

American Government Honors Edison

Invention



REVERSE OF THE EDISON MEDAL, conferred on Thomas A. Edison by the action of Congress. The obverse, showing the profile of Edison, is depicted on our cover. The medal is the work of John R. Sinnock, of Philadelphia, and was struck at the Philadelphia Mint

Among her sons of achievement America boasts only one "wizard" of invention. She has had a host of inventors, but still only one "wizard."

To capture the human voice upon a cylinder of wax; to produce pictures in which the people move as they do in actual life; to imprison a hair-like thread within a vacuum and make it glow electrically with such brilliance as to furnish the people with a wonderfully useful lamp—these things are magical indeed. And these things all shout the same magical name. It is the name of Edison.

As the "wizard of Menlo Park" began the golden jubilee year of his incandescent electric light, America paid him homage of a singular sort. Acting as the representative of all his fellow-Americans, the Secretary of the Treasury, Andrew W. Mellon, presented him last Saturday night, October 20, with a special Congressional gold medal, of which the obverse forms our cover design this week. The ceremony was broadcast by radio; and the President of the United States spoke to the nation from Washington, to remind the millions who listened of the influence Edison has been in their daily living.

At the same time Edison renewed his acquaintance with an old friend, for there was returned to him the original phonograph, with which, in 1877, he reproduced his own recitation of "Mary had a little lamb." For many years this has reposed in the Science Museum at South Ken-

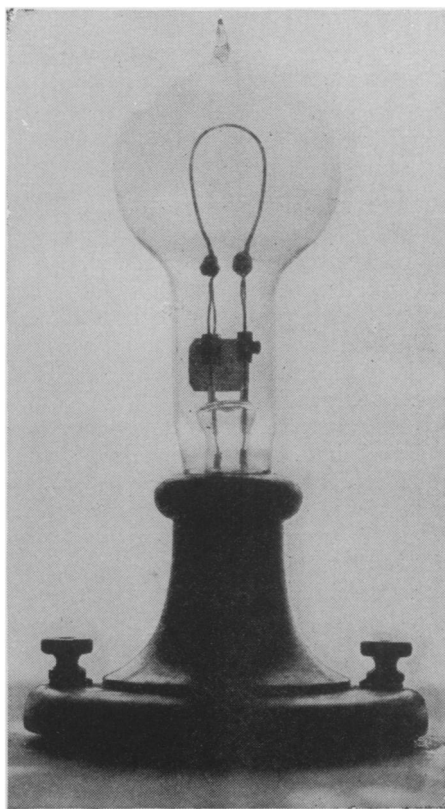
sington, London, but Donald Campbell, of the British Embassy, gave it back to him.

The ceremony, however, was in commemoration of the electric lamp, because the incandescent lamp is generally appreciated as Edison's biggest contribution to the national welfare and the national wealth. He himself once described it as "the most satisfactory of my inventions to contemplate."

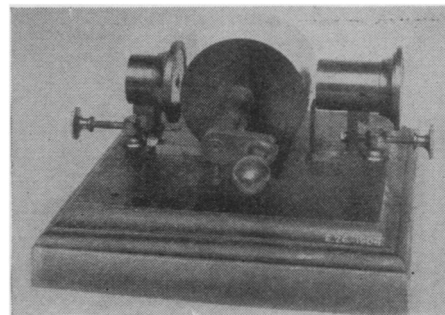
The incandescent lamp, however, was born amid storm and stress, amid the thunderings of critics and the vociferations of skeptics. In the world at large, especially the scientific world, there was heard the turbulent clash of carping voices whenever Edison and his electric illumination scheme were touched upon.

Yet, in the sylvan solitude of Menlo Park, New Jersey, fifty years ago, there was merely intensive industry. The days slipped by untroubled and unheeding—busy, indeed, but calm.

The bright autumn sun poured in through those tall, unshaded laboratory windows. Men came and went,



EDISON'S ORIGINAL ELECTRIC LIGHT looked like this. The actual lamp was destroyed in order to examine the filament. The 49th anniversary of its success was marked by the presentation to Edison of the Congressional medal



THE ORIGINAL EDISON PHONOGRAPH, which has now been returned to Edison by the British Government, after reposing for many years in the Science Museum at South Kensington, London

absorbed in curious tasks. At one of the work tables sat Charles Batchellor, the model-maker, whose delicate fingers patiently struggled to mount a slender bit of carbonized cotton thread upon a little stem of glass. Beside him, watching, assisting, directing, sat Edison.

As the October day drew to a close, the setting sun threw crimson rays across the long bare floor, and the rows of bottles lining the shelves, the tables with their crowded paraphernalia, the tall Sprengle mercury pump, the fat, sprawling coal stove gleamed in the weird red light. The silent figures bending over the table became silhouettes of fiery outline, and their shadows loomed gigantic upon the opposite wall. The scene suggested the lair of some alchemist of old, a place of wonder-doings, a den of magic—as it were.

That evening the work went on. It continued until past midnight, as it often did. The next morning the new experimental lamp—the thin filament encased in its bulb of glass—was taken over to the Sprengle pump and carefully attached to the exhaust mechanism, to have the air pumped out.

Edison watched all that day as the pump worked on. At last he connected the lamp to his large bichromate battery and every now and then he sent an electric current through the bulb. Instantly the gases buried in the filament began pouring out. The pump worked on for hours longer; and Edison stayed at his post, "doctoring" the lamp with frequent doses of electricity, until the highest possible vacuum existed inside that little bulb—one-millionth of an atmosphere.

It was eight o'clock in the evening of October 21. (Turn to next page)

Edison Honored Anew—Continued

1879. Edison, satisfied with his work thus far, spoke tersely to young Francis Jehl, the pump-tender. He sent for Ludwig Boehm, his glass-blower, who carefully sealed off the lamp and helped Jehl mount it on the test-stand to undergo its life-test.

A few minutes later the spot of yellow incandescence began to glow; and then the little group took up what Jehl always afterward called the "death watch."

"We had tested many lamps before that day," Jehl recalls. "And none had come up to the mark that Edison sought. With this new lamp we did not know the result would prove any better. The life-test alone as in all previous cases, would decide the question of success or failure. The one thing we wanted to know was how long the lamp would last—how long a life it was good for—how soon it would show signs of burning out. So we began the death-watch—the death-watch of an incandescent lamp which, unknown to any of us, was symbolic of the deathless lamp of the future."

That watch lasted forty hours. For forty hours the lamp glowed steadily—all the rest of that night, all the next day and night, and until about one o'clock in the afternoon of the second

day. Never once in that interval was it left without observers.

Edison himself sat there as unmoved as a Stoic—a lean, well-knit, youthful figure, without coat, collar or tie, and wearing the black skull cap which he frequently exhibited in those days. Once only he relaxed, stretching full-length upon a nearby laboratory table for two or three hours' sleep, while his faithful henchmen kept the vigil—Jehl, Batchellor, Francis R. Upton, his mathematician, occasionally Ludwig Boehm and Martin Force, and even sturdy John Kreusi, his machinist, the first man besides Edison ever to hear the human voice by phonograph.

When the "wizard" awoke, the lamp still glowed. He and Upton measured its electrical resistance—one of the basic characteristics that made possible Edison's triumph where others had failed.

Then the watch went on—Edison in silent contemplation, dreaming a bit, as he realized the goal was at hand, of "great central stations in many cities, supplying electric current for large numbers of incandescent lamps." That was his broad economic conception, his "complete system of lighting," which he even then had clearly

planned in every detail.

At last the glowing filament burned out. But they knew success was theirs. Edison exclaimed to his assistants, in quiet, equanimous elation: "That's fine, boys, fine! If the lamp will burn forty hours now, I know I can make it last a hundred." Before many months had passed he had made it last a thousand.

The first thing he did, however, was to deliberately break that glass bulb and carefully remove the filament for a microscopic examination. It was his invariable practice; nothing that could possibly add to his knowledge of incandescent lighting was ever left undone.

That is why the original forty-hour lamp no longer exists. It cannot be enshrined in any museum, not even in Henry Ford's growing aggregation of Edisonian treasures. The nearest approach to it is the replica designed by lamp engineers of the General Electric Company from the authoritative recollections of Edison's men and of Edison himself.

Science News-Letter, October 27, 1928

Typhoid fever is most prevalent in this country in late summer and autumn.

First Phonograph Called A Fake

Invention

By EDWIN E. SLOSSON

The first Edison phonograph exhibited in Paris was denounced as fake when it was exhibited before the French Academy of Sciences March 11, 1878, by the physicist, Count du Moncel. As the learned assembly heard from the pasteboard horn the words which had been spoken into the mouthpiece by Edison's representative, Puskas, "The phonograph is highly honored by being presented to the Academy of Sciences," one of the academicians, Monsieur Bouillaud, sprang up and shouted in a voice choking with righteous wrath at the imposition, "You rascal! Do you think you can fool us with a trick of ventriloquism?"

Perhaps the American accent of the phonograph salesman may have given some excuse for this incredulity, but even after Count du Moncel had taken his turn at the machine, and this had repeated in his own pure accents: "We thank Mr. Edison for having sent us his phonograph," the skeptical scientist was not convinced. Only on September 30, after he had

himself given the apparatus a thorough testing, was M. Bouillaud convinced that this was not a case of ventriloquism. But he added, "No one could have believed that a scrap of mere metal could have reproduced the noble tones of the human voice."

The phonograph is one of the few inventions that has no history behind it. Most inventions nowadays are the culmination of a long process of previous experimentation and research to which many persons have contributed. Often the courts take years to determine who has furnished the final factor essential to success. There has been lots of litigation about most of Edison's inventions, but when he sent in his application to the Patent Office, December 24, 1877, the examiners reported "no references" to anything of the sort having been made previously, and the patent was issued with unusual promptness February 19, 1878. There is no written record that any man in the history of the world ever had heard his own voice reproduced mechanically prior to the page in Edison's notebook, dated July 18, 1877, on

which he sketched the future phonograph and noted in his neat upright hand, "Just tried experiment with diaphragm having an embossing point and held against paraffine paper moving rapidly. The speaking vibrations are indented nicely and there's no doubt that I shall be able to store up and reproduce automatically at any future time the human voice perfectly." This confident claim has been completely verified in our own times.

Science News-Letter, October 27, 1928

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