



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### **Usage guidelines**

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### **About Google Book Search**

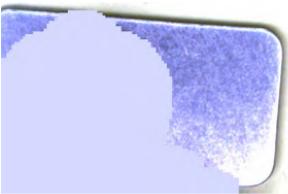
Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

# The education and employment of the blind

Thomas Rhodes  
Armitage



600039279-







THE  
EDUCATION AND EMPLOYMENT  
OF  
THE BLIND.

WHAT IT HAS BEEN, IS, AND OUGHT TO BE.

BY  
T. R. ARMITAGE, M.D.

“ And I will bring the blind by a way that they knew not; I will lead them in paths that they have not known: I will make darkness light before them, and crooked things straight.”—ISAIAH xlii. 16.



LONDON :  
PUBLISHED FOR THE BRITISH & FOREIGN BLIND ASSOCIATION,  
BY  
ROBERT HARDWICKE, 192, PICCADILLY,  
AND SOLD BY ALL BOOKSELLERS.

1871.

232. e. 183- Digitized by Google



## P R E F A C E.

---

The object of the present work is to put together in an accessible and condensed form some of the more important facts relating to the education and employment of the blind. It has hitherto been extremely difficult for those interested in this subject to ascertain what is being done at the different schools in this and foreign countries, and there has been a total absence of any organized investigation undertaken by men who have made the education of the blind their special study. It seems self evident that the proper persons to decide upon the best methods of instruction by touch, are those who have to rely upon this sense, viz. the blind themselves; and that those among the blind should be entrusted with this work, who from their education and antecedents, may be expected to approach so important a question with the requisite preliminary knowledge. These two essential requisites have been kept in view in the selection of the Executive Council of the Association, the members of which, with the exception of myself, are totally blind.

A good education is of extreme importance to the blind, as by its aid many will succeed in life, who without it would have been helpless, unhappy, and a burden to their friends or to society; consequently the elementary processes by which this education is to be brought about deserve the most careful investigation. Uniformity in the alphabet used by the blind has long been desired by all, but as each system has its own

uncompromising advocates, we are still far from so desirable a result. The blind have, however, now taken matters into their own hands, and the closer union between those of different countries is already bringing about the happiest results in disseminating information, cheapening and improving educational apparatus, and raising the standard of education, and with it the happiness and well-being of the blind throughout the civilized world. The extreme importance of good education to the blind is best known to those who have been most brought into contact with them. Even in manual trades, those generally succeed the best who have had their intelligence sharpened by proper education, and it will be seen from Chapter IV, that where the requisite talent exists, a high standard of musical knowledge will enable them to maintain themselves in comfort, and to become most useful members of society.

For about ten years gradually increasing loss of sight has incapacitated me from following my profession, and though this does not amount to blindness, it is sufficient to preclude the possibility of reading by sight. In judging therefore of the merits of the various means of education used by the blind, I must depend upon the sense of touch; and acting in concert with the other members of the Executive Council of the Association, who are all totally blind, I have had the advantage of the constant co-operation of five highly educated blind gentlemen, who for the most part, like myself, are familiar with every system of embossed printing which has obtained currency among the blind. If I have at times expressed my views somewhat dogmatically, I must plead in extenuation that they have been gradually formed, after long and patient investigation, coupled with considerable personal familiarity with the processes described, and that these views, on most of the

essential points, are shared by the other members of the Executive Council, and as far as I am able to judge by most of the leaders of thought among the blind both in Europe and America.

The belief that I have been able to take my share in this great work has gone far to reconcile me to the abandonment of a profession, to the scientific prosecution of which I had hoped to devote my life; but the very defect of sight which proved an insuperable obstacle in the career which I had chalked out for myself, has peculiarly fitted me for a new and more extended sphere of usefulness; and I feel sure that if educated blind men only knew what happiness is to be derived from devoting their lives to a useful work for which their very blindness specially qualifies them, there would be no lack of intelligent workers.

T. R. A.

33, CAMBRIDGE SQUARE, LONDON.

*March 25th, 1871.*



## CONTENTS.

---

CHAPTER I.	PAGE.
<i>Historical sketch of the means used by the blind for reading and writing.</i>	
Häuy.—Gall.—Alston.—Dr. Howe.—Mixed characters.—Stuttgart character.—Moon.—Lucas.—Frere.—Return line.—General remarks.—Printing.—Embossed writing.—Braille.—Braille writing frame.—Barbier.—New York.—Music.—Braille music.—Pencil writing.—Hughes and Foucault's writing machines.—Arithmetic boards ... ..	1
CHAPTER II.	
<i>How to put an end to the present confusion.</i>	
Causes.—Means of remedy ... ..	12
CHAPTER III.	
<i>On the best form for embossed printing, writing, and maps.</i>	
Roman letter.—Moon.—Shorthand systems.—Dotted systems.—Comparison between Braille and New York.—Superiority of former.—Arithmetic.—Maps.—Writing frames.—Stereotyping ... ..	15
CHAPTER IV.	
<i>On music and especially on piano tuning as an employment for the blind.</i>	
Earnings at trades.—Tuning.—Paris school.—Montal.—Amount of success.—Special training for tuners.—Boston School.—Value of musical notation ... ..	25
CHAPTER V.	
<i>On Schools for the Blind.</i>	
Boarding Schools—Day Schools—Special training ... ..	36
CHAPTER VI.	
<i>Braille musical notation</i> ... ..	42



## CHAPTER I.

### HISTORICAL SKETCH OF THE MEANS USED BY THE BLIND FOR READING AND WRITING.

---

VARIOUS attempts have been made from time to time to enable the blind to read by touch. Some of these were extremely ingenious, such as the adaptation of the string records of Peru, in which different forms of knots made on a string stand for different letters, and the blind man was able to read by running the string through his fingers. But since M. Haüy's happy idea of printing in relief on paper all other methods have only an antiquarian interest.

In 1784 M. Valentin Haüy commenced the first printing in raised characters for the blind, and founded the *Institut des jeunes aveugles*, which was the first, and is still, the best managed, and finest blind school in the world. The character he chose was the Italic, or written form of the Roman letter. This continued for many years to be used in the Paris school, and was introduced into this country by Mr., now Sir C. Lowther, who in 1834 printed in it the Gospel of St. Matthew; it has however long since been superseded by other and more suitable characters. Haüy.

Mr. Gall, of Edinburgh, in 1834, published the Gospel of St. John in a modified Roman letter. His plan was to use serrated lines, and replace curves by angles. Gall.

A

Alston.

Mr. Alston, of Glasgow, adopted Fry's idea of using ordinary Roman capitals; and this with slight modifications, is the method still employed in some of the English asylums, and at Philadelphia, U.S.

Dr. Howe.

Dr. Howe, of Boston, U.S. uses, in the main, small Roman letters, replacing the curves by angles, as Gall had done. This method is extensively used in the American institutions.

Mixed characters.

Another modification of the Roman letter was first embossed in England in 1838 by Mr. Dawson Littledale, and has since been extensively tried; *viz.*, a combination of capitals and small letters. This plan is still used at Bristol, and a society has recently been formed at Worcester for printing in this system. It is also the character used at Vienna, and to a small extent in the United States. It was formerly used in Paris, but has now been virtually abandoned.

Stuttgart character.

The Bible has been printed at Stuttgart in Roman capitals, the lines composing which, instead of being continuous, are formed by a succession of fine dots.

In consequence of the difficulty of feeling any of these modifications of the Roman letter, various simpler characters have been invented, which may be divided into two main classes; *viz.*, those composed of lines, and those composed of dots.

We shall first give a short account of the line characters; as the dot characters form so distinct a group that they must be considered by themselves.

Moon.

It is most convenient to consider this character first, as in it we see an attempt to retain the main outlines of the Roman letter, as far as is compatible with perfect tangibility; this resemblance is real in some letters, not easily to be traced in others, and in a few does not exist at all. The lines are bracketed together, a curved line taking the reading finger from the end of one line to the beginning of the next, which is read backwards, so that the lines are read from left to right, and from right to left alternately. The letters in the return line retain the same *absolute* position as in the advancing line, consequently their position, relative to the reading finger in the

return line, is reversed; of this return line we shall have to speak again in noticing Frere's system. Moon's system is more generally used in the United Kingdom than any other, organizations having been formed in most of our large towns for the purpose of teaching it. The ease of its acquisition, together with the large size of the type, renders it acceptable to the aged and to those whose fingers have been hardened with work.

Lucas' system is a stenographic short-hand, introduced Lucas. about 1838. It is used by the London Society for teaching the blind to read, as also at Birmingham and Nottingham. The characters are altogether arbitrary, consisting mainly of lines with or without a dot at one end. The lines do not reverse, but are read uniformly from left to right.

The late Mr. Frere also introduced his phonetic shorthand Frere. system about 1838. His embossed characters were only an application of his phonetic system, which he hoped would become general. His characters consist of straight lines, simple and dotted, half circles, hooked lines and angles of 45°, together with a hollow and solid circle. The lines reverse, a curve taking the reading finger from the end of one line to the commencement of the next. The letters in the return line Return line. are reversed as to their *absolute* position, but retain the same *relative* position to the reading finger as in the advancing line; or rather the finger is always advancing, sometimes from left to right, at others, from right to left, just as a person walking up and down in a room walks forward in one direction, then turns and walks forward again in the opposite direction. Or again, the letters may be considered all placed on the edge of a long string, representing a line; which for the convenience of packing is doubled backwards and forwards on itself; on such a line, at each reversal of the string, the letters which it bears are reversed as to their absolute position, but retain the same position relatively to the reading finger.

Mr. Moon adopted the idea of the return line from Mr. Frere, but by retaining the same absolute position of the letters in it,

the finger reading backwards really meets the letters reversed, and a sensation is produced exactly similar to that experienced in walking backwards.

*Frere's Method.*

I WILL MAKE DARKNESS  
LIGHT BEFORE THEM

*Moon's Method.*

I WILL MAKE DARKNESS  
MEHT EROFEB THGIL

No doubt habit will accustom a person either to walk or read backwards, but there is an awkwardness about both; and when we consider the question of writing, a strong additional reason will be given for regretting that Mr. Moon departed from the simpler plan of his predecessor.

It is also much to be regretted that the same arbitrary signs used by Lucas, Frere and Moon stand for different letters, thus giving rise to quite unnecessary confusion. A glance at the subjoined diagram will shew this.

General  
Remarks.

I { in Lucas T. in Frere T. in Moon I.	∩ { in Frere F. in Moon G.	⊖ { in Lucas P. in Frere M. in Moon D.
— { in Lucas S. in Frere N. in Moon T.	∩ { in Frere G. in Moon F.	⊖ { in Lucas D. in Frere K. in Moon C.
∩ { in Lucas F. in Frere D. in Moon R.	J { in Frere J. in Moon J.	⊖ { in Lucas N. in Frere L. in Moon U.
∩ { in Lucas R. in Frere B. in Moon S.	∩ { in Frere B. in Moon B.	⊖ { in Lucas M. in Frere P. in Moon W.

This kind of confusion runs through the whole alphabet, but the above examples may suffice.

Any of the above mentioned forms of letter may be readily printed by movable types, which may be stereotyped in the





C  
I

ordinary manner, by taking casts in paper from the type, and in metal from the paper casts. Books in the systems of Frere, Lucas, and Moon are generally stereotyped by a very simple process, first introduced by Mr. Frere, in which the letters, formed of copper wire, are laid on a tin plate previously washed over with a solution of zinc; when heat is applied to the under surface the letters become soldered on to the plate, and such plates produce extremely good printing.

Printing.

Any of the above mentioned systems may be written, though in a very imperfect way, by means of little cubes of wood with the lines of the letter indicated by pin points projecting from the under surface. M. Foucault, of Paris, uses a slight modification of his writing machine to write the Roman letter raised, but it is a somewhat costly and complicated apparatus.

Embossed  
Writing.

We now have to consider the systems in which the characters are formed by various arrangement of dots. Of these, the most important is that invented by M. Louis Braille, a blind pupil of the *Institut des jeunes aveugles* in Paris. This was introduced in 1834, and has now become the only method used in France, both for printing and writing. It is almost universal in Belgium, and is fast becoming so in Denmark, Switzerland, Italy and Spain. It is used in many of the German institutions, and is spreading rapidly in North and South America.

Braille.

Its signs are purely arbitrary, and consist of varying combinations of six dots placed in an oblong, of which the vertical side contains three and the horizontal two dots. There are sixty-two possible combinations of these six dots, so that after the modest requirements of the English alphabet have been supplied there remain a sufficient number of signs for punctuation, &c.

For writing, a frame is used consisting of a grooved metal bed, containing ten grooves to the inch; over this is fitted a brass guide, punched with oblong holes, whose vertical diameter is three-tenths of an inch, while the horizontal diameter is two-tenths. This perforated guide is fixed into a light wooden frame, like the frame of a slate, which is

Braille  
writing  
frame.

**BRaille ALPHABET.**

A	B	C	D	E	F	G	H	I	J
••	••	••	••	••	••	••	••	••	••
K	L	M	N	O	P	Q	R	S	T
••	••	••	••	••	••	••	••	••	••
U	V	X	Y	Z	ç	é	à	è	ù
••	••	••	••	••	••	••	••	••	••
â	â	î	ô	û	ë	ï	ü	co	w
••	••	••	••	••	••	••	••	••	••

•• prefix for numbers.

•• Sign for end of line in Poetry.

•• Apostrophe.

•• Hyphen.

Punctuation signs (in middle and lower grooves.)

,	;	:	.	?	!	(	)	“	”
••	••	••	••	••	••	••	••	••	••

attached to the grooved metal bed by hinges. The paper is introduced between the frame and the grooved bed. The instrument for writing is a blunt awl, which carries a little cap of paper before it into the grooves of the bed, thereby producing a series of little pits on the side next the writer. When taken out and turned over, little prominences are felt, corresponding to the pits on the other side. The reading is performed from left to right, consequently the writing is from right to left; but this reversal presents no practical difficulty as soon as the pupil has caught the idea that, in reading and writing alike, he has to go *forwards*. The brass guide has a double row of openings, which enables the writer to write two lines; when these are written, he shifts his guide downwards until two little pins, which project from the under surface at its ends, drop into corresponding holes of the frame, when the writer writes two more lines, and this operation is repeated until he arrives at the bottom of the page.

The first ten letters, from "a" to "j," are formed in the upper and middle grooves; the next ten, from "k" to "t," are formed by adding one lower dot behind to each letter of the first series; the third row, from "u" to "ù," is formed from the first by adding two lower dots to each letter; the fourth row, from "â" to "w," similarly, by adding one lower front dot.

The first ten letters, when preceded by the prefix for numbers, stand for the nine numbers and the cipher; the same signs, written in the middle and lower grooves, instead of the upper and middle, serve for punctuation.

It is of very great importance that the pupil should remember that, whether reading or writing, he is going *forwards*, and the teacher should never allow the expressions of right and left to be used in describing the relative position of the dots; but he should use instead the expressions upper and lower, forward and backward; forward being always the direction towards which we are travelling; backwards, towards the starting point. By adhering to this rule the same description applies to the letters whether in reading or writing, and thus a

difficulty, which is often felt by beginners, is at once cleared away.

Barbier.

Braille's invention was only an improvement, though a very great one, on a previously-existing writing frame, introduced by M. Barbier in 1820, Barbier's frame was, in principle, the same as Braille's, but his full number of dots was twelve instead of six, so that his letters were unwieldy, and the space covered by them inconveniently large. Braille first soldered strips of metal across Barbier's frame, by which means he obtained the power of writing his own more compact alphabet, and afterwards arrived at the form of frame which is still used and bears his name.

New York.

A modification of the Braille system has been suggested by Dr. Russ, of New York, and adopted at the Blind Institution of that city. Dr. Russ objects to two points in the Braille system:—1st. The arbitrary arrangements of the letters into four rows of ten, each letter of the lower three rows being formed by a simple fixed rule from the corresponding letter in the first row; 2. His second objection to Braille's plan is that each letter occupies the same space, whether consisting of few or many dots. To remedy this defect he suggests that the letters recurring most frequently in the English language should be represented by the smallest number of dots, and that the long diameter of the full letter of six dots should be horizontal instead of vertical (See table, page 4). For writing he uses a slight modification of the Braille frame, in accordance with the altered shape of his letters.

Some years ago Mr. Hughes constructed an alphabet, consisting of a combination of large and small dots, with a frame for writing it. It never received much notice and is now obsolete.

The Abbé Carton, of Bruges, made an attempt to alter the Braille letters, so as to bear a more or less fanciful resemblance to the corresponding Roman letters. This attempt was, however, unsuccessful; the Carton type having long since been displaced in Belgium by that of M. Braille.

Many attempts have been made at various times to supply the blind with a musical notation. The ordinary musical notes, with their staff of five lines, have been tried, and the advocates of Lucas, Frere and Moon have attempted to engraft a musical notation on their ordinary alphabets, while several other systems of arbitrary signs have cropped up from time to time without having gained or deserved much favour. Music.

M. Braille's system of musical notation is the one now universally used in France, and is spreading wherever his ordinary characters are used, that is over the whole of the civilized world. The basis of the musical notation is the ordinary Braille alphabet, arranged in four rows containing ten letters each. The seven last letters in each row represent the seven musical notes: those of the first row being quavers; those of the second, minims; of the third, semibreves; and of the fourth, crotchets. The sign for semibreve also stands for semi-quaver: that for minim for demi-semiquaver, &c. This use of the same sign in two senses presents no difficulty to any one acquainted even with the rudiments of music, as a bar consisting of one semiquaver or of sixteen semibreves is an impossibility. The notes therefore take twenty-eight signs, and for the other signs used in music there remain thirty-three. Each sign occupies only the space of a single letter. Braille  
Music.

Many methods of writing have been suggested to enable the blind to communicate with the seeing without embossing the letters or attempting to make the characters legible to the touch. M. Haiüy indeed attempted to combine the two in his frame, which consists of a board on which the paper is laid, crossed by a movable bar to guide the hand in keeping the lines. He wrote with a glutinous ink, which, while wet, was dusted over with sand, presenting in this way a rude form of raised writing. All subsequent attempts have been merely directed to guiding the hand more or less completely. In this category come the frames invented by Gall, Frère Julien, M. Levitte, &c., with all the various forms of noctographs and Pencil  
writing.

other mechanical contrivances. In this place may be mentioned the excellent typograph invented by Mr. Hughes, of Manchester, by which the blind are enabled to print with perfect accuracy and considerable rapidity; its great cost however places it quite beyond the reach of the poor. M. Foucault, a blind inmate of the "Quinzè Vingt," in Paris, has invented an apparatus for attaining the same object; it is much less costly than Hughes' typograph, but requires more skill and practice to use it well, and the printing when done is not so good.

Arithmetic. Several plans exist for enabling the blind to perform calculations. Saunderson, the blind Lucasian Professor at Cambridge in the last century, used a plate perforated with holes one-tenth of an inch apart; into these holes he dropped pins, whose heads only appeared on the surface; these, by their varying positions were used to indicate numbers. The arithmetic boards now in use consist of plates perforated by rows of holes into which pins drop. These pins and their corresponding holes are square in the frame used in Paris, where each square pin has an ordinary Arabic number embossed upon it. A similar board is used at the St. John's Wood Blind School; but there the arbitrary signs, used by Lucas to denote numbers, replace the Arabic numerals used in Paris. In Birmingham and Nottingham wooden boards pierced with round holes are used. Three kinds of wooden pegs are employed, differing from each other in the shape of their heads. The number to be indicated is expressed by the particular peg employed, and the position in which it is placed.

The arithmetic board most generally used in England is one with pentagonal holes and pentagonal pins to correspond. The pin has a ridge at one end and a notched ridge at the other. In consequence of the hole being five sided the pin can be placed in five different positions, and by reversing it five more are obtained. This plan has the advantage of simplicity.

and as one pin may represent any of the ten Arabic figures the trouble of selecting each number wanted is saved.

Another plan is to use a board with star-shaped holes having eight angles; square pins are employed bearing on one end a ridge and on the other a notched ridge. Each end of the pin may be made to assume eight positions, so that sixteen signs are obtained from the same pin.

---

EXAMPLE OF BRAILLE CHARACTER.

Yet I argue not  
 Against Heaven's  
 hand or will, nor  
 bate a jot Of  
 heart or hope ;

## CHAPTER II.

## HOW TO PUT AN END TO THE PRESENT CONFUSION.

Causes of  
present  
confusion.

This brief sketch of the means of education used among the blind will suffice to point out the state of utter confusion which exists. The usual plan hitherto has been for some one, who is in comparative ignorance of what has been done by others, to start a new system, which is taken up by philanthropists, who have still less knowledge of the subject. Subscriptions are raised, and the Babel of systems is increased by a fresh one. In this way it has come to pass that the Bible, or the greater part of it, has already been printed in English in five different systems, while there is scarcely any other standard work published except in the type introduced by Dr. Howe, of Boston, and this is so small that probably not one blind adult in fifty can learn to read it with any degree of comfort. The wasteful extravagance of thus printing the same book in so many systems is not the only evil arising from this want of harmony. Each has advantages of its own, which might with experience and judgment be combined to a considerable degree, thereby producing a result much better than that obtained by any existing system; but this is quite prevented by the present want of concord. Another evil is that the blind have to learn to read by the character which happens to be in favour at the institution where they receive their education, and on leaving they find that, if they are to obtain the benefit of the few books that have been embossed, they must learn two or three fresh systems, and perhaps discard altogether the one which it has taken them years to acquire. The two main causes of this lamentable state of things seem to be, as above stated, that there is an utter want of harmony of action, and that inventors of systems and managers of institutions generally have their eyesight, and misled by this sense, they cannot understand or enter into the real wants of

the blind. It is a curious and instructive fact that the two systems which are now in most favour with the blind themselves, and which have most vitality in them, are due to two blind men, M. Braille and Mr. Moon.

Means of  
remedying  
present  
confusion.

We now come to the consideration of the best means of remedying this state of things. Several attempts have from time to time been made to arrive at so desirable a result by convening a sort of representative assembly; the various institutions being represented by their managers or secretaries. Such meetings never led, and never could lead to any good result. Each member was in general strongly prejudiced in favour of the system which happened to have come under his own notice; and the attempt was made to settle in a few hours or days, questions which required months, or even years, of conscientious work for their proper solution; failure was consequently inevitable. Among the more intelligent of the blind themselves the opinion has long been gaining ground that, for any good result to be obtained, the question must not be settled *for* the blind, but *by the blind themselves*. This is the principal idea embodied in the present scheme. Nearly three years ago two or three blind gentlemen agreed to work in concert at this subject, and the result was the formation of the British and Foreign Blind Association, which, though numbering many members blessed with the inestimable gift of sight, has remained true to the axiom that the relative merits of the various methods of education through the sense of touch should be decided by those, and those only, who have to rely upon this sense. The Members of the Executive Council must therefore be blind, or so nearly so as to be obliged to rely on the sense of touch, and not on that of sight for the purpose of reading. Each Member must also be able to read at least three systems of raised letters by touch, and must not be pecuniarily interested in any. The council thus constituted has been steadily at work for upwards of two years. Most of the members are able to read by every known system, except when, from the extreme smallness of the type, there exists a physical impossibility. They have taken care themselves to use extensively the methods which seemed to promise well, and they have carefully noted the views and

wishes of all the intelligent blind within their reach. Several members have very extensive experience in teaching among the most ignorant and aged, as well as among the more intelligent and young. They approached their work with various views, according to their greater or less previous acquaintance with the subject, but with the determination to spare no pains in arriving at the truth. In England we have facilities such as do not exist in any other country of ascertaining the relative merits of different systems of raised characters; for in consequence of the numerous methods in use, those among the blind, who value reading most, are generally acquainted with several. They are thus in a position to judge which of them is the best suited to the purpose of reading by touch. In order to make use of much valuable information thus attainable, the Council at an early period of its labours requested the attendance of all the intelligent blind within their reach. They took much pains to ascertain exactly their views, and the reasons for the opinions they held. This evidence was carefully noted down at the time and read over to the blind person under examination. Two or three hours were often devoted to a single witness. At the commencement of each examination the witness was asked by what systems he could read, and books in these systems were then given to him to test his ability. He was only allowed to give evidence upon those systems with which he could thus prove himself to have a practical acquaintance. It was obviously quite unnecessary to examine those who only knew one system. The information thus obtained is of great value, as it represents a sort of public opinion among those of the blind who have paid attention to this subject. It was especially useful during the early part of the enquiry, by assisting the Council to find out the exact points in each system which required special investigation, and, in coming to a final decision, the public opinion of the intelligent blind, obtained by this means, has been allowed its full weight. As the subject has now been fully considered and the Council have come to a unanimous decision on the main question, they proceed to state the results arrived at, leaving matters of detail to be worked out hereafter,

## CHAPTER III.

ON THE BEST FORM FOR EMBOSSED PRINTING,  
WRITING, AND MAPS.

---

To take the various systems in the order in which they Roman letter. have been enumerated—the Council naturally first turn their attention to the Roman letter, as being that by which all the members had been educated; here the wide difference between the points of view of the blind and seeing was at once manifest. In spite of the strongest *prima facie* reasons to the contrary, the unanimous decision was come to, that the Roman character in all its existing forms is so complicated that it requires long education and great acuteness of touch to read it with ease, and that its universal adoption would be tantamount to the total exclusion of the great majority of the blind from the privilege of reading. The Council have never yet met with any intelligent blind person, moderately conversant with the subject, who was not of the same opinion. The constancy with which the Roman letter has been advocated by the seeing patrons and managers of institutions shews how opposite is the conclusion arrived at by them, and the incessant modifications of the Roman letter, which have been tried, prove how difficult is the problem of rendering the Roman character legible by touch. The experience of the New World is the same as that of the Old. The small angularised Roman letter of Dr. Howe, of Boston, which is used in most of the United States asylums, is probably as good a form as any, and, if printed in a larger size, would not be difficult to feel; in its present size, however, it is far too small, and has signally failed in America. We have valuable statistics on this point. The American asylums are all State institutions, and have to furnish accounts to their respective State legislatures of the work done by them. Out of 664 pupils in seven asylums, where the Roman character of Dr. Howe is used, one-third learn to read fluently, one-third by a process of spelling, and one-third fail altogether. In the

Missouri Institution, where the French dotted character is used, two-thirds learn to read fluently, one-third by spelling, while none fail; and it must be borne in mind that those who learn to read by this system also acquire an admirable method of writing.

In the Paris School the blind have at last had their own way, and the Roman type, though not entirely given up, seems to be merely regarded as a literary curiosity, not suited to the every-day wants of the blind. This is, no doubt, mainly due to the fact that all the professors in this school are blind. It has often been urged that the blind ought to employ the same character as the seeing, in order to receive assistance when reading. This argument might be of some weight if no simpler character existed; but where the choice lies between a character to read which the blind man requires assistance, and one which is so simple that he can read it by himself, there ought to be no doubt as to the choice. Another common, but equally fallacious argument, is that by adopting a different character from that used by the seeing there is danger of the isolation of the blind being increased; this is not feared by those whom it is intended to benefit. A man is isolated by everything which renders the acquisition of knowledge difficult and tedious, and his isolation is diminished by everything which facilitates his power of self-education. Again, it has been often said that by means of the Roman letter the blind can teach their children better than if they employed any other system. There may be a slight advantage in this respect in teaching the mere alphabet; but even this is not of much importance, if an alphabet is used in which the ordinary Roman letter is printed over the corresponding embossed letter. When the mere alphabet has been mastered, if the blind parent wishes to improve his child's reading, the best plan is to take a book, such as a portion of the Bible, which is to be found in every cottage, and is also easily procurable in raised letters. The child reads from his book in ordinary print, while his blind parent reads the same passage in raised

letters. The best type for him to use is evidently that which he can read most fluently and most correctly, therefore in the great majority of cases it will *not* be the Roman character.

Another reason which operates strongly against the adoption of any so-called arbitrary character in our blind institutions is the trouble that it is likely to give to the seeing managers and teachers; for the adoption of such a character involves the necessity of the teacher taking the trouble to learn it, and in the case of the Braille character there is this further difficulty that reading it is fatiguing to the *eye*. This objection to arbitrary characters is for obvious reasons scarcely ever stated and is probably not fully recognized by the managers and teachers themselves. It nevertheless, consciously or unconsciously to themselves, influences their views very materially. Of course every one will assent to the abstract proposition that in institutions for the blind, seeing teachers and officials only exist for the benefit of the blind pupils, and that such institutions are bound to adopt that method of education which is proved to be the best for the blind, whether most convenient to the seeing teachers or not. But though the truth of such a proposition is beyond all dispute, we are all apt to dislike whatever gives us trouble, though we may at the same time be quite unconscious that the main cause of our dislike is the fear of personal inconvenience. This is well expressed in the report of the Illzach Institution by M. Kœchlin its worthy founder. He has thought it necessary to appeal to the charity and forbearance of the friends and subscribers not to object to the introduction of the Braille method in consequence of the additional trouble given thereby to the teachers and those interested in the education of the blind; for he thinks that the charity which causes them to support the institution may well induce them to adopt in teaching the plan best suited to the touch, instead of insisting that the blind shall use the Roman letter because this is most convenient to the seeing.

Moon's system has qualities which make it very generally Moon.

c

useful. It is full written and consequently can be used for primary education, and at the same time in their present size the letters can be felt by the dull, the aged and by those whose touch has been impaired by rough work, while the approach of many of his characters to the shape of the corresponding Roman letters makes the first step more easy. It is much to be regretted however, that along with these obvious merits there are also some serious defects. Many letters are perfectly arbitrary; and though in some cases this cannot be avoided yet in others a closer adherence to the Roman letter is possible. The non-reversal of the letters in the return line is a serious defect, and the absence of a sign to indicate a divided word at the end of a line is inconvenient. Frere uses for this object two parallel vertical lines, which answer the purpose very well. The adoption by Moon of Frere's long and short vowel signs to indicate numbers is considered objectionable by many of the blind, and has been abandoned by the British and Foreign Bible Society, who use the ordinary Arabic numerals. Moon's letters are too clumsy to bear any material reduction in size without impairing their tangibility, while the importance of using a character as small as is compatible with easy recognition may be readily understood from the following statement:—The largest type used by Frere is that employed in the Gospel of St. John. The character is  $4\frac{1}{2}$  sixteenths of an inch long, and is about the same size as Moon's character. The pages occupied by the Gospel of St. John in Frere, are 96. In his medium type, in which the length of the letter is 4-sixteenths of an inch, the same matter would go into 67 pages; and in his smallest type, in which the length of the letter is  $3\frac{1}{2}$  sixteenths, it would occupy a little over 46 pages. It has been found, by an experience extending over twenty-eight years, and embracing many hundreds of individuals of all ages and conditions, that all those who can read the largest type can read the medium, and almost all can read the smallest. The medium type is very generally preferred, as being more pleasant to the finger, and many with delicate touch prefer the

smallest for the same reason. Thus it will be seen that by selecting a well-devised character not only can a very considerable saving be made in the size and therefore in the cost of books, but by a diminution of size within certain limits the character is rendered absolutely more legible. The Gospel of St. John, in Moon's type, occupies 140 pages. (Of course in this comparison the size of the page is always the same.) It is a matter of common complaint among the more intelligent of the blind that reading by Moon's system becomes intolerably tedious, which makes them desirous of learning one of the shorthand systems; and it must be remembered that these are precisely the persons to whom reading is of the greatest value, for it is with the blind as with the seeing, that those who are not sufficiently well educated to read with ease often end by not reading at all, as soon as they cease to feel the pressure put upon them by their teachers.

The advantages of shorthand to the blind are very great. For rapid and pleasant reading the finger ought, as nearly as possible, to imitate the eye by taking in a whole word at a glance, but this cannot be done when every letter is printed, as from the comparative coarseness of the sense of touch the letters must be on a large scale, and of these the finger can only perceive one at a time. Some sort of shorthand seems to be the only solution of this difficulty, but the two existing forms are unsuitable for educational purposes; as Lucas' is apt to produce bad spelling, and Frere's, being phonetic, disregards orthography altogether. However desirable it may seem to many to adopt phonetic spelling universally, the blind, for many reasons must not lead the way. All blind children should therefore learn spelling in the ordinary way; if afterwards it should seem desirable they may in addition be taught shorthand. For the use of adults neither of the existing systems is quite satisfactory. Lucas' characters are not sufficiently distinct, the dotted lines and dotted half circles being too similar to the same signs without dots. His use of the double letters

Short-hand  
systems.

for numbers is objectionable, and he has made a great mistake in not adopting the return line, which adds much to the ease and comfort of reading. Frere's characters on the other hand are the neatest and most tangible of all that have ever been invented for the use of the blind. His return line is perfect; but his total want of punctuation is a serious objection, and the rules are too complicated to be understood without oral teaching, and, as a matter of experience, they are seldom properly learned. The consequence is that most readers by this system do too much by guess work; though to an educated person, well acquainted with the book he is reading, and only wanting a slight guide (as in the case of the Bible) there is probably no system by which when it is acquired, reading can be accomplished with equal comfort and rapidity.

It would be much to the interest of the blind that their shorthand system should spring out of, and be closely connected with the full spelling method; so that it would be easy to pass from one to the other without having to learn a new character. Mr. Murley of Cheltenham, and independently Mr. Lambert of Hull have grafted a certain amount of shorthand on Moon's system; but what is needed is a full recognition of its defects and modes of remedy by those who make it their special business to spread this system.

Dotted  
systems.

The great advantage of a dotted system is the extreme facility with which it is *written*, while it is at the same time easily read; and a special recommendation of Braille's method is, that out of the ordinary alphabet there naturally springs the best form of musical notation in use among the blind. These reasons have induced me, in conjunction with the Council of the British and Foreign Blind Association, to study with great care the different forms of dotted character that have been suggested, and especially to compare the ordinary Braille character with the modification of it mentioned above, as having been introduced into the New York Institution. On first examination this system appeared to some of the Members of

Council to be superior to the Braille method, and they constructed frames for writing it. The main advantage claimed for it by its inventor is a considerable gain in compactness. He asserts that the same matter, when written by his method, only occupies two-thirds of the space that it would if written in Braille; and the arguments which he advances in support of this view seem at first sight to be quite satisfactory. But if the experiment is made by having two guides to the same frame, one for writing the New York letters, the other for Braille, thereby securing absolute identity of scale, and if, in such a frame, a few pages of the same book are copied out in both systems, it will be found that the gain in space of the New York plan is quite insignificant, being from one-twelfth to one-twenty-first, instead of a gain of one-third as claimed for it by its advocates. I have no means of judging whether the widely different result arrived at by the promoters of the New York system was owing to their not allowing for the increased distance between the letters, apparently inseparable from this modification of the Braille character, or whether it arose from the difference in scale, the new York dots being one-sixteenth of an inch apart, while the Braille dots, as used in France and most other countries are one-tenth of an inch apart. Such diminution of scale will of course, effect a great saving of space, but at the expense of legibility. The reasons which have induced the Council to set aside the New York modifications and to adhere to the original Braille, are briefly these:—

- 1st. The Braille type is very generally diffused, and has made its way through its own intrinsic merits without being pushed by large subscriptions, and before abandoning a character which is more generally used than any other, something more is required than the gain of a one-twelfth to one-twenty-first in space.
- 2nd. The New York modification is poorer in signs than the Braille original, in the proportion of 39 to 63, so that the Braille character is far superior in its adaptability to shorthand contraction and to music.
- 3rd. It is most desirable that the musical notation used by the blind shall be universal and

thoroughly good; both these objects are obtained by the Braille character and by no other known method. 4th. It is also most desirable that the shorthand used by the blind shall spring naturally out of the full written system. This again, is to be obtained in the Braille better than in any other known system.

Arithmetic.

It is not yet clear which apparatus for teaching arithmetic is the best. The right principle however seems to be, to express at least the nine figures and cipher by a single peg. This would, among existing systems, exclude all but the pentagonal and octagonal; the former is the most simple, while the latter is capable of expressing the most signs by one peg.

Maps.

Embossed maps have been constructed on many different plans in various countries; as a rule they are not sufficiently good, or they are too costly, while some combine both these defects. Apparently no embossed maps exist which are thoroughly satisfactory. The right principle seems to be that the land shall be on a higher level than the sea, as is obtained by cutting a map out and gluing it on a flat surface. This makes the coast line perfectly distinct. Lakes and the mouths of large rivers should be cut out, while the other features of the country should be marked by different kinds of relief. Though maps of this kind have been frequently constructed, the process has hitherto always been too costly to permit of them being sold at a sufficiently low price to make them accessible to the great mass of the blind, and their high price prevents schools from providing maps for each pupil. This is particularly to be regretted, as most blind children are fond of geography. Very cheap maps have been printed by M. Levitte of Paris, who uses a modification of the ordinary method of stereotyping there employed, but although these maps are equal to many which are sold at three or four times their price, they are not all that could be desired.

Writing frames.

One main obstacle to the diffusion of a knowledge of the Braille character is the difficulty of procuring frames and their

cost, which though not high as compared with other appliances for teaching the blind, is sufficient to prevent many of the poor from procuring them. For school work it is most desirable that each pupil should have a writing frame entirely at his own disposal, this cannot be ensured unless the cost of the frames is low. Another difficulty has been the absence of books printed in English. The obstacles in the way of the construction of these writing frames have been very great, as it is essential to combine perfect accuracy with cheapness; but this has been now in great part overcome. Good pocket frames with dotter and pocket alphabet can now be obtained at one shilling, which is one-fourth of the price for which pocket frames have hitherto been procurable from Belgium; and the only such frames which have up to this time been made in England cost eight shillings each, and were very imperfect. The new frame is not only very much cheaper but is much more accurate, and produces better work than anything before made. A larger frame is being constructed, which will it is hoped prove equally satisfactory.

The method of stereotyping employed in Paris is to write on plates of thin brass in the ordinary Braille frame. The plate when taken out is raised into little prominences, each of which is perforated. The little pits on the side next the writer are filled in with solder, and the plate may then be used for producing impressions on paper by a printing press. The impressions thus obtained leave nothing to be desired; but the process of filling in with solder is troublesome and requires a skilled workman. The problem to be solved therefore was to find a backing for the plates more easily applied and less costly than solder, while at the same time producing equally good work. After many experiments the following is the method now adopted:—A thin brass plate is placed in an ordinary Braille frame and treated like a sheet of paper, excepting that a mallet and a strong embossing tool are used instead of the ordinary style. When written it is read over, and any necessary corrections and erasures are made. It is

Stereotyping.

backed up by spreading over it a mixture of glue and Portland cement, which is then scraped off from the surface the pits remaining full, and when this is set, it is brushed over with a solution of shellac and stuck on papier mache. The plate so backed is then put under a press until thorough union has taken place. These plates give excellent impressions, and as the backing becomes as hard as stone there is no reason why they should not be durable. Nine-tenths of the work of preparing the plates can be done by the blind themselves, and there is a very large and growing demand for them both in this country and in America. The process of production is far simpler and less expensive than any hitherto used, making it possible to give fair wages to the workmen employed in setting them up, so that in the production of stereotype plates we have a new form of remunerative employment for the blind; and though the number engaged in this work must be limited, yet those few will in ministering to the intellectual wants of their fellow sufferers find remunerative and pleasant employment for themselves.

Hitherto only a few short school books have been set up. Before works can be prepared on a large scale the Braille system has to be thoroughly mastered by those employed to set up the plates. This process of education is now going on, but must necessarily be gradual.

---

## CHAPTER IV.

ON MUSIC AND ESPECIALLY ON PIANO TUNING AS AN EMPLOYMENT  
FOR THE BLIND.

Much public interest has for many years been directed to the best means of employment for the blind. Institutions have sprung up in every part of the country with the praiseworthy object of enabling the blind to support themselves by their own labour, and the good example set by England in this respect is being followed by other countries. The success attending these efforts has been more or less complete according to the ability and energy with which these working establishments have been carried on. The principal trades practised in the United Kingdom by the blind are the making of baskets, brushes, brooms, mattresses, rugs, mats, the caning of chairs, with knitting and sewing for women. Music is also taught in many institutions, and piano tuning in a few; but neither of these are pursued with the amount of vigour and ability which is necessary to insure the success which has been attained in other countries, and might, by following a similar plan be obtained here. It is difficult to estimate correctly the average earnings of the blind at trades, as so much depends upon the external circumstances in which they happen to be placed. Probably the average is not more than five or six shillings per week for men, and less for women; but the present object is to compare the earnings at manual trades with those which may be obtained by piano tuning and the profession of music; those workers therefore only should be considered who with the requisite musical talent and instruction might have become good tuners or teachers of music. Industry, good common sense, and manual dexterity, are therefore presupposed. Such men at a trade can probably earn upon an average from about eight to twelve shillings a week. There are

Earnings  
at Trades.

Tuning.

few who, unassisted, do more than this. We shall presently see that much more may be made by tuning. It is undoubtedly far better for the blind to earn anything, however little, than to live in idleness. The blind in general feel this strongly, and their desire is for work—not charity. It is plainly the duty of the managers of blind institutions to find out those trades and employments in which loss of sight is the least possible drawback. Piano tuning is such an occupation. As tuners, the blind if trained early and well are under no disadvantage, but on the contrary possess a certain advantage over the seeing in consequence of the greater concentration of their faculties on auditory impressions, produced by their want of sight. As a rule, it is of course not possible to make any into thorough tuners unless they are taught as children;\* nor is it every child who possesses the combination of correct musical ear and manual dexterity requisite for a good tuner; however, the experience of France and some other countries has proved beyond a doubt that many blind children are not only capable of becoming first-rate tuners, but that this occupation is the most remunerative of any of which the blind are capable. It follows that we in England are bound not to neglect so promising a field of labour. It is undoubtedly true that the experience of most of our English Institutions does not agree with what has just been stated, but the reason is simply that our blind are not so well taught as their French fellow-sufferers. In England we have not even taken the first step towards a thorough musical education. Most professional musicians will probably agree in the opinion that a knowledge of the signs by which music is written and read is essential for a sound musical education. The blind of France have such a notation and those of England have not. In addition to this, the special training of tuners in the Paris

---

\*A remarkable exception to this rule occurred some years ago at Boston, U.S. A man aged 26 lost both eyes from an explosion. He wished to enter the musical department, but this was refused on account of his age; his wish was however at last acceded to and he succeeded so well that he has for some years been the teacher of tuning to the institution.

school extends over a much longer time and is carried on far more systematically than in England. Indeed in all that concerns music as a profession for the blind we are in about the same position as that occupied by the French forty years ago. Among the general public and manufacturers there is precisely the same prejudice against blind tuners which then existed in Paris; while our institutions timidly attempt tuning as an experiment, sending out many imperfectly educated men, who by want of skill and knowledge confirm the current opinion that the blind are inferior to the seeing as tuners, and the same may be said of other branches of music. I went over to Paris in 1869 with the purpose of perfecting myself in the knowledge of the Braille musical notation and in order to see what is done there to fit the blind for the profession of music. Nothing could exceed the kindness of the two heads of the School, M. Guadet and M. Levitte. M. Levitte placed his apartment at my disposal for the ten days I was in Paris and devoted three or four hours a day to me. The same kindness and attention were shewn to me by all connected with the school. The staff of the institution consists of M. Guadet, head of the educational department; M. Levitte chief superintendent, with four others under him, and eleven blind professors; indeed all the teachers are blind, being assisted in maintaining order by seeing superintendents. To M. Guadet, and M. Levitte I was already known through correspondence. Nothing could exceed the kindness of all the officers of the institution, in which I spent the greater part of every day during my ten days' stay. The facts that I am going to give respecting the Paris school are derived partly from personal observation and partly from an interesting pamphlet published by M. Guadet in 1859. There are about 250 pupils. The great object seems to be to turn out as many good tuners as possible. The commencement and development of this branch of industry has been due entirely to the exertions of the blind themselves. About the year 1830, Claude Montal and a blind fellow-pupil attempted to tune a piano on which they practised. It, as well as the other pianos in the institution,

Paris  
School.

Montal.

was kept in very indifferent tune by a seeing tuner. This man complained to the director, who administered a sharp reprimand to the two blind pupils, forbidding them ever again to touch the works. Nothing daunted, however, the two friends procured an old piano, and obtained permission to keep it in the institution. They practised themselves in taking it to pieces and re-mounting it; nor did they rest content until they had thoroughly repaired it and brought it into good tune. As the director had daily seen them at work, he could have no doubt that the transformation of this old instrument was really due to the unassisted efforts of the two blind friends. Struck with the talent which they evinced, he confided to them some extensive repairs in the organ belonging to the chapel. They had two seeing workmen at their disposal, whose movements they directed. The experiment proved perfectly successful, as no professional organ-builder could have done his work in a more masterly manner. By degrees they obtained permission to keep all the pianos of the house in tune, and to make whatever little repairs were necessary. The next step was to begin regular instruction in tuning, and thus commenced the tuning classes which have made the Paris school famous throughout the civilised world. Montal soon left the institution, and endeavoured to obtain a private tuning connection, but the same prejudice which now exists in London against blind tuners was then in full force in Paris. No one liked to trust a piano to the blind man, and for some time he was glad to be allowed to tune gratuitously. During all this time he was steadily working at the theory of tuning. He eagerly studied everything that had been published upon the subject, and his own talent and thorough knowledge of the theory of music soon led him to adopt a better and more scientific system of tuning than that generally in use. A circumstance now occurred which was the turning-point in his fortunes. One of the professors of the Conservatoire, having heard of the skill of the blind tuner, sent for him, and showed him two pianos which he had in his apartment. They were of different construction, and from

different makers. It was important that they should be in exact accord; and none of the numerous tuners who had attempted this task had been able to succeed. Montal said he would make the attempt. He first carefully examined the differences in their construction, and making allowance for these, set about his work in a scientific manner, and the result of his tuning was a perfect success. He was now patronised by the other professors of the Conservatoire, and soon was employed by some of the leading professional musicians of Paris, by whose recommendations his practice and fame as a tuner rapidly increased. In 1832, he gave a course of lectures on the art of tuning, which were very well attended. In 1834, at the Industrial Exhibition, most of the makers had their pianos tuned by him, and he took advantage of this opportunity to circulate a short treatise on tuning, which was sold in the exhibition building and contributed much to his reputation as a tuner. He now began on a small scale to repair and to make pianos. This was the commencement of the well-known manufactory of which he was long the head. In 1836, he published his full treatise on the art of tuning. While Montal was pursuing this successful career, and proving that it is possible for the blind not only to equal, but to surpass the seeing in the art of tuning, other blind pupils of the institution were there developing the course of systematic tuning. Their pupils on leaving followed in Montal's steps. During the first years the same difficulties and prejudices had to be encountered, but by degrees makers and the general public grew accustomed to blind tuners, and the obstacles thrown in their way became daily less. Some makers, indeed, made a practice of always sending blind tuners to those among their customers who were most particular; and, as the instruction at the institution was kept up to a high standard of excellence, and care was always taken to give a certificate of tuning to those only who were really masters of their art, the blind became more and more popular as tuners. The blind and their friends became every year more alive to the fact that tuning was the

best and most remunerative employment they could follow, and a constantly increasing pressure was put upon the authorities of the institution for admission into the tuning classes. In this way it has come to pass that in the Paris Institution, at the present moment, the great object is to turn out tuners. As far as I could ascertain, the proportions of the different classes among the male pupils who leave the institution are at present nearly as follows:—About 60 per cent. follow music as a profession; the remaining 40 per cent. practise various trades. Of the musicians, nearly one-half, or 30 per cent., obtain their diploma as tuners.

Amount of  
success.

We will now proceed to examine the probable future of these three classes. Those who obtain the tuning certificate are certain of maintaining themselves in a degree of comfort which is quite unknown in the same class here. £80,—£120, —£150 a-year are by no means unusual incomes, while I was told of one man who makes about £250 a-year by tuning. Five old pupils are now established in Paris, and are doing extremely well as piano manufacturers. If a pupil has a good ear, but is otherwise not well qualified, he becomes an organist or teacher of music, and has to maintain a hard struggle for existence. The same difficulty of finding remunerative employment for blind organists and teachers of music exists in this country, as is too well known to the managers of our own institutions. The remaining 40 per cent., whom nature has not endowed with sufficient musical talent, have to content themselves with various kinds of handicrafts, in which their success is about equal to that of blind men employed in a similar way in England, as they can only earn upon an average about five or six shillings a-week. Some no doubt are able to earn more; but in no case is any kind of handicraft-work to be compared for a moment with tuning as an employment for the blind. Every pupil in the Paris school, besides receiving a good general education, is taught theoretical and practical music; for it is found that sometimes the musical faculty seems

to lie dormant until it is called forth by education, and the managers do not wish any child to be deprived of the chance of following music as a profession. If, after a reasonable time, it is found that no musical talent exists, some handicraft is taught.

The special training for tuners extends over three years. During the first, the teacher makes his pupils thoroughly acquainted with the external form and internal mechanism of the piano, which is repeatedly taken to pieces and re-mounted under his direction. During the second year, the pupils learn the theory and practice of tuning, an hour and a half every day being devoted, under the direction of the professor, to keeping in order the numerous instruments in the institution. During the third year, they go out to work in different factories in the town, returning to sleep at the school. Many great advantages result from the way in which this last year is spent. The pupils become familiar with instruments of various shapes and make; they become accustomed to find their way in unfamiliar places; they are obliged to work quickly; they are brought into immediate contact with seeing workmen, which confers on them many advantages; one of these is that they find their proper level, losing the shyness peculiar to some of the blind, and the conceit and over-estimate of themselves found in others. They become accustomed to many new aspects of life, and learn much by free intercourse with the outer world. They are thus gradually prepared to dispense with the fostering care of the institution, and when they leave they do so as finished tuners, who are able at once to obtain good wages.

Special  
training  
for tuners.

Several other European schools have been successful in the training of tuners, but do not appear to have equalled in this respect some of the American schools. The results achieved by the Perkin's Institution, at Boston, U. S., are particularly instructive. High class musical training appears to have been commenced there about 13 years ago, previous to which

Boston  
School.

time the results in this respect were far from being satisfactory. The Report of 1867 states that music is now taught to all of both sexes whose natural abilities make it probable that, under proper instruction, they will succeed as organists, teachers of music, or piano tuners, and goes on to say:— “The teaching of music and playing is now the largest single field open to the blind as a means of support, and it seems to be growing larger. People are becoming more disposed to employ them; and, as they go forth from the school, they have more and more ground of hope that they will find opportunities to earn their living in this way.” The whole tone of mind among the musical pupils has been changed; instead of looking forward to the future with fear and anxiety, they now feel a well-grounded confidence in themselves. It seems that in Boston and in America generally, the blind are able to earn more as teachers of music than as tuners, which is exactly the reverse of the state of things existing in Paris, and may either arise from differences in the condition of the two countries or from the training for teachers being more careful and thorough at Boston than at Paris; but their experience is identical in one respect, which is, that the blind who have the requisite amount of talent are almost certain to make a good income out of music; but to attain this end they must aim high. It will not do to be equal to the average seeing teacher or tuner, they must be superior; and this involves a good musical notation with first-rate masters, instruments and appliances, and above all a determination on the part of managers and teachers to overcome all obstacles.

The following particulars relative to the Boston School have been communicated to me by Mr. Campbell, himself blind, who has for 13 years been the musical-director and for about 6, resident-superintendent. He says, “As regards those who succeed as teachers of music I cannot give the per cent. When I first introduced my method of teaching, I made a select class of 20 of the most talented pupils; 19 of these

have met with the happiest success. I know about six blind gentlemen who are earning from £400 to £500 per annum by the profession of music; I know a large number who are earning from £200 to £300; a number of young ladies, who can earn from £100 to £150 per annum. It is found in America that, as a general rule, teaching music pays better than tuning, consequently, those who have the requisite aptitude are often induced to leave the less lucrative branch. There are, however, many blind tuners who are making good incomes, and the same person sometimes unites teaching, tuning and organ-playing. Six years ago a small class was formed of six boys and six girls, others were added from time to time. Of those who obtained a diploma all have done well: three have been earning from £250 to £350; others from £100 to £200 per annum. The second class were about finishing their second course when I left America: of their success I cannot give definite information. An arrangement is entered into with all pupils joining the music classes by which they engage neither to teach nor to tune unless they obtain a diploma of proficiency. This is necessary to prevent the discredit into which the whole class of blind musicians would be likely to fall through the incompetence of those who are not duly qualified." It is scarcely necessary to mention that the musical notation used at Boston and at the other American schools where music is a serious study is the Braille system. It is not possible to state the case as regards piano tuning better than in the concluding words of M. Gaudet's pamphlet,\* published eleven years ago, and the truth of which has been abundantly proved by the experience of the Paris school:— "Whenever an art or trade is of such a nature that the blind can follow it on equal terms with the seeing, or in other words,

---

\* *De L'Accord Des Pianos par les Aveugles.* Par J. GAUDET—Chef de l'Enseignement à l'Institution impériale des Jeunes Aveugles de Paris.

that there is a peculiarity in it which causes a disappearance of the inequality generally existing between them, this art or trade is especially well suited to the blind, and it is our duty to teach it with as little delay as possible. Now, in pianoforte tuning, the blind are not inferior to the seeing, but, on the contrary possess certain advantages over them; we must therefore train tuners. There is no fear of the demand ceasing, therefore we must train as many tuners as circumstances will permit."

Value of  
written  
music.

It may not be out of place to say a word respecting the exact value to the blind of a musical notation by which they can themselves read and write. For elementary education it seems almost indispensable. The pupil by it can refer to any music he is learning without the necessity of always having recourse to a seeing reader. He can at his leisure study the construction of the piece; he can write out exercises in harmony, &c., and the professor can judge of how he has been employing his time without the necessity of always standing over him. For singing, where the hands are free, the value of embossed music can hardly be over estimated and this perhaps makes itself most felt in part singing. In pianoforte practice the pupil is obliged to read with one hand while he plays with the other, consequently the bass and treble have to be learned separately and afterwards combined by an effort of memory. In the early stages of the course of musical instruction, before the fingers have achieved much dexterity, and while much of the difficulty experienced by the pupil lies in understanding the thoughts of the composer, reading by touch is extremely good practice and accustoms the pupil to work by himself; but for highly finished performers whose time is valuable, it will generally be advisable to drop the slower method of reading for themselves and to train some seeing person to read for them. It does not however follow that because they can afford to dispense with the ladder by which they have mounted, that this was not of the greatest use to them in the early part of their

studies, and that it is not of great value to them at all times. Even the most finished musician with the most retentive memory will occasionally forget a few notes in a composition, which he has not played for some time. If he has an embossed copy in his library and can use it he can at once refresh his memory, otherwise he must be dependent upon a seeing reader.

---

## CHAPTER V.

## ON SCHOOLS FOR THE BLIND.

There is as wide a difference of opinion regarding the best form of school for educating the blind as there is with respect to the best form of alphabet. There are three principal kinds of school which have to be considered. These are 1; the old-fashioned asylum where blind children are boarded, lodged and sometimes clothed. 2. Day schools set apart specially for the instruction of blind children. 3. Ordinary day schools in which blind children are educated along with seeing children. Each of these plans has its advantages and drawbacks, but if the exact nature of the work to be expected from each is clearly understood they might be combined in such a manner as to form a general plan of education, uniting economy with efficiency.

Boarding  
Schools.

The objection to the asylum or boarding school is its expense, and that it withdraws the child from home ties and associations and encourages the parents to expect others to undertake the responsibility which ought properly to be borne by themselves. This evil may be greater or less according to the mode of conducting the asylum, but must always exist to a certain extent; it is, however, often more than counterbalanced by the higher degree of training obtained from a well managed boarding school, owing to the superintendence being more complete than is possible when the pupils live at home.

Day Schools.

The experiment of special day schools for the blind has been tried in Liverpool, Leeds, and by the Indigent Blind Visiting Society of London. The results have been on the whole satisfactory. At a very small annual cost the pupils receive a fair amount of elementary education, and now that

the Braille system of writing is being generally adopted, much better training can be effected than was formerly possible; for the children can write out their exercises at home and bring them to school, so that the master not only knows what is being done during school hours but also what amount of preparation has been made at home; and the pupil becomes accustomed to work for himself which is the first step towards a useful education. The children are surrounded by their seeing brothers and sisters and friends; and a spirit of independence is fostered which may be of great use in after life.

It has been thought by many that it is possible to train blind children in ordinary day schools. Many such isolated cases occur in different parts of England, and at a school at Greenock five blind children are being educated along with seeing children, and the results of those trials seem to be satisfactory up to a certain point. It is undoubtedly a very great advantage to blind children to mingle freely with the seeing; the blind child soon learns to make very free use of the eyes of its companions and thus acquires knowledge by a hundred channels, independently of regular school lessons; but the instruction in school must be very incomplete unless special attention can be paid to the blind pupil, as in class lessons he can only profit by oral teaching, and the greater part of class instruction is addressed to the eye. If however a pupil teacher or monitor devotes a little extra time and trouble to the blind child very good progress will be made. As the best methods of instructing the blind become better understood, it will no doubt be possible to use ordinary day schools more and more for the purposes of primary education, but the point always to be kept in mind is that as the blind are deficient in one most important sense they are deserving of our help and sympathy, and that therefore *those appliances for education must be adopted which are found to be best suited to their wants, even if this involves a little extra trouble to the seeing teacher.* A small additional grant will make it worth his while to make himself

familiar with the very simple contrivances by which knowledge is made to enter the mind by the sense of touch, and unless the teacher will take this trouble he is not fit for his post. These observations apply to all the subjects of primary instruction, but especially to reading and writing; hitherto it has been thought that for blind children in ordinary day schools the Roman letter is essential, as any form of so called arbitrary character would give the teacher trouble and lead to the neglect of the blind pupils. This is certainly forming a low estimate of the ability or Christian spirit of masters and teachers and I should be sorry to believe that it is well founded; my own limited experience has led me to a totally opposite conclusion. If instead of consulting the convenience of the teacher, the method of reading is adopted best suited to the wants of the pupil, that method must be the Braille system, by which the child can write out lessons, take notes, &c. It is unfortunate that one uniform series of school books is not used in all our schools, for if this were the case it might easily be embossed for the blind who might then read their lessons side by side with their seeing companions. When practicable, blind children should be specially instructed in reading, writing, arithmetic and geography, so far as to understand the methods by which these branches of knowledge can be best acquired through the sense of touch, and this instruction should be given in private or in a school set apart for the purpose. But when they have once acquired these processes, much of their elementary education may take place along with seeing children.

A point which should always be considered in the education of the blind is their proper physical development which is very frequently deficient. The same diseases which lead to blindness often give rise to serious constitutional derangement, and even when this is not the case, the blind have not the same inducement to take active exercise as those who can see; and this sedentary tendency should be counteracted, especially in

Physical  
development.

childhood. Walking, running, drilling, certain games, and when practicable swimming and rowing seem to be the forms of exercise best suited to the blind.

We have hitherto been considering only primary instruction, but with persons who, like the majority of the blind, have if possible to earn their own living, we must as early as practicable teach them some occupation suited to their abilities. It has already been seen that where the necessary talent exists, the profession of music is by far the best means open to the blind for obtaining a livelihood, and as the special training should commence early, it is of great importance to ascertain as soon as possible whether the requisite aptitude exists. In such a case the child should commence early, and if first-rate teaching is not to be otherwise procured, the pupil should be sent to an institution where all the requisite appliances exist. If the child has no musical talent, it should be sent, when sufficiently strong, to a working institution to learn a trade, and as such working institutions are now happily found in almost every large town, the pupils will generally be able to go at first for part of the day, gradually diminishing the hours devoted to school instruction and increasing those given to learning their trade. The present institutions should become less and less asylums and workshops, and more and more training schools for high class professional musicians. There are still narrow-minded people, though happily they are yearly becoming more rare, who think it is quite unnecessary to educate the poor to fill a higher station than that in which they were born. To such I would simply say that the lives of most of the blind must be failures, and that if we are able to set off against this a certain per centage of real success, there will still on the whole, and taking adults with children, be a preponderance of failure.

Special  
training.

It has been shown in the last chapter that in France and in some parts of America the profession of music opens to those who have the requisite capacity the opportunity of

obtaining a success which, from its very completeness, is scarcely credited by those who have not witnessed it. When we compare this state of things with that unhappily still existing in our own country the comparison is not flattering to ourselves. Here, a blind musician who can live by his art is a rare exception, and numbers of gifted blind musicians are to be found who are obliged to depend on charity, or to obtain a scanty subsistence by basket-making, brush-making, &c. These men, if they had been Frenchmen, would certainly have been able to maintain themselves in comfort by tuning. It is high time that the facts of the case should be generally known, and that our blind institutions should turn their attention specially to this branch of work. Some of the more advanced provincial blind schools are already alive to the necessity of training tuners, but have great difficulty in carrying out what they know to be right, partly in consequence of the comparatively small number of their pupils, but principally because it is almost essential for the proper training of tuners, to have pianoforte makers within easy reach. It belongs especially to the metropolitan schools to take the lead in this matter, and the St. George's Blind School, with its large revenues and great number of pupils, is in a peculiarly good position to undertake this work, for which its continuance in the metropolis is of course absolutely essential. An Act of Parliament was obtained by this school, about two years ago, to authorise its removal to the country. It is fortunate for the blind that no use has been made of this power, as, among the numerous other objections to such a course, all prospect of its undertaking the training of tuners would have to be abandoned, and thus the best profession a blind man can follow would either have to remain untaught, or a new institution must be founded to do that for which the present school had much better opportunities.

I must not leave this part of the subject without a word of warning. To enable some twenty or thirty per cent. of blind children to obtain a better living and to hold a better position

in society than they probably would have done if they had not been overtaken by blindness is an aim well worthy to be kept in view, but this is not to be attained by half measures. Unless the musicians and tuners have been so thoroughly educated that they will bear comparison with the highest class of seeing professional musicians it would have been better for them and for the blind generally if they had been taught a trade and so have become good basket makers instead of bad musicians. A time will assuredly come when the musical education of the blind of England will be properly carried on. The standard of education of blind musicians leaving our schools is at present so low that they for the most part fail to achieve success, and bring discredit on the whole class. Probably the best thing that could be done would be to establish a school in London, where a thorough musical and general education might be obtained, and which would receive blind children of sufficient musical talent from any part of the kingdom. I have no hesitation in saying, if such a school were well managed and the musical instruction given were of the highest order, that the success in life of the pupils would be certain, and it would prove an incalculable blessing to the blind of England. If such a scheme cannot be carried out, then I would suggest that if the existing institutions take this matter up, an agreement should be made with all pupils entering the musical classes that they will not practise as tuners, organists or teachers, without having first past an examination and obtained a diploma from the Royal Academy of Music, or from some other public body able and willing to undertake such an examination; and that all the pupils of the school, whether musical or otherwise, should submit to a periodical public examination. Such a system would prove a powerful stimulus to masters and pupils, and would introduce a healthy spirit of emulation among the different institutions, comparable to that existing among our public schools.

## CHAPTER VI.

## BRAILLE MUSICAL NOTATION.

The seven last letters of each row in the ordinary Braille alphabet represent the seven musical notes, those of the first row being these notes as quavers, those of the second as minims, those of the third as semibreves, those of the fourth as crotchets. The sign for semibreve stands also for semiquaver, that for minim for demi-semiquaver; the crotchet sign similarly stands for the eighth, and the quaver sign for the sixteenth part of the quaver. Allowing the same sign to stand thus for notes of different duration can never lead to ambiguity if the reader has the slightest acquaintance with music; for a single semiquaver without rests, or sixteen semibreves in the same bar cannot occur, and so with the other divisions of the quaver.

It will assist in remembering some of the musical signs to refer to the full Braille alphabet,\* and to remember that in the musical alphabet the five first lines consist of seven instead of ten signs; we will now see what is done with the three omitted signs of each line. The first two signs of the first two rows are used for fingering signs. The third of the first row is a slur; the third of the second line is the semibreve rest. The three first signs of the third row stand for the three remaining rests. The three first of the fourth row for natural, flat and sharp.

---

\*The full Braille alphabet referred to is an embossed sheet published by the Association, and as none but the blind are likely to give themselves the trouble to acquire a thorough knowledge of the Braille music, it has not been thought necessary to insert it here.

# BRAILLE MUSICAL ALPHABET.

---

	DO	RE	MI	FA	SOL	LA	SI
							
 or 							
 or 							
							
OCTAVE SIGNS (front dots.)	1 	2 	3 	4 	5 	6 	7 
FINGERING SIGNS (back dots.)	1 	2 	3 	4 	5 		In accord with. 
Rests and Accidentals.	 	 	 	 	 	 	 
Intervals.	2nd 	3rd 	4th 	5th 	6th 	7th 	8th 
	 	Short Note. 	Shake. 	Repeat. 	Staccato. 	Dot. 	Double Dot. 
	Double Bar. 	D.C. 	 	P. 	F. 		
	Cres. 	Treble. 		Bass. 			

The three first signs of the sixth row stand for signs of second, third and fourth respectively. If the musical alphabet is compared with the full alphabet, it will be easy to make out the relative position of the other signs.

**Octave signs.**

We have already fixed the duration of a note and its position in the octave. The particular octave on the piano in which the note occurs is marked by the appropriate octave sign written in front of the letter-space, and consequently *immediately* preceding the note to which it refers (the seventh line of the full Braille alphabet is used for the octave signs). Thus  stands for Do semibreve in the 2nd bass octave;  for Do semibreve in the 4th octave, *i.e.* middle C. &c. It is not necessary to precede every note by its proper octave sign. This is always omitted, where such omission does not cause ambiguity. The rule is that in a succession of notes, the first is preceded by its proper octave sign. As long as the octave does not change, the octave sign need not be repeated, unless two notes immediately following each other are separated by an interval of a *sixth* or *seventh*, in which case the octave sign must be repeated. When the octave is changed the octave sign proper to the second note must be inserted in all cases, except when the interval between it and the preceding note is a *second* or a *third*. The reason for these exceptions is simply this—that, as in a succession of notes, *seconds* and *thirds* are much more common than *sixths* or *sevenths*, space is saved by marking only the more unusual interval.

**Chords.**

In writing chords the fundamental note only is written, while the other members of the chord are indicated by their intervals from the written note. This mode of writing is necessary, because as no staff of five lines is used, if the notes of a chord were written consecutively, they would be liable to be taken for *consecutive* notes. In the Treble the highest note only is written, and the lower ones marked by the interval, which

separates them from the written note. In the Bass, on the other hand, the lower note is that which is written, and the upper ones are marked by their proper intervals. The reason of this is that in the Bass the *lowest* note is that which is most important, whereas in the Treble the *upper* note is the most important as giving the tune.

Notes in chords marked by their intervals need not be preceded by their octave signs, even when the octave changes, unless the interval is more than an octave, in which case this is indicated by reckoning the interval from the octave and preceding the sign of this by the signature of the octave in which the note is placed; thus (in the treble) Do in the fifth octave played along with the La in the third would be indicated by writing Do in the fifth octave followed by sign of third octave, and sign of third, giving an interval of

a tenth  If the chord consists of more than two members the proper octave sign may be omitted; thus Do in the fifth octave with its third, octave and tenth, would be written thus,  Here the octave interval of Do in the fifth is Do in the fourth and an interval of a third below this cannot be anything but the tenth from the written note.

When in a chord the notes are of unequal duration it must be written in parts, and between the two parts is placed the sign, "in accord with"  If *e. g.*, in a bar consisting of two minims, two crotchets are to be played with the *first* minim, this would be written thus—the two minims followed by  the two crotchets and minim rest. This will be better seen by the following example in which such a bar is written in the ordinary way and in its Braille equivalent.



Here the minim rest in the second part serves to show that no passing notes are played with the second minim chord, while the two crotchets are played as passing notes with the first minim chord. This mode of writing is, like everything else in the Braille system of music, strictly logical, as the two parts in accord with each other must be of the same duration, and if this is not the case with the notes themselves the necessary rests must be introduced.

A single back upper dot is used to indicate that the characters which follow it are not musical notes, but ordinary letters; thus, if in a piece of music *forte* has to be written it would be  $\bullet \text{ } \text{⠠} \text{ } \text{⠠}$ , the  $\bullet$  indicates that  $\text{⠠}$  stands for the letter and not for *Mi* quaver.

The octave signs immediately *following* a note stand for fingering signs. That for the fifth finger, when unaccompanied by a note, indicates triplets.

Signature  
of Clef.

The Treble part is preceded by the letters M. D. ( $\text{⠠} \text{ } \text{⠠}$ ) standing for *main droite*, or right hand; the Bass commences with the signature M. G. ( $\text{⠠} \text{ } \text{⠠}$ ), for *main gauche*, or left hand. The part marked "M. D." shows that it is to be played with the right hand, consequently *read* with the left; that marked "M. G." is to be played with the left hand, consequently *read* with the right.

The usual way of writing the Bass and Treble parts of any piece of music is first to write a succession of bars in the Treble marked "M. D.," followed by the same number of bars in the Bass marked "M. G."

For teaching, the Bass and Treble are sometimes written above each other; but this is only to give the pupil an idea of the relation which they bear to each other, and is not used in actual practice.

Bars.

Each bar is written like a word, the signs for the notes and other signs taking the place of the common letters. The bar-

space is indicated by leaving a blank space. If the bar is not finished in one line, but continues on the next, a hyphen is used, which in music is a front middle dot.

The double sign for Triplets preceding a piece, indicates that all the notes are triplets, and their cessation is indicated by preceding the last bar by a single sign of triplet. Similarly, two octave signs following one another mean that all the notes are to be played with their octaves, until their cessation is indicated by marking the octave interval with the last note. Contractions.

Similarly, ●●● in the middle and lower holes preceding a piece indicate that all the notes are to be played as short notes, until their cessation is marked by preceding the last note of the series with a single ●●.

●● In the middle and lower holes indicates that the time or the bar is to be repeated.

If a note is followed by ●● in the lower holes, this means that the same *succession* of notes is to be played as that in the last time or measure.

● Followed by a number means that the same *progression* of notes is to be repeated for as many bars as are indicated by the number.

Two numbers succeeding each other mean that the performer has to go back as many bars as are indicated by the first number, and to play as many as are indicated by the second.

Whenever the bar is composed of semiquavers, either by themselves, or in accord with other notes, the first note only of each time is written as a semiquaver, the others, for simplicity's sake, being written as quavers.

“Substitutions”—This is used where the notes are all of equal value, which is not greater than a crochet, and where there is a very frequent change of octave. In such cases the sign of ●● is used, preceded by a sign of octave and followed

by a similar sign. The sign of octave preceding indicates the octave from which the substitution starts; the sign following indicates the length of the notes (which are all equal).

• • • • This means that the notes are crotchets, and that the "substitution" begins on the first octave, (lowest in the Bass); that is, all notes in the first octave are marked as quavers, the second as minims, in the third as semibreves, in the fourth as crotchets.

• • • • • Means that the "substitution" commences the third octave and that all the notes are semiquavers. Those in the third octave are written as quavers; in the fourth as minims; in the fifth as semibreves; in the sixth as crotchets; and so with "substitutions" beginning on the other octaves. Substitutions of course cannot be used beyond the fourth octave, as when commencing on this they reach into the seventh.

⌒    ⌒    ⌒    ⌒    This and its Braille equivalent below mean that the first semibreve stands for eight quavers, the second for sixteen semiquavers, &c.

These explanations can only be considered as an attempt to give some of the leading characteristics of the Braille musical notation and to assist in forming an idea of this, the most perfect and universal musical notation used by the blind. To acquire a really accurate knowledge of it, oral teaching with embossed exercises is almost indispensable.







