Hands On Learning
with Reading Museum Service

STEREOSCOPE D47

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*, solid and *scope*, to look at. The image to the 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.

READING MUSEUM SERVICE

Hands On Learning
with Reading Museum Service

STEREOSCOPE D47



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.



Hands On Learning
with Reading Museum Service

STEREOSCOPE D47



The stereoscope in this box is American and was made by Underwood & Underwood. Bert and Elmer Underwood were born in Illinois, Elmer in 1859 and his brother Bert in 1862. In 1881 Bert decided to sell stereoscopes, produced by the Kilburn Brothers of New Hampshire as well as other producers. It became clear that the stereoscope venture was proving quite profitable. The brothers joined forces and went on to establish a successful stereoscope business in their hometown of Ottawa, Kansas. The business flourished and by 1883 they were hiring numerous salesmen. By 1897, the company had become international, with offices in New York, London, Ottawa (Kansas), Toronto and Branch Agencies in the principal cities around the world as far as India and New Zealand.

Underwood & Underwood not only made the viewers, but they also produced stereoscopic photographs. They were pioneers in the concept of 'Boxed Sets'. For a while in the late 1890s Bert Underwood was the company's chief photographer, but following his return from photographing Egypt, he decided it best to hire other photographers. The Underwood Boxed Set was not merely a series of views of a particular region, it was a carefully integrated sequence of views that would show cities, government buildings, industry, topography, natural resources, agriculture and people all with an explanatory text written by a leading expert on the back of each stereoview card. Nothing like it had been done before.

As astute businessmen the brothers Underwood foresaw the demise of stereoscopes due to illustrated books, magazines, post cards, cinema and radio. During 1921 and 1923 they sold all their stereoview and stereoscope holdings to the Keystone View Company and in 1925 they retired.



The stereoscopic images in this box, however, were not produced by Underwood and are an altogether more frivolous sequence - a marriage complete with fainting bride and risqué kiss. It no doubt provided hours of fun! One of the cards is homemade - the bridal bouquet.

Top: Elmer Underwood. Bottom: Bert Underwood