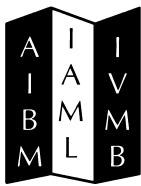


FONTES

A R T I S M U S I C A E





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Editor

Maureen Buja, Ph.D., Hong Kong Gold Coast, Block 22, Flat 1-A, 1 Castle Peak Road, Tuen Mun, NT, Hong Kong; Telephone: +852-2146-8047; email: fontes@iaml.info

Assistant editors

Reviews editors

US and Canada

Mary Black Junttonen, Music Librarian, Fine Arts—Music Library, Michigan State University, East Lansing, MI 48824 USA. Telephone: +1-517-432-6123, ext. 282; e-mail: blackma@mail.lib.msu.edu

Europe

Anna Pensaert, Pendlebury Library of Music, University Music School, West Road, Cambridge CB3 9DP UK. Telephone: +44-223-335183; email: amljp2@hermes.cam.ac.uk
Gerald Seaman (Oxford)

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Advertising manager: David A. Day, Curator, Music Special Collections, Brigham Young University, Harold B. Lee Library, Provo, UT 84602 USA. Telephone: (801) 422-6119; fax: (801) 422-0466; e-mail: david_day@byu.edu

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THE FIRST SPANISH MUSIC CODES FOR THE BLIND AND THEIR COMPARISON WITH THE AMERICAN ONES

Esther Burgos Bordonau¹

English Abstract

This article describes the main music codes invented around the middle of the nineteenth century by Spanish music teachers for the education of blind pupils. It also compares these codes with the most important sign-graphic code of all times, the Braille code, invented in France in the same period and rival of all others also shown. It also describes how, in music-graphic terms, the United States of America created its own codes in order to compare with the ones used in Spain.

French Abstract

Cet article décrit les principaux codes musicaux inventés vers le milieu du 19^e siècle par les professeurs de musique en Espagne à l'intention de l'éducation des élèves non-voyants. Ces codes sont comparés au code graphique le plus important de tous les temps: le braille, inventé en France à la même époque et qui concurrence tous les autres. L'article montre comment les États-Unis ont créé leurs propres codes graphiques en musique et les compare à ceux qui sont utilisés en Espagne.

German Abstract

Dieser Aufsatz beschreibt die Kodierungen, die spanische Musiklehrer Mitte des 19. Jahrhunderts für die Musikerziehung blinder Schüler erdacht haben. Er vergleicht diese nicht nur mit der wichtigsten Blindenschrift, der in Frankreich etwa zur gleichen Zeit entwickelten Brailleschrift, sondern auch mit dem in den Vereinigten Staaten geschaffenen System.

Spanish Abstract

El artículo describe e ilustra los principales códigos para la instrucción musical de los ciegos inventados por maestros españoles a mediados del siglo XIX. Así mismo se establece una comparación con el principal sistema de todos los tiempos, el código Braille, inventado en Francia en la misma época y rival de todos ellos. Por último, se explica cómo fueron los inicios de la instrucción para ciegos, en términos musicográficos, en los Estados Unidos de América para finalizar comparando los códigos allí inventados con los de España.

1. Esther Burgos is professor of Music Information and History of Libraries at the Faculty of Documentation (UCM) in Madrid.

Introduction

The aim of this article is to describe to the reader the methods used in Spain to give blind students musical training and teaching during the latter half of the nineteenth century up to the middle of the twentieth century, and later compare them with the ones used in the United States in order to draw parallels between both country's methods. This article is the result of research carried out in two different stages. The first one conducted in 2007 in the University of California, Berkeley, and the second one in 2009 in Harvard University, Cambridge, Massachusetts. Although our previous works in this field² had to do with music instruction to the blind in Spain, two grants offered by Complutense University of Madrid have enabled us to carry out new research about the origins of music training to the blind in the U.S and establish new comparisons.

2. First Spanish music codes

Spain, like many other countries, has had a long tradition of great composers and performers throughout different periods, and many significant blind composers. No one can forget the importance of composers such as Francisco Salinas, who lived in the sixteenth century and was the music teacher at the prestigious University of Salamanca (one of the oldest universities in Europe). Besides being a teacher and composer, Salinas wrote a music treatise in seven parts entitled "De Música", which was the main point of reference for some centuries and would be not only the most important theoretical work on music in Spain but also in other neighbouring nations.

There was also the celebrated blind organist Antonio de Cabezón, who is said to have dictated his works to his assistant, and other, more recent musicians who have achieved worldwide fame, such as Joaquín Rodrigo³. All of them, or at least the first two of them, have something in common that today seems inconceivable to us: as well as being blind, they were musically illiterate. We will look deeper into this aspect later.

As is widely known, before the arrival of the Braille system (which happened towards 1829) and its implementation as the valid code of literacy for the blind, these people lived in a state of almost total ignorance, lacking any system with which to learn to read or write. This meant that the blind were particularly disadvantaged when compared to the rest of the population, and had to rely absolutely on their memory. It was only thanks to that reliance on memory, and special abilities in certain trades, that the blind could manage to get by. Although different systems to enable the blind read, write of words and even music were created before him, it was the six-dot code devised by Frenchman Louis Braille that was accepted worldwide (at different dates according to different countries).

2. Esther Burgos Bordonau, *Historia de la enseñanza musical para ciegos en España: 1830–1938*. Madrid, Organización Nacional de Ciegos de España (ONCE), 2004; "El sistema musicográfico de Gabriel Abreu y su aplicación en la enseñanza musical para ciegos en España (1854–1980)", *Revista de Musicología* 27/2 (2004): 1099–1113; "Las musicografías de Abreu y Llorens: dos sistemas alternativos a la recepción del Braille en España", *Integración* 46 (2005): 7–12; "La educación musical del colectivo invidente en la España del siglo XIX", *Música y Educación* XVIII/2, nº 62 (2005): 65–81; "Muzykografia Gabriela Abreu Castano, historia i zastosowanie, translated by Helena Jakubowska" *Nowy Magazyn Muzyczny* (The New Music Magazine). Braille and electronic edition. 25/2 (2008). http://www.idn.org.pl/towmuz/magazyn_muzyczny.html#nr25; *Los fondos documentales en Braille y tinta del archivo-biblioteca de la Residencia de Estudiantes del CSIC*. Madrid, Editorial Universitaria Ramón Areces, 2008.

3. Joaquín Arnau del Amo, *La obra de Joaquín Rodrigo*, Valencia: Generalitat Valenciana, 1992.

There were two main Spanish sign-graphic codes used for music teaching in the middle of the nineteenth century: the raised dot code of Gabriel Abreu Castaño⁴ the blind music teacher of the National School for the Deaf and Blind in Madrid, and the raised letters code of Pedro Llorens y Llachós⁵ sighted teacher of the Municipal School of Music for the Blind in Barcelona. Both men were contemporaries and teachers of blind students working in what was, at the time, the country's main institutions for the blind. They developed their systems at the same time—with just a year's difference between the publication of their respective codes—and both men defended their system while aware of the Braille code.

After studying Abreu's code we can conclude several things: first and foremost is that he was familiar with the Braille code, which he enhanced for musical training. Though his system was based on the French code, he broadened its possibilities for combinations and also improved the reading of musical pages. His code was based on adding two more dots to the system (using eight instead of the six dots used in the Braille code) so that the possibilities for combinations increased significantly, going from 63 offered by the Braille system ($2^6 = 63$) to 256 ($2^8 = 256$), which included the empty cell. Abreu's system offered the possibility to write all the different musical symbols and lyrics simultaneously.

In Abreu's code the columns are arranged in two lines of four dots instead of two lines of three dots as in the Braille code. In Braille, the dots are numbered (1,2,3, the dots of the left column) and (4,5,6, the ones in the right column) but Abreu numbered the dots differently, following a horizontal order from top to bottom, that is to say, dots 1-2 (both dots of the first row up), dots 3-4 (the second row), dots 5-6 (the third row) and 7-8 (the fourth row).

This system was different than what was commonly used at the time, or even afterwards by blind musicians. Commonly dots were identified as in the Braille system, that is: 1-2-3 (the dots of the left column) and 4-5-6 (the dots of the right column), following a vertical order. Last but not least the addition of two more dots in this system (dots 7-8 in Abreu), would also be identified differently afterwards by blind musicians who used both systems, Braille and Abreu. They would finally identify these dots as the bottom line (4, the last of the left column and 8, the last of the right column).

Currently the Braille music code has allowed all musical symbols to be represented using diverse combinations and changes (sometimes two or three different combinations are necessary to represent one sound), but Abreu's outstanding contribution was to give each sound its correspondent combination without having to over-complicate the process. This means that each element of music had its corresponding symbol and it was not necessary to combine several symbols to represent a sound or a specific group of notes. This made not only the reading of the music but also the writing much easier.

Another important fact was that the system reserved the four upper dots to represent musical notes and the four lower dots their beats. As in ink-printed sheet music, each syllable was written under its corresponding note. This was not completely possible in the Braille system or, at least, not in the clear way it could be done in the Abreu system.

4. Gabriel Abreu Castaño, *Sistema de escribir la música en puntos de relieve, con real privilegio de invención, dedicado a los ciegos*. Madrid: Establecimiento Tipográfico de Mellado, 1856.

5. Pedro Llorens y Llachós, *Nuevo sistema para la instrucción de los ciegos con el que se los enseña a leer y escribir con caracteres comunes, y de música, por medio de la combinación de signos*. Barcelona: Imprenta de Juan Roger, 1857.

Con objeto de simplificar la esplicacion de las notas y demas signos musicales, he creido conveniente numerar los ocho puntos que forma cada hueco de nuestra rejilla, señalando con el 1 y 2 los dos puntos de la primera série, que es la mas alta, contados de izquierda á derecha: 3 y 4 los de la segunda: 5 y 6 los de la tercera y 7 y 8 los de la

cuarta




FIGURE 1 Abreu's 8 dot code. An extract from his *Sistema de escribir la música en puntos de relieve, con real privilegio de invención, dedicado a los ciegos*. Madrid: Establecimiento Tipográfico de Mellado, 1856, page 17.

As in the Braille system, Abreu started with the combination of the letter “d” to represent the note Do (middle C) and continued until the letter “j” represented Si (B)⁶. Since he was born in Europe (as Louis Braille), he referred to music notes in the traditional *solfège* system of syllables (do, re, mi, fa, sol, la, si) which was useful for learning different combinations as the first one started with letter “d” of the Braille alphabet.

Measures were represented with the combinations of the four lower dots (5,6,7 and 8) in the original way of Abreu's system⁷. For example, the whole note was like letter “d” (dots 5,6 and 8), the eighth note was like letter “c” (dots 7 and 8).

The Abreu system was very precise and clear, leaving no room for doubt about the pitch, duration, and text on a particular note. From the very first it became very popular and was well received among the blind students who were learning Braille at the time, and it was particularly used in Madrid (although it was known all over Spain).

Though Abreu's system was only a music code, we must recognize the merits of his invention. The code was deemed valid and used in the National School for the Deaf and the Blind of Madrid until the middle of the twentieth century, that is to say, for a hundred years after its creation. Even today, older blind musicians remember learning this code when they were children (along with the Braille code) and all agree in pointing out the advantages of the Spanish code compared with the French code.

6. The traditional way of naming the notes in the *solfège* (do, re, mi . . .) was very useful for the understanding of the different combinations. The first note of the scale, middle C (Do), started with the dot combination of letter “d” of the Braille alphabet.

7. Many blind musicians who were still using Abreu's system before the definitive adoption of the Braille code to read and write music, did it with a modified version of his way of naming the dots : 1-5, 2-6, 3-7 and 4-8, instead of Abreu's original way, previously explained.

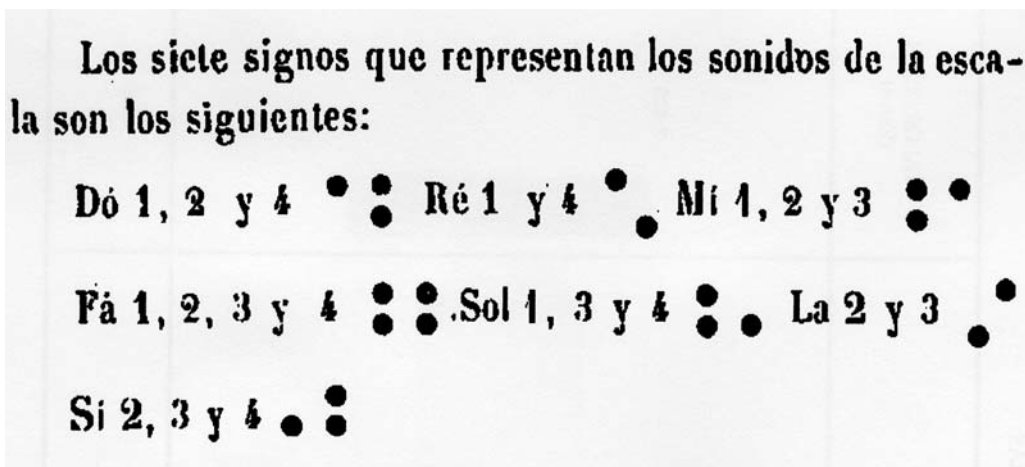


FIGURE 2 Coding the *sofège* system. An extract from his *Sistema de escribir la música en puntos de relieve, con real privilegio de invención, dedicado a los ciegos*. Madrid: Establecimiento Tipográfico de Mellado, 1856, page 18.

The other Spanish music code for the blind was invented by Pedro Llorens y Llatchós, sighted teacher of the Municipal School of Music for the Blind in Barcelona. Llorens was a contemporary of Abreu who designed a whole system for reading and writing which could be used not only in music but also in literature. His system, very similar to many other codes used at the time in Europe (as well as some of the U.S which we will discuss later on), consisted in embossing letters of the Roman alphabet and punctuation symbols. To write music he used straight lines, curves and other obliques as well as some dots. This system enabled him to represent quite well musical notes, measures and anything else that could appear in a conventional music piece. It's said that he was inspired by Ramón Payrot's system⁸, though he was perfectly familiar with all the different systems for reading and writing, musical or not, that were being used in Europe and America—Mahony, Moon, Wait, Ballu, etc—. This proves his constant efforts to find the most effective and appropriate methods for teaching the blind.⁹

Llorens' system is based on using capital letters from the Roman alphabet for its literary format. Most symbols are almost identical to the letters but others are just simplified signs with some dashes omitted to avoid confusing the blind reader. The same was done with numbers. Basing himself on Arabic numeration, Llorens changed or simply modified certain numbers. From his point of view, the blind could learn a series of lines, curves or letters while the sighted would immediately understand the symbols. His belief was that this system could be easily learnt by the blind and even more by the sighted than Braille or any other raised dot code which he always found difficult to understand and overly

8. Francisco Valls y Ronquillo, *Memoria relativa a la Escuela Municipal de Ciegos y Sordomudos de Barcelona*. Barcelona: Tipolitografía de los Sucesores de Narciso Ramírez y Rialp, 1888, p. 30.

9. Rafaela Rodríguez Placer, *Apuntes sobre pedagogía especial de ciegos*. Madrid: Colegio Nacional de Sordomudos y Ciegos, 1929.

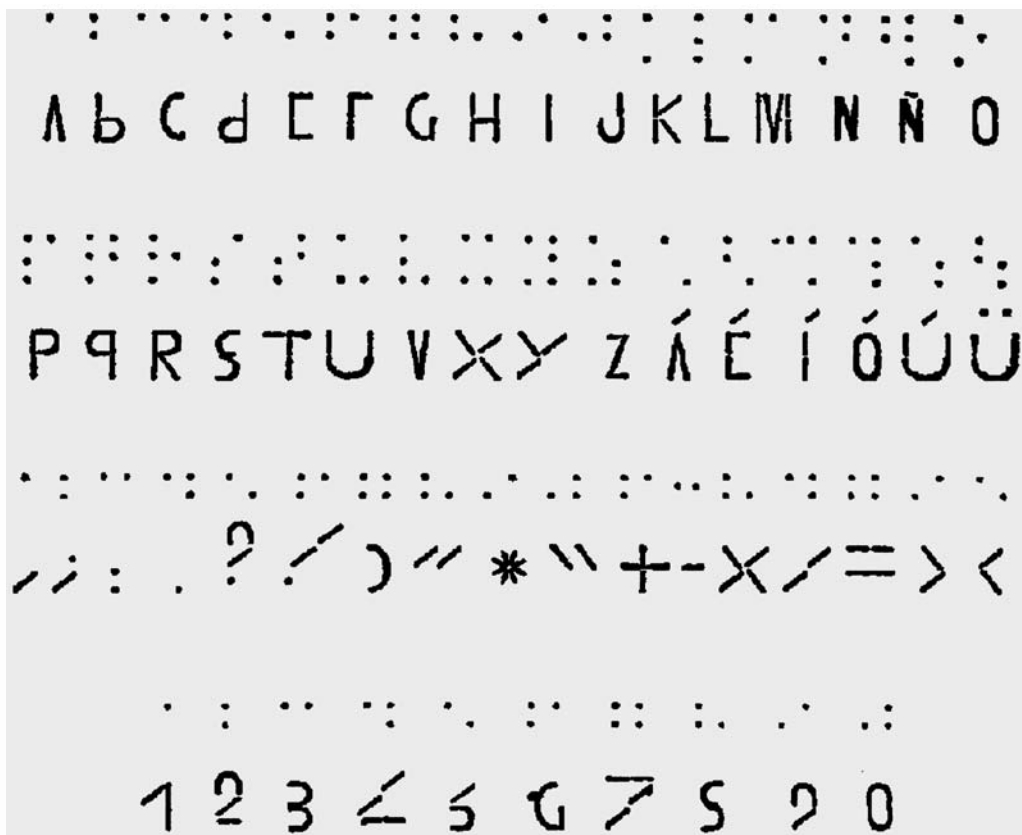


FIGURE 3 Llorens' code below the same character in Braille. An extract from his *Ventajas e inconvenientes de los sistemas de escritura ideados para uso de los ciegos, y en particular, de los adoptados para su enseñanza*. Barcelona: Establecimiento Tipográfico de Narciso Ramírez y Rialp, 1865, page 43.

complicated. In his system, the middle lines on the letter A, Á, E, É and F are frequently (but not always) eliminated, the letters B and D are only given in lower-case version, and numbers 4, 5 8 and 9 are simplified. Letters G and S are very similar (almost identical) to numbers 6 and 8. The main difference is that number 6 is represented with letter G and a small line in the middle of the character and something similar happens with number 8 which is represented like an S with a small line across, like in the following examples.

To read and write in this system, Llorens designed a slate similar to existing ones, which allowed him to write all the capital letters of the Roman alphabet, created with embossed lines as well as the Braille dotted code. To avoid confusion, some symbols were broken down. The final result was hundreds of new symbols that now had a new meaning; a musical one. To achieve this Llorens mixed vertical, horizontal and oblique lines combined with dots that were easily recognized. Many other symbols were needed to represent measures and duration, accidentals and dynamic signs. Other special symbols, like those used to indicate the octaves or the key, had to be positioned before the first note in

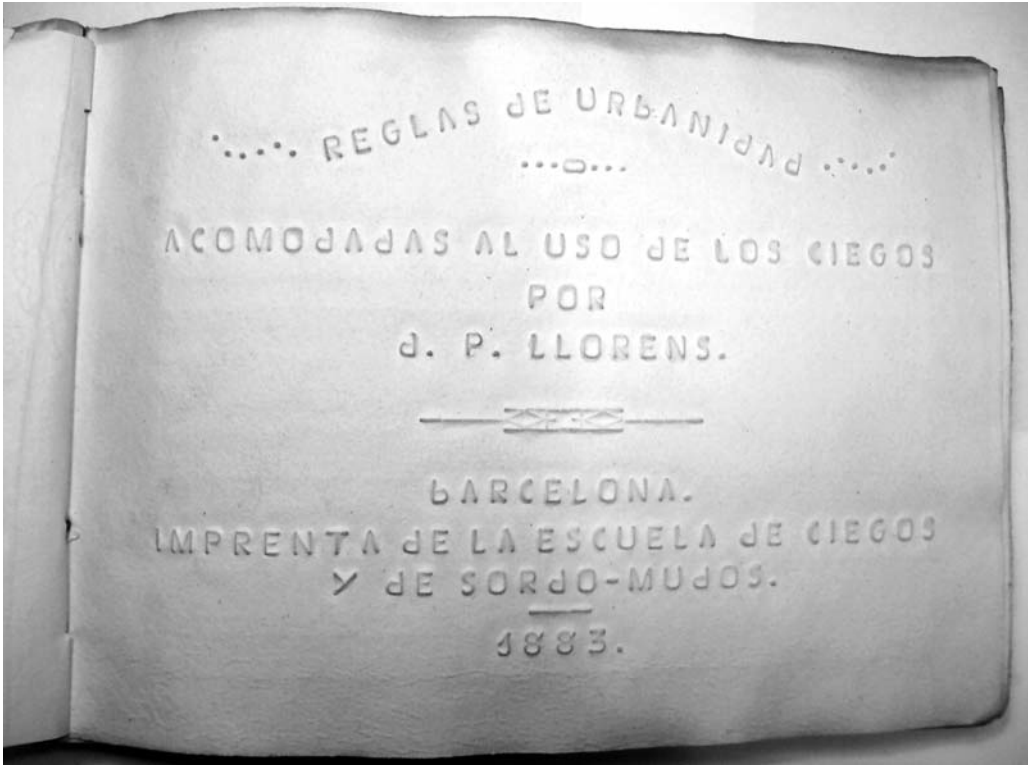


FIGURE 4 Pedro Llorens y Llachós. *Reglas de urbanidad*. Barcelona, Imprenta de la Escuela de Ciegos y Sordomudos, 1883. Title page.

the music passage. This is, in fact, identical to the Braille signs that stand for the staff in all the different embossed systems.

In his defense we could confirm that his method for writing music was very concise. It was almost impossible to make a mistake using the slate and square when writing all the symbols. You could hardly write something different if the tools were correctly used. The most immediate result was that the system could be quickly learned. If one learned how to write the letters, one immediately learned how to write the music, something that was not possible with the Abreu or Braille codes.

Before he began to implement his system, Llorens presented it to different associations and committees for assessment. Through his works¹⁰ (1857, 1865, 186-?) we have know of his relationship with the *Institution Royale des Jeunes Aveugles* of Paris¹¹, where he sent his

10. Pedro Llorens y Llachós, *Nuevo sistema . . .*, 1857; *Ventajas e inconvenientes de los sistemas de escritura ideados para uso de los ciegos, y en particular, de los adaptados para su enseñanza*, Barcelona: Establecimiento Tipográfico de Narciso Ramírez y Rialp, 1865; *Aparato de Braille modificado y procedimientos para la enseñanza literaria y musical de los ciegos*. [S.l: s.n.], 186-?.

11. The *Institution Royale des Jeunes Aveugles* founded in 1784 in Paris by the philanthropist Valentin Haüy became the most important school for the blind in France and a reference for the rest of the countries.

method for evaluation. Later critics argued that his system was not a good method for the blind as it was repeatedly shown that blind individuals perceive a raised dot better than a continuous line (always inside the margin of the fingertip). For this reason, Llorens' system and other similar ones, were soon abandoned (as also happened with the American embossed letter codes).

Nevertheless, since Pedro Llorens exhibited it in 1855, the same date as his colleague and competitor from Madrid Gabriel Abreu, the system existed and was used in the Municipal School for Music for the Blind of Barcelona until the end of the nineteenth century. The long life of this master, who taught at the school for more than forty years, lent a certain fame to his system that was still used even after his death. It wasn't until 1918 that the Braille system was officially adopted by the school.

The systems shown in figure 5 were used in different cities and schools throughout France and Spain. Although Braille's system and Abreu's seemed to be very similar (Abreu's with 2 more dots), Llorens music system was especially clear for sighted people, not so much for the blind. As we can observe he used oblique lines to express the different notes (see the semibreves or whole notes) but reversing them as we can observe with sounds Do and Fa, or Re and Mi (the same signs) but in different positions (lower and upper). It was easily to recognize by the sighted teachers.

Pedro Llorens defended himself before his critics by claiming that his code was more dynamic than the dotted ones as information could be communicated quicker, and it was not necessary to make a previous analysis of the document, as happens with the Braille code. Llorens' system permitted a faster reading. This information is something we have been able to prove with other opinions about different methods of learning.¹² To these advantages he added the economy of his slates and rules that, if followed, offered clear messages and made errors almost impossible. He was always a strong defender of his system and probably, aside from issues regarding his suitability, his main failure, inspired in Valentin Haüy's idea was to claim that "*the blind must, in their learning, approach the world of the sighted*" and not the other way¹³. Therefore it is not unusual to find parallels with the early American codes that, still represented music as was common among sighted individuals. Staves, keys and all the notes and accidentals were all represented exactly the same as it was in ink but was now embossed. Pedro Llorens did something very similar but not so immediately noticeable. The code he designed had to be known and understood before singing, playing an instrument, or composing. His method, as happened with Abreu's, survived him some years after his death and was still used at the beginning of the twentieth century in the Municipal Music School for the Blind of Barcelona, though the Braille system had been officially accepted.

The First American codes

The first founders of the education of the blind in North America came to prominence in 1820 (John D. Fisher, Samuel G. Howe and Julius Friedlander). These men travelled to Europe to learn, personally, what work was done in institutions created specifically for the

12. Domingo Bonet, *Ventajas e inconvenientes del sistema de escritura Mascaró con el de Llorens para uso de los ciegos por el profesor de la Escuela de Ciegos y Sordomudos de Barcelona*. Informe de Domingo Bonet de 31 de enero de 1896. K140/U3. ACIME.

13. Pedro Llorens, *Ventajas e inconvenientes* . . . 1865, p. 42.

Semibreves.							
	do	re	mi	fa	sol	la	si
Sistema BRAILLE.	⠠	⠢	⠠	⠠	⠠	⠠	⠠
Sistema ABREU.	⠠	⠢	⠠	⠠	⠠	⠠	⠠
Sistema LLORENS.	\	—	—	/	┘	┘	┘
Mínimas ó blancas.				Semínimas ó negras.			
⠠ ⠠ ⠠ ⠠ ⠠ ⠠ ⠠				⠠ ⠠ ⠠ ⠠ ⠠ ⠠ ⠠			
⠠ ⠠ ⠠ ⠠ ⠠ ⠠ ⠠				⠠ ⠠ ⠠ ⠠ ⠠ ⠠ ⠠			
\ — — / ┘ ┘ ┘				\ — — / ┘ ┘ ┘			
Corcheas.				Semicorcheas.			
⠠ ⠠ ⠠ ⠠ ⠠ ⠠ ⠠				⠠ ⠠ ⠠ ⠠ ⠠ ⠠ ⠠			
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\ — — / ┘ ┘ ┘				⠠ \ — — / ┘ ┘ ┘			
Fusas.				Semifusas.			
⠠ ⠠ ⠠ ⠠ ⠠ ⠠ ⠠				⠠ ⠠ ⠠ ⠠ ⠠ ⠠ ⠠			
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FIGURE 5 Comparison of the Braille, Abreu, and Llorens systems. Pedro Llorens y Llachós, *Nuevo sistema para la instrucción de los ciegos en el que enseñar a leer y escribir con caracteres comunes, y de música, por medio de las combinaciones de signos*, Barcelona: Imprenta de Juan de Roger, 1857, page 19.

blind and the deaf. The story of Valentin Haüy and his alphabetic raised code for the education of the blind, created towards the end of the eighteenth century, the creation of the *Institution Royale des Jeunes Aveugles* in Paris, the twelve-dot code of Charles Barbier later adapted by Louis Braille, were all well-known European references that the American masters considered when creating their own schools.

The first American institutions founded for the attention and care of sense-disabled people (blind, deaf, deaf-mute) were located on the East Coast: The New England Asylum for the Blind in Boston, Massachusetts, which would some years later become the *Perkins School for the Blind*, the Pennsylvania Institute for the Instruction of the Blind, and the New York Institution for the Blind.

These schools were in charge of developing the first original codes and systems appropriate for the education of blind students. The schools' founders met some of the most relevant educators for the blind in Europe like Louis Braille, William Moon and Thomas Armitage,¹⁴ of whom they learnt that teaching music was extraordinarily important.

Samuel Gridley Howe, a pioneering educator from Boston, Massachusetts, travelled to Paris in 1832 and visited the *Institution Royale des Jeunes Aveugles*. Very impressed by the school and the services given to its students, Howe returned home and decided to develop an alphabetic embossed code to teach the blind. From now on it would be known as the Boston Line Type and from 1835 to the end of the nineteenth century it would be the main code used in the Perkins School for the Blind. This raised alphabet was based in angular roman letters, without capitals. The odd diamond-shaped a, d, and o, and the generous spacing among the letters, gave the embossed books a special beauty. Many books were printed with this type, including a beautiful Bible of 1842¹⁵. Howe was convinced that his code was better than the ones he had observed in Europe, though he was very impressed with the different types he had seen. When designing his code Howe was probably inspired by the work of Britain's James Gall, though his result was more similar to angular letters.¹⁶ The printer Stephen Preston Ruggles was in charge of designing these new types (his press was always linked to the Perkins School for the Blind) even though raised letters books were not as successful or as accepted as later dotted embossed books.

The raised-letters systems were eventually replaced by dotted-embossed systems (as happened in Europe) as they were difficult to read and understand, especially by the blind who were the main target of these codes. Nevertheless, Ruggles' press was active and producing books in Boston Line Type or Samuel G. Howe's system until 1881, so for 46 years Boston students—and many others from other states—were taught under this system.

However, in 1858, the American Printing House for the Blind in Louisville, Kentucky, began to operate. It was associated from the very beginning with the Kentucky School for the Blind, which produced its first book in 1866, and, from 1879 was responsible, and also

14. Sylvia Clark, "Music Literacy: its Role in the Education of the Blind", M.A. Thesis, University of Texas Pan American, 2007, p. 51–52.

15. To know more about this types See <http://www.haroldfonts.com/boston-phila.html> (accessed March, 4 2010).

16. See Carol B. Tobe, "Embossed printing in the United States", *Braille Into the Next Millenium*, Washington D.C.: National Library Service for Blind and Physically Handicapped Individuals; Friends of Libraries for Blind and Physically Handicapped Individuals in North America, 2000, 40–72. See also Pamela Lorimer, *A critical evaluation of the historial development of the tactile modes of reading and an analysis and evaluation of researches carried out in endeavours to make the Braille code easier to read and to write*, Thesis submitted to the Faculty of Education and Continuing Studies, The University of Birgmingham, 1996.

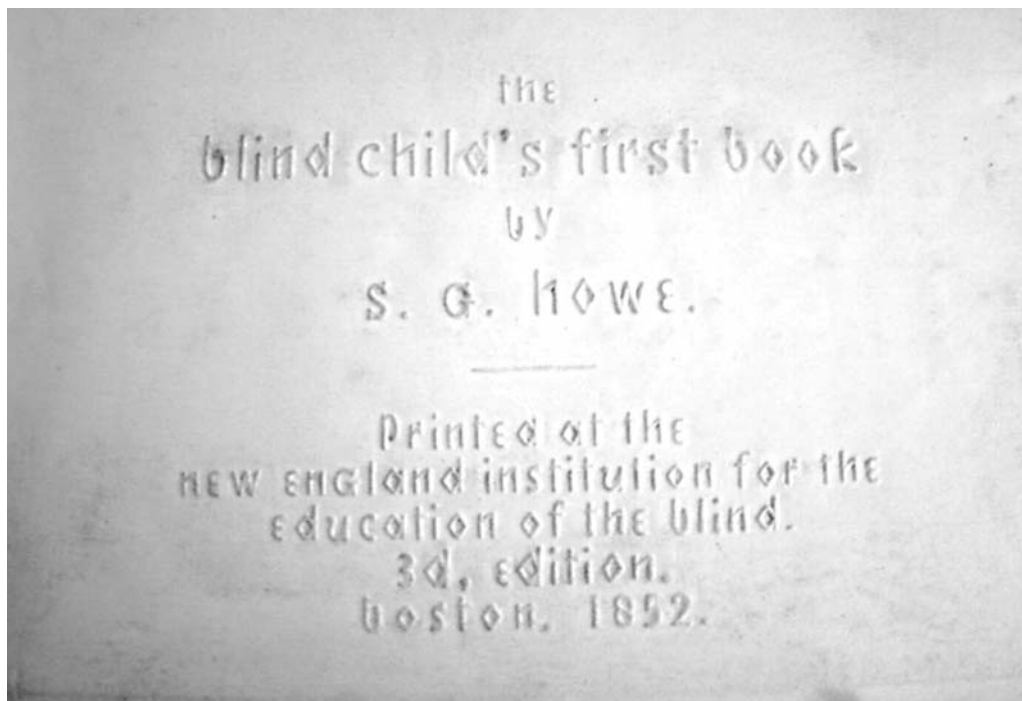


FIGURE 6 A title page written in Boston Line Type. S. G. Howe, *The Blind Child's First Book*, 3rd edition, Boston, Massachusetts: New England Institute for the Education of the Blind, 1852, title page. (Pictures by the author. Courtesy of the Samuel P. Hayes Research Library, Perkins School for the Blind)

the official site, for printing education materials for the blind in the U.S. Books in Boston Line Type, New York Point and in Braille (among other codes) were produced there. It has been criticized,¹⁷ and not without reason, that for a time there were too many codes coexisting with one another. Each town used a different system and the blind were almost obligated to learn them all wherever they went. This was, evidently, not at all practical.¹⁸

Although Samuel G. Howe was aware of the importance that music had in the education of the blind, he never developed a specific system to teach it. We haven't found scores written in his system but we have observed that using his alphabetic code, several music methods and European music treatises were copied.¹⁹

17. Sylvia Clark, *Music Literacy* . . . page 2.

18. See *Historical Document: The War of Dots* by Richard Irwin (1955), in New York Institute for Special Education: <http://www.nyise.org/blind/irwin2.htm> (accessed February 7, 2010)

19. For example, in his *Lesson in Music History* (Boston, The Howe Memorial Press, 1898), Fillmore used raised letters and embossed music signs to express music. This book was a common manual used in the Perkins School for the blind for a long time with the unsighted students. The book remains in the Archives of the Samuel P. Hayes Research Library in the Perkins Institution. See figure 12.

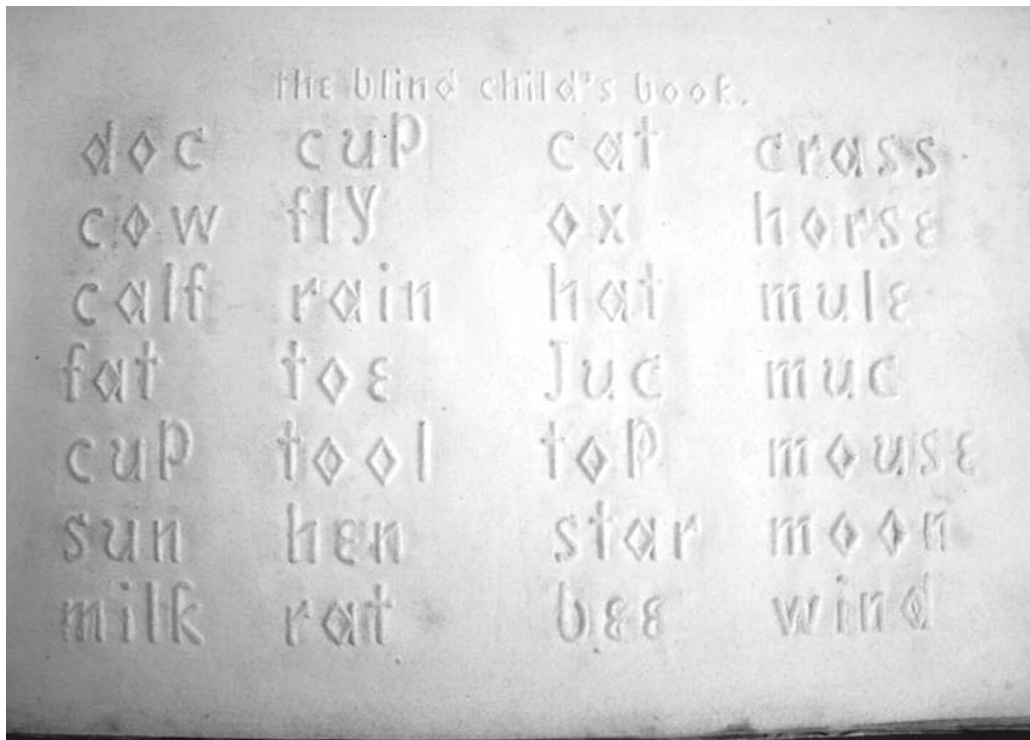


FIGURE 7 A page written in Boston Line Type giving simple 3-, 4- and 5-letter words. S. G. Howe, *The Blind Child's First Book*, page 2. (Picture by the author. Courtesy of the Samuel P. Hayes Research Library, Perkins School for the Blind)

Most books on musical education (Musical Theory, History of Music, Exercises) shelved in the archives of the Samuel P. Hayes Research Library were made in Boston Line Type, as well as other examples that were prepared in Philadelphia before the end of the nineteenth century. Interestingly we can confirm the acceptance and use of Mahony's System, developed in 1853, for music teaching.

Cornelius Mahony had lost his sight as an adult so his visual sense of music was still present in his new embossed "scores". Mahony, a graduate of the New York Institution for the Blind, developed a musical system similar to the antique tablatures. He used the letters of the alphabet to name notes or sounds, and to express their durations different flags were added to the eighth notes. Other lines and dots, vertical and horizontal, were also used to express musical symbols. Keys were also designated with letters; "T" for Treble and "B" for Bass. Other indications such as measures, slurs, dynamics, accidentals, etc, all used the same characters as in ink-printed sheet music. Visually, the music appeared much more compressed, than any other system, on the page which the author appreciated, believing it saved space. Mahony also used some raised conventional music signs which were probably difficult to understand by the blind. However, the system was very well received and Superintendent Howe recommended its use to all the different schools

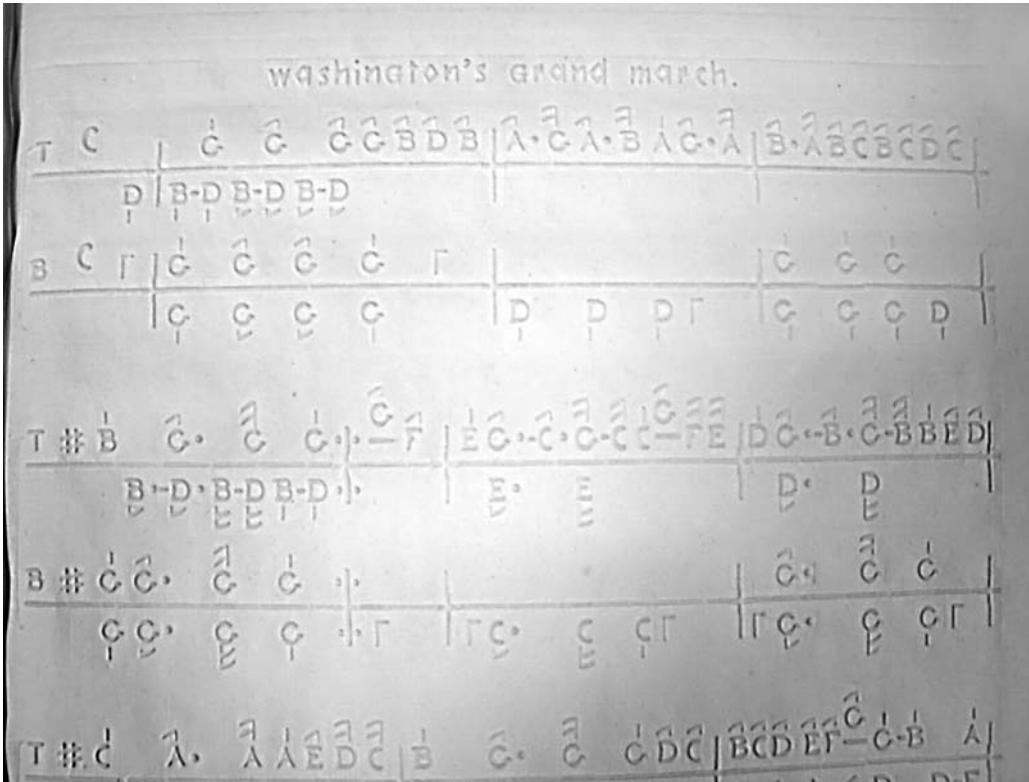


FIGURE 8 *Washington's Grand March* encoded in Mahony's *The Self Instructor for the Piano-forte*, Philadelphia, Institution for the Blind, 1853, page 7. To listen to this tune, <http://www.pdmusic.org/1800s/16wgm.mid>. (Picture by the author. Courtesy of the Samuel P. Hayes Research Library, Perkins School for the Blind).

for the blind as we can read in a page of Mahony's work dated in 1853.²⁰ In Mahony's System, note the "T" and "B" at the beginning of the first system, the indications for the note durations and the accidentals at the beginning of the second and third systems.

Another code, contemporary to Howe's, was developed by Julius Friedlander, Superintendent of the Pennsylvania Institute for the Instruction of the Blind (1832)²¹ and known as Philadelphia Line²². His embossed system consisted entirely of capital letters. It was

20. Samuel G. Howe, Superintendent of the Perkins School for the Blind, wrote an introduction to Mahony's book *The Self Instructor for the Piano-forte* (Philadelphia, 1853), where he expressed the agreement of the Convention of Superintendents, which had been held in New York from 16–19 August 1853, and their acceptance of Mahony's system for music instruction. Howe also admitted that this system had many advantages for the blind over the system in present use. He even recommended all the institutions to purchase copies of Mahony's Method.

21. To know more about this Institution See *The History of our School* page in: <http://www.obs.org/page.php?ITEM=106> (accessed March, 4, 2010).

22. Some more information about Philadelphia fonts can be seen at: <http://www.haroldfonts.com/boston-phila.html> (accessed March, 4 2010).

very similar to the British code developed by Alston²³. Years later after Friedlander's death in 1839, William Chapin, Principal of the Pennsylvania Institute for the Instruction of the Blind advocated the creation of a single system combining the angular, lower case letters of Boston Line Type with Philadelphia Line's capitals. This was known as Kneass Combined Letter²⁴.

In 1834, Philadelphia was the first place in North America where a raised book was printed. Jacob Snider, Jr., was the printer and it was titled *The Gospel according to Saint Mark*.²⁵ The book was made using roman fonts similar to the ones the founders had seen in France. We can't ignore the fact that Julius Friedlander was born in Germany and was probably personally familiar with all the different European codes before he developed his own system. We don't have proof that his alphabetic system could have been used to teach music but we can confirm that both of these codes, Boston Line Type and Philadelphia Line had certain similarity with the Spanish code developed by Pedro Llorens of Barcelona, as his roman capital letters cannot help but remind us of the American ones, although Llorens went further with his system and developed (as we saw before) a whole system for representing the musical symbols.

Even though these alphabetic codes didn't develop a musical system (with unique symbols) what they certainly did was transcribe music books for their students to use as we can see in the next picture (fig. 9). This copy is in "Kneass Combined Letter". This printer returned to the roman-based embossed system using capitals and lowercase letters. All of them were apparently softer than Boston line types, much more angular.

The New York Point System (1866), developed some years later after Howe's Line, was also known by the name of his inventor, Dr. William Bell Wait. Since 1863, Wait had been the Superintendent of the New York Institution for the Blind, and he also created his own sign-graphic code. This time we find a raised dot code, organized in a different manner to the Braille code. Wait believed that Braille's code wasted too much space between dots. He decided to organize his system differently. Wait's code used a horizontally oriented dot system with a variable base that was more compact than Braille, with the dots in Wait's system being considerably closer to one another. The dot structure consisted of two points vertically and one, two, three or four points horizontally. He avoided some punctuation signs and took time to develop all capitals letters (26), all small letters (26), numbers, punctuation marks, and short forms for diphthongs, triphthongs, contractions and other symbols commonly used. Wait created a far more compact system compared to that of the Braille code, but unfortunately it was not a true and reliable transcription of an original text. However, in spite of its frequent lack of capitals and punctuation, it was hailed as an improvement over raised alphabet codes.

In 1871, members of the American Association of Instructors of the Blind (AAIB) endorsed Wait's code and recommended its use throughout the country, and in 1872, William B. Wait enlarged his code to include music, achieving a great success. In this treatise, published one year later (1873), the author analyses and compares all the features of

23. Pamela Lorimer, *A critical evaluation* . . . p 44. See also *Reading Codes for the Blind*, the website of the New York Institute for Special Education: <http://www.nyise.org/blind/gall.htm> (accessed March, 4, 2010)

24. Carol B. Tobe, "Embossed Printing . . ." p. 43.

25. Carol B. Tobe, "Embossed Printing . . ." p. 43.

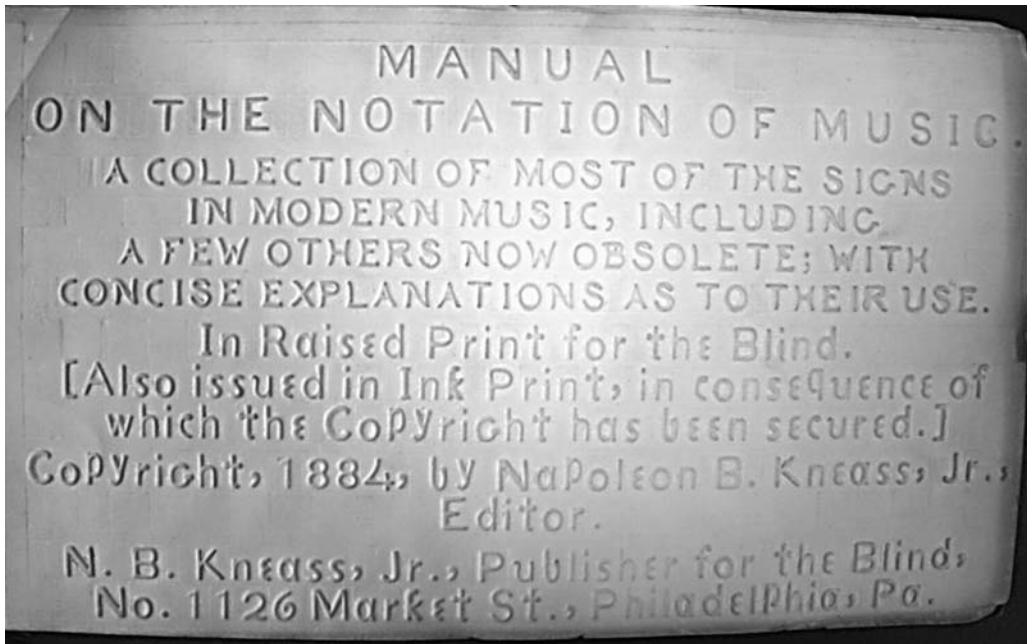


FIGURE 9 Napoleon B. Kneass, Jr., *Manual on the Notation of Music: A Collection of Most of the Signs in Modern Music, including a Few Others now Obsolete; with Concise Explanations as to their Use*, Philadelphia: N.B. Kneass, Jr., 1884, title page. (Picture by the author. Courtesy of the Samuel P. Hayes Research Library, Perkins School for the Blind).

his method with Braille's, explained through many examples.²⁶ Years after he also wrote different treatises on piano techniques (1877) and notations for harmony (1888).

William B. Wait was also the inventor of two innovative machines: the Kleidograph (a machine for embossing his code on paper, similar to a typewriter) that avoided the tedious use of the slate and stylus, and later the Stereograph (a machine for embossing the metal plates, later used in press for books). He even developed another machine capable of embossing the New York Point on both sides of the leaf, instead of only one, which has now become known as interpoint. Because of the advantage of his inventions, The Franklin Institute of Philadelphia awarded Wait the "John Scott Medal" in 1900.²⁷

Back in Boston and two years after Wait's invention of his system, the blind piano-tuning teacher at the Perkins School, Joel W. Smith, created an alternative code in 1869. Although the official reading system at Perkins was still the Boston Line Type, many students found it difficult to read and even more to write unless they had good equipment. Perkins School for the Blind new director, Michael Anagnos, asked this teacher to create

26. William Bell Wait, *The New York System of Tangible Musical Notation and Point Writing and Printing for the Use of the Blind*. New York, Bradstreet Press, 1873.

27. Biographical sketch of William Bell Wait. "The Inventor of the New York Point System of Writing for the Blind", New York Institute for Special Education, <http://nyise.org/text/wait.htm> (accessed February 8, 2010).

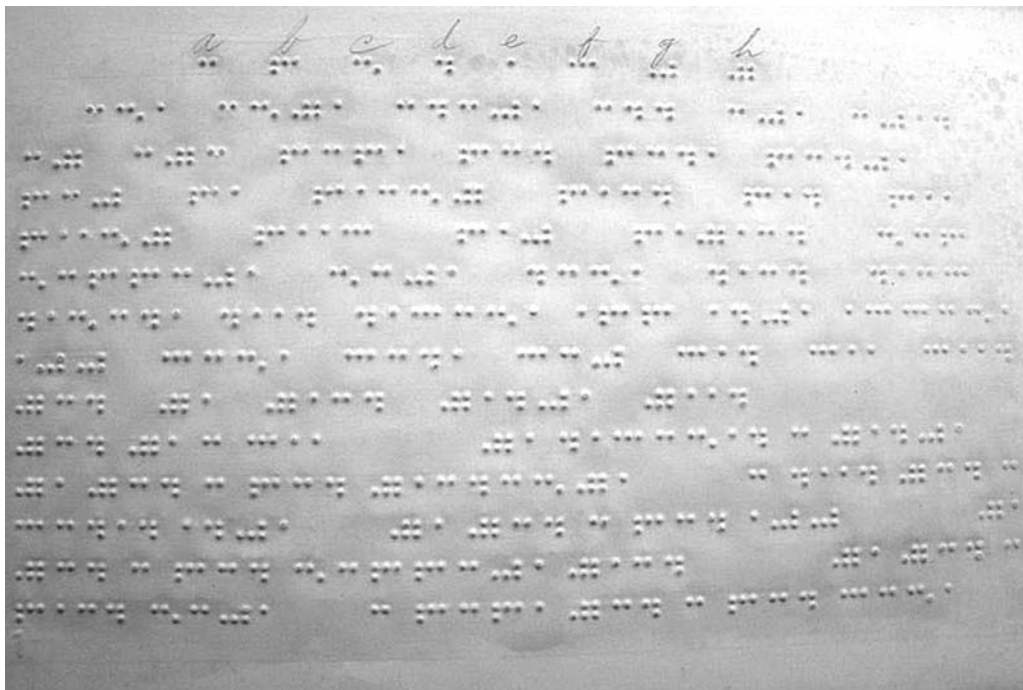


FIGURE 10 New York Point System. (Picture by the author. Courtesy of the Samuel P. Hayes Research Library, Perkins School for the Blind).

another code which was closer to the raised dot system. This new code was called American Braille or Modified Braille. It managed to be a halfway point between the New York Point and Braille codes. We could say that Smith took the best of each one while making use of word contractions. This was quickly accepted by the students of the Perkins School for the Blind and students of many other.²⁸ It was used for years though the American Association of Instructors of the Blind (AAIB) rejected it on several occasions (Smith presented it for the first time in 1878). The code was valid for many years until the final adoption of a single code: the Braille code. In adopting a single code, all the derived codes, (Grade 1, Grade 1½, Grade 2, American, American/Canadian, English, etc), were dropped. Another important aspect of this new code was that it was also used to write music, as can be quickly realized after looking at some scores kept in the Library of the Talking Book in the Perkins School for the Blind.

To summarise, all these codes explained beforehand were systems used throughout the nineteenth century in the United States for general education and, in some cases, musical education. Music has always played an important role in the lives of blind individuals. In America, as in Europe, music was taught with all the methods and tools that were available at the time. Although the Braille code had already been invented and was widely

28. Holly L. Cooper, "A brief History of Tactile Writing Systems for Readers with Blindness and Visual Impairments", *See / Hear*, 11/2 (2006), Page 13.

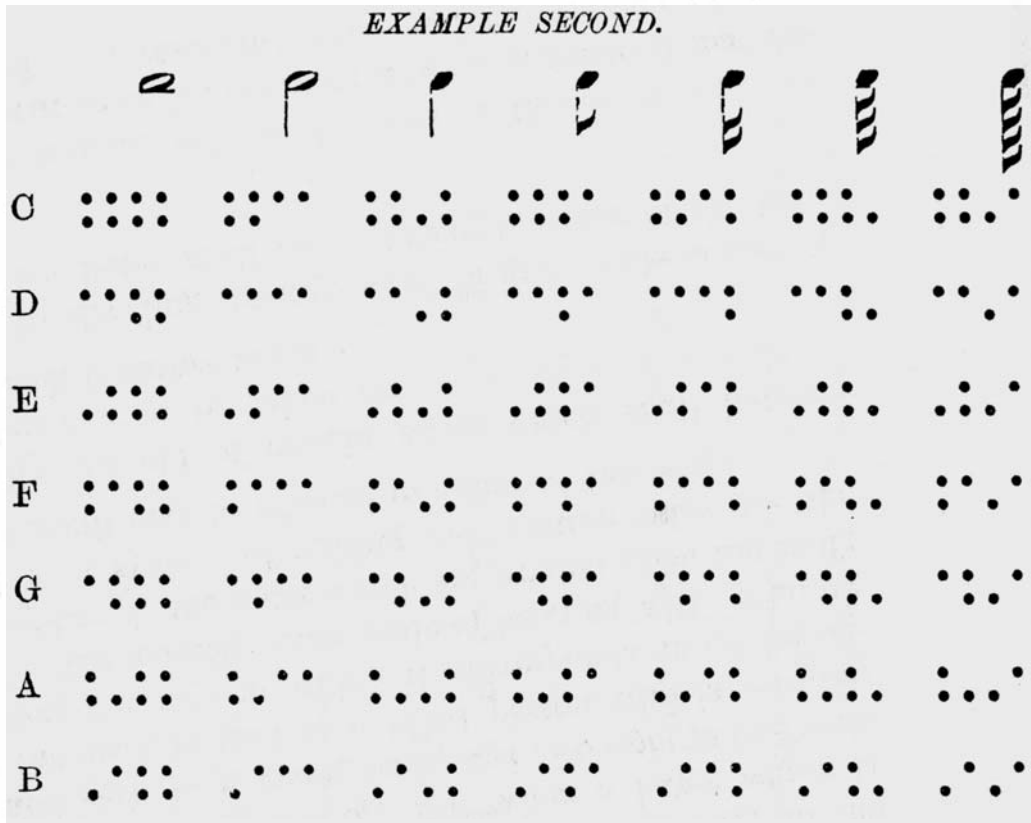


FIGURE 11 William Wait, *The New York System of Tangible Musical Notation and Point Writing and Printing for the Use of the Blind*. New York, Bradstreet Press, 1873, page 6.

known during those dates, many years had to pass until Brailled was definitely accepted in the United States (also for music).

As Josephson admits in his work (1959), the first school to adopt the Braille code in the United States was Missouri Blind School in St. Louis in 1866 although Dr Pollack, founder of the school, had introduced it in 1859.²⁹ The Missouri Blind School was also an exception when compared with the rest of the nation's schools. The adoption of the Braille code by the rest of the country was something that happened gradually. It was not until 1916 that the Braille code was unanimously accepted in a single code by all other states.

Therefore, considering our initial purpose of establishing parallels between sign-graphic codes for the blind of both countries, we can point out several aspects. Four of the systems (Llorens, Philadelphia, Boston and Mahony) shared an embossed letter writing system while other four (Abreu, Llorens, New York and American Modified Braille), used raised dot systems. Even some of them used something like a "mixture" of both systems

29. P. L. Josephson, *History of the Music Notation for the Blind, it's development and problems, embossed type*. Unpublished term paper / teacher training course paper, Boston: Perkins School for the Blind, 1948, page 3.

(Llorens and Mahony)³⁰. But if there's something absolutely unanswerable is that two of the systems, the Spanish Abreu's 8 dot code and the American Mahony's were devised *only* for music. Others, by the contrary, were invented to instruct reading and writing to the blind (Boston Line Type and Philadelphia Line), though these also adopted other musical raised signs when writing music lessons or exercises³¹. There were even those that offered the possibility of learning how to read and write as well as music (Llorens, New York Point, American Modified Braille). We should also note as an important difference compared with the American codes, the use of the 8 dot system by Gabriel Abreu in Spain. This systems offered a lot more of combinations and possibilities than the other raised dot codes.

As we can see, there are parallels and differences between all these. Finally, we can say that there are references of all the systems in different special libraries and historical archives³².

Conclusion

During the first half of the nineteenth century there was a significant societal trend which aimed to provide education to the disabled (mainly the blind and the deaf) that would ultimately result in the creation of many schools and institutions in various countries. All these schools began with different programmes to provide their students with not only general education but also a variety of different skills that would allow them to learn a trade. Music played an important role in these institutions, all of which included music teaching in their students curricula. Music was not only valued as entertainment but also as a viable and important future profession for the students of these institutions. Thus these schools had their hand in preparing organists, pianists, teachers, tuners, etc.

Two Spanish systems, by Abreu and Llorens, came out in the mid-1800s and competed with each other in fame and in public recognition. Both were used in the education of the blind in Spain until the middle of the twentieth century.

In America, both raised-letter and raised-dot systems were introduced, often with use in a relatively small locale. The New York Point and American Modified Braille systems were raised-dot codes that met with success in the U.S, proving what most specialists knew: the blind learn better with a continuous dot system than with a discontinuous line system. It is worth pointing out that though American dot codes were different to the Spanish dot code created by Abreu, they all share the basic principle of relying on the

30. Llorens system is a variable always considered as it permitted combining letters, dots, oblique lines and many other different kind of signs.

31. As it was explained before, most of the musical books produced in the Perkins School for the Blind since Samuel G. Howe was the Superintendent till the beginning of the twentieth century, were printed in raised letter code with embossed music examples, perfectly recognizable by the sighted people.

32. S.B.O. (Servicio Bibliográfico de la Once) in Madrid keeps most of the unique Abreu's scores and Llorens books. The museum of ONCE, *Museo Tifológico* de la ONCE, also shows some of these documents as well as the typewriters, slurs and slates and all the necessary things to write. *Samuel P. Hayes Research Library* (Perkins School for the Blind, Massachusetts) also keeps most of the material previously expressed. Books in Boston Line Type and American Modified Braille can be seen there. It's museum also shows other interesting codes and different machines for playing games or doing music. Gutman Library in Harvard Campus, Cambridge, Massachusetts, has also some interesting books written in Boston Line Type and Houghton Library, also in Harvard Campus, offers old books and manuscripts.

raised dot system. All these different dot codes were based on the Braille code, which was known in Europe from a very early date (1829)³³ but was not officially recognized in France until 1854. It was known in the U.S and the creators of the American codes were clearly inspired by it when developing their own systems, as we have observed in this work.

33. Louis Braille, *Procédé pour écrire les paroles, la musique et le plain chant au moyen de points, à l'usage des aveugles et disposés pour eux*. Paris, [s.n.], 1829.