



CHAPTER XXXVII

Thomas A. Edison

1847 —

THERE is an old saying that a nation is happiest if it has no history. In this the word "history" means wars and disturbances, and conflicts. The idea is that when a country is quietly attending to its business, and is not troubled by anything unusual or remarkable, then it is most prosperous and its people most happy.

Such has been the history of the United States since the great Civil War was ended. To tell the story of our country during the last third of a century is to give an account of quiet but rapid growth; of important and universal improvements in the condition of the people.

The country has grown in size, in population, in the number of the States, and in the amount and character of its business. The condition of the people has been bettered by the increase of comforts in the homes, in the shops and offices, and in travel. A like history has never before been known.

In 1865 the area of the United States was a little over three million square miles. Soon after the Civil War, we bought of Russia the great territory of Alaska, which added six hundred thousand miles more. At first this new region

was thought to be almost worthless; but the trade in seal skins has proved large enough to pay for the country. Besides, Alaska abounds in lumber and its fisheries are valuable. Recent discoveries of gold are drawing great numbers of people to these cold regions of the north.

The population of the United States has doubled since the Civil War. This has been a remarkable growth, and it is somewhat owing to the large number of people who have come to this country since the close of that war. About one-sixth of all the people in the United States to-day were born in foreign countries.



GOLD HUNTERS IN ALASKA.

These immigrants have come from Great Britain and Ireland, from Germany, from Norway and Sweden, from Russia, from Spain and Portugal, from Italy and Austria, from China and Japan. They have come from near and from far; from all the civilized countries of the world and from many of those not civilized. They have come because they believed that life in the United States was easier and happier than in their home countries. They have come in great numbers and they have been cordially welcomed, for the most part.

When the war was followed by peace, there were thirty-six States members of the Union. Twenty-six of these were

east of the Mississippi River, having the same names and bounds as to-day. The great river was bordered on its west side by a row of five States, extending from Canada to the Gulf. Two States, Texas and Kansas, reached out farther westward, and then barren plain and mountain of almost endless extent must be crossed to reach the three Pacific States.

Now the thirty-six States have become forty-five. The Dakotas, Montana, Idaho, and Washington form the northern tier of States; Nebraska, Wyoming Colorado, and Utah make the central line of communication between the centre of the country and the Pacific Coast. Only Arizona, New Mexico, Oklahoma, and Indian territories remain, which in time will be admitted to the Union, making our great nation a solid body of States, North and South, East and West.

The year 1898 marked another expanse in our national area. The islands of Hawaii were annexed at their own request. Porto Rico and the Philippines were the prizes of war. In time, Cuba, for whose independence the war with Spain was fought, may possibly, come voluntarily under the Stars and Stripes. Suddenly from a nation confined to a continent, we have swept forth, south and west, and made territorial colonies of some of the richest islands of the seas.

When we stop to consider the growth of this country in business lines we find an interesting story that would take volumes to tell. In agriculture the change is remarkable. Grain is almost raised by machinery. In place of horse-plows and hand rakes and scythes, the steam plow, sowers, reapers, and binders have come. Work is done by wholesale.

In commerce, great steamers have obtained the business of the world. In manufactures, new and greatly improved machinery produces cheaper and better products. In mining, iron, copper, gold, silver, and other ores have been obtained

in great quantities and with increasing ease and cheapness. In nearly all kinds of business the last thirty years have entirely changed processes and results.

To what is this growth of the United States in comfort and prosperity due? Much of it is the result of invention. Perhaps in no other respect has the American mind more easily shown itself superior to that of other countries than in its inventive genius. We have read of Fulton and his steam-boat. Just as interesting is the account of Eli Whitney and the cotton-gin.

The story of Samuel Slater and the introduction of cotton manufacturing into this country would interest any one. The steam locomotive was an English invention, which America at once adopted. Our improved day coaches, sleeping-cars, and dining-cars are due to American ingenuity. The valuable air-brake was invented by an American. Our own Morse devised the electric telegraph.

Let us complete our first steps in United States history by a short account of the greatest of American inventors, Thomas A. Edison.

Though born in Ohio, young Edison spent much of his boyhood in the State of Michigan. At an early age he was thrown upon his own resources, and for some time he earned his living as a newsboy on the railroad-train running between Detroit and Port Huron.

While in this employment the fifteen-year old lad gave an illustration of shrewdness that indicated the coming man. One of the great battles of the Civil War had just been fought, and the Detroit evening papers were filled with its details. Young Edison had the news of the battle telegraphed to the various villages along the line of the railroad and posted in conspicuous places upon bulletin-boards.

Then he obtained a thousand copies of the paper and took the evening train as usual for Port Huron. At the first station, where he usually had two customers, he quickly sold forty papers. At another station he found a crowd waiting, eagerly demanding the papers and gladly paying ten cents, or double the usual price, for a copy.

Each station platform was packed as the train arrived, with a throng seeking an account of the battle. When he arrived at the end of his route and was walking the mile between the depot and the village, he was met by a crowd of people coming to meet him. All wanted papers; all were afraid that he would not bring enough; and therefore all came to get a paper as early as possible. He had no difficulty in selling all he had at twenty-five cents a copy.



YOUNG EDISON SELLING PAPERS AT  
25 CENTS A COPY.

Most of Edison's inventive work has been connected with electricity. It was an act of bravery on the part of the newsboy that gave him his first insight into telegraphy and started him on his famous career. At one of the stations, where his train made a long stop, the little child of the station-master was playing on the platform. The child left the platform and sat down on the track, to play in the sand. A

freight-car was rapidly coming down the rails, when Edison saw the child's danger and sprang to the rescue. The time was short, but the lad was agile and the child was saved, though the car just grazed young Edison as it passed.

The father desired to reward the hero, and offered to teach him how to telegraph, promising that in three months he should be ready for a good position. Edison quickly assented, and for ten days appeared promptly for the lesson. Then he was missed for a few days, when he again appeared, bringing with him a small set of telegraph instruments, which he had himself made.

Long before the three months were finished, Edison had learned the work. He obtained a position as telegraph operator, though still but fifteen years of age, at a salary of twenty-five dollars a month. His work was so satisfactory that he soon obtained better positions, and before he was eighteen his salary had become five times as large as at first.

During these years Edison worked hard and never lost an opportunity to improve himself. While regularly attending to his night-work at the office, he found time to devote to other matters. First, he read. He used the public library; he spent his surplus wages on books.

One day he purchased an entire set of Faraday's works on electricity, brought them home at three o'clock in the morning, and breakfast-time found him still reading them.

Besides, he continued his experiments, rigging up laboratories in every place where he was at work—a plan which he had begun while a newsboy, making use of one of the old cars.

Another day, while Edison was having a vacation, which he was spending at home, he went down by the side of the river. This he found to be a raging current, filled with huge cakes of ice, which were causing great destruction wherever they were thrown. There was no possible means of communication across the river between Port Huron and Sarnia; even the wires under the river would not carry messages.

A sudden thought sent Edison to a near-by locomotive, and in a moment long and short toots were sounding out the telegraphic signals: "Hello, Sarnia; Sarnia, do you get what I say?" With eager expectation the people listened for a reply. Again Edison sent out the words from the shrill whistle of the locomotive. After a time came a response, and communication of a peculiar nature was restored between the towns.

When Edison was twenty-one, he secured a position in a telegraph office in Boston. Here he was at once compelled to show the material of which he was made. He was set to



EDISON BEATING THE NEW YORK OPERATOR.

work to receive a long message from New York. At the other end of the line was the most rapid sender of the office. The Boston boys expected to show this "young chap from the Woolly West," as they at first called him, that he knew but little about telegraphy.

The message began slowly, but soon it came with greater and greater rapidity. Yet the young man had no trouble. After a time the words were coming about as

fast as any operator could write them down.

Edison glanced up and saw that every man in the room was standing behind him. He knew then that they were testing him. He kept on writing the message in a clear hand, though he occasionally stopped a moment to sharpen

a pencil. The New York operator, surprised at the ease with which his message was being taken, began to slur his words—to have too small spaces between them. But Edison was used to that also, and calmly continued writing.

At last, when he had shown every one that he most certainly did understand telegraphy, he stopped and ticked a message to New York, asking why the operator did not work a little faster. Edison's position in the Boston office was never questioned afterwards.

But Edison had no intention of remaining a telegraph operator all his life. He kept on with his studies and experiments. One of these brought him good fortune. He made a stock-printer—a machine used in stock-exchanges for recording the price of stocks. When he went to New York, having finished his engagement in Boston, he was wandering through the city and happened into the Stock Exchange. It was the famous "Black Friday," which brought business ruin to many thousands. Everything was in the greatest confusion, and every one was more than ever dependent on the printed stock-lists.

Just at this minute the stock-quotation printer broke down. The managers were almost crazed. They had no idea what was the trouble. Edison glanced at the machine, saw the trouble, and told the managers. The printer was repaired and began to work at once. Edison was the hero of the hour, and the next day was given charge of the machine at a salary nearly three times as large as he had ever received. He now began to be known to the world.

His life from that time until the present is somewhat known to everybody. His first manufacturing establishment was at Newark, New Jersey. Three years later he moved to Menlo Park, about twenty-five miles from New York City.

His works here and the wonderful inventions that came from this factory brought to Edison the title of "The Wizard of Menlo Park." After ten years he moved again, and his establishment at Orange, New Jersey, is almost one of the wonders of the world.

It would take a large book to describe the inventions that have been the result of Edison's work. A few of the best known only may be mentioned. He experimented with the telegraph, and step by step perfected the duplex, the quadruplex, and sextuplex systems of telegraphing. By the first a message can be sent each way over a single wire at the same time; by the second, two messages, and by the third, three messages, each way, at once. In other words, under the sextuplex system one wire will do the work of six wires under former conditions.

Edison invented the transmitter which is universally used to-day in connection with the Bell telephone; the microphone, for magnifying sound, so that a very low sound can be plainly heard at some distance; the megaphone, for long-distance speaking; the phonograph, for recording sound and repeating it; the mimeograph, for making many copies from one writing; the kinoscope, for reproducing views of bodies in action; the phonokinoscope, adding sound to sight, so that one may see and hear a play or an opera which has previously taken place—these are some of Edison's inventions.

"The Wizard" is also noted for being the first to send telegraphic messages from moving trains; for making one of the earliest electric railroads; for perfecting the incandescent electric light.

Something of Edison's persistency is shown in this connection. At first he used a platinum wire in the little electric

lamp. He wanted something better. He wanted some form of bamboo or other vegetable fibre. He sent a man to explore China and Japan for bamboo. He sent another, who traveled twenty-three hundred miles up the Amazon River and finally reached the Pacific Ocean, searching for bamboo. He sent a third to Ceylon to spend years in a similar search. Eighty varieties of bamboo and three thousand specimens of other vegetable fibre were brought him. He tested them all; three or four were found suitable.

Such has been the life of a modern inventor, of one of the men who are rapidly changing the world by their discoveries. They are having a large share in this work, but all other laborers have their share also. The America of the time of Benjamin Franklin was greatly unlike that of John Smith; the United States that Abraham Lincoln knew was not the United States over which George Washington was President; the nation of to-day is vastly superior to the nation of thirty years ago.

It depends upon the boys and girls who are in school to-day to determine what shall be the condition of the United States, nay, even of the world, thirty years hence.

Describe the growth of the United States in area; in population; in number of States; in business.

Give a brief list of American inventors.

Give accounts of Edison as a newsboy; as a hero; as a telegraph operator.

Tell the story of the telegraphic whistle; of the Boston operator; of the New York incident.

Briefly mention some of Edison's great inventions.

Do you think that the United States will ever have a greater area than at present? Ought all immigrants to this country to be welcomed to-day? Why are not the territories made States? Does agricultural machinery make dearer or cheaper foods? Of the stories told here about Edison, which showed quick thought? Which showed business ability? Which showed experience and practice?