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GENESIS OF THE TYPEWRITER¹

In the winter of 1849-50 William K. Rogers of Ohio (afterwards private secretary of President Hayes), Richard Anderson (afterwards a lawyer of note in Cincinnati), and myself, three Kenyon College graduates, intimate friends, were in Boston, where, as students of law, we obtained seats in the courtroom during the trial of Professor Webster for the murder of Dr. Parkman. This famous trial, ending in the conviction of Webster, was long drawn out, and we had a good deal of time, when the court was not in session, in which to become acquainted with the city. One day I visited the shop of an ingenious mechanic named Chamberlin, situated on one of the short thoroughfares leading from the Common to Washington Street, either Summer or Winter Street. I had been working on a new device for a sewing machine in which the fabric was pierced through and through by means of a double-pointed needle with an eye in the center, and which was to be operated by the aid of electricity. I asked this Mr. Chamberlin to construct for me a model of what I had in mind. He, however, advised me, before I proceeded further with my invention, to go to a certain number on Washington Street and examine some machines which he had recently installed there. I visited the place and saw six of the machines in operation. They were being used in the making of clothing and were doing work which was apparently satisfactory. The device employed was a complete surprise to me: a shuttle revolving under the cloth plate by means of which a loop stitch was formed. A careful examination of the machines convinced me that they were much simpler in construction and could be manufactured at much less cost than my own. I returned to Mr. Chamberlin and told him that I should not do anything further with my

¹ Read at the stated meeting of the executive council of the Minnesota Historical Society, St. Paul, December 13, 1915.

model and gave him my reasons. "Your decision is a wise one," he replied, "for it would take a long time and a considerable fortune to teach people how to manage the electrical attachment on your machine. There are some men in —— Street, for whom I have done work recently, who can tell you how difficult it is to educate people in the use of electrical contrivances. You had better go to see them if you are interested in such things."

In accordance with his suggestion I searched out the place and found the men working on a chemical telegraph proposition. While I stood examining the apparatus they were using, there came to me the idea of a writing or printing machine by means of which characters could be produced by striking paper through an inked ribbon with steel types attached to levers so hung that when moved they met at a common center, the paper being fastened to a carriage which automatically moved forward a space after each depression of the levers. The idea was a fascinating one and became so forceably impressed on my mind that I was never able wholly to rid myself of it. I went back to Chamberlin's to talk it over with him and to consider the advisability of constructing such a machine. Before anything was determined, however, I left Boston, and did not return for many years.

In July, 1850, I took up my residence in St. Paul, Minnesota. At first, the activities of frontier life fully engaged my attention and left me no time for making a model of my typewriter, although the idea was constantly present in my mind. Later, on the outbreak of the Civil War, I volunteered for service in the Union army. I served as chief quartermaster with General Thomas in the campaign against General Hood. After Hood was defeated and driven out of Tennessee, we were stationed for a time at Nashville. I had very little to do and, happening upon a German in the ranks who was a clever mechanic, I engaged his services and began looking up material for a wooden model of my writing machine. But the work was interrupted again on my receiving orders requir-

ing me to rejoin my own command in Virginia with General Sherman.

At the end of the war I resigned from the service and returned to Minnesota. Immediately I became interested in projecting, obtaining land grants for, and building the Hastings and Dakota Railroad. In the course of the construction work it became necessary to make some flat cars, and I went to Milwaukee to purchase wheels and other material. The exact date of this trip can not be stated with certainty without reference to the books of the Hastings and Dakota Company, which are at the present time probably in the possession of the Chicago, Milwaukee, and St. Paul Railway Company. One day when I was in the offices of the latter company, Superintendent Merrill said to me, "General, you are fond of mechanical contrivances; come with me over to Director Glidden's room and look at a new machine for paging books." A few moments later we were in Mr. Glidden's office where I was introduced to a Mr. C. L. Sholes, the maker of the paging machine, who explained briefly its mechanism and operation. "Well, General, what do you think of it?" asked Mr. Glidden. "It is a very ingenious and well-made machine," I replied; "but its use will, I think, be limited, and the demand for it so inconsiderable as to be quite insufficient to meet the cost of manufacturing it. I have had in mind for many years a machine not more difficult to make than this one, a machine which, when properly made and introduced, will come to be universally used not only in our own country but in foreign lands. The idea came to me one day in Boston at the time of the great trial of Webster for the murder of Parkman, and impressed itself on my mind as one which ought to be worked out. Up to this time my attention has been so fully occupied that I have not been able to give the matter any thought. At present these railroad affairs are absorbing all my time. It is my belief that ideas like this are inspirations to us from the unknown; that on receiving them, we become in a way trustees and that our trusteeship imposes on us an obligation: we are bound to see these inspirations brought to completion.

Now I am going to relieve myself of any responsibility for this idea of mine by passing it on to Mr. Sholes, provided he will promise to make the machine." Seating myself at a near-by table, I drew a rough sketch of what I called a typewriter. I explained how the type-bars were to hang so that the type would strike the paper at a common center through an inked ribbon, and how, at the instant of striking, the paper carriage moved forward one space. "Yes, yes, I understand; I think I can make such a machine," said Sholes. "Very well, I will give you the idea on condition that you make a machine, take out patents on it, and start a factory. You will find customers for all the machines that you and many others are able to make." I hurriedly left the offices with Mr. Merrill, went on about my railroad business, and gave the matter no further thought.

Mr. Sholes, at this time collector of the port of Milwaukee, Mr. Glidden, a director of the Milwaukee and St. Paul Railway Company and himself an inventor, and a Mr. Soule, an editor and printer, were the men who were back of the paging machine, and who, at my suggestion, now agreed to take up the matter of the typewriter. The task of constructing the machine was intrusted to Mathias Schwalbach, a German clock-maker employed by Sholes at three dollars a day. As the work progressed, Schwalbach suggested some changes, among others the banking of the keys in three rows. The machine was at length completed, and in 1868 Sholes and Glidden applied for patents.¹ A later model with improvements was patented by

¹ Previous to this date the following patents had been granted for typewriters, or machines similar in character and purpose: In 1714 a British patent was granted to Henry Mill; in America a patent for a "typographer" was obtained by William A. Burt in 1829; the "typographic machine or pen" on the type-bar principle was patented by X. Pogrín of Marseilles in 1833; between 1847 and 1856 Alfred E. Beach in America, and between 1855 and 1860 Sir Charles Wheatstone in England, made several typewriters; in 1857 Dr. S. W. Francis of New York made one with a pianoforte keyboard and type-bars arranged in a circle; and in 1866 John Pratt, an American living in London, patented a machine with types mounted in three rows on a wheel, the rotation of which brought the required character opposite the printing point. *Encyclopaedia Britannica*, 27: 501 (1911 edition).

Sholes and Schwartz in 1871. It is probable that Edison was consulted at or before this time, since in an article in *System* (10:230—September, 1906) he says: "I helped build the first typewriter that came out. At that time I had a shop in Newark and a man from Milwaukee—a Mr. Sholes—came to me with a wooden model, which we finally got into working shape."

In order to bring the typewriter to the attention of the public, Sholes sent typed letters out through the country. One of these fell into the hands of James Densmore of New York. He went to Milwaukee to examine the machine personally, and as a result of his visit the organization of the typewriter company of Densmore, Sholes, and Schwalbach was brought about. The new company began immediately the work of manufacturing the machines. Densmore, who had put all his money, six hundred dollars, into the venture, took the first one that was completed to New York. The next few months were serious ones for him; reduced to the extremity of sleeping in a garret and of living for the most part on apples, he went from door to door in fruitless attempts to interest some one in the machine. Finally he made a deal with the Western Union Telegraph Company, by which he received ten thousand dollars. Densmore then returned to Milwaukee and bought out his partners, paying Schwalbach three hundred and fifty dollars besides turning over to him the shop and its contents. Later (about 1875) he was able to interest the firm of E. Remington and Sons, gun-makers, of Ilion, New York, in the proposition and placed the manufacture of the machines in their hands.¹

And so it came about that when I was in charge of the department of agriculture under the Hayes administration, one day the respectable colored man, "old Uncle John," who did duty as doorkeeper, informed me that a man wished to see me

¹ Densmore's royalties, so I am informed, have amounted to over a million dollars. Sholes is reported to have said that he realized from his interest in the machine only about twelve thousand dollars. A serious illness of long duration soon exhausted this sum and he died in poverty. Glidden has also died. Schwalbach is, I believe, still engaged in the clock business.

for a few moments. I directed my assistant Mr. O. D. La Dow to ascertain whether the man's business was of enough importance to warrant an interruption of my work. On his return he said, "It was only a man who wished to show you a machine. I have sent him away." "What kind of machine was it?" I asked. "He said it was a typewriter," was the reply. "Typewriter! Typewriter! Call him back! I have a special interest in typewriters!" I exclaimed. On being shown into the room, the man exhibited a typewriter, *my* typewriter, a Remington model, writing only capital letters. I was much interested in the machine and submitted it to Mr. La Dow for trial and approval. The machine was purchased, being the first, so the salesman reported, to be installed in a public office. Improved models were soon afterwards made in which the type-bars each carried two characters, a small letter and capital. The skillful operation of the machines by my assistants soon made them popular, and their use gradually extended to other offices notwithstanding the ridicule attending the introduction of "new methods of economy in the department of agriculture."

My prophecy that the use of the typewriter would become universal in both our own and other countries has been in these later years more than fulfilled. Indeed, the conduct of present-day business enterprises is possible only through its aid.

WILLIAM G. LE DUC

HASTINGS, MINNESOTA