

WHAT MAN OWES TO FRANKLIN

Vast and Varied Activities of the Agent Lured from the Clouds.

PERMEATES ALL BUSINESS LIFE

Capital Employed and Immense Output of Factories Producing Electrical Devices—Rapid Increase in Business.

Thomas Comerford Martin, editor of the Electrical World and expert agent of the United States census office, makes a notable showing of the increased use of electricity for lighting, cooking, heating and power purposes.

"The records for the country at large," said Mr. Martin, "show that the increase in the use of electricity for cooking and heating is 300 per cent a year, lighting 15 to 20 per cent, for telephone 30 per cent, and for street railways about 7 per cent per annum. The money spent for the current is shown by the enormous earnings. The totals for 1907 were: From electric street railways, \$28,000,000; from electric lighting, \$25,000,000; from telephones, \$20,000,000; from telegraphy, including American receipts from submarine cables, \$16,000,000, and from isolated electric plants like those in large buildings, \$10,000,000.

Compared with the total of \$95,000,000 thus obtained for 1907 it is seen that the census report of 1902, showing gross earnings in that year from all sources in the country of \$86,000,000. The increase in the five years was \$73,000,000.

"The greater diversity of the uses now made of electricity," Mr. Martin continued, "is also suggested in the census report for 1902. In that year 23 per cent, or more than one-half the earnings of American electric companies, were from incandescent lights. The arc lights earned 23.7 per cent, or \$24,947,000, of the \$105,000,000. The earnings from all other classes of electric service earned 16 per cent, or \$17,560,000, and the income from all other sources was 18 per cent of the total. Electric railways, heating, cooking and motive power, you see, played a comparatively small part in this industry.

"Until five years ago the average increase in electric lighting ranged from 10 to 15 per cent annually. Since 1902 the use of electricity for this purpose has grown from 20 to 30 per cent every year, the presence of something like 600,000 families in the city-most of them presumably users of gas or other illuminants.

"The new government census report on electricity is now being prepared and the summaries are not ready," added Mr. Martin. "In the report for 1902, however, it is shown that of the \$66,000,000 spent for electricity in that year New York expended \$9,847,200, or, approximately, 10 per cent of the whole."

Product of Factories. In all parts of the country the use of electricity and electrical apparatus is undoubtedly increasing by leaps and bounds. Whether it is milking a cow or creating a temperature of much higher heat, as has never before been obtained—mere trifles, perhaps, of 1,500 degrees—the volatile agent lured from the clouds by Franklin is almost invariably called on.

In its commercial aspect, says the New York Tribune, electricity permeates all business life. It is not surprising that the United States not only leads all countries of the world in manufacturing electrical apparatus, but also sends men abroad to do the construction work. In many of the most highly productive manufacturing districts of the United States electric power is being installed about ten times more generally than any other kind. The total sales for 1907 is not yet available, but those of 1906 of the three greatest producers of this field in the United States, and, therefore, of course, in the world—the Western Electric company, the General Electric and the Westinghouse Electric—reached the enormous sum of more than \$160,000,000.

The product represented by this big total enters into the daily lives of all classes of Americans. Take, for example, the output of the Western Electric company, the largest of the big three, the sales of which alone last year approximated \$70,000,000. The great bulk of these consisted not in power plants or huge engines, but in that universal agent of everyday life—the ubiquitous telephone. More than \$55,000,000 worth of telephones and telephone supplies was produced in the United States last year, and of this sum the Western Electric, manufacturer under the Bell patent, turned out by far the greater part. With the country sending over the wires something like 15,000,000 telephone talks every year, these figures give some indication of the extent to which through the telephone the whole country is being electrified.

At about the middle '90s, when the Western Electric first began to turn out telephones, the total output for the year was 90,000 instruments. Now at its gigantic factories in New York that total represents only two weeks' output, for the instruments are manufactured at the astounding rate of 5,000 daily, or say 1,500,000 a year. More than 25,000 employees of this company were kept busy last year in turning out the little talk machines and their accessories, the switchboards and other apparatus being manufactured at the Chicago headquarters. The results of this labor, if combined into a single instrument, would create a monster telephone nearly 300 miles high and weighing almost 400 tons—a colossal monument to the use of electricity in everyday life.

Other uses of electricity are almost too familiar to mention. The whole matter is man in his office looks at an electric clock and takes an electric car for his home. An electric bell is at his door; electricity lights his house, and perhaps warms it, too; it may even cook his dinner. All the while the telephone keeps the man in touch with the world wherever he goes. Even the milk left at the door in the morning is handled by electric machinery in the dairy where it comes; the flour in the bread is produced by electrical machinery; the cloth which covers one's body owes its debt to the subtle vibrating medium.

Makes the World Go Round. Indeed, the time has apparently come

ELECTRICITY AND THEATERS

How the Magic Current Serves the Mimic World.

MODERN METHODS SAFE, SIMPLE

Revolution Wrought in Effects by the Adaptation of the New Lights to the Uses of the Stage Manager.

So accustomed have the theater-going public of America become to seeing everything on the stage go off like clock work that they seldom stop to consider the changes wrought in the different contrivances used to make the performance run smoothly and without friction. One of the greatest boons to the theater manager in production or in presenting his desired effects has been the use of electricity on the stage.

But a few years ago these effects were all produced either by gas or by calcium light and there was always danger of setting the theater on fire, with its accompanying horrors. When the lighting effect was needed for an entrance to the stage from one of the wings it was customary to run a rubber tube into the entrance, to which would be attached a cluster of gas jets, which would throw their flames sputtering in all directions, sometimes hitting the flies and putting all in fear of fire at any time. All this has been changed. The greatest safeguards are placed around all lighting effects, which are now accomplished entirely by means of electricity.

The theater is under supervision of the city electrician, who makes periodical trips of inspection to see that no new contrivance is installed which might possibly cause fire. Not a stick of wood of any kind is permitted to be used in the building of any electrical effects, which must be attached entirely to metal. The utmost care is used in all insulations and everything electric has to be absolutely fire-proof.

Used Every Place.

Electricity is used all over the modern theater from the massive illuminating signs in front of the real stage where small lights are placed to assist the baggagemen in removing the property from the stage. Even the curling irons for the chorus girls are now heated by electricity. In the olden times the girls had an old-fashioned gas jet in their hands, on which they would heat their curling irons and on which they would often singe off part of the frizzes by coming unwarily in contact with the flaming blaze. The electric heater is also found much more economical, for the current is only turned on while the iron is being heated, whereas under the old system the girls would often leave the jet burning all evening. The electric bulb is also much more effective in assisting in "making up," for the globe, attached as it is to a long wire, may be moved around to throw light on all parts of the head, face and hair.

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Spot Light and Effects.

Electricity is now also used for the spot lights which are placed in the gallery or balcony or at the side of the stage. It was formerly the custom to produce these strong light effects by means of calcium lights fed from the tanks, but since electricity is more freely used it is found much handier and better for several reasons.

In the big Hippodrome in New York City, the stage is illuminated by a battery of seventy-five powerful "spot" lights, and the wonder is that the actor is able to withstand the glare under which he is forced to work. These are not all placed in front, but are thrown from the front and sides, in fact from all directions except from the rear, for that would throw the light into the eyes of the spectators, and that is just what the electrician is striving to avoid. All effects must be from the front and this fact helps materially in producing a more even effect. The lights in front throw all shadows to the rear.

A battery of four different colored lights is ranged along in front of the stage, for what is known as the footlights, and the same four circuits are used overhead for the border lights. At the Boyd theater 1,000 incandescent lights surround the stage which might all be turned on at the same time. These four circuits each have different colored globes. They are the red, the amber, the green and white, and many different effects are produced by using these blends. By the judicious blending of these colors the electrician is able to get almost any effect he desires. The amateur is striving to avoid, to look hideous when the electrician turns on some light, for an effect on the scene, which does not coincide with the makeup of the actor.

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