

several chemicals, yet it is imperceptible by the galvanometer.

His ready ingenuity is shown in an early instance of facile adaptation of the processes of his new profession to novel circumstances. One day an ice jam broke the cable between Port Huron in Michigan and Sarnia on the Canada side, and stopped communication. The river is a mile and a half wide. It was impassable, and no present means existed of repairing it. Young Edison jumped upon a locomotive and seized the valve controlling the whistle. He had the idea that the scream of the whistle might be broken into long and short notes, corresponding to the dots and dashes of telegraphing.

"Hallo! there, Sarnia! do you get me? Do you hear what I say?" tooted the locomotive, lustily.

No answer.

"Do you hear what I say, Sarnia?"

A third, fourth and fifth time the message went across without response, but finally the idea was caught on the other side; answering toots came cheerfully back, and the connection was recovered.

Edison's history for a number of these first years is chiefly a record of desultory wanderings from place to place, with the view of seeing the world, of procuring better wages, and very often, if the truth must be told, under the stimulus of abrupt dismissals from his positions for blunders or unpardonable negligences. At Stratford, Canada, being required to report the word "six" to the manager every half-hour to show that he was awake and on duty, he rigged a wheel to do it for him. At Indianapolis he kept press reports waiting while he experimented with new methods for receiving them. At Memphis, in 1864, he was first working out his idea of duplex transmission. The office changed hands, and he had created no better an impression than that he was thought a good man to get rid of in the readjustment. At Louisville, in procuring some sulphuric acid in the office at night for his own purposes, he tipped over a carboy of it, to the ruin of the appurtenances of a handsome banking establishment below. At Cincinnati he abandoned the office on every pretext to hasten to the Mechanics' Library to pass his days in reading. It would be gratuitously malicious to cite so many of these instances if they were thought to show a want of conscientiousness. They certainly could not be com-

mended to the imitation of employees in general, but in Edison they seem to have been the result of an uncontrollable impulse. His inventions were calling to him with a sort of siren voice. Under the charm he was deaf and semi-callous to everything else.

In 1868 he appeared in Boston. In spite of his peculiar fashions of passing his time, he had become one of the most accomplished operators. He overcame obstacles and soon took an important position. He had up to this time dallied with a number of the ideas he has since perfected, acquired a beautiful, small, rapid handwriting as clear as print, and gratified considerably his desire of seeing the world.

A new period commenced for him. Some small things of his succeeded—a dial instrument for private use, a chemical note-recorder, and others—and he began upon a vibratory principle of telegraphing. He commenced a great epoch in one's history—to believe in himself.

He had become possessed with the idea that double transmission on a single wire was possible; and his experiments, his search among books, and his preoccupation soon gained for him the title of "lunatic" among his companions. A few years more passed, and the electricians as well as the uninstructed were astounded by the announcement that a mechanism had been perfected by an unknown telegraph operator by which messages were being transmitted over the same wire in opposite directions at the same time.

But we are advancing a little the story of Thomas A. Edison's development from a boy who dreamed dreams and saw visions into the man who has seen most of those visions realized to the fullest extent.

The year 1870 proved to be the turning-point in Edison's career. In that year he arrived in New York. His dabbling with inventions had lost him one situation after another. "Competent but unreliable" was the verdict of one manager after another who had tried him. Unsuccessful in procuring work, it is said that he wandered through the streets of the great city penniless, friendless, and hungry. One day he happened to step into the office of the *Laws Gold-Reporting Telegraph Company*. The office instrument was out of order and the inventor in despair. Edison looked at it; he thought that he could make it work, and was permitted to make the trial. In a few moments he had the