

—Life of Edison, No. 9
EDISON PROVED GREAT CHEMIST IN WAR DAYS

Made Himself Name in New Field When U. S. Took Up Arms.

This is the ninth of twelve exclusive stories on Thomas A. Edison by Major William Joseph Hammer, his scientific associate and lifelong friend.

BY WILLIS J. BALLINGER
 As Told by William Joseph Hammer, Life-long Friend of Edison.
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When the World war broke out, Edison was approaching the biblical allotment of three-score years and ten.

His life's work had been practically accomplished. Yet, while young men offered their bodies for their country, this man old in years volunteered a mind still young in creative capacity.

Edison was elected the honorary head of the naval advisory board. His contributions during the World war were numerous and remarkable.

Our collision with Germany had cut our industries off from many chemicals. Particularly were we short of carbolic acid, of which Edison was the largest user in the United States.

Phenol Was Tied Up

Edison found how to produce it synthetically, but he needed phenol for this purpose. He secured the co-operation of other interests, improved his process and turned out 7,000 pounds of carbolic acid a day in 1915, from the phenol.

But this used up great quantities of phenol, and a shortage of phenol meant considerable suffering. In the first place it is an ingredient of aspirin.

It threatened to cut us off from the consolation of music, for phenol is used in making phonographic records.

More imperative still, the chemical is vital to the making of picric acid, which is used for filling bombs.

Made Good as Chemist

With accustomed energy, the wizard of electricity turned chemist with tremendous success. He developed on a large scale the manufacture of phenol and, less than a year after America entered the war, there were fifteen phenol plants turning out 64,146,498 pounds of the substance, valued at over \$23,000,000.

There arose the great war problem of rubber. How were we going to shore up our ambulances? How were we going to find a substitute that has ramifications throughout our industrial life and which is also, a war necessity?

The United States consumes three-fourths of the world's rubber output and grows none of it. Here was a pretty problem, indeed. And it was one that taxed the genius of the grand old man to the limit.

Wanted 8 Per Cent Yield

"We see him rearing golden rod four feet high. We see him getting a sap yield from his giant golden rod plant of 6 per cent.

"When I get 8 per cent yield, the rubber problem is solved," he muttered determinedly.

The world generally regards Edison's incandescent lamp as his greatest accomplishment. His favorite invention was the phonograph.

The "Jumbo" dynamo certainly baffled him more than any of his successful inventions. Up to the time of the "Jumbo," a dynamo could be lifted about by several men.

Edison produced one weighing thirty tons, which drove a six-ton armature 350 revolutions a minute by means of a direct connected steam engine.

Ran Ragged by "Jumbo"

The dynamo is a device for translating the mechanical energy of a steam engine into electric energy.

The most modest dynamo in the world at that time was the "Gramme," which had only an efficiency of 41 per cent, whereas the Edison dynamo translated 90 per cent of the steam power into electricity.

The "Jumbo" dynamo solved the problem of economically generating electricity on a huge scale.

This invention "ran Edison and his associates ragged." The terrific strain of the centrifugal forces on the armature was so great that it often caused the copper bar windings to fly off and strike into the magnets.

Finally Made to Behave

On one occasion the connecting rod of the engine was thrown across the room. Edison had to gold plate all contacts, as the heat caused oxidation. Day after day, night after night, a crew of perspiring men put up with the whims of Lady Dynamo until finally she was made to behave herself.

Edison's discovery of the principle of the phonograph was once described to Hammer by the inventor.

"One day," Edison said, "I was talking into a phone diaphragm, at the back of which was attached a needle.

"I was feeling the power of the sound waves on the needle when, all of a sudden, I raised by voice to a shout, and the needle stuck so to talk."

Next—Edison's school days . . . Attempting to read an entire library of books . . . "Scooping" the big city newspapers with his tiny Weekly Herald . . . His shyness . . . Decorated by France as a Commander of the Legion of Honor.

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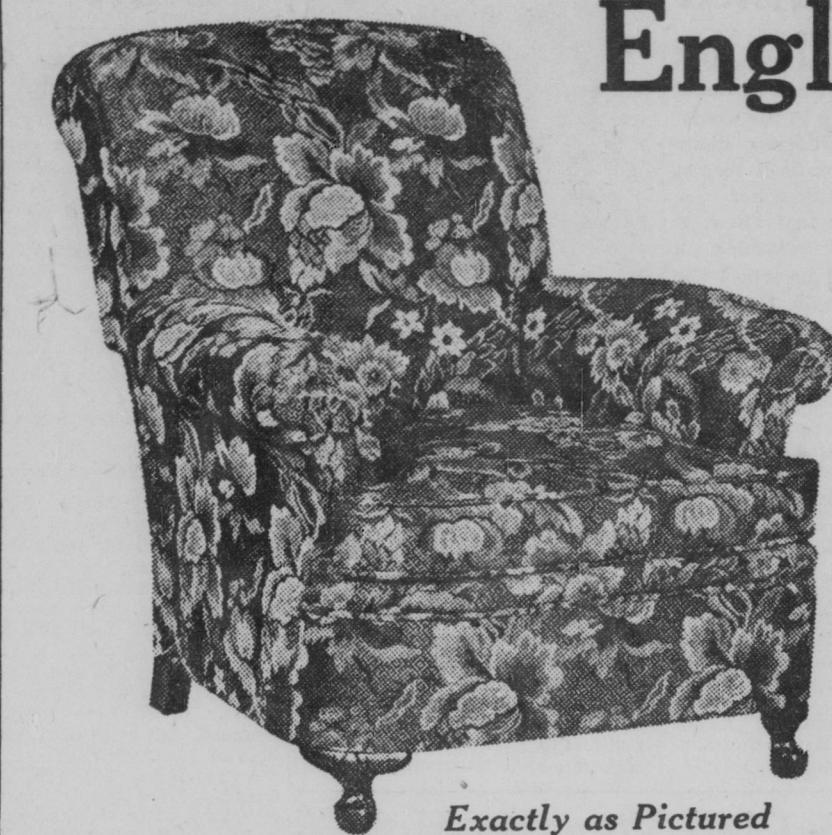
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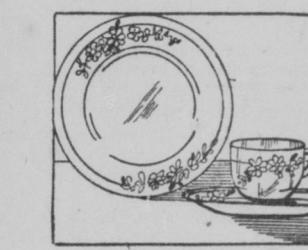


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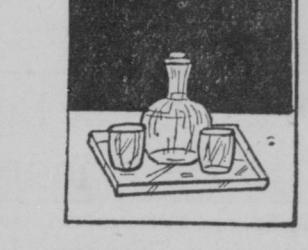


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