

*Wilson S. Howell*

In December, 1879, Mr. Francis R. Upton invited a party of young people to visit Mr. Edison's laboratory at Menlo Park, I being one of the party. We saw there the first public lighting of a few of the streets of Menlo Park by the old paper horse-shoe carbon filament. I was so impressed by what I saw that on the following morning I again visited the Edison laboratory, sought out Mr. Upton and requested that I be allowed to work in the laboratory for the purpose of gaining information which would enable me to be among the first to benefit from the commercial application of Mr. Edison's invention of a system of incandescent lighting. Mr. Upton referred me to Mr. Edison, who discouraged my application by saying that the woods were full of young fellows who knew little or nothing about electricity; but, upon my agreement to work without compensation for the privilege of sitting at the feet of the master, I was told to take my coat off and get to work.

My first work was the exhaustion of lamps by means of a combination Sprengel and Geisler mercury pump. The operation being rather slow, Mr. Edison encouraged us to devise a better exhaustion system, which resulted in the fast Spengle pump as finally used in the first lamp factory at Menlo Park.

It was during these days that Edison was searching for a better material for the making of his carbon filaments. As he described it one day to a group of listeners, the fibers of paper are, under the microscope, like a bunch of sticks. That paper was made by man and is not adapted to our purpose. Somewhere

in God Almighty's workshop will be found a natural bunch of fibers, all nearly geometrically parallel and with a minimum of pith. He encouraged us boys to seek for such a fiber and many different materials were brought to him for inspection. He made filaments from straight grained woods, hemp, bast and many other fibers, finally selecting bamboo as offering the nearest to his ideal. The first lamps made in the first lamp factory at Menlo Park had filaments made from carbonized bamboo. Until Mr. Edison had discarded paper as a useful substance from which to make his carbon filaments, I had heard him several times express the wish or hope that he could make filaments of 100 ohms resistance. Bamboo furnished such high resistance, and upon bamboo was built the first successful lighting by incandescence.

Life tests of lamps were made in the old days at Menlo Park, generally in groups of about 100 lamps arranged on long laboratory tables. The lamps were burned above normal temperature so as to get quick results. These tests generally ran about twenty-four hours, being the occasion for all night work by Mr. Edison and some of his associates. Wagons on the life of individual lamps or upon which one would be the next to fail afforded us mild excitement.

After working all night in the flood of bright yellow light from a "bank" of lamps, the color of early dawn impressed us as peculiarly blue. This impression lasted nearly until sunrise.

On occasions of all night work, we were served with midnight lunches from Mr. Edison's home nearby. During one such meal, Mr. Edison noticed that a particularly tempting piece of cold boiled ham was not more than two good portions; and, not wishing