned, however, that another inventor, Elisha Gray, was working on a very similar project at the same time. To encourage Bell and to help rush his work along, the parent hired an electrician by the name of Thomas Watson to be Bell's assistant. He hoped that between Bell's clever ideas and Watson's practical skills, the two men would succeed quickly. However, instead of focusing on a multiple-signal transmission device, Bell and Watson focused much of their time on a device to transmit the human voice over wires. To protect their experiment, Bell and Watson's voice-transmitting device was registered with the United States patent office. Lewis Latimer, another inventor, helped Bell by drafting the drawings of the device for the patent. The patent was well timed: Gray attempted to file for his own "telephone" the very same day, but he was turned away because the idea was already protected and owned by Bell and his supporters.

On that March morning in 1876, Bell's dream was achieved when the words "Mr. Watson. Come here. I want to see you" traveled from the room Bell was in to the room Watson was in across telephone wires. The two men took their incredible telephone device on the road, demonstrating its proficiency in city after city. The year after his telephone came to life, Bell married Mabel Hubbard, one of the deaf students whose fathers supported Bell's dream of inventing the telephone.

Bell was challenged dozens of times in lawsuits by people trying to discredit his patent, especially by other inventors who claimed to have invented the telephone before him. He won every time. Bell created the Bell Telephone Company, and in the first 10 years of its existence, telephone ownership in the United States grew to more than 150,000 people. Bell improved the device over the years. For example, he added a microphone that amplified the voice. He also went on to invent and patent many other devices that would have pleased his mother because of the way they helped people to solve problems.

When Bell died on August 2, 1922 in Nova Scotia, Canada, the entire telephone system was shut down for one minute in tribute to the man who revolutionized communications.

Louis Braille

by Noah Remnick



Have you ever noticed when you step into an elevator that next to the buttons showing the floor numbers, there are small plates with a series of raised dots and bumps? Did you ever wonder what those bumps and dots mean and why they are there? When you run your fingers over those plates, you feel the ridges. When blind people touch them, they read the floor numbers. In a grid of six bumps, with two across and three down, a configuration of two raised bumps across the top and one down on the right side is the number 4; one dot on the top left side and two across the middle is the number 8.

Who invented this elaborate setup of bumps and dots that comprise an entire alphabet and numerical system that allows blind people to read with their fingers? Was it a distinguished scientist, or a brilliant author, or perhaps a famous artist?

Actually, this system, which is called braille, was created by a blind 12-year-old French boy and was named for him. Louis was not always blind. He became blind by accident. Louis Braille was born on January 4, 1809 in a small country village near Paris called Coupvray. His father was a

leather worker who made harnesses and other leather goods. One day, when he was just three years old, Louis was in his father's leather workshop. Like many young children, Louis enjoyed imitating his father. He was fiddling with an awl, a small tool with a round wooden handle and a sharp, pointed metal tip that is used to punch holes in leather. While he was playing, the awl slipped and poked Louis in the eye. A doctor treated the wound as best he could and patched the eye. But the eye became infected, and the infection spread to the other eye. Within a short time, young Louis was totally blind in both eyes.

In those days, many blind people became beggars or performers in sideshows. But Louis's parents refused to allow their son's disability to get in the way of his studies or his life. Louis attended school like his brothers and sisters, relying on his creativity, intelligence, and drive to overcome obstacles. To help him navigate the village, his father made him canes. The local priest taught him to use his other senses to learn: his hearing to distinguish the calls of different birds, and his sense of smell to identify different plants and flowers. Louis was one of the brightest students in his school.

In 1819, at age 10, Louis earned a scholarship to attend the Royal Institute for Blind Youth in Paris, the first school in the world devoted to blind children. For Louis, going to the school meant leaving his family and the village he knew well, where he felt safe. But Louis and his family knew the school offered him the best opportunity to get an education and lead a successful life. There he excelled in studying history, math, science, and grammar, but he proved especially gifted at music. Louis became an accomplished pianist and organist. He even got a paid job as an organist, playing in a small church near the institute.

The students at the school learned most of their subjects by listening to lessons. But there were a few books that the school's founder, a man named Valentin Haüy, had developed by printed raised, or embossed, letters. Reading that way was slow, and the books were large and heavy. But they were the only books available then for blind people. Louis Braille began to wonder: wasn't there a better way to allow blind people to read?

One day Louis learned about the work of a former French army captain named Charles Barbier. Captain Barbier had invented something called "night writing," a code of 12 raised dots and dashes that allowed soldiers to communicate with one another at night without using lights that would alert the enemy to their location. The soldiers could "feel" the messages with their fingers, and keep safe. The code turned out to be too complex for the soldiers, but it inspired Louis Braille. Louis simplified the system, reduced the series of dots from twelve to six and eliminated the dashes. By the time he was 20, Louis published his first alphabet for the blind, a system he continued to work on and perfect.

And how did Louis create the dots he used in his revolutionary new system? He used an awl. The very tool that caused his blindness became the instrument that brought the opportunity for reading to Louis and generations of blind people to this day.

The world was slow to accept Louis Braille's innovation. Indeed, during his lifetime, his method was not widely accepted. Louis Braille died at the young age of 43 from tuberculosis, a devastating respiratory disease. He was buried in his home village of Coupvray.

In time, Braille's method became accepted around the world. "Braille" alphabets were created in languages spanning the globe. Today, we find them not only on elevator plates, but also on computers and cell phones. And the name Louis Braille stands for innovation, courage, and determination.

Name: _____ Date: _____

Use the article "Alexander Graham Bell" to answer questions 1 to 2 .

1. Alexander Graham Bell completed the "first telephone call" on March 10, 1876. Describe the first telephone call.

2. What are two character traits that Alexander Graham Bell possessed? Use evidence from the text to support your answer.

Use the article "Louis Braille" to answer questions 3 to 4 .

3. Louis Braille invented a system of bumps and dots called braille. What does braille allow blind people to do?

4. What are two character traits that Louis Braille possessed? Use evidence from the text to support your answer.

Use the articles "Alexander Graham Bell" and "Louis Braille" to answer questions 5 to 6.

5. How were Alexander Graham Bell and Louis Braille similar? Make sure to address their character traits in your answer. Use evidence from both texts to support your answer.

6. What are three character traits that make a good inventor? Use evidence from both texts to support your answer.
