A Brief History of Tactile Writing Systems for Readers With Blindness and Visual Impairments

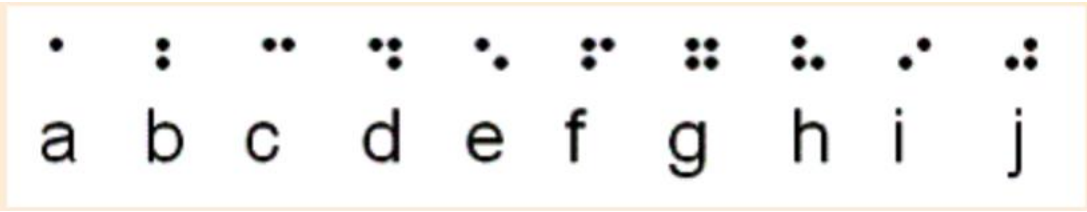
By Holly L. Cooper, Ph.D., Outreach Assistive Technology Consultant, TSBVI

Abstract: This article describes and illustrates a variety of tactile writing systems used with individuals with blindness. Tactile codes included are New York Point, Boston Line Type, American Modified Braille, Moon type, Fishburne and standard Braille. Alternative media including Tack-tiles and tactile symbols are also discussed.

Key words: Programming, Braille, tactile symbols, tactile writing, reading.

This year, 2006, is the Sesquicentennial anniversary of the founding of the Texas School for the Blind and Visually Impaired. In 1856, when TSBVI was founded, not only was Texas on the frontier of the American west, but education for people with blindness and visual impairments was also at the frontier of education. At the time there was no standard tactile reading code for people with blindness. In recognition of the advances and changes in blindness education in the last 150 years, we present an overview of tactile reading and writing codes for people with blindness.

Braille, the reading and writing code currently used in the U.S. and other English-speaking countries by readers with blindness and visual impairments, was invented by Louis Braille. Braille was a Frenchman who lost his sight from an eye infection caused by an accident with his father's leather working tools in childhood. Louis Braille developed his ideas for a tactile code system adapted from French soldiers who wanted to be able to read notes in the dark. Louis Braille modified this 12-dot system into 6 dots and had written in Braille and taught others by 1832. Braille was introduced in the U.S. about 1860 and was taught at the St. Louis School for the Blind and other schools.



Braille

There have been many other tactile reading media for people with blindness in the past 200 years. Originally, most reading instruction was done with books made with raised or embossed letters created by wetting paper and printing with an ink printing letterpress. People also learned letters and reading by using carved wooden letters arranged into words, and letters made with bent and twisted wire. It was long thought by educators of blind people that having a tactile code different from letters that sighted

people read would separate blind people from the mainstream of society and limit the amount of reading material to which they had access. Special reading codes would also mean teacher training was more demanding, and finding teachers able to work with students with blindness more difficult. Around the same time Louis Braille was developing his code, other codes were also being developed. Many blind students secretly learned Braille and other dot-based tactile writing codes when their schools officially taught embossed letters. Ultimately the dot-based letters of Braille became the most widely accepted tactile reading code in English speaking countries, and most of the world.

Boston Line Type

Boston line type was developed by Samuel Gridley Howe, the founder of the New England School for the Blind (later Perkins School for the Blind) in Massachusetts. Since at the time there was no reading medium for people with blindness, Howe developed an embossed simplified angular roman alphabet without capitals which he called Boston line type. He published the first book in Boston line type in 1834, and this type continued to be the primary tactile reading code used in the United States for the next 50 years. The American Printing House for the Blind first published books in Boston line type, and it was the official code used by students at Perkins until 1908.

Embossed type, probably Boston line type

New York Point

William Bell Wait, working in New York in the middle 1800's, developed a point code for readers who were blind that used characters which were two dots high and one, two, three and four dots wide. Working at New York Institute for the Blind, Wait began teaching this system to students and invented a point writing machine called the Kleidograph which allowed for easy production of text without the use of slate and stylus. New York Point was widely used by schools for the blind in the United States in the late 1800's. Mary Ingalls, the sister of Laura Ingalls Wilder author of the Little House books, learned New York Point and embossed letters at Iowa Braille and Sight Saving School in the late 1870's and 80's.

The New York Point alphabet

American Modified Braille

Joel Smith, a piano-tuning teacher at Perkins School for the Blind in Massachusetts, developed the American Modified Braille Code in the 1870's. When developing his system, Smith designed characters he believed **would** be fast to read and an efficient use of paper. This code was used in 19 schools for the blind in the United States, including Perkins. American Modified Braille assigned the fewest dots to the characters that occur most often in the English language. If you look at American Modified Braille, you will see the familiar three dot high and two dot wide characters, but dot configurations correspond to different print letters and letter combinations than standard Braille today.

American Modified Braille

Writers

Before the development of Braille writing machines, people writing Braille used a slate and stylus. The slate held the Braille paper and provided a template for the dot locations, and the stylus was used to punch holes into the paper. Since the dots are raised, the person had to learn to write in reverse from the back of the paper. Frank Hall, superintendent of the Illinois School for the Blind, developed a personal Braille writing machine in the late 1880's. In the next decades, other inventors developed writers for Braille and New York Point. Since most machines were not mass produced, their reliability and consistency of writing varied widely. In the 1930's, the American Foundation for the Blind commissioned a Braille writer from a typewriter manufacturer. It was heavy and not durable enough for practical use. Later, David Abraham of the industrial arts department of the Perkins School For the Blind worked to develop a Braille writer at the urging of Gabriel Farrell, director of Perkins. He had a model working by the early 1940's but the war years limited manufacturing. After World War II, Abraham's Braille writer went into production and was on the market in 1951 as the Perkins Brailler.

Since the Perkins Brailler is available to students who read Braille in the United States at no cost through a quota funds system with American Printing House for the Blind, it is the most widely used method of writing Braille in the U.S. However, many other Braille writers are available, particularly in Europe. Now the Tatrapoint is available in the U.S. from Maxiaids. It is lightweight and easily portable with some components made of high-impact plastic. The adaptive model allows adjustment to accommodate different hand and finger sizes. Quantum Technology in Australia recently released a small manual brailler called the Jot-A-Dot. It uses letter weight paper of a small size and is intended for taking short notes. The same company also makes the Mountbatten Brailler, an electronic Braille writing device which talks. Some models interface with computers and ink printers. The Mountbatten provides good support for people helping students who read Braille, but who don't read Braille themselves.

Braille Writing Devices

Slate and stylus

Perkins Braillewriter

Jot-a-dot

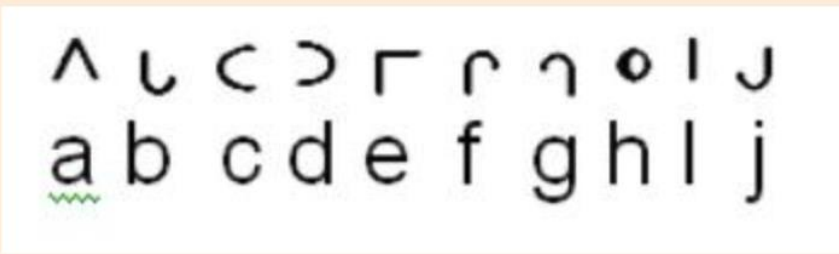
Mountbatten Brailler

Moon

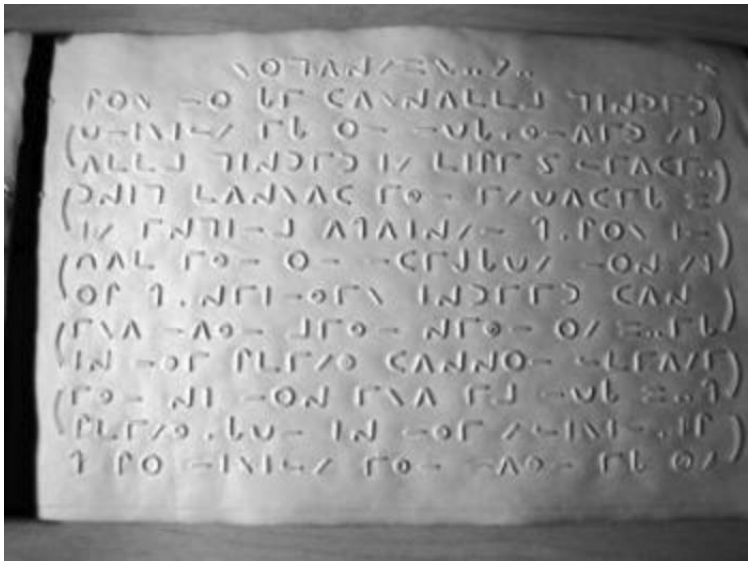
William Moon of Great Britain lost much of his sight in childhood from scarlet fever. After finishing school in the mid 1800's Dr. William Moon experimented with a variety of raised alphabets for teaching reading and writing to blind students. He eventually settled on Moon type, a raised line code based on print letters. Still used in Britain for people with learning or fine motor difficulties, and those who have lost their sight later in life, Moon type is believed by its supporters to be easier to learn and more tactually simple to discriminate than Braille. Although almost unknown in the U.S., books in Moon are available from the Royal National Institute for the Blind and are available in Canada and Australia as well as Great Britain.

Moon can be generated with computer software today. Duxbury, readily available in the U.S. has an English Moon translator available in their "translation tables" menu. Files can be embossed in a "dotty Moon" style with an Enabling Technologies embosser with a Moon setting. Some Moon fonts can be found on the Internet for use with a computer.

Moon books are still produced through a modified typesetting process. Reading materials are now also generated with Moon Writers, thermoform machines, computer Moon fonts printed on swell paper, and Moon translation software and embossers. Moon can also be handwritten with a stylus on plastic sheets with a frame guide in a manner similar to using a slate and stylus to produce Braille. A Moon teaching curriculum is available from Royal National Institute for the Blind in Great Britain.



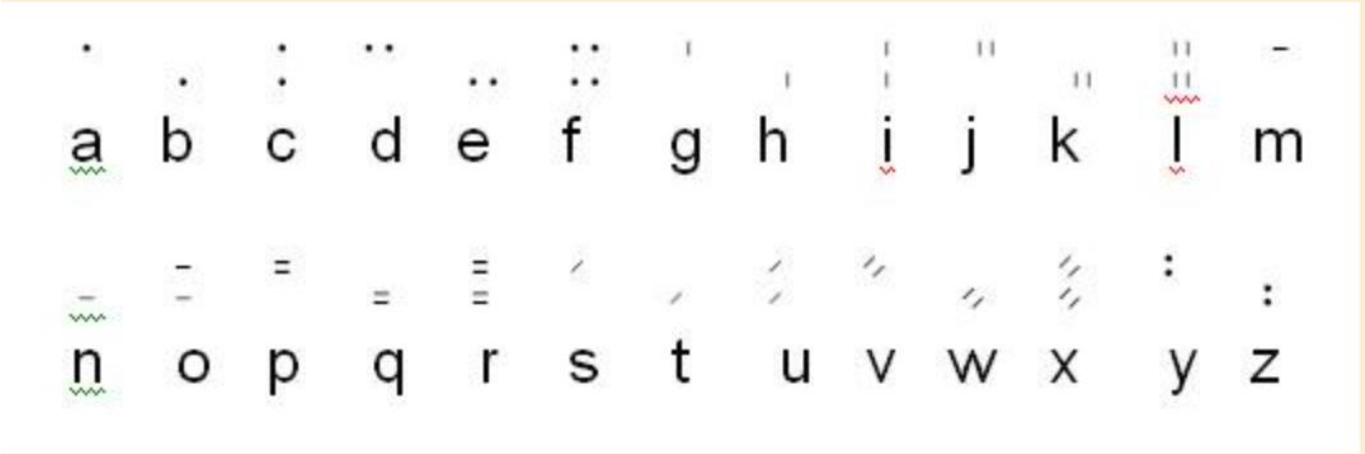
Moon



A page of a reading primer in Moon type

Fishburne

The Fishburne system of tactile writing was developed in 1972 by S. B. Fishburne. Mr. Fishburne became acquainted with some blind adults and found that many of them were not able to read Braille. He developed a tactile alphabet, which is larger than Braille, to be used primarily for labeling items used by people in daily activities. Fishburne is typically used for labeling objects, containers and appliance controls, not for literary purposes.



Fishburne

Fishburne labeler and magnetic labels with a single letter of the alphabet on each

Tack-tiles

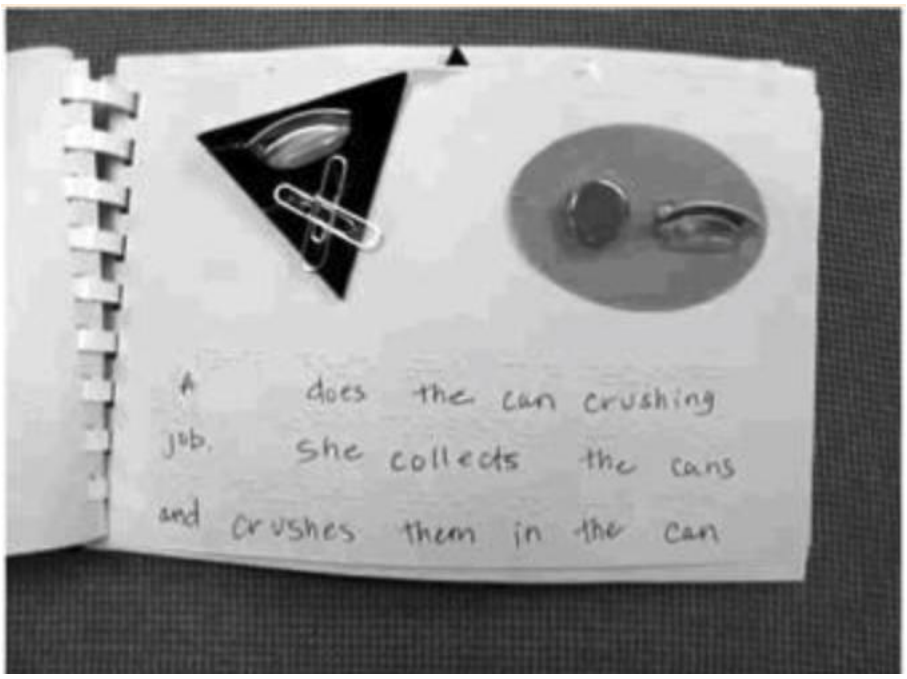
Since standard Braille is always the same size, each character 1/8 inch wide by 1/4 inch high, it can be difficult for people with motor impairments or problems with tactile sensitivity to read. Even Jumbo Braille is very small. To address the issue of literacy for individuals with significant disabilities, Kevin Murphy developed Tack-tiles. Tack-tiles are small Lego-sized blocks with Braille dots on each. They are used primarily in educational settings to teach Braille to very young children and those with additional

disabilities. Tack-tiles can be used to create a computer keyboard labeled with Braille using the Intellikeys keyboard. Tack-tiles are available with all Braille symbols, including punctuation marks and contractions. Specials sets are available for math and Braille music. For many students with visual impairments and additional disabilities, Tack-tiles and a computer are the best or only means to literacy.

Tack-tiles displaying, “Braille is fun!” in uncontracted Braille.

Tactile Symbols

While not traditionally considered a literacy medium, the use of tactile or tangible symbols has become widely used with students with deafblindness or visual impairments with additional disabilities. Educators seeking to expand the opportunities for such students to communicate and participate in supported literacy experiences in the classroom are using tactile symbols in a variety of learning activities. These symbols are used in communication boards, labels in the classroom, and children’s literature books and language experience stories. While there is no standard vocabulary of tactile symbols as there is the widely used Meyer-Johnson picture symbol system, some recommended standards do exist. The Texas School for the Blind and Visually Impaired maintains an illustrated dictionary of picture symbols on our website. American Printing House for the Blind now has a kit called Tactile Connections with instructions for making and using tactile symbols.



A teacher-made book which includes Braille and tactile symbols

Access to Literacy

Early in the twentieth century the widespread use of many different tactile reading codes and systems made learning to read a challenge for learners with blindness. Disagreement about which code was easiest to read and the most efficient use of paper led to the "War of the Dots" between educators in English speaking countries. A uniform English Braille system was agreed upon in 1932 which included the alphabet and grade 2 contractions. Since that time discussion about other tactile modes of literacy has been limited. In the last five years, concern about access to literacy for individuals with visual impairments and additional disabilities has given rise to discussions about the use of uncontracted Braille, Tack-tiles and other large format Braille, Moon type or other embossed letters, and tactile symbols. While the adoption of standard Braille has given tactile readers access to a large amount of material and more consistent quality of educational experiences, consideration of access to literacy for all learners should prompt educators and parents to broaden their definitions of tactile reading and consider the use of alternative tactile media.

Note: Embossed materials including Boston line type, Moon, New York Point, Fishburne and Tack-tiles photographed courtesy of Texas School for the Blind and Visually Impaired Learning Resources Center teaching materials and archives.

Web Resources

American Modified Braille Joel Smith, see Books for the Blind at:
http://www.perkins.org/museum/section.php?id=200

American Printing House for the Blind
Tactile Connections tactile symbols kit
http://www.aph.org/advisory/2005adv10.html#P3

David Abraham, developer of the Perkins Braille Writer.
http://www.perkins.org/museum/section.php?id=202

Duxbury Systems
Moon translation from the translation tables in Dux 10.3 and higher. More information is included within the Duxbury Help files under "Moon."
http://www.duxburysystems.com/lan_english_moon_no_capitals.asp

Getting In Touch With Literacy Conference 2005
Copies of the proceedings of this conference are online. Look for an informative discussion of literacy and tangible symbols by the Perkins staff entitled **Literacy and Technology: Facilitating Emergent Literacy for Students with Visual Impairments and Additional Disabilities**
http://www.gettingintouchwithliteracy.org/program.htm

History of Reading Codes for the Blind
http://www.nyise.org/blind/barbier2.htm

Mary Ingalls and life at the Iowa Braille and Sight Saving School
http://www.rootsweb.com/~iabenton/ibsss/ingalls.htm

MaxiAids
Seller of Perkins and Tatrapoint braillers
http://www.maxiaids.com

Dr. Moon Page
http://www.deafblind.com/moon.html

The History of Moon
http://www.rnib.org.uk/xpedio/groups/public/documents/PublicWebsite/public_moon.hcsp

Perkins School for the Blind
Perkin's speech pathologist Deirdre Walsh's web page about making literacy experiences accessible to children with visual impairments and additional disabilities.
http://www.e-advisor.us/Deirdre/Titlepage.html

Quantum Technology
Maker of the Mountbatten Brailler and the Jot-A-Dot
http://www.quantech.com.au/

Royal National Institute for the Blind
Moon Cats: Moon reading curriculum available from RNIB
Go to products page, select publications, learning and curriculum, Moon. Or use the following URL:
http://onlineshop.rnib.org.uk/browse.asp?n=11&c=477&sc=14&it=2&l=3

Samuel Gridley Howe and Boston line type
http://www.perkins.org/museum/subsection.php?id=122

Tack-Tiles
http://www.tack-tiles.com/

Texas School for the Blind and Visually Impaired
Tactile symbols directory with photos:
http://www.tsbvi.edu/Education/vmi/tactile_symbols.htm

Visual Impairment Centre for Teaching and Research
Dotted Moon. Research study comparing reading rates of standard Moon to Moon produced with dots using a computer Braille embosser.
http://www.education.bham.ac.uk/research/victar/research/projects/DottedMoon.htm

War of the Dots (History of Reading Codes for the Blind) by Robert Irwin:
http://www.nyise.org/blind/irwin2.htm

William Bell Wait and New York Point reading code:
http://www.nyise.org/text/wait.htm