

PHYSICS

# Edison's Genius Lives On

The man who "lighted the world" was born 100 years ago. Thomas A. Edison laid foundations for modern scientific research.

See Front Cover

By RON ROSS

► THE WHOLE civilized world will pause Feb. 11 to celebrate the birthday of Thomas Alva Edison. Although Edison died in 1931, his discoveries and inventions are still providing, in an atomic age, new comforts and conveniences to millions throughout the world.

Born in Milan, Ohio, Feb. 11, 1847, Thomas Alva Edison "lighted the world" with incandescent lamps, reproduced voices and sounds with the phonograph, pioneered in motion pictures and radio, and achieved countless miracles of invention for science, industry and people in his lifetime.

Today, many of the achievements of science—weapons for victory in World War II, new methods of better communication and greater enjoyment, devices for industrial triumph and human progress—are being built on the foundations laid by the man whose birthday will be honored next week.

## Future Conquests

With \$2,000,000,000 and a world of skilled manpower to choose from, the development of the atomic bomb not only opened new roads to scientific conquest, but it set a pattern for future science and invention. Concentrated resources of men, equipment and funds seem destined to mark the future attacks of man on the secrets of nature. Government, industry and educational institutions will back the suggestions of great minds with facilities undreamed of even a decade ago.

Against this picture, the figure of Edison, alone or with a few assistants in his laboratory, financing new experiments with the profits from previous inventions, will seem even more miraculous to future generations. What Edison might have done with a Manhattan District is pure speculation, but the great laboratories now planned throughout the world will be hard-pressed to equal the contributions of Edison's solitary genius.

During his life and since his death in 1931, Edison has been best known and most honored for the incandescent lamp which has lighted homes, businesses and most of civilization since its invention in 1879. Next in fame is probably the phonograph, produced when the inventor was 30 and probably his favorite invention. A less well-known experiment by Edison, which the inventor himself made little use of, may loom more important to historians of science in the future than either the lamp or phonograph.

In 1883, Thomas Edison put a cold piece of metal opposite the metal wire filament inside an electric light bulb. Electrons flowing along the wire created an electrical current. The filament, heated by the flow of electric current through it, emitted electrons and a minute electric current flowed along an external wire connecting the plate and filament. Edison showed that this current would always flow in the same direction. The discovery became known as the "Edison effect."

The inventor did not use this phenomenon, but 21 years later the British physicist, Sir. J. Ambrose Fleming, uti-

lized Edison's clue to produce the first simple detector tube for radio reception, the father of the modern vacuum tube used in your radio. When Dr. Lee De Forest, in 1906, learned to control the flow of electrons from the plate to the filament, the electronic tube and modern electronics were born.

From the discovery of the "Edison effect," scientists in World War II developed radar and other electronic devices now being turned to important peacetime uses. Electronics, founded on Edison's experiment of more than 60 years ago, may hold more important scientific advances than even the incandescent lamp.

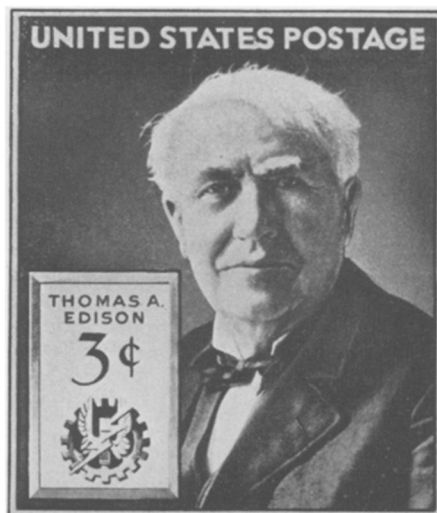
## Inventive Genius

The story of Edison is one of inventive genius unadorned with the dramatic touches of some great men of science and industry. He was not born in a log cabin and his early, varied business enterprises were not inspired by poverty. He did not labor for long years without fruitful achievement nor aid mankind with his achievements without receiving recognition in his lifetime. A successful inventor at the age of 23, Edison moved on to greater discoveries, and unprecedented honors recognized his work.

His first invention failed, but political science rather than natural science was to blame. First of many patents granted Edison was one in 1869 for an electric vote recorder for the U. S. House of Representatives. The device, similar to many now used by legislative bodies, worked too well to suit a committee from the House, because it would have put an end to filibustering on votes.

The next year the young inventor devised a stock ticker. For his improvements and inventions simplifying the transmitting devices of the stock exchange, he expected to receive at least \$3,000. Instead, he was offered \$40,000.

With this money, as with the fortunes he later gained from his work, he turned to new experiments and inventions. A mere list of the more than 1,000 inventions made by Edison, though imposing, tells only part of the story of his accomplishments. Machines for multiple telegraph transmission, the electric pen and the mimeograph, the microphone and the megaphone rank only below the



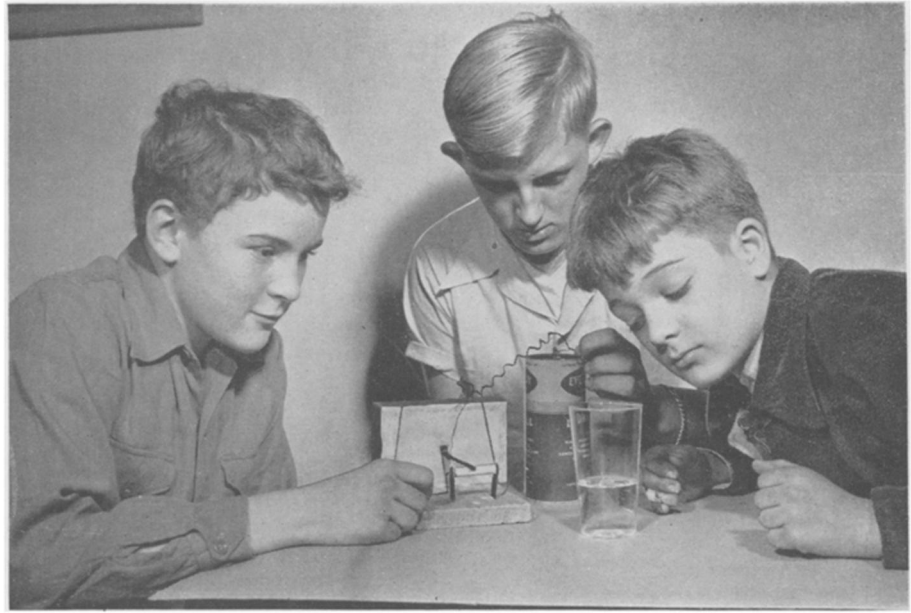
**COMMEMORATION** — Purple in color, this postage stamp will be issued in Milan, Ohio, on Feb. 11 as part of the Edison centennial celebration.

lamp and phonograph. The latter was so revolutionary that never before Edison developed his phonograph had the idea for an apparatus to reproduce the human voice been put into a patent application.

Apart from the actual inventions by the man born 100 years ago lie pioneer work in motion pictures, the vacuum tube of radio and electronics, and important developments in the telephone transmitter, telegraphy and the perfecting of some of his own original inventions.

Many myths surround the life of Edison. His deafness, credited by the inventor with aiding his work, is sometimes said to have come when an irate train conductor boxed his ears after the boy had set fire to a train in an improvised chemical laboratory in an empty car. Actually the injury occurred when he attempted to mount a moving train and was pulled aboard by his ears.

His long hours of work with only four to six hours of sleep a night amazed his friends. Asked about his philosophy of life a few years before his death, Edison said it was, "Work—bringing out the secrets of nature and applying them for the happiness of man." And he added, "Looking on the bright side of every-



**EDISON EXPERIMENT**—Junior scientists use a piece of chalk, a dry cell battery and a glass of water to learn about reducing friction with an electric current.

thing." Edison was caught by a photographer in a rare moment of relaxation shortly before his death and the picture is shown on the cover of this SCIENCE NEWS LETTER.

One of his last projects helped to answer today's demand for scientists and the need for encouraging young scientists. In 1929, Edison brought 49 promising youths to his famous laboratory. They were given tests, with a scholarship prize to the winner. Today elaborate projects, such as the nation-wide Science Talent Search for the Westinghouse Science Scholarships, are conducted among teen-age scientists.

Modern science does not leave young men with the talents of Edison to pursue their own course without the support of the best collaborators and equipment known. Many minds are now at work building on foundations Thomas Alva Edison helped to erect.

*Science News Letter, February 8, 1947*

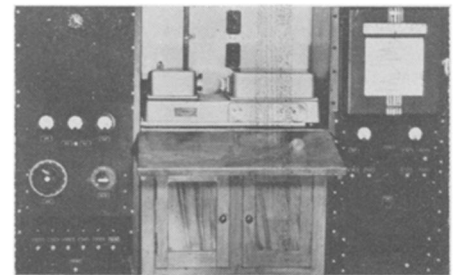
**CHEMISTRY**

**Process Reduces Loss Of Element Selenium**

➤ **REDUCING WASTE** of the rather costly element selenium when it is added to molten glass for the purpose of obtaining a tinted product, is the objective of patent 2,414,413, issued to A. E. Pavlish and C. R. Austin of Columbus, Ohio, assignors to the Battelle Memorial Institute. Adding an oxidizable sili-

con compound along with the selenium prevents most of the loss through volatilization that occurs when selenium is put in alone.

*Science News Letter, February 8, 1947*



*Photo Courtesy Standard Oil Dev. Co.*

**INFRA-RED SPECTRA Recorded By Speedomax G**

The equipment shown above, in an oil company's research lab, makes many analyses which would be nearly impossible by other means. The recording instrument is a Speedomax Type G, which follows quickly and accurately the output of a Perkin-Elmer spectrometer. Its speed and sensitivity are ample for most spectrometry uses, and input filter design keeps pick-up troubles small. For details about Speedomax G, ask for Catalog ND-46(1).

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