



ABOVE: An advertisement for the Edison Talking Doll.

BELOW: From right to left, Edison, Charles Batchelor, and Uriah Painter in 1878, when they went to Washington to demonstrate the phonograph.

## THE PHONOGRAPH

While working on the design for the telephone, Edison made a toy for his daughter, Marion. It used a carbon diaphragm, like the ones used in telephones, to respond to the vibrations of a human voice. The movement of the diaphragm provided electrical power for a model of a man sawing wood. Edison began to think that perhaps if the movement of the diaphragm could be recorded in some way, it might be possible to make the diaphragm reproduce the original sound using the same movement.

Soon, Edison had a working model of his "phonograph," or "sound writer." The device was named after the Ancient Greek words *phonos*, meaning "sound," and *graph*, meaning "writing." Edison demonstrated it to his assistants by playing them a recording of himself reciting the child's nursery rhyme "Mary Had A Little Lamb." His assistants were amazed, and the rest of the United States—indeed, the rest of the world—was soon to follow.

### "The Wizard of Menlo Park"

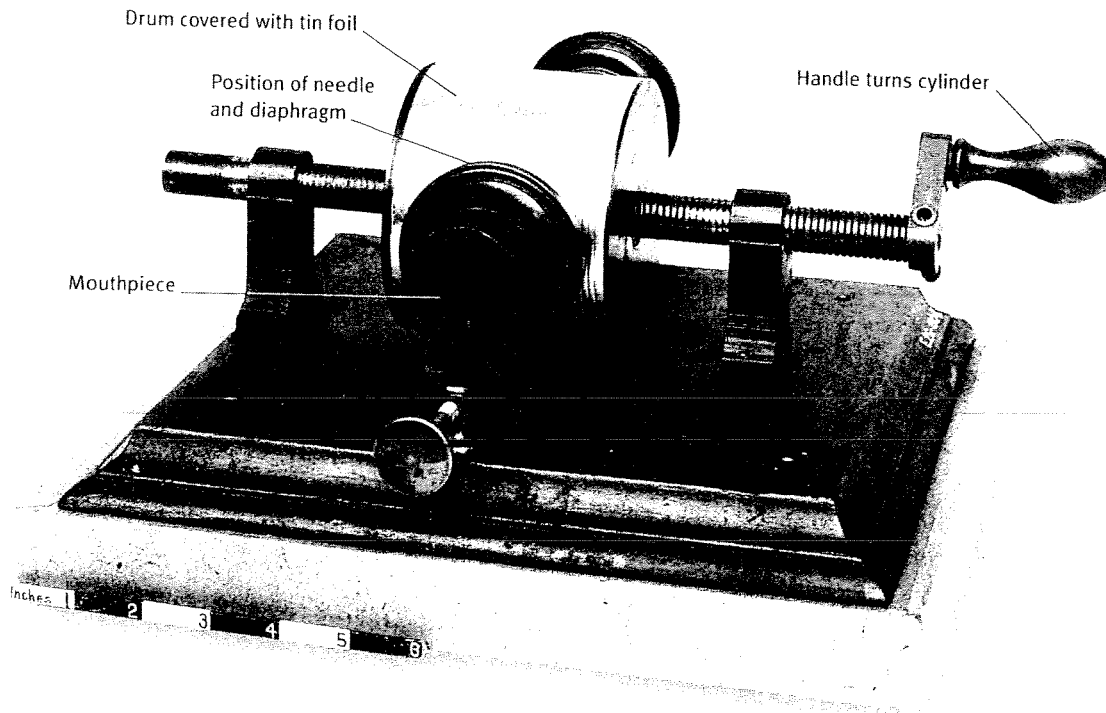
The phonograph quickly caught the public's attention. Exhibitions and demonstrations were organized, at which people paid 25¢ to hear the phonograph in action. A novelty model was sold for \$30, which was a huge amount in those days. This was quickly withdrawn because Edison planned to charge even more for his "standard" version and didn't want people to buy the cheaper one. The world was gripped by Edison-mania: In Europe and America, people were desperate to find out more about the man the press called "The Wizard of Menlo Park." Edison even went to Washington, D.C., to demonstrate his phonograph to President Rutherford Hayes.



### HOW THE PHONOGRAPH WORKED

The phonograph had a diaphragm behind a mouthpiece. Sound made the diaphragm vibrate, which moved a needle attached to its center. The needle made dents on a drum covered with tin foil. When the needle was passed back over the dents,

the diaphragm recreated the original sound. It was such a simple idea that Alexander Graham Bell, the inventor of the telephone, said it was "a most astonishing thing to me that I could possibly have let this invention slip through my fingers."



Tired out, in 1878 Edison took his first holiday since his honeymoon in 1871. He traveled to Wyoming to see the total eclipse of the sun in July, then on to San Francisco, Yosemite, and then Nevada. But, in the back of his mind, Edison was probably already thinking about his next big project: the light bulb.

**IN THEIR OWN WORDS**



*"We're striking it big in the electric light, better than my vivid*

*imagination first conceived. Where this thing is going to stop, Lord only knows."*

EDISON IN OCTOBER 1879, BEFORE HIS NEW COMPANY EVEN HAD AN OFFICE OF ITS OWN.

## ELECTRIC POWER

Having created the light bulb, Edison now had to find a way of producing electric power. By the summer of 1879, Edison and his team had invented a generator that turned steam into electricity far more efficiently than any other. Because of its strange shape they called it "Long-legged Mary-Anne."

Work continued on other uses of electric power. In May 1880, Edison demonstrated an electric train in the grounds of Menlo Park. Guests had to hang on tight as the train whizzed over bumps and through turns at 25 miles (40 km) per hour, but the return journey wasn't half as exciting. The train broke down and the guests had to push it home.

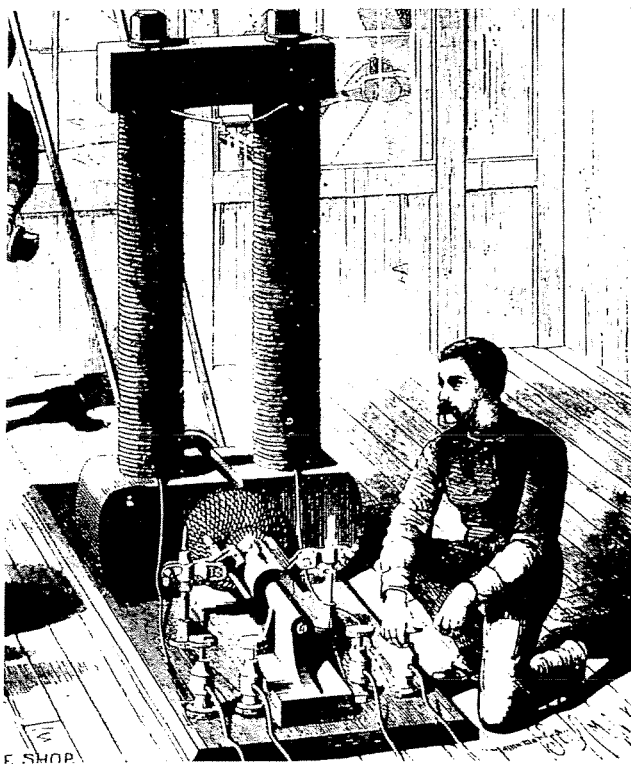
### Edison Electric Light Company

In 1880 Edison bought two buildings on Pearl Street in Lower Manhattan, New York, to be the base for the Edison Electric Light Company. By the spring of 1881, he and his

family had moved from Menlo Park to a rented house on Gramercy Lane, so that Edison could be nearer his newest business. He was convinced it was going to be a great success.

In 1882, the Edison Electric Light Company began to supply power to nearby businesses. This early power could only be supplied within a 2.5 mile (40 km) radius. Even so, within a short time electric power stations had sprung up across the United States. (See pages 4–5 for details about the day the lights were first switched on.)

LEFT: Edison's super-efficient generator, the "Long-legged Mary-Anne," was at the heart of his success. It converted more energy into electricity than other dynamos at the time.



F. SHOP

PARA

Edison's  
business  
only rec

IN THEI

*"I have  
accompl  
all that  
promised*

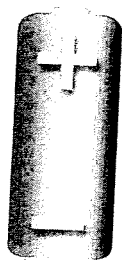
EDISON TO SEE  
PEARL ST

Edison  
ground  
Pearl St

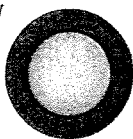
## PARALLEL CIRCUITS

Edison's wiring for his new electricity-supply business used parallel circuits, where each lamp only receives a fraction of the total current. This

meant that it was possible for one part of the circuit to be turned off without stopping the electricity supply to all the other parts.



*In parallel circuits, the current continues to flow around the outside of the circuit even if one of the "rings" is turned off. B and C will continue to glow, even if A is turned off.*



A



B



C

## IN THEIR OWN WORDS

*"I have accomplished all that I promised."*



EDISON TO REPORTERS AFTER HIS PEARL STREET POWER STATION BEGAN WORK ON SEPTEMBER 4, 1882.

RIGHT: Edison driving the electric train that ran on the grounds of his Menlo Park laboratory.

