

# Intellectual Discourse

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# *Intellectual Discourse*

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# **Muslim Inventors of Reading and Writing Methods for the Blind: Predecessors of Braille**

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**Najla Aljarwan\*\*\*\*\***

**Abstract:** Over the past few centuries, there have been numerous attempts to find suitable methods that would help blind people read and write, thus improving their quality of life. At present, Louis Braille (1809-1852 CE) is probably the best-known inventor creating a writing system known as “The Braille Language” that aids the blind to read and write. Consequently, one question arises: Was Louis Braille the first one to invent the language for the blind, or did others precede him to that? Using descriptive analytical approach, this research aims to present three inventions by three Muslim scholars who created methods for the blind to read and write. The first of which dates to the 5th century A.H. (1009-1106 CE), i.e., seven centuries before Louis Braille’s attempt. After reviewing and studying the relevant literature, the study concluded that like Braille, all three Muslim scholars used the sense of touch to achieve this goal. The first, Muhammad bin Abdul Warith (d. 5<sup>th</sup> century A.H.)

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created embossed figures from pitch analogous to the Arabic alphabetical letters to teach his blind son read and write. Second, Zein-Eddine Al-Amidy, (d. 712 A.H. / 1312 CE) a blind Muslim scholar, fashioned paper-made letters to read, write, and remember the prices of his books. Third, Wazir Al-Sarraj (d. 1149 A.H. / 1736 CE), another Muslim scholar, created waxed letters for his blind teacher to help him read and write.

**Keywords:** Braille language; Blind; Muslim Scholars; Inventions, Read and Write.

**Abstrak:** Sejak beberapa abad yang lalu, terdapat banyak percubaan untuk mencari kaedah yang sesuai yang boleh membantu orang buta membaca dan menulis, sekali gus meningkatkan kualiti hidup mereka. Louis Braille (1809-1852 CE) mungkin merupakan pencipta yang paling terkenal mencipta sistem tulisan yang dikenali sebagai “Bahasa Braille” yang membantu orang buta membaca dan menulis. Kini satu persoalan timbul: Adakah Louis Braille yang pertama mencipta Bahasa untuk orang buta, atau adakah orang lain mendahuluinya untuk itu? Dengan menggunakan pendekatan deskriptif analitikal, penyelidikan ini bertujuan untuk mengemukakan tiga ciptaan oleh tiga orang sarjana Islam yang mencipta kaedah untuk orang buta membaca dan menulis. Yang pertama bermula pada abad ke-5 A.H. (1009-1106 CE), iaitu, tujuh abad sebelum percubaan Louis Braille. Selepas meneliti dan mengkaji literatur yang berkaitan, kajian tersebut mendapati bahawa seperti Braille, ketiga-tiga sarjana Muslim juga menggunakan deria sentuhan untuk mencapai matlamat ini. Yang pertama, Muhammad bin Abdul-Warith (m. abad ke-5 A.H.) mencipta angka timbul daripada nada yang serupa dengan huruf abjad Arab untuk mengajar anaknya yang buta membaca dan menulis. Kedua, Zein-Eddine Al-Amidy, (w. 712 A.H. / 1312 M) seorang ulama Muslim yang buta, membentuk abjad melalui kertas untuk dibaca, ditulis, dan mengingat harga buku-bukunya. Ketiga, Wazir Al-Sarraj (w. 1149 A.H. / 1736 CE), seorang lagi ulama Islam, mencipta huruf lilin untuk gurunya yang buta bagi membantunya membaca dan menulis.

**Kata Kunci:** Bahasa Braille; buta; Ulama Islam; Ciptaan, Baca dan Tulis

## Introduction

According to the World Health Organization, one billion people suffer from some type of vision impairment that could have been prevented or has yet to be addressed (WHO, 2020). Globally, among 7.79 billion people living in 2020, an estimated 49.1 million were blind; 221.4



million people had moderate Visual Impairment (VI), and 33.6 million people had severe Visual Impairment (VI). The estimated number of blind persons increased (by 42.8%) from 34.4 million in 1990 to 49.1 million in 2020 (Bourne et. al., 2020).

The American Council of the Blind and the European Blind Union (ACB, & EBU) demand that information be made accessible to anyone, including blind and partially sighted people, at the same time, and at no additional cost. They state that the right to read is part of basic human rights, and the right to information is internationally recognised in article 21 of the United Nations “*Convention on the Rights of Persons with Disabilities*” (EBU, 2021). Access to the written word is extremely essential for people to participate fully in their societies. It’s important for educational purposes, political involvement, success in the workplace, scientific progress and, not least, creative play and leisure (Sutton, 2002).

Literature have cited several attempts done by inventors creating new methods for the blind to read and write. Some of these methods were helpful in teaching the blind, while others were not, until the birth of the internationally approved Braille Language in 1837 CE (Jime´nez et al., 2009, pp. 144-146). Muslim inventors have, long before Braille, made several attempts to teach the blind by touch, using tar, paper, or wax, which is the subject of this article. But before this, let us take a brief look at the history of the blind, and get to know some famous figures who excelled in their societies despite their blindness.

### **History of the Blind**

The history of the blind is difficult to chart. It has long been assumed that in the ancient world the blind enjoyed few opportunities and lived out their days in penury as beggars, or as wards of their families in the absence of any systematic state or government assistance (Miller, 2006).

From ancient times, and in various regions of the world, people with disabilities have suffered from abuse, negligence, and ridicule. (Saad & Borowska-Beszta, 2019, p.30). Old nations treated handicapped people with contempt and disrespect, and sometimes with cruelty and estrangement. They viewed the disabled as useless people who could not do what is entrusted to them to the fullest, thus they cannot serve the society as expected. Some of these old nations considered the blind to

be harmful to the state, and that they must be disposed of by all possible means for the society to remain strong, and able to carry out the burdens, and costs of life. (Miller, 2013, p.40; Saad & Borowska-Beszta, 2019, p.30). The following paragraph will shed some light on how old nations treated the handicapped in general, and the blind namely during ancient Greeks, Romans, Egyptians, old Arab times pre-Islam, and during Islam.

#### *The Blind during the Greek Ages*

Old Greek literature states that the life of an impaired person in ancient Greece was miserable. Greek laws stipulated that the disabled child should be disposed of and eliminated in childhood; by throwing him/her into the river to die by drowning or leaving them in the freezing cold until they perish with a boomerang. Another law known as “*Preventing the Rearing of Deformed Children*” was recommended by Aristotle to be passed, believing that it was not worth it to bring up a child who could not lead an independent life (Garland, 2020).

Similarly, Plato indicated that the person with disability is considered harmful to his ideal state (Saad & Borowska-Beszta, 2019, p.30). Consequently, the number of those who survived to adulthood was very low if compared to nowadays, and if they managed to survive somehow, the Greek society did not treat the mature disabled with any special sympathy. There is also proof to suggest that any physically disabled Greek would become a scapegoat – called the *pharmakos* – in times of crisis. They were exiled from the city and cursed ritually, thinking that they were harmful to the society (Garland, 2020). As for people with any visually recognisable disability, the Greek rules did not allow them to learn, develop autonomy or marry, because this would inevitably weaken the state. (Saad & Borowska-Beszta, 2019, p.30).

#### *The Blind during the Roman and Egyptian Old Times*

As for the Romans, there was a Roman law code from around the middle of the 5th century BCE called the: “Law of the Twelve Tables,” it has the remark: “*kill the deformed child quickly.*” It was known as well that Spartan children were inspected by the elders on birth and if found impaired, they would be abandoned in the jungle to be eaten by animals and birds. Hesiod, the epic poet who lived around the beginning of the 7th century BCE, records the belief that if a child was born with a deformity, it indicated anger or ill will of the divine. There is every

likelihood that if a child was born deformed and managed to survive somehow, it would be treated as a second-grade citizen. He or she would not be permitted to enter the temple, let alone serve as a priest or priestess, since only physically perfect people could serve the gods. The same is true for ancient Egyptians; blindness in turn, congenital or disease-related, was considered a divine punishment. A man thus handicapped, would sink in a state of uncertainty and darkness (Garland, 2020).

### *The Blind in Arab Society*

As mentioned before, societies in different ancient cultures have implemented various ways to interpret the disability phenomena. Unfortunately, they developed their attitudes to people with disabilities, and to the blind, by oppressing and humiliating them (Borowska-Beszta, 2012). Thinking of the Arab world, Ibrahim, and Ismail (2018) mentioned after Guvercin (2008), the wrong perceptions of disabled people as a factor influencing societal attitudes, leading to exclusion, mistreatment, and deprivation of their rights to equal opportunities in education, employment, and social inclusion. Murad and Walid (2008) wrote that regardless of the positive characteristics of those with disabilities, abled-bodied individuals tend to believe that disabled people are not mature ones, and that they lack essential things. Under this assumption, able-bodied people practiced different forms of discrimination, intolerance, and used stigmatising labels in their daily communication styles towards the handicapped (Saad & Borowska-Beszta, 2019, p.30). Stigmatisation and oppression were marked by inferiority, contempt, abuse, and negligence on the forehead of those with disabilities, as if this society is punishing them for a sin they did not commit. They besieged them in successive circles of educational, psychological, and social hostage, without providing them with the simple demands of liberation from this human oppression and contempt (Saad & Borowska-Beszta, 2019, p.31).

Murad and Walid (2007) continued saying that since the dawn of history, Arab societal view of people with disabilities like the blind, was built on fraught with confusion, misunderstanding, doubt, and despair. Arab societies like other old nations, found it difficult to deal with the disabled psychological, social, behavioral, and emotional disorders. They felt despair especially when those disabilities required special

uninterrupted care, and the provision of certain appropriate conditions for each case, was impossible to be offered at that time. (Saad & Borowska-Beszta, 2019, p.31).

In conclusion, one can say that blindness was assumed to be a ticket to misery, a curse, or a sentence to be a second-class status citizen. (Miller, 2006). Fortunately, things did not remain as is, as after the dawn of Islam, there was a radical change regarding the blind and the disabled ones.

### *The Blind in Islam*

When reviewing the philosophy of Islam regarding the disabled, one finds that unlike the preceding philosophies, Islam has a totally positive attitude towards the disabled, needy individuals, and those suffering from any kind of disadvantageous situation. The Holy Qur'an and al-Sunnah al-Sharifa not only accepted the existence of disabilities as a natural part of human nature, but also set certain values, applied practical proposals for caring for disabled people, and highlighted the significance of such caring. (Al-Aoufi et al., 2012, p. 206). The following paragraph will present a solid proof for what we have formerly mentioned.

In Islam, all Muslims are equal, and the Holy Quran confirms this:

(يَا أَيُّهَا النَّاسُ إِنَّا خَلَقْنَاكُمْ مِنْ ذَكَرٍ وَأُنْثَىٰ وَجَعَلْنَاكُمْ شُعُوبًا وَقَبَائِلَ لِتَعَارَفُوا إِنَّ أَكْرَمَكُمْ عِنْدَ اللَّهِ أَتْقَاكُمْ إِنَّ اللَّهَ عَلِيمٌ خَبِيرٌ) [الحجرات: 31].

“O [mankind!] Behold, Indeed We have created you all out of a male and a female, and have made you into nations and tribes, so that you might come to know one another. Verily, the noblest of you in the sight of Allah is most righteous of you. Behold, Allah is all-knowing, all-aware”. (49:13)

According to the verse, Allah's measure of a human being's worth relies not on physical attributes or material achievements, but on spiritual maturity and ethical development. (Banza, & Hatab, 2005, p.12). The Prophet (PBUH) most explicitly communicates this message when saying: “Verily, Allah does not look at your bodies or your appearances, but looks into your hearts” (Muslim, n.d., 2564).

This connects with the exhortation in the preceding verse (49:11), saying:

(يَا أَيُّهَا الَّذِينَ آمَنُوا لَا يَسْخَرُ قَوْمٌ مِنْ قَوْمٍ عَسَىٰ أَنْ يَكُونُوا خَيْرًا مِنْهُمْ وَلَا نِسَاءٌ مِنْ نِسَاءٍ  
عَسَىٰ أَنْ يَكُنَّ خَيْرًا مِنْهُنَّ وَلَا تَلْمِزُوا أَنْفُسَكُمْ وَلَا تَنَابَزُوا بِالْأَلْقَابِ) [الحجرات:11].

“O, you who have believed, let not a people ridicule [another] people; for they may be better than them; nor let women ridicule [other] women; for they may be better than them. And do not insult each other by [offensive] nicknames”.  
(49:11)

The verse obviously forbids all people from mocking each other and orders them not to call each other with bad names, aiming to conserve everyone’s respect and safeguard each other’s dignity. (Banza, & Hatab, 2005, p.12).

Moreover, the Qur’an and al-Sunnah al-Sharifa take an extra step to stress the necessity of applying the above-stated attitude towards people with disabilities. This is reflected in one of the Qur’an’s chapters, i.e. (سورة عبس) “Surat ‘Abasa,” telling the story of Abdullah Ibn Umm Maktoum, a blind companion, who came to the Prophet (PBUH) asking him about certain religious enquiries. Unfortunately, at that moment, the Prophet (PBUH) was busy convincing some leaders from Quraish to embrace Islam. Unintentionally, the Prophet (PBUH) looked away from Ibn Umm Maktoum’s face and frowned at him. (Al-Tabari, 2000, vol. 24, p. 217). Right then, “Surat ‘Abasa” was revealed started saying:

(عَبَسَ وَتَوَلَّىٰ (1) أَنْ جَاءَهُ الْأَعْمَىٰ ((2) [عبس:1-2].

“He frowned and turned away because the blind man approached him!” (80:1-2).

This incident highlights the fact that Muslims with disabilities are to be treated with full regard and respect, and that they should have the same subject- to-subject relations that are granted to the non-disabled. (Banza, & Hatab, 2005, p.13). Allah courteously blamed his Prophet (PBUH) even for frowning at a blind man – who in reality – did not see that he has been frowned at, which set a supreme norm for all Muslims to respect the blind and all disabled people.

Indeed, such norms were set into practice when the Prophet (PBUH) held Ibn Umm Maktoum in charge for Al-Madina Al-Munawara twice when He (the Prophet PBUH) went out for jihad. (Abou Daoud, n.d., 2931). Also, it was narrated that: “Ibn Umm Maktoum was appointed

by the Prophet (PBUH) to call for the prayers (make Azan). (Muslim, n.d., 381).

Not only this, but we find that the Holy Qur'an exempts the blind, the lame, and the sick from going to the battlefield, saying:

(لَيْسَ عَلَى الْأَعْمَى حَرْجٌ وَلَا عَلَى الْأَعْرَجِ حَرْجٌ وَلَا عَلَى الْمَرِيضِ حَرْجٌ) [الفتح: 71].

“There is not upon the blind any guilt, or upon the lame any guilt, or upon the sick any guilt [for staying away from a war in Allah's cause”, (48:17)

In summary, one can assert with no doubt, that the Holy Qur'an was the earliest initiator and defender for disability rights.

Likewise, 1,400 years ago, way before the UN Convention on the Rights of Persons with Disabilities was enacted, following the commands of the Holy Qur'an, Prophet Mohammad (PBUH), worked hard to ensure that people with disabilities were catered for and were given their rights and privileges, including the right to a normal life just like anyone else. (Islam, 2020). He (PBUH) was so keen to comfort all people especially those with disabilities and raise their self-esteem. This is mirrored in the following narrations:

1. Anas bin Malak R.A., narrated that the Prophet (PBUH) said: “Allah said: If I afflict any human being by losing his/her eyes and they showed patience for this loss, Paradise will compensate them for this.” (Al-Bukhari, 2001, 5653).
2. Also, Abou Huraira R.A. narrated that the Prophet (PBUH) said that: “Whoever Allah wants good for, He will afflict him.” (Al-Bukhari, 2001, 5645). (Meaning He afflicts him with calamities hoping to purify him from his sins, so that he will meet the Al-Mighty sin free”.
3. Similarly, Al-Sayida Aisha R.A. narrated that the Prophet (PBUH) said that: “Any Muslim is not afflicted by hardship, disease, anxiety, sadness, injury, or distress, not even a thorn pricked by a thorn, except that Allah expiates some of his sins”. (Al-Bukhari, 2001, 5640; & Muslim, n.d., 2572).

So, this was a brief snapshot showing how the Holy Qur'an and al-Sunnah al-Sharifa viewed the blind and the disabled. Of course, what was documented in the Islamic literature in this regard is so huge and

goes beyond the scope of this article. But one might ask: what about Muslim Leaders who came later, did they follow the teachings of their Prophet (PBUH) regarding the disabled? This will be answered in the following points:

- a. As for Muslims' Caliph, an outstanding role model was Omar Ibn Al-Khattab (40 bA.H.-23A.H.), the second Rashidun Caliph, who used to take care personally for an old blind lady, cleaning her house and meeting her daily regular needs. (Ibn-Khathir, 1988, vol. 7, pp.152-153). Also, Omar R.A. granted a man with a disabled child a house near the mosque, when the father complained that his son was unable to reach the mosque because of his disability. (Aljazoli, 2004).
- b. Next, in the second Islamic state in Damascus, al Walid ibn-Abdul Malik (50-96 A.H.) the Umayyad Caliph, who assigned for each blind a guide to lead him and for each disabled and needy individual a caregiver. (Al-Tabari, 1967, vol. 6, p. 496). Interestingly, Taqi al-Din al-Maqrizi said that al-Walid was the first person to build the *bimirstan* (hospital) in Islam during the year 88 A.H. /706 CE, to accommodate the intellectually disabled as part of its services. He also locked up people with lepers in special hospitals and granted them a fixed allowance during their sickness. (Issa, 1981, vol.1, p. 10).
- c. A further example was Omar bin-Abdul Aziz (61-101A.H.), the eighth Umayyad Caliph, who took special care of the disabled as well, when he ordered for every blind a guide to lead him/her through the way. Similarly, he gave orders that each two incapacitated people or those with chronic disease should have a servant to take care of their needs. (Ibn-El-Hakam, 1984, vol. 1, p. 54). In addition, This Caliph gave orders to all the leaders in Iraq, Damascus, and other cities that all poor, needy sick people, and those with any kind of physical disability must be allocated a regular monthly income. (Al-Tabari, 1967, vol. 6, pp. 569-570).

The above mentioned examples provide solid evidence for the massive support being given to the blind, needy, and disabled people in the early Islamic societies. Indeed, Islam gives all groups within the society full attention; each has their own rights, dignity, and respect

including those with disability (Al-Aoufi et al., 2012, p.207). This was the general perception of Islam towards the blind and other disabled individuals. As for the West, equally, the world began steadily to change its view towards the blind too, and this happened during the Enlightenment period which will be discussed in the following paragraph.

#### *The Blind during the Enlightenment Period*

During the *Enlightenment* of the 17th and 18th centuries, philosophers in Europe introduced new questions about blindness and the nature of the blind. The Anglican philosopher, George Berkeley in an essay *Towards a New Theory of Vision* (1709), set rhetorical scenarios which allowed speculation as to the nature of learning and understanding by the blind. If understanding was generated from within, as Berkeley argued, then there was no reason a blind person could not learn as well as the sighted (Miller, 2006). This led to the new phase of educating the blind.

#### *Educating the Blind*

French philosopher Denis Diderot – originator of the philosophical foundation for educating the blind – penned one of the first treatises to include significant discussion about the education of the blind in his paper “*Letter on the Blind for the Use of Those Who Can See*” (1749). The essay suggested that the sense of touch could be honed for reading in blind persons, pre-figuring the 19th-century invention of Braille’s writing system. He emphasised the role of sensory experience in human accomplishment, espousing the idea that the ability to see was not central to the ability to understand and reason. Diderot argued that the blind could be educated so long as the educator focused on what skills the blind person possessed and not on the lack of sight. Next, in 1784, Professor Valentin Haüy – a French calligrapher – opened the first school for the blind in Paris, where Louis Braille got some of his primary education, before introducing what is known now as the Braille Language (Miller, 2006).

After this summary about the history of the disabled and the blind during the old times, let us mention some of the inspiring outstanding blind figures who left us a huge and valuable literary legacy that contributed to the enrichment of the world’s cultural heritage.

#### *Among Some of the Well-known Blind Figures*

Historical knowledge of the lives of blind people in the pre-modern Western world is extremely limited. What is left to the historian is a



collection of biographies of “extraordinary” individuals, starting with Homer (around 701 BCE): one of the greatest and most influential Greek writers, known as the author of the *Iliad* and the *Odyssey*, to John Milton (d.1674 CE), an English poet and prose polemicist, known for his epic poem *Paradise Lost*, to Louis Braille (d. 1852 CE), a French educator, and the inventor of the *Braille Language*, which is the subject of this article, then to Helen Keller, an American author (d. 1968 CE), known as the disability rights’ advocate, and finally to Jorge Luis Borges (d. 1986 CE), an Argentine short-story writer, essayist and poet, who contributed to philosophical literature and the fantasy genre. These figures and many others not mentioned in this article, proves that blind people can pull together to create an honourable tapestry of blind people’s history (Miller, 2006).

As for blind people in the pre-Islamic period, i.e. that preceding the revelation of the Qur’an to the Prophet Muhammad PBUH, also known as Al-Jahiliyya (Al-Tahanawi, 1996, vol. 1, p. 547), or during Islam, literature cited many well-known names, whose blindness did not stop them from leading a successful and productive life, leaving valuable literary work that enriched the Arabic and the Islamic literature, amongst whom we mention Al- Aa’sha (d. 629 CE), one of the most prominent pre-Islamic poets, known for his ten *Mu’allaqat*, which is one of the most famous Arabs’ poetry. Some said it has been called so because, like precious jewels, it sticks to the mind. Others said that these poems were written in gold water and hung on the Kaaba’s curtains before the advent of Islam (Ibn Khaldun, 1988, vol. 1, p. 804; Al-Rafi, n.d. vol. 3, p. 121). Abdallah bin Umm Maktoum (d. 15A.H.) one of the Prophet’s blind companions (mentioned earlier), whose blindness did not stop him neither from memorising and teaching the Holy Quran, nor from being one of the bravest Muslim martyrs when he insisted to share in al-Qādesiya battle despite his blindness. Al-Qādesiya was a decisive battle that took place during 14/15 A.H., when Muslims’ army overcame a larger Sasanian army. This victory paved the way for Islamic subsequent conquest of Iraq (Ibn Kathir, 1988, vol. 7, p. 51). Qatada bin Da’ama Al-Sadusi (d.118 A.H.) was one of the top Muslim scholars who specialised in Hadith, Tafsir, and the Arabic Language. He classified many important books and was known for his extra-ordinary memorisation power. Bashar bin Burd (d.168 A.H.) was known as the leader of the reformed poets of his time. There was also Abu al-Ala’a’

Al-Maa'rri (d.449 A.H.), considered as one of the greatest classical Arabic poets, a thinker, and a writer from the Abbasid era. In the modern era, there was also Taha Hussein (d.1973 CE), an Egyptian writer and an intellect, who was nominated for the *Nobel Prize in literature* fourteen times.

### **Innovative Methods for the Blind to Read and Write**

The two preceding paragraphs cited names of some notable scholars whose blindness did not prevent them from becoming famous writers, poets, or thinkers. On the other hand, there are some other people – Muslims and non- Muslims – who excelled in a different manner, i.e., by creating new means, or inventing new systems to educate the blind helping them read and write. Their attempts will be discussed fully in the following section, starting with Louis Braille.

#### *Who is Louis Braille?*

Louis Braille was born on 4 January 1809 CE in Coupvray, a small town about 20 miles from Paris. At the age of three, Louis Braille stabbed his right eye with a sharp tool. By the age of five, Louis Braille was completely blind. On 6 January 1852, at the age of 43, Louis Braille died from tuberculosis that he endured for many years. (Miller C. M., 2006, pp. 2,13,16).

#### *Origins of the Braille System*

Note that the first reading system by touch for blind people was created by Francesco Lana Terzi (1631-1687 CE), an Italian professor of physics. In 1670 CE, he wrote “How a blind person from birth can not only learn to write, but also hide his secrets in code and understand the answer using the same code.” The importance of the system designed by Lana is that it was the invention of a reading system not based on the system of sighted people. Other trials and attempts followed; however, many of these trials were unpractical, thus had limited usage. Later, Valentine Haüy (1745-1822 CE), devised a different system which was based on reading Roman letters in relief (Jime'nez et al., 2009, p. 144).

During his childhood, Braille used the education system developed by Valentine Haüy based on reading Roman alphabet letters using the sense of touch. This writing system was based on typographical composition. Blind people could read by recognising ordinary letters

in relief by touch, and the same system was used to teach arithmetic. (Jime'nez et al., 2009, p. 144).

### *Barbier's Sonography*

The immediate precursor of the raised dot-based reading system employing touch, known as the Braille system, was the creation of a French artillery captain, named Charles Barbier de la Serre (1767-1841 CE), who developed a unique system known as "night writing" for soldiers to communicate safely at night. Although Barbier's method is acknowledged as highly important, his sonography was not useful for spelling, dictation, or calculation tasks. However, it might be fair to say that without the creation of the Barbier system, it is very possible that the Braille's alphabet might not have existed (Jime'nez et al., 2009, p. 145).

### *Birth of the Braille Language*

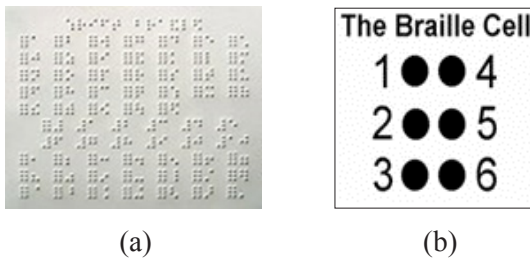
Although it was not designed for the blind, Louis Braille used Barbier's slate with minor modifications to write his alphabet. In 1825, at just 16 years of age, Louis Braille had already completed the essence of writing by touch. In 1829, the procedure was published in his work titled: "*Procedure for writing words, music, and Gregorian chant using dots, for use by the blind and made by them (Proce'de' pour e'crire les paroles, la musique et la plain-chant au moyen de points, a l'usage des aveugles et dispose's por eux).*" In 1837, this edition was improved and even simplified, and the first book was printed using the Braille system. The 1837 text defined the alphabet, numbers, spelling signs, and musical notation, and it is essentially very similar to the current Braille system (Jime'nez et al., 2009, p. 146). So, let us look at the real configuration of the Braille Language.

### *Braille Raised Dotted Language*

Braille raised dotted Language is a writing system that uses embossed paper. It consists of characters – small rectangular blocks – called cells that contain tiny palpable bumps called raised dots (Sultana et al., 2017, p. 195). To read in Braille, a visually impaired individual would use the two index fingers, one being the "focus" and the other being the "context".

Braille dots are numbered from 1 to 6 and arranged in 2 columns and 3 rows. Different combinations of dots indicate various characters of the language. There are sixty-four possible combinations that use one or more of these six dots. A single cell can be used to represent a letter, number, punctuation mark, or even a whole word. A person can use one or both hands to read the Braille characters. Braille is not a language, but a code by which many natural languages such as English, Arabic, Spanish, Chinese, and dozens of others are written and read (Dasgupta et al., 2017).

Figure 1: (a) Braille raised dotted language; (b) Braille Cell



Later, an 8-dot Braille Unicode was introduced to facilitate the Computer Braille that could represent all 95-computer characters with one Braille cell itself. The 8-dot Braille can represent a maximum of 256 unique symbols. It has a huge potential to provide the ultimate solution to Braille users while writing texts (in English or in other languages) as well as mathematical and technical texts (Garg, 2016).

#### *The Acceptance of the Braille System in France*

During his lifetime, Braille received recognition for inventing his alphabets only from a small circle of people, and never received formal public recognition. It was not until 1854 that the Braille system was officially adopted in France (Miller C. M., 2006, p. 8).

#### *Recognising Braille's System as a Universal Language by UNESCO*

In March 1950, UNESCO adopted the recommendations at the Paris International Meeting on Braille Uniformity. On 21<sup>st</sup> February 2005, and in cooperation with the World Blind Union, UNESCO chose to highlight the Braille system as a "vital language of communication, as legitimate as all other languages in the world" (Jime'nez et al., 2009, p. 148).

However, it must be noted that despite its international recognition and widespread usage, Braille's system represents only one of several preceding unknown attempts to develop useful systems for the blind to read and write. Biographies of well-known Muslim scholars mentioned that three Muslim pioneers have various attempts at creating letters for the blind, preceding Braille. Although not much is known about how many people benefited from those trials still, these inventions should not be overlooked, but need to be acknowledged and presented to the world. The following paragraphs will describe the three discoveries and highlight some of its peculiarities.

### **Muslim Inventors Pre-Braille**

Literature quotes various accomplishments of Muslim scholars making great achievements contributing to the Islamic civilisation. Some of these scholars were not blind, while others were born blind, or maybe lost their sight after some time, still they were able to overcome their disability, presenting extraordinary work for the benefit of others; (Abdul Aziz et al., 2018), among whom we mention Mohammad bin Abdul-Warith (5<sup>th</sup> century A.H.), Zein Eddine al-Amidy (d.712 A.H. /1312A CE), and Wazir Al-Sarraj (d. 1149A.H./1736-1737 CE). These three Muslim Pioneers succeeded to discover three different reading methods for the blind before Braille, and we will start with the first one: Mohammad bin Abdul Warith. (Ibn-Hazm, 1900; al-Safadi, 2007; Mahfouz, 1994).

*Mohammad bin Abdul-Warith (5<sup>th</sup> century A.H. /1009-1106 CE).*

Mohammad bin Abdul Warith is an astounding Muslim inventor who lived in Andalusia in the fifth century A.H. (1009-1106 CE). Unfortunately, little is known about Abdul Warith's personal life or about his career. But one can conclude that Abdul Warith was a highly knowledgeable individual – if not a very well-known Muslim scholar – and an exceptionally talented and skilled person to invent letters for the blind at that date. This conclusion is confirmed firstly by being determined to teach his blind born child by himself despite the hard circumstances existing at that time, secondly by the fact that his second son Ahmad, was the private tutor of Ibn Hazm al-Andalusi (384-456 A.H.), a Muslim polymath whose writings gained much fame. In fact, the credit goes to Ibn Hazm al-Andalusi who fortunately recorded Abdul Warith's invention in one of his books titled *Al-Taqrīb li Hadd al-*

*Mantiq* (Approximation of Logic). Ibn Hazm says: “My teacher Ahmed bin Muhammad bin Abdul Warith told me that his father, Mohammad bin Abdul Warith, created a method for the blind to read and write. Originally, he invented it for his young son who was born blind” (Ibn-Hazm, 1900, p.192).

#### *Abdul Warith's Embossed Letters*

As mentioned earlier, Ibn Hazm al-Andalusi was the sole Muslim scholar recording Abdul Warith's invention in his book, *Al-Taqrīb li Hadd al-Mantiq*, when he said “At first, Abdul Warith made few embossed palpable figures representing the letters of the alphabet from pitch (or tar).” Using his sense of touch, Abdul-Warith instructed his blind son to touch these embossed figures until the boy was able to configure the form of these figures in his mind. Next, he asked him to touch several sequences of various combinations of these embossed letters, thus giving more familiarity to them. With training, the child started to combine multiple different alphabetic letters with its corresponding palpable tar figures to form a word. Shortly afterwards, the blind child was able to form a series of different words, followed by another set of words, then forming a line, and so on so forth until he completed one whole book. With persistence and continuous hard work, Abdul Warith's blind son was able to read and write by himself (Ibn Hazm, 1900, p.192).

Only this much is known about Mohammad bin Abdul-Warith's invention. Had he taught others the embossed letters, he would have no doubt changed those peoples' way of life. Learning to read and write from a blind's person perspective is by far more than just learning the alphabet, it represents a way of connection to the world, to be more involved, dynamic, independent, and productive; one can say it is a *Way to Life*. Interestingly, in some of his verses, Abu al-Ala'a' Al-Maa'rri (d.449A.H.), a blind poet (mentioned earlier in the first section of this article) affirms that reading by touch was well-known among Arabs living during the fifth century A.H., when he said:

كَأَنَّ مُنَجِّمَ الْأَقْوَامِ أَعْمَى لَدَيْهِ الصُّحُفُ يَفْرُؤُهَا بِلَمْسِ  
لَقَدْ طَالَ الْعَنَاءُ فَكَمْ يُعَانِي سَطُوراً عَادَ كَاتِبُهَا بِطَمْسِ

“It is as if a blind astrologer has scrolls that he reads by touching.

The suffering has taken so long, how many lines the writer has to write in obliteration”.

Based on this, Abdul Warith's attempt to help his blind son to read and write should be recognised. His name should be honoured for the remarkable effort that he made. After Mohammad bin Abdul Warith's amazing story with his blind son, let us discuss another attempt done by Zein Eddine Al-Amidy, a distinguished Muslim scholar, who should be credited for being the first to invent an innovative model for the blind to read and write before Braille.

*Zein Eddine Al-Amidy (d.712 A.H. /1312 CE)*

He is Al-Imam Abou El-Hassan Ali bin Ahmed bin Yusuf bin Al-Khader Al-Amidy commonly known as Zein Eddine Al-Amidy. Nothing is mentioned about his birth date, but it is known that he was originally from Amid, the most important province of Diyarbakir in the northeast of the Levant, in what is present-day Turkey. However, he was born in Baghdad, and spent all his life in it until he died there in 712 A.H. / 1312 CE.

*Zein Eddine Al Amidy's childhood and educational background*

Literature quotes that Al-Amidy became blind during his childhood, but nothing is mentioned whether it was congenital or disease-related. For learning, Al-Amidy attended different Shaykhs' Councils in Baghdad, such as the one headed by Majd al-Din Abd al-Samad Ibn Abi al-Jaish, Shaykh of Reading (*Qira'at*) in Baghdad (d.67 A.H.) and other councils specialising in Fiqh, Arabic language, and other sciences.

Remarkably, Al-Amidy became one of the most senior scholars in Hanbali Jurisprudence. He was a prolific scholar who mastered not only the sciences of the Arabic Language, but other languages too, including Persian, Turkish, Mongolian, and Latin. He also penned such tomes as *Jawahir al-Tafsir fi 'Ilm Al-Ta'bir* (Gems of the Science of Composition) (Zerkli, 2002, vol. 4, p. 257), *Muntaha al-Usul Fi 'Ilm al- Usul* (The Ultimate Basics of the Principles of Jurisprudence), and *Ta'alik fi al-Fiqh al-Hanbali* (Comments on Hanbali Jurisprudence) (Ibn-Hajar, 1972. vol. 4, p. 25).

*Zein Eddine Al Amidy's Invention: Reading by Touch*

Despite his blindness, Al-Amidy was an exceptional man, possessing an insight that surpassed those of the sighted. He was an inspiring figure. His disability did not prevent him from becoming a famed Professor

in Al-Mustansiriya School in Baghdad, the largest University in the world at that time. He was so creative, inventive, and proficient that the presidency of the University allocated him a single room on the University's campus in recognition for his outstanding innovative work.

Being blind since his childhood, Al-Amidy got motivated to find a way to read and write. His job as a Librarian – if we can name it so – left him with no other choice but to invent a method to read and write. Interestingly, Al-Amidy used to gather all kinds of books, assemble them on shelves to sell them later. It was reported that during his daily trading, whenever Al-Amidy bought a book, he took a piece of paper, twist it to take the shape of one of the alphabetic letters. Then, he used “these small, twisted papers” to know the price of the books he was selling (Al-Safadi, 2000, vol. 20, p. 127). Al-Amidy affixed these paper-made letters at the edge of each book's cover. If he forgot the price of any book, he would touch those papers-made letters he fixed to the edge of every book to know its exact price (Zerkli, 2002, vol. 4, p. 257).

From Al-Safadi's past description to Al-Amidy's method, one can infer that Al-Amidy made his paper letters relatively prominent so that he could read through touch, a similar principle applied by Braille five centuries later (Al-Safadi, 2000, vol. 20, p. 127). Being an outstanding scholar with exceptional insight, Al-Amidy was able to tell the contents of any book just by touching its cover. Not only that, but he was able to tell the number of lines in any page only by moving his fingers over that page (Al-Safadi, 2007, vol. 1, p. 191).

Ibn Hajar al-Asqalani, a famous Muslim scholar (d.852 A.H), recorded Al-Amidy's extraordinary abilities in mastering his innovative method, asserting that he was famous for this invention (Ibn-Hajar, 1972, vol. 4, p. 25). Similarly, according to a study published in 1911, Ahmad Zaki Pasha (an Egyptian philologist, d.1934 CE) said that: “Zayn Eddine Al-Amidy's method preceded Braille's by about six hundred years” (Zaki-Pasha, 1911, vol. 61, p. 77). Also, in his book *The Civilization of Baghdad in the Abbasid Era*, Mikhail Awad (an Iraqi historian, d.1996 CE.) said: “Al-Amidy is the first one to master this art before Braille, and if we want be fair enough, the whole credit should go to Al-Amidy creating a language for the blind by touch before Braille”. Mastering how to read, write, and do arithmetic calculations using this



unique genuine method, Al-Amidy's succeeded to live a fruitful life like the sighted; working, learning, teaching, *and classifying books*.

*Wazir Al-Sarraj (d. 1149A.H./1736-1737CE)*

Muhammad bin Muhammad bin Muhammad bin Ahmed bin Mustafa Abu Abdullah al-Andalusi, also known as Wazir Al-Sarraj, was a Tunisian polymath. He was also a famed scientist, historian, writer, poet, and a remarkable inventor. He was born in Tunisia in 1070 A.H./1659 CE and he lived there until he died in 1149A.H. /1736-1737 CE (Mahfouz, 1994, vol. 5, p. 138; Makhlouf, 2003, vol. 1, p. 471).

He was proficient in Islamic Jurisprudence, Hadith, Literature, Poetry, and History. He received his education from several Shaykhs at the Zaytuna Mosque including Ibrahim Al-Jamal, Muhammad Fatata, Muhammad al-Hajij al-Andalusi, Ali and Muhammad al-Ghamad, Saeed al-Sharif, Al-Sfakisi Muhammad, al-Sagir Daoud, Muhammad Ashour, Ahmad Birnar, and many others (Mahfouz, 1994, vol. 5, pp. 138-139; Makhlouf, 2003, vol. 1, p. 471).

*Wazir Al-Sarraj's Career*

Al-Sarraj taught in several schools, eventually becoming well known in the fields of science and literature. Later, he was employed by Prince Hussein bin Ali (the founder of the Bayat State) as a teacher at Zaytouna Mosque. The prince was happy with Al-Sarraj's performance, and appointed him in different key positions. Interestingly, Prince Hussein permitted Al-Sarraj to hold special regular meetings with other Muslim scholars to share general knowledge, and to update them about his great book in progress entitled *Al-Hullal al-Sundusiya*. Also, Prince Hussein asked Al-Sarraj to prepare the text that he inscribed on his official seal to stamp his letters and looked forward for Al-Sarraj's companionship in some of his travels (Mahfouz, 1994, vol. 5, p. 138).

*Wazir Al-Sarraj's Reading Method*

Although not blind, Al-Sarraj invented a reading method for the blind upon the request of his blind teacher Shaykh Ibrahim Al-Jamal Al-Safaqisi. This was mentioned in the book titled: *Trajim Al-Mouelifin al-Tunisien* in the biography of Shaykh Ibrahim al-Jamal, a blind reciter of the Holy Quran (Mahfouz, 1994, vol. 2, p. 54). Upon the request of his teacher, Al-Sarraj created waxed figures to fashion models of the

Arabic alphabets for his old blind shaykh to read and write (Mahfouz, 1994, vol. 2, p. 54). Unluckily, this much was only recorded about Wazir Al-Sarraj's waxed letters, but one can imagine that he asked his blind teacher to touch these waxed letters, get acquainted to their forms, then relate each form to one of the alphabetic letters, until Sheik Ibrahim al-Jamal was able to read and write. This simple reading method by touch for the blind preceded Braille's system by nearly a century.

To sum up, one can notice that the three previously mentioned inventions, whether made from embossed palpable figures of tar as Abdul Warith did, or from paper as Al-Amidy did, or from waxed as Wazir Al-Sarraj did, all used the sense of touch to read and write as Braille did later.

## Conclusion

The invention of writing by raised objects or dots was an event of enormous historic importance for blind people. It was a milestone in the history of education for the blind, and it put the universe of reading within their reach. Three Muslim pioneers invented three creative methods for the blind before Braille. Going as far back as the 5<sup>th</sup> century A.H. (1009-1106 CE), Muhammad bin Abdul Warith invented embossed figures from pitch for his blind son. This was then followed by Zein Eddine Al-Amidy (d.712 A.H. /1312 CE), who invented paper-made letters for himself to read, write and sell books. Finally, Wazir Al-Sarraj (d. 1149A.H. /1736-1737 CE) created waxed letters for his blind teacher to read and write.

Presently, Braille's raised-dots system has been adapted to many other native languages other than French, thus serving a wide range of blind people all over the world. Ultimately, blind, and visually impaired people around the globe are benefiting from the outstanding innovative trials of a long line of past inventors, whose contributions should be cherished.

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