

603

## STORIES of New Jersey

While Samuel F.B. Morse is credited with the invention of the telegraph, there were a number of contributing inventions upon which its creation rests. George Louis Lesage started the ball rolling with his pith ball telegraph, the first recorded telegraph, which was exhibited in Geneva, 1774. Each letter was represented by a tinfoil covered pith ball hanging from a silk thread. As a corresponding key at the other end of the line was depressed the current was sent through connecting copper wires. As the metal covering became charged with electricity the ball would swing. The receiver by observing the swinging balls could spell out words and sentences.

In 1825, William Sturgeon of England contributed to the invention of the telegraph by devising the electro-magnet. He bent a piece of iron wire into the shape of a horseshoe and wound copper wire around it. But it remained for Joseph Henry to make it of practical use. He replaced the iron wire with a steel bar and increased the number of turns of wire around this core. Then he connected this magnet to a much stronger battery. In this way he produced a magnet that would lift 3,600 pounds.

When placed under a sounder or tapper held up by a spring the magnet would pull the tapper down when the circuit was closed. By alternately closing and breaking the circuit sounds or taps could be produced at the receiving end. A tap of short duration was called a dot while one of longer duration a dash. This was the forerunner of the modern telegraph sounder or receiving instrument. Most of Henry's work on the telegraph was accomplished during his stay at Princeton between 1832 and 1848 as head of the department of Natural Philosophy at the College of New Jersey, now Princeton University. He built a telegraphic circuit between his house and his laboratory.

Samuel Finley Breese Morse, through whose perseverance the telegraph became an accomplished commercial fact, was born at Charleston, Mass., in 1791. The son of a Congregational minister, he was educated at Yale University. During his youth and early manhood he was interested in the field of fine arts. He earned his way through college by painting portraits at five dollars each. He later attained considerable prominence as an artist and some of his paintings were hung in the important galleries of the day. He founded the New York Drawing Association and was made its president. This organization became the National Academy of the Arts of Design.

In 1832, when Morse was returning to America on the packet Sully, after three years of art study abroad, Dr. Charles T. Jackson, a fellow passenger, showed him an electro-magnet which he had acquired in Europe. After studying the apparatus, Morse remarked, "If the presence of electricity can be made visible in any part of that circuit, I see no reason why intelligence may not be transmitted instantaneously by electricity." That statement was the birth of Morse's telegraph.

Morse became a professor in the Fine Arts Department of the University of the City of New York, now New York University, in 1835. But the idea suggested by the electro-magnet had taken root and from then on his work outside of the classroom was in the field of science.

Among the students who became interested in Morse's researches in telegraphy was Alfred Vail whose father, Stephen Vail, was the owner of the Speedwell Iron Works at Morristown. Young Alfred was an expert mechanic. At 20