



When The Stereoscope brought the World to the Living Room

By Carrie Crane

In the early 1800s, when the invention of photography was applied to the understanding of stereoscopic vision, a new and magical instrument came into being, the Stereoscope.

Euclid, the Greek mathematician who lived about 300 BC, was the first to write about the geometry of vision. His theories proposed that what is seen by the right eye is different in a consequential way from what is seen by the left eye. The combined view from both eyes contains some overlapping information and some information distinct to each eye. This was later referred to as *stereopsis*. It is this phenomenon that allows the brain to understand distance and three-dimensionality, otherwise known as depth perception.

To simulate this effect, there is a simple exercise you can do that dates back to the Greek physician, Claudius Galenus (born 129 AD).

“Standing near a column, and shutting each of the eyes in succession; - when the right eye is shut, some of those parts of the column which were previously seen by the right eye on the right side of the column, will not now be seen by the left eye; and when the left eye is shut, some of those parts which were formerly seen by the

left eye on the left side of the column, will not now be seen by the right eye. But when we, at the same time, open both eyes, both these will be seen, for a greater part is concealed when we look with either of the two eyes, than when we look with both at the same time”¹

The stereoscope uses this phenomenon of vision and replicates it with an instrument. In the 1830s, Charles Wheatstone, who developed the first stereoscope, suggested that by using two very similar images, each drawn from slightly differing perspectives and viewing them through a set of mirrors that mingled them together, the viewer would experience a single image with three dimensionality.

However, drawing two nearly identical pictures was time consuming. Fortunately, around this same time, a French artist and early photographer, Louis-Jacques-Mandé Daguerre was experimenting with ways to fix an image, as one seen through a camera obscura², onto a surface to make it permanent. In England, Fox Talbot was doing the same. The Daguerreotype, as Daguerre’s method became known, was clear and precise but did not allow for reproduction. Talbot’s calotype could produce a negative that could then be printed several times but was faint and lacked detail. However, as photography techniques developed, improvements came rapidly. In 1851, sculptor Frederick Scott Archer devised a method using a glass negative that could be printed on paper many times over. With these advancements, photography soon became more available and as it turned out it was a more practical source for stereoscopic images than hand-drawn pictures.

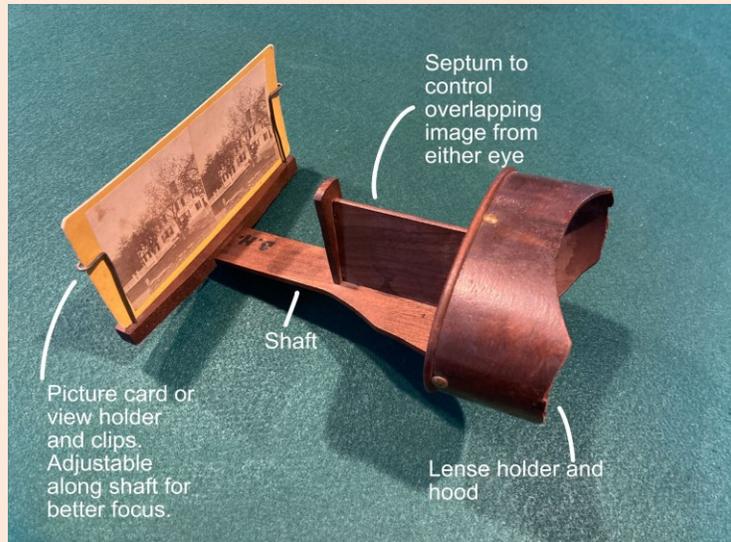
Building on Charles Wheatstone’s design of the Stereoscope, David Brewster simplified the workings to use lenses instead of mirrors which reduced the size of the instrument and made it portable. Later the “American Stereoscope” was developed by Oliver Wendell Holmes, in collaboration with Joseph L Bates. This was an inexpensive, hand-held model allowing for mass manufacturing of the device. The stereoscope, now a simple and inexpensive object to acquire, became a household item for most of the latter part of the 19th century.

In the June 1859 issue of the Atlantic Monthly, Holmes wrote glowingly about the new instrument saying,

“The first effect of looking at a good photograph through the stereoscope is a surprise such as no painting ever produced. The mind feels its way into the very depths of the picture. The scraggy branches of a tree in the foreground run out at us as if they would scratch our eyes out.”

¹ Stereoscope; Its History, Theory, and Construction: with Its Application to the Fine and Useful Arts and to Education. United Kingdom, John Murray, 1856. pg. 7.(Translated from latin, De Usu Partieum Corpois Humani, edit. Lungduni, 1550, p. 593)

² Camera obscura (meaning “dark room” in Latin) is a box-shaped device used as an aid for drawing or entertainment. Also referred to as a **pinhole image**, it lets light in through a small opening on one side and projects a reversed and inverted image on the other.<https://mymodernmet.com/camera-obscura/>



Stereoscopes from the Boylston Historical Museum collection

top left: *Wooden handle, shaft and septum, brass rail to adjust focus, embossed cardboard veneer lens hood made to look like metal, glass lenses, brass clips and hardware. 9" x 7.5" x 6.5".*

top right: *All wood, including lens holder and hood, picture card holder and septum. Brass clips and hardware, glass lenses, handle is missing.*

bottom: *Diagram of parts.*

For the stereoscope to reach its full potential, there was a need for interesting images to look at. Thus stereographs, sometimes called views, became big business. The London Stereoscopic

Company which was founded in 1854 sold both stereoscopes and stereographs and led the boom of this new pastime. Other companies followed, including the American Stereoscopic Company which was formed ca. 1890. The subject matter of the photos was diverse and designed to appeal to all audiences. There were pictures of famous artwork and famous people, sights from European cities, the views of the dramatic landscapes of the US national parks, portraits of indigenous people from around the world just to name a few. One could travel the globe with friends and family from their parlor settee.



Stereoscopic plates, 7' x 3.5", Images of Boylston.

Clockwise from top: The Brigham house on the Corner of Temple St and Main St. (burned about 1890). The Congregational Church (burned in 1924, but then replaced). Charles Andrews house Main St Boylston Center (this house burned in 1956). Penniman Brigham lived there, as did Nathaniel Brigham and his son Henry Brigham. Ball (James) farm part of which is now under Wachusett Reservoir. [*Plates from the John N Flagg estate*].³

Toward the end of the 19th century, there was a shift in the use of the stereoscope. Underwood and Underwood, an American company founded in 1880 initially had great success selling views door-to-door and then began selling directly to schools. Following that path, the Keystone View Company was established in 1892 and focused on promoting the stereoscope primarily as an educational tool. They sold themed sets, complete with attractive cases, that focused on the subjects of geography, social studies,

³ Archive Collection, Boylston Historical Society & Museum, Boylston, Worcester County, Massachusetts

science, history, reading, and more. These sets became a must-have for schools and by 1905 Keystone became the largest seller of views in the world.

Over the next several decades the popularity of the stereoscope in the home gave way to the radio for family entertainment and the interest in schools was replaced by other technology. Keystone remained in business until 1963 but had shifted to making other vision devices. New and used stereoscopes can still be purchased today and some artists and photographers are making their own stereographs. There are how-to videos for making both the viewer and the views available online if you were interested in reviving this 19th-century craze for yourself.

Acknowledgements:

Archive Collection, Boylston Historical Society & Museum, Boylston, Worcester County, Massachusetts

Brewster, David. *The Stereoscope; Its History, Theory, and Construction: with Its Application to the Fine and Useful Arts and to Education.* United Kingdom, John Murray, 1856.

Editor, Nancy Filgate, Boylston Historical Society & Museum, Director, Boylston, Massachusetts

Holmes, Oliver Wendell. *The Stereoscope and the Stereograph.* *The Atlantic Monthly*, June 1859

<https://www.spiedigitallibrary.org/conference-proceedings-of-spie/9391/93910N/What-is-stereoscopic-vision-good-for/10.1117/12.2184988.full#R1>

<https://patents.google.com/patent/US701526A/en>

<https://en.wikipedia.org/wiki/Euclid>

<https://3dalps.wordpress.com/stereoscopy-a-brief-history/>

<https://www.britannica.com/technology/photography/Development-of-stereoscopic-photography>

<https://www.londonstereo.com/introduction.html>

<https://www.americanantiquarian.org/stereographs.htm>

<https://www.theatlantic.com/magazine/archive/1859/06/the-stereoscope-and-the-stereograph/303361/>

<https://www.smithsonianmag.com/innovation/stereographs-original-virtual-reality-180964771/>

https://en.wikipedia.org/wiki/Keystone_View_Company

https://en.wikipedia.org/wiki/Underwood_%26_Underwood

<https://www.michaelhoppengallery.com/artists/28-jim-naughten/overview/>

Object Collection, Boylston Historical Society & Museum, Boylston, Massachusetts

Photography, Carrie Crane, Boylston, Massachusetts