

# THE THREE LIVES OF FRANK H. HALL

BY WALTER B. HENDRICKSON

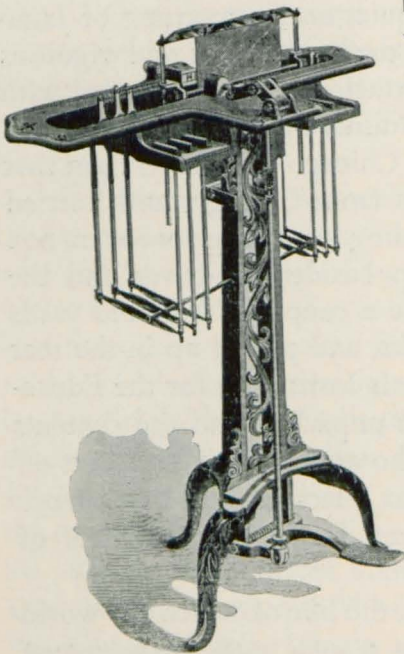
IT WAS clear and cold and quiet on the morning of January 5, 1893, when a man of medium height and vigorous physique, bright-eyed and bespectacled, his face adorned with a fashionable but ragged soup-strainer moustache and a small goatee, jumped lightly from the Chicago and Alton train that pulled into Jacksonville, Illinois from Chicago, and hurried forward to supervise the unloading of a large wooden box onto a wagon. He climbed up beside the driver and the horses hauled the rattling vehicle a couple of hundred yards eastward across the railroad tracks, and pulled up in the rear of the main building of the Illinois Institution for the Education of the Blind. The box was unpacked and the contents set up in the office of the man, who now had his greatcoat off and appeared in a high stiff collar, black tie and black frock coat. This man was Frank Haven Hall, Superintendent of the Institution.<sup>1</sup>

Out of the box came a device, the like of which the world

<sup>1</sup>This incident is a reconstruction based on an article by John B. Curtis, "Frank H. Hall," in *Outlook for the Blind*, Vol. III (1911), 5. This story was also told as a tradition of the School for the Blind by Louis W. Rodenberg in an interview, Mar. 3, 1955. The date is fixed by a statement in Frank H. Hall, "The Story of an Invention," in *The Mentor*, Vol. III (1893), 72. (*The Mentor* was a magazine published by the alumni of the Perkins Institution from 1891 to 1894.) An article in the *Jacksonville Journal*, Jan. 6, 1893, says that Hall had returned from Chicago with the machine the day before. An advertisement of the Chicago and Alton Railroad in the same newspaper establishes the fact that there was a train in from Chicago about midnight.

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had never seen before. It was a typewriter-like machine about a foot square resting on a strong cast iron table, and attached to it in a vertical position at the place where the paper would



HALL'S STEREOTYPEMAKER

This was the educator's first machine for simplifying Braille printing.

lutionized the printing of books and other materials for the blind. Frank Hall, whose brain-child this machine was, put a plate in the carriage and tapped out the four lines of the first verse of the hymn, "Blest be the tie that binds."<sup>2</sup>

This man who could not wait until morning to put his invention to work was, in 1893, living his second life. His first had been as school teacher and superintendent in Aurora,

<sup>2</sup> *Mentor*, Vol. III, p. 68; Hall says "four lines of a familiar hymn," but Miss Bess Bower Dunn, who was a pupil of Hall's in the Waukegan schools, 1893-1894, and knew Hall and his children, says that "Blest Be the Tie That Binds," was sung every morning at the School for the Blind.

be inserted back of the platen was a metal frame about fifteen inches square. There were only six keys, shaped much like those on a piano, and between each three keys was an oval spacing key. Extending downward from the iron table was a single foot pedal. By pressing the keys, and then stepping on the foot pedal, the dots of Braille letters were impressed on a thin brass sheet held in the upright frame. The resulting embossed plate was put in a hand press, a dampened piece of paper placed over the plate, pressure was applied, and the Braille characters were transferred to the paper. Thousands of copies could be made—no muss, no fuss, no type, no hot lead. This stereotypemaker revo-

Illinois, and other places, and his third life would be as promoter of better agricultural education, when he became superintendent of the Illinois Farmers' Institute in 1902.

Hall had become superintendent of the Illinois Institution for the Education of the Blind in 1890 after a twenty-five year career as teacher, principal and superintendent of both public and private schools in Illinois. He was born in the town of Mechanics Falls, Maine, February 9, 1843,<sup>3</sup> and served in the Union Army in 1862-1863 as a hospital steward in the Twenty-Third Maine Volunteers—a "nine months" regiment. After he was mustered out he spent a short time at Bates College, and in 1864 began to teach.

In 1866 he came to Earlville, Illinois as superintendent of schools. In a couple of years he moved to the larger town of Aurora, where he won the job over thirty-four other applicants. Hall was highly successful at Aurora, and stayed seven years. He was an inspiring teacher and popular with his students; and he had the full support of the trustees because he was an economical administrator. While he firmly replaced older pedagogical techniques, like learning by rote, with newer ones that emphasized the application of abstract knowledge to concrete situations,<sup>4</sup> yet he also believed wholeheartedly in the idea that schools should prepare children to assume adult responsibilities, including the business of making a living. He was, therefore, a strong advocate of vocational education.<sup>5</sup>

After all, suave and even-tempered though Hall was, still he had to please students, trustees, and parents of all shades of conviction and prejudice about educational matters, and in

<sup>3</sup> For these and other biographical facts see *The Lyre*, Vol. II (Feb., 1911), 5. This little magazine was edited and published by Harry R. Detweiler, Hall's son-in-law. Further information is in *Frank H. Hall*, a memorial brochure. While no author, publisher or place is indicated in the brochure, it was written and edited by Hall's daughter, Sybil Verne Hall Detweiler in Aurora in 1911, the year of Hall's death. See Dorothy Detweiler West to Walter B. Hendrickson, Aurora, Ill., Mar. 13, 1955. This letter is in the latter's possession.

<sup>4</sup> Hall was the editor, really the author, because of his drastic revision of the widely used Werner arithmetic books, in which this principle was used. During his lifetime, Hall wrote or edited 18 school books. *The Lyre*, Vol. II (Feb., 1911), 5.

<sup>5</sup> *Frank H. Hall*, a brochure, 20; Bess Bower Dunn to Walter B. Hendrickson, June 21, 1955.

1875 he welcomed the offer of a group of farmers near Aurora to head a work-and-learn school, Sugar Grove Industrial School. Here Hall was free to try out his idea that education was all of a piece, and Sugar Grove School was to teach "life-lessons."<sup>6</sup> As Hall himself wrote:

We learned to use the milk tester and we read Shakespeare. We investigated the subject of cattle raising and studied Virgil. We learned how to raise hogs and reveled in the beauties of Homer. We studied the subject of grasses and hay and mastered cube root.<sup>7</sup>

Here at Sugar Grove, Hall worked out many of the techniques for teaching agriculture that he later used in the farmers' institutes. Here, too, he renewed the acquaintance with machinery that he had acquired when as a boy he worked in Maine factories. Also, while he was at Aurora and Sugar Grove, he began to speak at teachers' institutes, an activity which he continued throughout his life. Although Hall was not at all mercenary, yet the extra income from such speaking engagements, plus the ownership of a dairy farm and a creamery, gave him economic security. During the twelve years at Sugar Grove, in addition to his teaching, Hall ran his creamery, a general store, and a lumberyard, and took a leading part in community affairs, serving as postmaster and township trustee.<sup>8</sup>

But then he returned to public school work, becoming superintendent of the Petersburg, Menard County, schools for a short time, and then going back to Aurora for a year. Finally in 1890, he was appointed superintendent of the Illinois Institution for the Education of the Blind at Jacksonville on the recommendation of N. W. Branson, a trustee of the school.<sup>9</sup>

Hall now started to live his second life. He knew little about the special methods of teaching the blind, but he was convinced that blind children, like normal children, should

<sup>6</sup> *Frank H. Hall*, a brochure, 19.

<sup>7</sup> *Ibid.*, 21.

<sup>8</sup> *Ibid.*, 23, 45-46.

<sup>9</sup> *Ibid.*, 22.

become self-supporting adults. To prepare himself for his new career, he made a quick trip east to visit the schools at Boston, New York, Baltimore and Philadelphia, and the Printing House for the Blind at Louisville.<sup>10</sup> At the latter place he became familiar with type and presses and printing methods.

All through his first year in Jacksonville, Hall observed what went on in the school, talked to teachers and pupils, and read and studied about the problems of teaching the blind. Two major ideas on the subject had prevailed at the school. The first was that the blind child should be kept busy with handwork and the rudiments of reading, writing and arithmetic, not so much for learning's sake, but rather to keep the child occupied so that he would not lead a life of "monotony, uselessness and weariness."<sup>11</sup> Such handicrafts as broom-making were taught, and this did enable some men to be partially self-supporting, but generally such activities were carried out in special workshops maintained by the state.

Along in the 1870's, under Superintendent F. W. Phillips, more attention was paid to "literary" subjects, since books in raised print were available, and the children were graded in classes approximating those of the public schools. Further, to make students more self-reliant military drill and gymnastics were introduced.<sup>12</sup>

In a sense, Hall combined these two methods and introduced a third element. He believed that the blind should be so trained that they could work in the world of normal-sighted people. This meant first, that the academic work should be brought up to the level of schools for the sighted

<sup>10</sup> No author [Frank H. Hall?], *Brief History of the Illinois Institution for the Education of the Blind*, Illinois Board of World's Fair Commissioners (Chicago, 1893), 29. This rare pamphlet was kindly loaned to the author by George W. Gerlach, formerly a teacher at the School for the Blind, now retired. He was a student at the Jacksonville school when he knew Hall.

<sup>11</sup> Helen M. Sweeney, "Changes in the Philosophy of Education at the Illinois School for the Blind" (Ms.), 6. Miss Sweeney kindly permitted the author to use this informative paper. The quotation is from Superintendent Joshua Rhoads' (1850-1874) report of 1853.

<sup>12</sup> *Ibid.*, 9, 11.

child, and, second, that many more opportunities to learn trades and skills should be given to the blind child.<sup>13</sup> To fulfill the latter program, typing, bookkeeping, dressmaking, woodworking and other handicrafts were introduced, but Hall's great work was in realizing his first aim, and he saw that if the blind person was to have an equal chance with the sighted person, he should have the same kind of formal education.

The pressing need here was teaching materials that would give the blind child an awareness of the world around him through the senses of touch and hearing, and at his recommendation, the state legislature appropriated \$3,000, a part of which was spent for a collection of natural history specimens and "such manufactured articles as could be gotten and profitably handled by blind pupils."<sup>14</sup>

Another part of the appropriation was spent for presses and type so that more reading material could be put in the hands of the pupils.<sup>15</sup> Hall's interest in writing and printing became an all-absorbing one for several years, because he saw that the store of written knowledge should be opened to the blind, and he worked at the subject until he had developed a machine, the stereotypemaker, the first appearance of which was described at the beginning of this article.

Back of Hall's revolutionary invention is a long and intensely dramatic story of writing and printing for the blind that had its beginning, in modern times, with the work of Valentin Haüy, the Hungarian living in France in the last half of the eighteenth century, who first conceived the idea that the blind could read by feeling embossed letters with their fingers. Haüy and many of his successors used conventional

<sup>13</sup> Frank H. Hall, "The Education of the Blind," in Trustees of the Illinois Institution for the Education of the Blind, *Twenty-fifth Biennial Report*, (1898), 9. *Frank H. Hall*, a brochure, 22, 23.

<sup>14</sup> Trustees of the Illinois Institution, *Twenty-second Biennial Report* (1892), 11. Sweeney, 13.

<sup>15</sup> "Report of Arthur Jewell, Printer," in Trustees of the Illinois Institution, *Thirtieth Biennial Report*, (1908), 15-16.

type forms, but the results were not entirely satisfactory. Other educators invented special types, like the Moon alphabet with its large-sized angular characters, and Boston Line, a simplification of Roman type.<sup>16</sup>

Some educators abandoned type used by the sighted, and adopted punctiform letters. The founder of the dot system was, of course, Louis Braille. In England and in the United States, variations of Braille's original notation were produced; in England the trend was toward the use of abbreviations and contractions, while in the United States, the words were spelled out in full. In the United States, too, a second system of dot notation was New York Point, thought by some to be superior to Braille.<sup>17</sup>

All of the above systems had warm advocates in the United States, but by the 1890's, educators had come to prefer either Braille or New York Point over Moon, Boston Line Letter, or any other variation of conventional type. Experience had shown that it was much easier for a blind person to distinguish with his fingers between various arrangements of dots, than it was to note the difference between letters made up of comparatively solid lines. In large part, however, it was Hall's stereotypemaker and his earlier invention, the Braille Writer, that determined that Braille would be standard in the United States, and finally throughout the world.

The stereotypemaker was full brother of the Hall Braille Writer, a machine with which a blind person could write on paper, much as a seeing person uses a typewriter. Both the writer and stereotypemaker were developed by Hall in his

<sup>16</sup> There is a very large literature on writing for the blind which may be conveniently located in Helga Lende, *Books About the Blind: A Bibliographical Guide to Literature Relating to the Blind* (New York, 1953). A clear and accurate account, written for the layman, is Isabel Ross, *Journey into Light: The Story of the Education of the Blind* (New York, 1951). More professional is Paul A. Zahl, ed., *Blindness: Modern Approaches to the Unseen Environment* (Princeton, 1950), especially the chapter, "Avenues of Communication," 313-34, by Gabriel Farrell. Brief but authoritative is Louis W. Rodenberg, *The Story of Books for the Blind* (New York, 1952).

<sup>17</sup> In addition to sources noted above, see Mary A. Cadwalader Jones, "The Education of the Blind," in *Scribner's Magazine*, Vol. XII (Sept., 1892), 373-87, for a friendly account of New York Point.

first years at the school. The usual method of instruction was for the teacher to dictate to the student, who took down the information by impressing the dots of New York Point on paper with the writing device then used: the slate or metal frame to guide a stylus or punch held in the hand.<sup>18</sup> Hall's first move was to buy two small hand presses and fonts of Boston Line, New York Point, and Braille type. With this equipment, students were given lesson sheets and other material from which they could study.

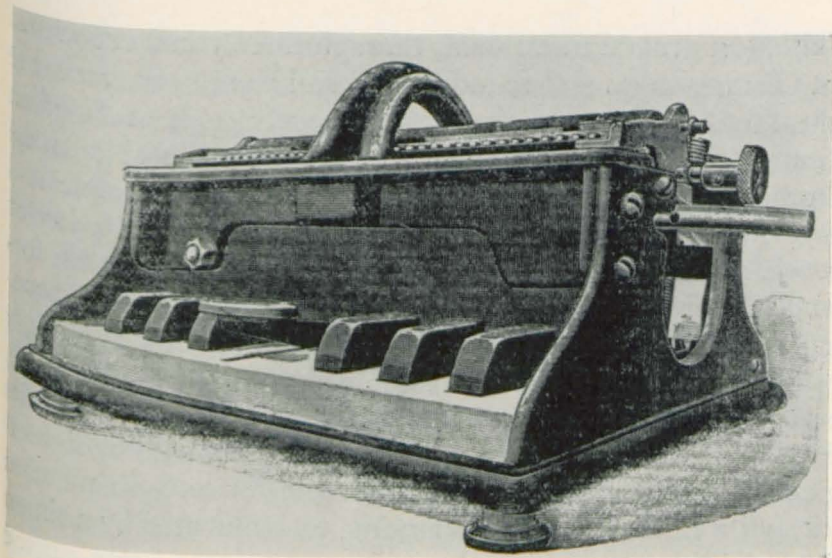
But not every student could learn to read Boston Line, and note-taking and the preparation of written assignments were slow with slate and stylus. The New York Point notation had been adopted as official in 1888 because it was used in all other United States schools except the Perkins Institution in Boston and the Missouri school in St. Louis. But, in the Illinois school, since 1876, Braille had been used by teachers and students, and even after 1888, Braille continued to be favored by many, and it was used in private correspondence. Students found Braille easier to use because all the letters were written within a "cell" three dots high and two dots wide. There was thus a uniformity and simplicity about Braille that New York Point did not really possess, although it appeared to. New York Point letters were only two dots high, and letters varied from one to four dots in length, and so could be written somewhat more rapidly. The number of dots in the letters was based on frequency of use, with "e" being a single dot, so it was theoretically also easier and faster to read. But the regularity and uniformity of the Braille cell made it favored by many blind people who knew both Braille and New York Point.<sup>19</sup>

As Hall considered the problem, he first contemplated

<sup>18</sup> See "Report of Arthur Jewell, Printer," Trustees of the Illinois Institution *Thirtieth Biennial Report* (1908), 15-16.

<sup>19</sup> For the "Battle of the Types" see the account of the hearings before the committee of the New York Board of Education in 1909: "Which Tactile Print for New York City?" in *Outlook for the Blind*, Vol. III (1909), 24-46, 64-74.





FRANK HALL'S BRAILLE WRITER

a machine that would write New York Point, but as he discussed the matter with his students and teachers, he began to see that it would be much simpler to make a machine to write Braille, since every letter would be of uniform width.<sup>20</sup> Further, as Hall wrote,

It was obvious at the outset that such a machine must be quite simple and easy to manufacture, thereby placing the cost within the limited means of the poorest of the class it was designed to benefit. Next, it must have power sufficient to emboss the points of the Braille system in perfectly sharp relief, and yet the touch must be easy, giving the greatest rapidity without fatiguing the operator.<sup>21</sup>

It was at this point that Hall sought technical assistance and called on Gustav ("Gus") A. Sieber. Gus Sieber, born in 1863, was the son of a German emigrant who had opened a gunshop in Jacksonville. Young Gus had early learned the gunmaker's art in his father's shop, and he had become

<sup>20</sup> Hall's testimony before the New York City Board of Education committee in *ibid.*, 44.

<sup>21</sup> Hall, "Story of an Invention," 68.

skilled in general metal work through three years' experience in Chicago shops and foundries.<sup>22</sup> Hall went to see Sieber at the family gunshop and electrical supply store at 213 East Court Street, near the Public Square.<sup>23</sup> As Sieber tells the story, "Mr. Hall showed [me] what he called a slate and stylus to punch dots in paper and wanted a writer to do this work."<sup>24</sup> Hall explained about the Braille system of six dots and told Sieber that he wanted each dot controlled by a separate key, so that any Braille character could be made at a single stroke by pressing the right combination of keys.<sup>25</sup>

With this information and Hall's explanation of the Braille cell of six dots, and with the typewriter used by sighted persons in mind, Sieber created a suitable device.<sup>26</sup> Six punches or styli were set in a fixed mounting, each operated by a single key, and the release of the keys after punching a letter, caused the carriage which contained the paper to move one space to the left ready for the next letter to be impressed. The Braille writer designed and built by Sieber was the great improvement over the stylus and slate that Hall wanted. In addition to making an entire letter with one motion, the operator could

<sup>22</sup> Interview with Sieber, May 1, 1955. He was then ninety-two years old, still in good health and clear of mind, although very deaf. He retired only a few years earlier from active participation in his electrical contracting business.

<sup>23</sup> *Jacksonville City Directory*, 1891-1892.

<sup>24</sup> Written statement of G. A. Sieber, April 1, 1955, answering questions by the author.

<sup>25</sup> Conversation with Louis W. Rodenberg May 10, 1955, in which the latter said that Sieber had told him this several years earlier. Rodenberg's recollection is supported by a letter of G. A. Sieber to Robert B. Irwin, Executive Secretary of the American Foundation for the Blind, Jacksonville, June 11, 1932, in which Sieber says, "Hall showed me what they called a slate and stylus, showed me the work they did, and wanted a writer made on the order of a typewriter—having six keys and a spacer. He never gave me any idea as to how to make it, but what it should do. Both the rough draft of this letter, in Sieber's handwriting, and a carbon copy of the letter are in a small collection of letters and clippings in Sieber's possession. Since Sieber's statement to the author, noted above, was made when Sieber was ninety-two, and since there is no written documentation contemporary with the making of the model of the writer, it seems probable that Sieber may have failed to remember all the circumstances. Sieber, in his statement, claims credit for the idea of using the six keys, but this most certainly was Hall's idea.

<sup>26</sup> It would seem that Sieber's great contribution was the development, without infringing on existing typewriter patents, of an escapement whereby the carriage could move a space at a time. It would seem likely, too, that the linkage from keys to styli would also have to be original for the same reason. These statements are based upon the conversation with Rodenberg, noted above, and upon an examination of the mechanism of a Hall writer.

read what he had written immediately, because the steel pins impressed the dots on the paper by striking from the back, and because the carriage moved to the next position immediately. With slate and stylus, the person using them had to write all characters in reverse, and remove the sheet of paper from the slate before it could be read.

The model built by Sieber was thus described by Hall:

[It] was built mainly of scrap iron and brass and was fastened to a rough pine board for a base. It was anything but elegant in appearance; but the dots made by it were fully equal to those made by the stylus, and although the working was heavy and the machine roughly constructed, the measure of our success was even greater than I expected.<sup>27</sup>

The Braille Writer which bore his name was the happy result of Hall's creative mind, which analyzed the problem and envisioned a solution, and Sieber's highly developed craftsman's skill.

Hall, with his driving enthusiasm and urge to action wanted Sieber to undertake immediate mass production of the writer, but Sieber advised Hall to take the model to a machine shop in Chicago, where proper patterns and punches could be provided. As Hall said, "a fortunate chain of circumstances" led him to the Munson Typewriter Company in Chicago where T. B. Harrison was the superintendent and C. J. Seifried the designer. Harrison and Seifried fulfilled Hall's requirements that the Braille writer should be made as cheaply as possible, and Hall declared that their work was a labor of love.<sup>28</sup> They manufactured ninety-four machines which were delivered to the Illinois school for a total of \$940.<sup>29</sup> In addition Hall said that he paid out between \$200 and \$300 from his legislative appropriation for a working model,<sup>30</sup> which probably included the \$65 paid to Sieber for his work.<sup>31</sup>

<sup>27</sup> Hall, "Story of an Invention," *Mentor*, III: 69.

<sup>28</sup> *Ibid.*, 70.

<sup>29</sup> "Itemized Statement of Expenses, 1893" in Trustees of the Illinois Institution, *Twenty-third Biennial Report* (1894), 45.

<sup>30</sup> "Which Tactile Print for New York City?" *Outlook for the Blind*, III: 70.

<sup>31</sup> Statement of G. A. Sieber to Walter B. Hendrickson, April 1, 1955.

Twenty machines were retained by the Illinois school and the others were sold to individuals and schools, first for \$12 and later for \$14.<sup>32</sup> Within a few years institutions for the blind in the United States and in many foreign countries, including China and Australia, were using Hall Braille Writers.<sup>33</sup>

Hall was always proud of the fact that neither he nor any of the persons connected with the development of the writer profited from the invention. He never patented the machine,<sup>34</sup> and one of the favorite stories told by his family was about the time that he met Helen Keller, then thirteen, at the World's Fair and upon being told that Hall was responsible for the writer that she used so often, she put her arms around his neck and gave him a big kiss on his cheek. His daughter said that Hall could never tell of this incident without tears in his eyes.<sup>35</sup>

The first machine made by Harrison and Seifried arrived in Jacksonville on May 27, 1892, and Hall gave a demonstration to a reporter from the *Jacksonville Journal*, who wrote a most enthusiastic report, a full column long,<sup>36</sup> and the public first saw the machine at an exhibition of the work of the Institution for the Education of the Blind on June 7, 1892, when five students competed against each other in a speed trial. The winner wrote eighty-five words a minute from memory, and thirty-one words a minute from dictation.<sup>37</sup> The good news about the Braille writer was passed on to other institutions for the blind when it was demonstrated at Brantford, Ontario, by Hall's daughter Nina, who achieved a remarkable speed of one hundred words a minute. Edward E. Allen, the superintendent of the Perkins Institution, said "we . . . who were

<sup>32</sup> Edward E. Allen, "Frank H. Hall," in *Outlook for the Blind*, Vol. V (1911), 59.

<sup>33</sup> *Outlook for the Blind*, III: 70.

<sup>34</sup> A later model of the Hall Braille writer made by the Cooper Engineering and Manufacturing Co. bore the legend, "Patent Applied For," but it is certain that no patent was ever granted.

<sup>35</sup> *Frank H. Hall*, a brochure, 24.

<sup>36</sup> May 28, 1892.

<sup>37</sup> *Jacksonville Journal*, June 8, 1892.

there assembled in convention were almost dumbfounded with surprize and delight. The convenience of this little machine to the blind can only be understood when one realizes that it became to them what the ordinary typewriter is to others."<sup>38</sup> And as the *Jacksonville Journal* pointed out, with it the blind could solve algebraic and arithmetical problems and write music.<sup>39</sup>

The principles of the Hall writer were followed in later machines. So far as can be determined, C. J. Seifried took over the manufacture of the writers from the Munson Typewriter Company, and at his death, the Cooper Manufacturing Company of Chicago continued their production until about 1921, when this company was bought out by the M. B. Skinner Company, manufacturers of steam specialties and engineer supplies. The Skinner company made writers under the name of the Cooper Manufacturing and Engineering Company. At first Skinner planned to discontinue the manufacture of the writers because it wasn't profitable, but when he found that this would work a hardship on blind people, he decided to stay in the business and produce an even better machine. He spent \$5,000 for improved designs and methods of manufacture, and still sold the machine for a nominal sum.<sup>40</sup> Eventually the production of Braille writers was taken over by such specialized agencies as the American Foundation for the Blind, the Howe Memorial Press, and the Braille Institute of America. Throughout all these changes, Hall's basic principles of six keys, each controlling a dot in the Braille cell, and impressing the paper from the back were retained. The principal change that has been made in the most modern machine, the Perkins Braille, is that the carriage carries the styli rather than the paper.

Hall saw that his Braille writer might be made to pro-

<sup>38</sup> *Outlook for the Blind*, V: 91.

<sup>39</sup> May 28, 1892.

<sup>40</sup> P. D. Merrill, Vice-President, Cooper Engineering and Manufacturing Company, to G. A. Sieber, Chicago, Ill., June 14, 1926, in Sieber's possession.

duce, quickly and cheaply, a stereotype plate from which many copies could be printed. Stereotypes at this time were made by laborious and slow handwork, using a punch and mallet to impress dots on copper plates, following the method developed in Europe; or as was more usual in the United States, by handsetting Braille type, and either printing directly from it, or by making a stereotype from a paper mat.<sup>41</sup>

After several experiments using paper stiffened with shellac, and heavy tinfoil backed by cement, and finding them only moderately successful,<sup>42</sup> Hall appealed to his friends Harrison and Seifried, and it was they who devised the machine which Hall was unpacking in the small hours of the morning of January 5, 1893. It used the same principles as the Braille writer, except that greater power was applied by using a foot pedal to do the embossing after the characters were selected by the keys.

The Hall stereotypemaker was first exhibited at the Chicago World's Fair where workers with the blind saw its great possibilities. Superintendent John T. Sibley of the Missouri School for the Blind, who secured the second stereotyper that was made, expressed the general feeling when he wrote:

After nearly a year's work with the stereotyper, I am led to believe that, as far as the education of the blind is concerned, this invention is the most important of the century, if we except the invention of the point system by Louis Braille. These two form the immovable pillars upon which the future education of the blind must rest. When the value of both is well understood by all, printing embossed matter will be carried on so rapidly and so economically that libraries will grow and flourish like vegetation under a tropical sun.

John Sibley's prophecy has come true. Today most books for the blind are printed from plates made on stereotypemakers following the principles of Hall's original machine, although

<sup>41</sup> Louis W. Rodenberg, *The Story of Books for the Blind*, 10; Farrell, "Avenue of Communication," *Blindness: Modern Approaches* . . . , 327-36. See also *Jacksonville Journal*, Jan. 6, 1893, for an interview with Hall on the subject of the stereotypemaker.

<sup>42</sup> Hall, "Story of an Invention," 72-73.

<sup>43</sup> John T. Sibley, "Stereotyping for Embossed Printing," in *The Mentor*, Vol. II (1893), 9, 386.

much improved and now motor driven. The fact that Hall's writer and stereotypemaker operated so efficiently were, as shall be shown, strong arguments for retaining Braille as the written language of the blind both in the United States and throughout the world.

Hall left the school for the blind in 1893 when the Democrats took control of the state government. For four years he was the superintendent of the Waukegan schools, where the board of trustees recognized his ability by paying him a larger salary than he asked for.<sup>44</sup> In 1897, with the return of the Republicans to power, Hall was reappointed head of the school for the blind, where he remained until 1902.

He was now widely known among educators, both the teachers of the blind and of normal children. His writer and stereotypemaker had won much favorable attention among his colleagues, and he took a leading part at the Congress of Educators of the Blind held at the Columbian Exposition.<sup>45</sup> He was a frequent attendant and speaker at conferences of teachers of both blind and normal-sighted children.

The gist of his talks on these occasions was, first, that the blind should be given as many experiences as possible to fit them to live in a world of sighted people, and, second, that teachers of normal children could learn much from studying the problems of teaching the blind. Hall said that the blind child, because of his limited ability to receive impressions, developed his imaginative powers and his capacity for drawing conclusions from his limited perceptions. Sighted children, he said, did not develop their powers of apperception because they depended so largely upon their much greater sensory perceptions. His conclusion was that teachers of blind children should give them as many sensory experiences as possible, and the teachers of sighted children should teach

<sup>44</sup> Frank H. Hall, a brochure, 27.

<sup>45</sup> *The Mentor*, Vol. III (1893), 39, 80, 160, 240, 280, 319-20, 360, 403-404; 68-73; 243-51; 385-89.

them to draw as much as possible from their sensory experiences.<sup>46</sup>

During Hall's second term two deaf-blind children had come to the school—Jessie Stewart and Emma Kubicek—both having lost their sight and hearing as the result of cerebro-meningitis, the former at the age of ten months, and the latter at three years. Both were given the same kind of training that Laura Bridgman and Helen Keller had had, being put under the personal care of Mrs. Helen Jordan, the kindergarten teacher at the school. Hall was much interested in their cases because he had just completed a thoughtful study on the subject: "The Comparison of the Blind, the Deaf, the Deaf-Blind, and Those Possessed of All Their Faculties, in Respect to Imaginative Power." His conclusion that it was most difficult to educate the deaf-blind child was borne out by the cases of Jessie and Emma. Little could be done for Jessie, but Emma learned quite readily, and was called "the second Helen Keller." Hall explained the difference as being in large part due to the fact that Jessie lost her sensory powers at such an early age that she had no usable memory of anything seen or heard.<sup>47</sup>

Hall's firm conviction that the blind should participate just as much as possible in the activities of the seeing brought him, in 1900, when the city of Chicago was considering the establishment of a boarding school for the blind, to convince the school authorities that it would be much better to have day classes in the public schools, rather than to isolate the blind children in an institution. On Hall's recommendation one of his teachers, John B. Curtis, was appointed to pioneer in setting up public day classes. Within ten years, five other cities

<sup>46</sup> See, for example, Frank H. Hall, "Pedagogical Lessons from a Study of the Blind," in National Educational Association, *Proceedings*, (1898), 1033-1038; Frank H. Hall, "Thoughts Suggested by a Study of the Mental Development of the Blind," in Illinois Society for Child Study, *Transactions*, Vol. I (1894), 31-39.

<sup>47</sup> Illinois Society for Child Study, *Transactions*, Vol. IV (1899), 18-30; Trustees of the Illinois Institution, *Twenty-seventh Biennial Report* (1902), 16-20. See also *Jacksonville Journal*, March 14, 1907, for an account of Emma Kubicek's life. The girl died in 1907 from diphtheria, aged eleven years.



had followed the Chicago plan. One of Hall's contemporaries, Edward E. Allen, said that Hall's leadership in this matter was even more significant for the education of the blind than the invention of the Braille-writing machines.<sup>48</sup>

Hall believed geography should be an important part of the curriculum and he used several devices whereby the blind could comprehend the shape and location of geographical features. One such was a heavy paper cut-out of a country, a state, or a continent fastened to a board. On the cut-out, tacks were placed to locate cities.<sup>49</sup> This idea was developed further after the invention of the stereotypemaker. Various physical features were denoted by different arrangements of dots and cross-hatchings, and impressed on thin sheets of metal, and paper maps were embossed from these by means of a hand press.<sup>50</sup>

With the purchase of the presses and type in 1891, Hall started a print shop that turned out books, maps and music—the books in Boston Line and the music in Braille. When the stereotypemaker was developed, the printing program was greatly expanded until, in 1902, over 14,000 brass plates, most of them music scores, were stored in a fireproof vault. Within a short time, the products of this printshop were being sold at low prices to buyers both in this country and abroad.<sup>51</sup>

Hall and the men whom he had trained at the school for the blind played a leading part in the event that marked the show-down between the educators who wanted New York Point to become standard in the schools of the United States and those who favored Braille. A long standing dispute was brought to a head in 1909 when the school authorities of New York City held a public meeting for advocates of both systems to present their cases. Everyone understood that the choice

<sup>48</sup> Edward E. Allen, "Frank H. Hall," in *Outlook for the Blind*, Vol. V (Jan., 1911), 57; John B. Curtis, "Frank H. Hall," *ibid.*, (April, 1911), 5.

<sup>49</sup> "Editorial Notes," in *The Mentor*, Vol. III (1893), 39.

<sup>50</sup> Trustees of the Illinois Institution, *Twenty-sixth Biennial Report*, (1900), 13.

<sup>51</sup> *Ibid.*, *Twenty-seventh Biennial Report* (1902), 6.

of so large an educational unit would strongly influence the rest of the United States.

Although Hall had long been out of active work with the blind he joined forces with John Curtis of Chicago, and George W. Jones, superintendent, and William Jewell, printer, of the the Illinois school in presenting the case for Braille. Two formal meetings were held in April and May, and Hall testified at both, speaking at length, and explaining why he had re-introduced Braille at his school, and why he had made his writing and printing machines to use that notation. Curtis, Jones and Jewell spoke about the ease with which students could learn Braille, pointed out that there were a large number of books and thousands of pieces of music available, that because Hall's stereotypemaker was simple to operate reading material and music could be produced so cheaply, and that Hall's stereotypemakers and writers were in use in such large places as the Illinois, Massachusetts, Pennsylvania and Missouri schools and in the public schools of Chicago.

The New York Point advocates fought back savagely, even accusing Hall of favoring Braille because he would profit from the use of his machines. Hall indignantly denied that he would profit personally, and explained that he had no patent on the machines, and that he had not tried to patent them because his only interest was in helping the blind.

The upshot was that New York City adopted Braille for its blind children. Frank Hall, his Braille writer and his stereotypemaker "had stemmed the tide of New York Point and, by supporting the Braille principle, opened the way to its universal victory."<sup>52</sup>

Frank Hall had been living his third life as promoter of agricultural education for seven years when he was called to join the "battle of the types." In 1902 he left the school for

<sup>52</sup> Rodenberg, *The Story of Books for the Blind*, 10; The testimony of Hall and others before the New York City Board of Education committee is printed at length in "Which Tactile Print for New York City?" in *Outlook for the Blind*, Vol. III (1909), 24-46, 64-74.

the blind<sup>53</sup> and became superintendent of the Farmers' Institute of Illinois. Hall had had one foot in agricultural education as far back as his days at Sugar Grove. There he held a three-day meeting much like the later local farmers' institutes. Hall himself had given a lecture: "The Chemistry of Milk and Its Management in Butter-Making." The principal speaker was Professor G. E. Morrow of the State Industrial University at Champaign, who talked about "Livestock in Illinois Farming." Even while he was at the school for the blind, Hall maintained his interest in agriculture. He owned a farm in partnership with his son, and sold dairy products in the city of Aurora.<sup>54</sup> He spoke at farmers' institutes on the need for agricultural education in the public schools,<sup>55</sup> and he wrote an article on dairying.<sup>56</sup>

Because of his speeches at farmers' and teachers' institutes Hall became well-known throughout the rural areas of Illinois, and when he resigned from the school for the blind, A. P. Grout, a leading farmer of Scott County, and a member of the Board of Directors of the Illinois Farmers' Institute, who was well acquainted with him, asked him to become superintendent of the organization with the principal duty of promoting local and state meetings.<sup>57</sup> After considerable discussion with the board of directors, Hall agreed to take the job on a fee basis: \$25 and his expenses if he attended one local institute in a week and \$40 for two. At the same time he would be permitted to continue his speaking at teachers' institutes.<sup>58</sup>

<sup>53</sup> Hall resigned rather than make school jobs a matter of political patronage.

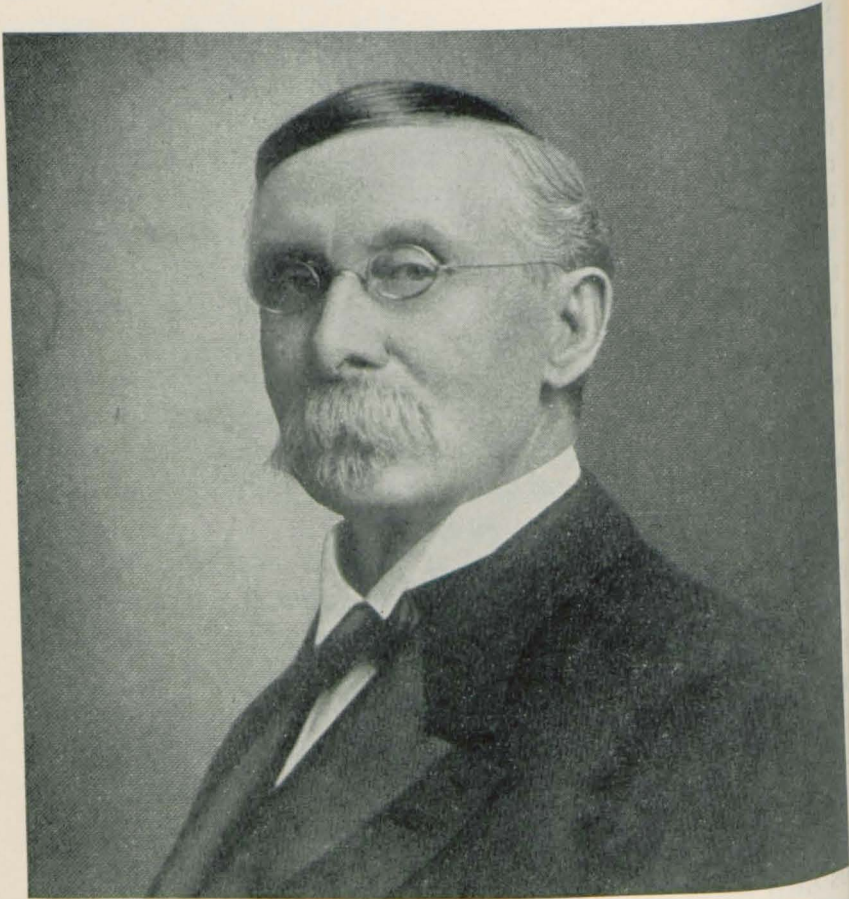
<sup>54</sup> Frank H. Hall, a brochure, 28.

<sup>55</sup> "The Relation of the School Work to Life on the Farm," in Illinois Farmers' Institute, *Annual Report* (1900), 401-404.

<sup>56</sup> "Digestibility of American Feeding Stuffs," (in collaboration with W. H. Jordan) in *Science*, n. s. Vol. XI (June 22, 1900), 988. In 1904 he wrote two more articles: "Chemistry of Cottage Cheese," in *Scientific American Supplement*, Vol. LVIII (Aug. 13, 1904), 23926-7; "Pea Canners Problems Solved," *ibid.*, (Aug. 27, 1904), 23962.

<sup>57</sup> Frank H. Hall, a brochure, 60-62.

<sup>58</sup> Illinois Farmers' Institute, *Annual Report* (1903), 275. At this time Hall's position was not provided for in law, but the legislature amended the basic act in 1903 to create the position of Superintendent of Institutes. Hall's salary was changed several times, and before he resigned in 1910, he was earning \$3,000 a year, and devoting all his time to the job.



FRANK H. HALL

This picture of the educator-inventor-agriculturist was made during his second term as superintendent of the school for the blind.

The organization with which Hall became associated had been established by the state legislature in 1895 with the stated purpose of assisting and encouraging "useful education among farmers, and for developing the agricultural resources of the State."<sup>59</sup> Even before this, farmers' institutes had been held in the state as early as 1871 under the direction of the

<sup>59</sup> *Laws of Illinois*, 1895, 1. See also History of State Departments (Ms.) in State of Illinois, Department of Archives.

State University, and finally, in 1880, the State Board of Agriculture assisted local groups.<sup>60</sup> The farmers' institutes were sponsored nationally by the United States Department of Agriculture, and 3,179 were held in 1903. The institutes were regarded as the agency for disseminating the information developed by the agricultural colleges and experiment stations.

Hall's job as superintendent of the Farmers' Institute was to keep local leaders filled with enthusiasm so that they would work hard to prepare a program, publicize it, and make the meeting so enjoyable and worthwhile that people would want to come back again next year. One of Hall's constant problems, however, was to minimize the entertainment features and emphasize the educational values of the institutes. Hall believed that there should be some entertainment, but that most of the time should be devoted to inspirational talks about the place of the farmer in the world, and to informational lectures and demonstrations that would be of practical use to the farmer.<sup>61</sup> For example, at one meeting Hall himself presided at a session at which there was an actual demonstration on the platform of the meeting hall of the milking machine, cream separator, and Babcock tester.<sup>62</sup>

During the years when he was superintendent of the institutes, Hall saw their number increase from 105 to 195,<sup>63</sup> and his own work was a factor in this increase. He attended the local institutes—in 1903, forty-five of them, and sixty in 1908.<sup>64</sup>

Hall sought to bring local teachers and county superintendents to work with farmers at the institutes, and, winning the support of the State Superintendent of Public Instruction, he succeeded in having the teaching of agriculture introduced into some of the schools, and in persuading the state normal schools to give courses in agriculture which would equip school

<sup>60</sup> Illinois Farmers' Institute, *Annual Report* (1904), 243-46.

<sup>61</sup> *Ibid.*, 18-25; *ibid.* (1907), 33-38.

<sup>62</sup> *Ibid.*, (1909), 263ff.

<sup>63</sup> *Ibid.*, (1904), 18; *ibid.*, (1910), 24.

<sup>64</sup> *Ibid.*, (1904), 18; *ibid.*, (1909), 31.

teachers to give instruction to children. Hall also worked with the normal schools in setting up institutes and short courses for farmers. He worked closely with the University of Illinois, and set up speaking schedules for the teachers in the agriculture department and the men at the Experiment Station so that they could attend as many local institutes and speak to as many people as possible and yet lose little time from their other duties. Hall firmly believed that the working farmer should make intensive use of the skills of the agricultural experts, and he constantly strove to create a situation of mutual understanding between the practical farmer and the theorist.<sup>65</sup>

Hall was a great success at his job. He had an easy, informal manner of speaking, yet impressed his hearers as a man of learning. He was a good administrator and could be forthright in expressing a viewpoint without being belligerent or dogmatic.<sup>66</sup> He impressed the men with whom he worked with his sincerity and his whole-hearted interest in the improvement of agriculture, not only for the dollars-and-cents that would flow into the farmer's pocket, but also because the daily life of the farmer's family would be richer.

Hall worked very hard at this job, and rather than drop some of his responsibilities as he grew older, he added to them. He served as official state delegate to the Farmer's National Congress in 1908, and to the National Farm Land Congress in 1909, and he was a member of the National Conservation Commission.<sup>67</sup> Too, he continued to visit more and more local institutes each year, and in the days before rapid transportation, this was exhausting. Although he remained physically strong, and was accustomed to horse and buggy traveling in all kinds of weather, one experience in the winter of 1909, when he had to drive through a snowstorm and then wait

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<sup>65</sup> These are general conclusions from reading Hall's remarks in the annual reports of the Farmers' Institute.

<sup>66</sup> See Hall's reports and remarks to the board of directors in the annual reports of the Farmers' Institute.

<sup>67</sup> *Frank H. Hall*, a brochure, 31.

several hours in a cold railroad station was too much for him, and he contracted a respiratory infection. To this he paid little attention, although he was left with a bad cough, and he continued his winter's work. Finally, in the spring of 1910 he had to give up, and the doctors declared that he had tuberculosis of the lungs and diabetes, and he died from these diseases on January 3, 1911.<sup>68</sup>

Frank Hall was a useful citizen of Illinois. In the three fields in which he worked, during the three lives he lived, he made vital contributions. While these were not world-shakingly important they did re-direct forces already working so that desirable results were hurried along.

Frank Haven Hall has never been listed in the *Dictionary of American Biography*, nor is he often mentioned among Illinois greats, but in his own city of Aurora he is well-remembered. Soon after his death, a bronze bust was placed in the public library,<sup>69</sup> and his children published a widely circulated memorial brochure. In Jacksonville, too, at the Illinois Braille and Sight-Saving School, is another memorial: the print shop where Hall's stereotypemaker and his mapmaker are in daily use. Today, in 1956, there are many people, some who see and some who do not, who feel a warm inward glow because they knew Frank H. Hall as teacher and friend.<sup>70</sup>

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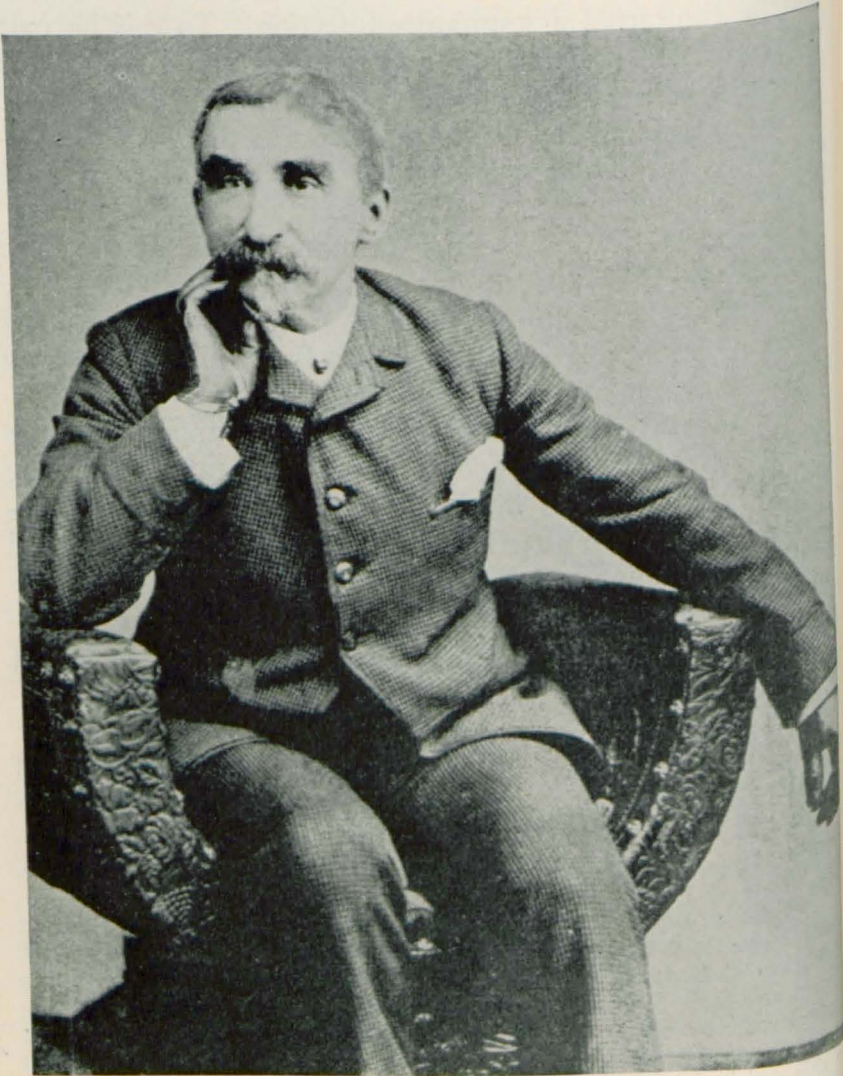
I wish to express my appreciation for the kindness of Superintendent Leo J. Flood, Miss Helen Sweeney, teacher and curator of historical materials, and Louis W. Rodenberg, Superintendent of Blind Services, all of the Illinois Braille and Sight-Saving School in Jacksonville, in supplying me with necessary materials and for their patient explanation of technical aspects of the education of the blind. The responsibility for the facts and conclusions in this article, however, rests with me alone.

W. B. H.

<sup>68</sup> *Ibid.*, 9-10.

<sup>69</sup> *Aurora Beacon-News*, Nov. 1, 1913.

<sup>70</sup> See letters to the author from Bess Bower Dunn, Waukegan, Ill., June 21, 1955 and George W. Gerlach, La Grange Highlands, Ill. Mar. 28, 1955.



JOSEPH KIRKLAND

From the frontispiece photograph of *The Captain of Company K.*