

= Louis Braille =

Louis Braille ( / ˈbreɪl / , listen ; French : [ lwi bʁaj ( ? ) ] ; 4 January 1809 ? 6 January 1852 ) was a French educator and inventor of a system of reading and writing for use by the blind or visually impaired . His system remains known worldwide simply as braille .

Blinded in both eyes as a result of an early childhood accident , Braille mastered his disability while still a boy . He excelled in his education and received scholarship to France 's Royal Institute for Blind Youth . While still a student there , he began developing a system of tactile code that could allow blind people to read and write quickly and efficiently . Inspired by the military cryptography of Charles Barbier , Braille constructed a new method built specifically for the needs of the blind . He presented his work to his peers for the first time in 1824 .

In adulthood , Braille served as a professor at the Institute and enjoyed an avocation as a musician , but he largely spent the remainder of his life refining and extending his system . It went unused by most educators for many years after his death , but posterity has recognized braille as a revolutionary invention , and it has been adapted for use in languages worldwide .

= = Early life = =

Louis Braille was born in Coupvray , France , a small town about twenty miles east of Paris . He and his three elder siblings ? Monique Catherine ( b.1793 ) , Louis @-@ Simon ( b.1795 ) , and Marie Céline ( b.1797 ) ? lived with their parents , Simon @-@ René and Monique , on three hectares of land and vineyards in the countryside . Simon @-@ René maintained a successful enterprise as a leatherer and maker of horse tack .

As soon as he could walk , Braille spent time playing in his father 's workshop . At the age of three , the child was toying with some of the tools , trying to make holes in a piece of leather with an awl . Squinting closely at the surface , he pressed down hard to drive the point in , and the awl glanced across the tough leather and struck him in one of his eyes . A local physician bound and patched the affected eye and even arranged for Braille to be met the next day in Paris by a highly respected surgeon , but no treatment could save the damaged organ . In agony , the young boy suffered for weeks as the wound became severely infected ; an infection which then spread to his other eye , likely due to sympathetic ophthalmia.a

Louis Braille survived the torment of the infection but by the age of five he was completely blind in both eyes . Due to his young age , Braille did not realize at first that he had lost his sight , and often asked why it was always dark . His devoted parents made great efforts ? quite uncommon for the era ? to raise their youngest child in a normal fashion , and he prospered in their care . He learned to navigate the village and country paths with canes his father hewed for him , and he grew up seemingly at peace with his disability . Braille 's bright and creative mind impressed the local teachers and priests , and he was accommodated with higher education .

= = Education = =

Braille studied in Coupvray until the age of ten . Because of his combination of intelligence and diligence , Braille was permitted to attend one of the first schools for blind children in the world , the Royal Institute for Blind Youth , since renamed to the National Institute for Blind Youth in Paris . Braille , the last of the family 's children to leave the household , departed for the school in February 1819 . At that time the Royal Institute was an underfunded , ramshackle affair , but it provided a relatively stable environment for blind children to learn and associate together .

= = = Haüy system = = =

The children were taught how to read by a system devised by the school 's founder , Valentin Haüy . Not blind himself , Haüy was a committed philanthropist who devoted his life to helping the blind . He designed and manufactured a small library of books for the children using a technique of

embossing heavy paper with the raised imprints of Latin letters . Readers would trace their fingers over the text , comprehending slowly but in a traditional fashion which Haüy could appreciate .

Braille was helped by the Haüy books , but he also despaired over their lack of depth : the amount of information kept in such books was necessarily small . Because the raised letters were made in a complex artisanal process using wet paper pressed against copper wire , the children could not hope to " write " by themselves . So that the young Louis could send letters back home , Simon @-@ René provided him with an alphabet fashioned from bits of thick leather . It was a slow and cumbersome process , but the boy could at least trace the letters ' outlines and write his first sentences .

The handcrafted Haüy books all came in uncomfortable sizes and weights . They were laboriously constructed , exquisitely delicate , and greatly expensive to obtain : when Haüy 's school first opened , it had a total of three books . Despite their drawbacks , Haüy promoted their use with zeal . To him , the books presented a new and handsome system which would be readily approved by those with eyesight . Certainly no better method yet existed for the blind to read , and the books seemed ? to the sighted ? to offer the best achievable results . Braille and his schoolmates , however , could detect all too well the books ' crushing limitations . Nonetheless , Haüy 's well @-@ intentioned efforts still provided a breakthrough achievement ? the recognition of the sense of touch as a workable strategy for sightless reading . Haüy 's only personal limitation was that he was " talking to the fingers [ with ] the language of the eye . "

= = = Teacher and musician = = =

Braille read the Haüy books repeatedly , and he was equally attentive to the oral instruction offered by the school . He proved to be a highly proficient student and , after he had exhausted the school 's curriculum , he was immediately asked to remain as a teacher 's aide . By 1833 , he was elevated to a full professorship . For much of the rest of his life , Braille stayed at the Institute where he taught history , geometry , and algebra .

Braille 's ear for music enabled him to become an accomplished cellist and organist in classes taught by Jean @-@ Nicholas Marrigues . Later in life , his musical talents led him to play the organ for churches all over France . A devout Catholic , Braille held the position of organist in Paris at the Church of Saint @-@ Nicolas @-@ des @-@ Champs from 1834 to 1839 , and later at the Church of Saint @-@ Vincent @-@ de @-@ Paul .

= = Braille system = =

Braille was determined to fashion a system of reading and writing that could bridge the critical gap in communication between the sighted and the blind . In his own words : " Access to communication in the widest sense is access to knowledge , and that is vitally important for us if we [ the blind ] are not to go on being despised or patronized by condescending sighted people . We do not need pity , nor do we need to be reminded we are vulnerable . We must be treated as equals ? and communication is the way this can be brought about . "

= = = Origins = = =

In 1821 , Braille learned of a communication system devised by Captain Charles Barbier of the French Army . Some sources depict Braille learning about it from a newspaper account read to him by a friend , while others say the officer , aware of its potential , made a special visit to the school . In either case , Barbier willingly shared his invention called " night writing " which was a code of dots and dashes impressed into thick paper . These impressions could be interpreted entirely by the fingers , letting soldiers share information on the battlefield without having light or needing to speak . The captain 's code turned out to be too complex to use in its original military form , but it inspired Braille to develop a system of his own .

### === Design ===

Braille worked tirelessly on his ideas , and his system was largely completed by 1824 , when he was fifteen years old . From Barbier 's night writing , he innovated by simplifying its form and maximizing its efficiency . He made uniform columns for each letter , and he reduced the twelve raised dots to six . He published his system in 1829 , and by the second edition in 1837 had discarded the dashes because they were too difficult to read . Crucially , Braille 's smaller cells were capable of being recognized as letters with a single touch of a finger .

Braille created his own raised @-@ dot system by using an awl , the same kind of implement which had blinded him . In the process of designing his system , he also designed an ergonomic interface for using it , based on Barbier 's own slate and stylus tools . By soldering two metal strips across the slate , he created a secure area for the stylus which would keep the lines straight and readable .

By these modest means , Braille constructed a robust communication system . " It bears the stamp of genius " wrote Dr. Richard Slating French , former director of the California School for the Blind , " like the Roman alphabet itself . "

### === Musical adaptation ===

The system was soon extended to include braille musical notation . Passionate about his own music , Braille took meticulous care in its planning to ensure that the musical code would be " flexible enough to meet the unique requirements of any instrument . " In 1829 , he published the first book about his system , Method of Writing Words , Music , and Plain Songs by Means of Dots , for Use by the Blind and Arranged for Them . Ironically this book was first printed by the raised letter method of the Haüy system .

### === Publications ===

Braille produced several written works about braille and as general education for the blind . Method of Writing Words , Music , and Plain Songs ... ( 1829 ) was revised and republished in 1837 ; his mathematics guide , Little Synopsis of Arithmetic for Beginners , entered use in 1838 ; and his monograph New Method for Representing by Dots the Form of Letters , Maps , Geometric Figures , Musical Symbols , etc . , for Use by the Blind was first published in 1839 . Many of Braille 's original printed works remain available at the Braille birthplace museum in Coupvray .

### === Decapoint ===

New Method for Representing by Dots ... ( 1839 ) put forth Braille 's plan for a new writing system with which blind people could write letters that could be read by sighted people . Called decapoint , the system combined his method of dot @-@ punching with a new specialized grill which Braille devised to overlay the paper . When used with an associated number table ( also designed by Braille and requiring memorization ) , the grill could permit a blind writer to faithfully reproduce the standard alphabet .

After the introduction of decapoint , Braille gave assistance to his friend Pierre @-@ François @-@ Victor Foucault , who was working on the development of his Raphigraphe , a device that could emboss letters in the manner of a typewriter . Foucault 's machine was hailed as a great success and was exhibited at the World 's Fair in Paris in 1855 .

### == Later life ==

Although Braille was admired and respected by his pupils , his writing system was not taught at the Institute during his lifetime . The successors of Valentin Haüy , who had died in 1822 , showed no interest in altering the established methods of the school , and indeed , they were actively hostile to its use . Dr. Alexandre François @-@ René Pignier , headmaster at the school , was dismissed from

his post after he had a history book translated into braille .

Braille had always been a sickly child , and his condition worsened in adulthood . A persistent respiratory illness , long believed to be tuberculosis , dogged him , and by the age of forty , he was forced to relinquish his position as a teacher . When his condition reached mortal danger , he was admitted to the infirmary at the Royal Institution , where he died in 1852 , two days after he had reached the age of forty @-@ three .

= = Legacy = =

Through the overwhelming insistence of the blind pupils , Braille 's system was finally adopted by the Institute in 1854 , two years after his death . The system spread throughout the French @-@ speaking world , but was slower to expand in other places . However , by the time of the first all @-@ European conference of teachers of the blind in 1873 , the cause of braille was championed by Dr. Thomas Rhodes Armitage and thereafter its international use increased rapidly . By 1882 , Dr. Armitage was able to report that " There is now probably no institution in the civilized world where braille is not used except in some of those in North America . " Eventually even these holdouts relented : braille was officially adopted by schools for the blind in the United States in 1916 , and a universal braille code for English was formalized in 1932 .

New variations in braille technology continue to grow , including such innovations as braille computer terminals ; RoboBraille email delivery service ; and Nemeth Braille , a comprehensive system for mathematical and scientific notation . Almost two centuries after its invention , braille remains a system of powerful and enduring utility .

= = = Honors and tributes = = =

The immense personal legacy of Louis Braille was described in a 1952 essay by T.S. Eliot :

Braille 's childhood home in Coupvray is a listed historic building and houses the Louis Braille Museum . A large monument to him was erected in the town square which was itself renamed Braille Square . On the centenary of his death , his remains were moved to the Panthéon in Paris . In a symbolic gesture , Braille 's hands were left in Coupvray , reverently buried near his home .

Statues and other memorials to Louis Braille can be found around the world . He has been commemorated in postage stamps worldwide , and the asteroid 9969 Braille was named for him in 1992 . The Encyclopædia Britannica lists him among the " 100 Most Influential Inventors Of All Time " .

The 200th anniversary of Braille 's birth in 2009 was celebrated throughout the world by exhibitions and symposiums about his life and achievements . Among the commemorations , Belgium and Italy struck 2 @-@ euro coins , India struck a 2 @-@ rupee coin , and the USA struck a one dollar coin , all in Braille 's honor .

= = = In popular culture = = =

Because of his accomplishments as a young boy , Braille holds a special place as a hero for children , and he has been the subject of a large number of works of juvenile literature . Other appearances in the arts include the American TV special Young Heroes : Louis Braille ( 2010 ) ; the French TV movie Une lumière dans la nuit ( 2008 ) ( released in English as The Secret of Braille ) ; and the dramatic play Braille : The Early Life of Louis Braille ( 1989 ) by Lola and Coleman Jennings . In music , Braille 's life was subject of the song called " Merci , Louis " , composed by the Halifax singer @-@ songwriter Terry Kelly , chair of the Canadian Braille Literacy Foundation .