Hands On Learning
with Reading Museum Service

STEREOSCOPE D47/B

Stereoscopes, also known as stereopticons or stereo viewers, were one of the most popular forms of entertainment in the late 1800s and early 1900s. The first patented stereoscope was invented by Sir Charles Wheatstone in 1838.



A stereoscope is composed of two pictures mounted next to each other, and a set of lenses to view the pictures through. Each picture is taken from a slightly different viewpoint that corresponds closely to the spacing of the eyes. The left picture represents what the left eye would see, and likewise for the right picture. When observing the pictures through a special viewer, the pair of two-dimensional pictures merge together into a single three-dimensional photograph. Wheatstone coined the name stereoscope from two Greek words - *stereo*, meaning solid and *scope*, meaning to look at. The image above right shows a lady with a stereoscope around 1854.

We can see a 3D picture through a stereoscope for the same reason that a building appears three-dimensional. The right and left eyes see a slightly different version of the same scene, and taken together, we get an illusion of depth. This phenomenon had been known for quite some time, ever since the ancient Greek mathematician Euclid discovered the principles of binocular vision.



Sir David Brewster (1781-1868, right, with one of his stereoscopes, about 1856) devised a smaller, more portable instrument using lenses referred to as a lenticular stereoscope.
Brewster was a scientific editor and writer who was also a leading experimental researcher, especially in optics. He invented an optical toy, the kaleidoscope, which was phenomenally popular in the late 1810s and has continued to be produced.

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Brewster was unable to find any prominent scientific instrument maker in Britain to manufacture his design and in 1850 took a prototype on a visit to Paris where he showed it to the optical instrument maker Jules Duboscq. Duboscq began manufacturing lenticular stereoscopes and also making stereo daguerreotypes. During the Great Exhibition, Duboscq exhibited the new stereoscopes. This was the beginning of the popularity of the stereoscope in the form devised by Brewster. Over the following decades, numerous variants of the lenticular stereoscope were devised, stereoscopic cameras were invented, and stereoscopic photographs were produced by the million.

Early stereo photographs were taken with a camera mounted on a tripod with a sliding bar. Once the first picture was taken and a new photographic plate was inserted, the camera was moved about 7 cm along the bar (approximately adult eye spacing). Then, the second picture was taken. Stereoscopes continued to be widespread until the 1930s when production declined, largely because of the new interest in motion pictures. However, the stereoscope continues to offer viewers something that no ordinary photograph or movie can offer, namely a sense of depth and image realism. A descendant of the stereoscope, the Viewmaster, is currently a popular children's toy.

Top: Stereoscopes in use in a classroom, early twentieth century. Below: In the days before televison, stereoscopes were used to show scenes from around the world.



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The wooden stereoscope in this box has no maker's name, but it is typical of tens of thousands that were produced from the 1860s onwards: the Holmes Stereoscope.

Earlier stereoscopes followed a variety of designs (see some examples below). They were often well made expensive toys for the well-off. In the early 1860s the celebrated American writer and professor of anatomy and physiology at Harvard, Oliver Wendell Holmes (1809-1894), came up with a simple design which soon dominated the world market and became the standard stereoscopic device for decades.

Holmes called his hand-held device the Stereopticon. Since the 3 inch square photographs are slightly too close for comfortable viewing, positive lenses are supplied to make the user somewhat nearsighted. As the lines of sight from the two images are supposed to converge between the eyes, the lenses are wedge-shaped to make the images appear to be located farther apart.

Thousands of sets of stereoscope slides were produced that allowed people to sit in their own home to experience otherwise inaccessible places and peoples. The most popular seem to have been travelogue type slides that showed scenes from around the world. Other subjects ranged from natural history to scenes from the First World War. There were also story sets in which an event was staged - for example, a wedding - often with humorous and slightly risqué scenes. In some ways these story sets were the precursor of the cinema. The sets were often housed in boxes that looked like books when placed on a shelf.

The slides in this museum box come from one such set, *The Great War*, published by the Realistic Travels Company. They are a fascinating mixture of posed tableaux and genuine documentary photographs. Four companies - Keystone View Company, Underwood & Underwood, W.E. Troutman (all from the USA) and Realistic Travels of England, made such Great War sets. Only the Realistic Travel set, though, could boast the patronage of King George V and Queen Mary!



Two early stereoscopes