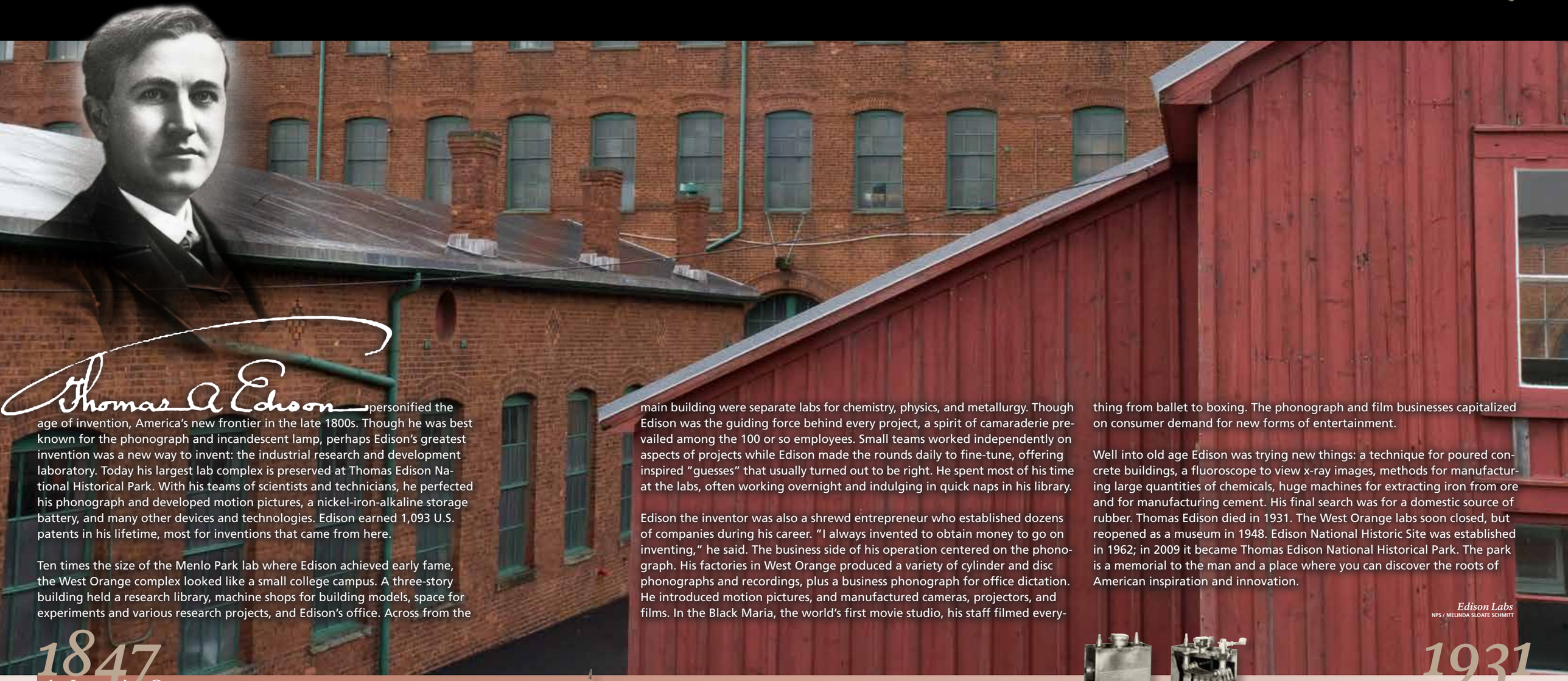
Thomas Edison

Thomas Edison National Historical Park
New Jersey

National Park Service
U.S. Department of the Interior



Thomas A. Edison personified the age of invention, America's new frontier in the late 1800s. Though he was best known for the phonograph and incandescent lamp, perhaps Edison's greatest invention was a new way to invent: the industrial research and development laboratory. Today his largest lab complex is preserved at Thomas Edison National Historical Park. With his teams of scientists and technicians, he perfected his phonograph and developed motion pictures, a nickel-iron-alkaline storage battery, and many other devices and technologies. Edison earned 1,093 U.S. patents in his lifetime, most for inventions that came from here.

Ten times the size of the Menlo Park lab where Edison achieved early fame, the West Orange complex looked like a small college campus. A three-story building held a research library, machine shops for building models, space for experiments and various research projects, and Edison's office. Across from the main building were separate labs for chemistry, physics, and metallurgy. Though Edison was the guiding force behind every project, a spirit of camaraderie prevailed among the 100 or so employees. Small teams worked independently on aspects of projects while Edison made the rounds daily to fine-tune, offering inspired "guesses" that usually turned out to be right. He spent most of his time at the labs, often working overnight and indulging in quick naps in his library.

Edison the inventor was also a shrewd entrepreneur who established dozens of companies during his career. "I always invented to obtain money to go on inventing," he said. The business side of his operation centered on the phonograph. His factories in West Orange produced a variety of cylinder and disc phonographs and recordings, plus a business phonograph for office dictation. He introduced motion pictures, and manufactured cameras, projectors, and films. In the Black Maria, the world's first movie studio, his staff filmed everything from ballet to boxing. The phonograph and film businesses capitalized on consumer demand for new forms of entertainment.

Well into old age Edison was trying new things: a technique for poured concrete buildings, a fluoroscope to view x-ray images, methods for manufacturing large quantities of chemicals, huge machines for extracting iron from ore and for manufacturing cement. His final search was for a domestic source of rubber. Thomas Edison died in 1931. The West Orange labs soon closed, but reopened as a museum in 1948. Edison National Historic Site was established in 1962; in 2009 it became Thomas Edison National Historical Park. The park is a memorial to the man and a place where you can discover the roots of American inspiration and innovation.

Edison Labs
NPS / MELINDA SLOATE SCHMITT

1847

1931

An Inventive Career

1847
Thomas Alva Edison is born in Milan, Ohio, February 11. Educated mostly at home by his mother.

1854–63
Family moves to Port Huron, Mich. Thomas works as a newsboy on Grand Trunk Railroad. Suffers permanent hearing loss.

Thomas Edison, age 14.

1864–69
Itinerant telegrapher in Indianapolis, Cincinnati, Memphis, and Louisville. Works for Western Union in Boston. Invents improved telegraph equipment.

1869
Awarded his first patent for legislative vote recorder. Decides to become full-time inventor.

Vote recorder, 1869.

Electric pen ad, 1870s.

1870
Invents commercially successful stock ticker. Income finances workshop in Newark, N.J., where Edison begins work on automatic telegraphy.

1871
Marries Mary Stilwell, one of his employees, on Christmas Day.

1874
Invents quadruplex telegraph device that sends four messages simultaneously along a single line. Pursues increased message capacity.

1875
Invents and markets electric pen, an early document duplication system.

1876
Builds laboratory at Menlo Park, N.J., world's first industrial research facility incorporating several fields of science and technology.

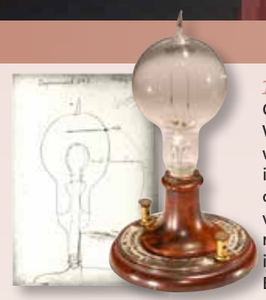
1877
Building on experiments to improve Alexander Graham Bell's telephone, invents "talking machine"—the phonograph. First recording is Edison's recital of "Mary had a little lamb." Hailed as the "Wizard of Menlo Park."

1879
Using carbon filaments in a glass-enclosed vacuum, produces practical incandescent light powered by electric generator. Demonstrates lighting system New Year's Eve at Menlo Park.

First phonograph, 1877.
NPS / DARRYL HERRING

1880
Experiments with magnetic gold ore separation. Observes transfer of electrons between electrodes within a glass globe—the "Edison Effect"—which eventually leads to development of vacuum tubes used in radio and television.

Menlo Park lab and workers, ca. 1880.



Edison's 1879 lamp sketch (left) *and reproduction lamp.*
COLLECTION OF THE HENRY FORD

1881
Moves home and office to New York City. Begins construction of first permanent central power station on Pearl Street in Lower Manhattan, which opens in September 1882.

1883–84
Establishes company to build central power stations throughout Northeast.

1884
Mary Stilwell Edison dies.

1886
Edison marries Mina Miller. Moves to Glenmont estate in West Orange, N.J.

Mina Miller, ca. 1886.

1887–88
Opens new lab complex in West Orange. Experiments with ore separation, shifting focus from gold to iron ore. Spurred by rivals' invention of graphophone, resumes work on perfecting his phonograph. Builds Edison Phonograph Works near lab complex. Begins work on kinetograph, a motion picture camera, and kinetoscope, a boxlike device for viewing motion pictures through a peephole.

1890
Establishes Edison General Electric Co., which merges with the Thomson-Houston Electric Co. in 1892 to form General Electric.

1891
Demonstrates kinetoscope to the public for the first time.

1893
"Black Maria" at West Orange labs becomes world's first motion picture studio.

1894
Sells General Electric stock to finance ore milling operation, thus exiting electrical industry by 1897. Ore milling is ultimately a commercial failure. "Edison Kinetoscopic Record of a Sneeze" becomes first copyrighted motion picture.

1896
Introduces Edison Home Phonograph, affordable and easy to operate. Begins experimenting with x-rays.

1899
Establishes Edison Portland Cement Company; uses waste rock and ore milling technology to produce cement, an increasingly popular building material.

1902
Introduces "Gold Moulded" black wax cylinder, made by a molding process that improves sound quality, yields more recordings, and lowers costs.

Edison Portland Cement bag, early 1900s.
NPS / JANE S. HANNA

1905–08
New company manufactures phonographs for office dictation, later known as the Ediphone and the Voicewriter. Introduces Amberol cylinder recordings that play for four minutes rather than two. With other film producers, forms company to control patents and fight competitors.

Gold Moulded cylinder and container, 1902.
NPS / JANE S. HANNA

1910
After 10 years of experimentation, introduces nickel-iron-alkaline storage battery for electric automobiles. With demise of electric cars, battery eventually used in other industrial applications. Demonstrates kinetophone, a motion picture projector synchronized with a phonograph to produce sound films.

1911
Organizes Thomas A. Edison, Inc., to consolidate most of his companies.

Nickel-iron-alkaline storage battery, 1910.

1912
Introduces Home Projecting Kinetoscope to show films in homes, schools, and churches. Introduces Diamond Disc, a vertical-cut groove disc record made of Condensite (a plastic).

1914
Fire damages or destroys 13 factory buildings; laboratory buildings are spared. Edison vows to rebuild, resumes limited production within one month.

1915
Named chairman of Naval Consulting Board, advisory group that evaluates civilian inventions for military application.

1918
Sells motion picture business.

1920
Postwar economic downturn and poor sales result in huge layoffs at Edison factories and dismissals of many managers and office workers.

1927
Begins search for domestic source of rubber that can be grown and processed quickly. Eventually settles on goldenrod and continues experiments for the rest of his life. Menlo Park lab recreated at Henry Ford Museum in Dearborn, Mich.

1928
Awarded Congressional Medal, one of the highest civilian honors.

1929
Light's Golden Jubilee celebrates 50th anniversary of electric lighting. Ceases manufacture of entertainment phonographs.

1931
Dies October 18. Lights dimmed nationwide for one minute on the day of his funeral.

1955
Edison company begins conveying West Orange property to National Park Service.

1962
Edison National Historic Site established to preserve lab complex, Glenmont, and historical collection.

2009
Congress redesignates site as Thomas Edison National Historical Park.

Electric Servants

In the 1920s, the Edicraft division of Thomas A. Edison, Inc. began making coffeemakers (above)*, waffle irons, sandwich grills, and toasters. These "electric servants"—a popular term for kitchen appliances—fit in with notions of modern American domestic life. Sales of the pricey gadgets dropped during the Great Depression. Edicraft ceased production in 1934.*

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