

great expectations and much speculation. His experiments did not indeed result at that time in a commercial article, but they were the foundation of his success the following year, when he abandoned the attempt to use filaments of platinum-iridium wire and resorted to carbon as the light-giving medium. But it was not until 1881, when he succeeded in obtaining a really durably incandescent lamp, that the application of electricity to domestic lighting became a possibility, and its adoption only a question of time.

Mr. J. W. Swan of England and Mr. W. E. Sawyer of New York, who had been experimenting on the same lines for probably a much longer period than Edison, both invented, about the same time, lamps embodying the elements of the success which afterwards attended their endeavours; but whilst to the three distinguished inventors mentioned is due the credit of the production of really commercial incandescent lamps, the fact that they were simply perfecting the ideas of other investigators, who had long previously experimented on the same lines, seems to have been generally lost sight of.

In September, 1882, the Edison station for the distribution of current to supply incandescent electric lights, located in Pear Street, New York, the first permanent station of its kind, was put into operation.

In 1876, not a single horse-power, whether produced by steam or water, was used for electric lighting, or for the manufacture of electric lighting apparatus, yet now it is estimated that out of a total of five and a quarter millions horse-power developed by steam engines and water wheels on this continent, half a million horse-power, or nearly ten per cent., is used in the production of electric current for the distribution of light and transmission of power, and in the manufacture of electrical machinery and appliances.

At the beginning of 1886, there were in the United States and Canada 450 local electric lighting companies operating central stations. At the beginning of 1887, the number had increased to 750; and at the beginning of 1889 to nearly 1,200; while in January, 1890, there were 1185 different companies operating central stations in the United States, 147 in Canada and 25 in Central America and Mexico, besides 266 gas companies, etc., engaged in electric lighting, making a total of no fewer than 1623.

At the end of 1886, there were 1,000 incandescent and nearly the same number of arc isolated plants. The number of private plants now in the United States is 3,925; in Canada and miscellaneous 196, and in Central America and Mexico 200; making a total of 4,300 isolated electric lighting plants, large and small.

The following was the condition of the arc lighting business at the beginning of the years mentioned:

Year.	Arc lamps in use.	Year.	Arc lamps in use.
1882	6,000	1886	96,000
1883	12,000	1887	150,000
1884	24,000	1888	175,000
1885	48,000	1889	210,000

while in 1890 the lamps in use number 235,000. Of these about 70,000 are of the Thomson-Houston manufacture, and 49,000 have been made by the Brush Electric Company.

Between November, 1886, and January, 1889, the number of incandescent lights in America more than quadrupled, increasing from 525,000 to 2,300,000. At the present time, there are fully 2,800,000 incandescent lamps in use. The estimated total capitalization of electric lighting and electric manufacturing companies in America at the present time is \$250,000,000.

ELECTRIC LIGHTING IN CANADA.

Being one of the pioneers in construction of electric lighting plant in Canada, and the manufacturer or constructor of nearly 30 per cent. of the total capacity of incandescent lighting installations now in operation in the Dominion, the writer submits the following brief history of the progress of the electrical industry in this country.

Ten years ago there was not a single electric light plant in operation in Canada. The first plants erected were Brush arc plants of small capacity. About the end of December, 1882, some Thomson-Houston arc lights were placed on exhibition in this City by the American Electric Illumin-