

The Camera Obscura

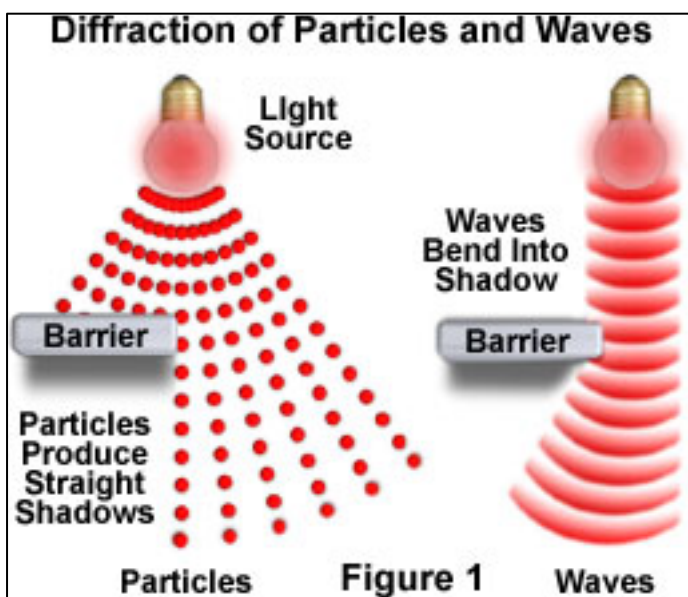
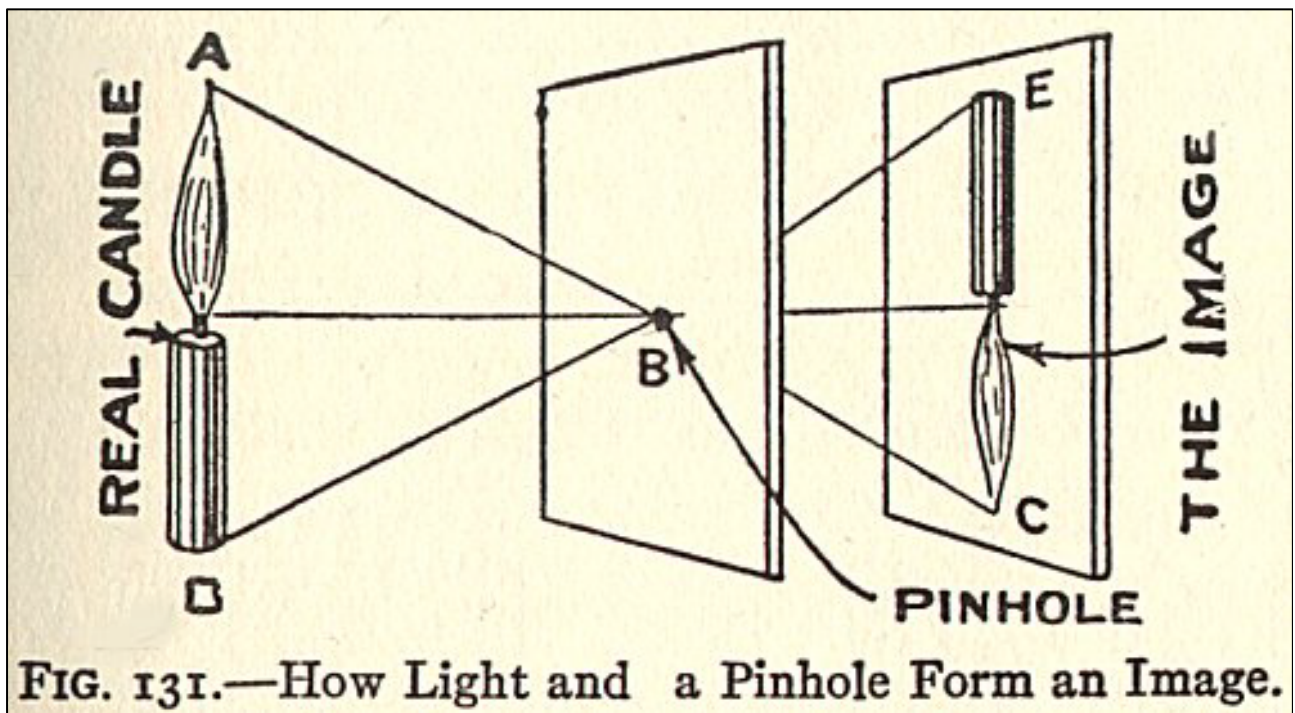
A short history...

4TH CENTURY BC, FIRST REFERENCE TO A CAMERA MADE BY ARISTOTLE. THE CAMERA OBSCURA, A DARK ROOM WITH A HOLE IN ONE END, BY THE EFFECT OF LIGHT DIFFRACTION, PROJECTED AN IMAGE ONTO THE OPPOSITE WALL.

1568, Daniello Barbaro added a lens to the hole, improving the sharpness of the image.

Mid 17th century, it was miniaturised down to a box about 30cm square, when a piece of paper was placed opposite the lens it was possible to display pictures on it.

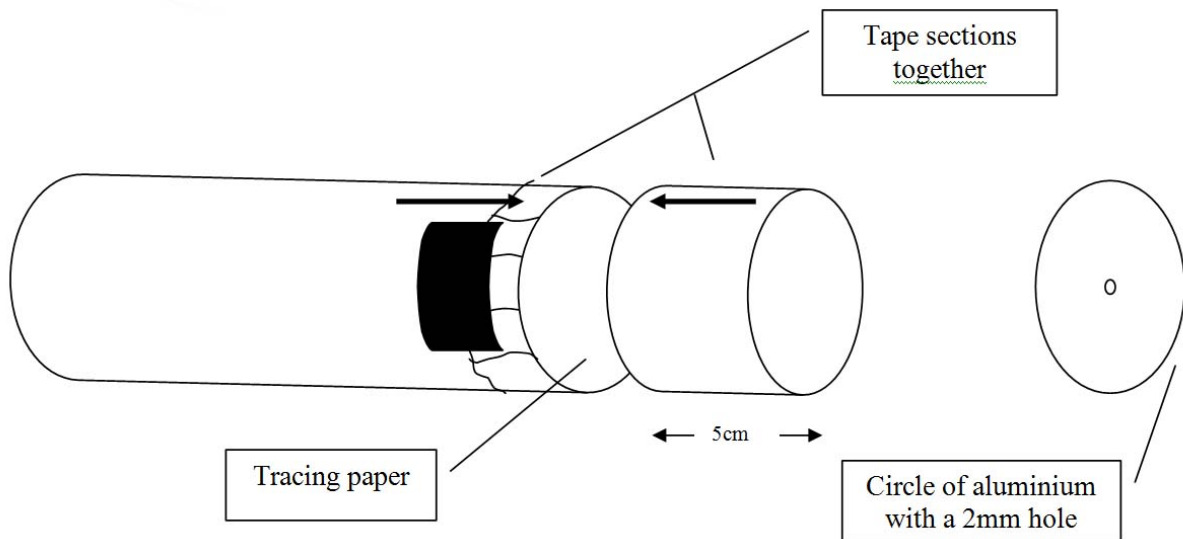
In the first half of the 19th century, chemistry happened and the photograph was born.



The camera works by using light diffraction. The simplest way to understand how a camera works is by looking at the mechanics of a pinhole camera. Unlike a particle, light waves do not stop, when they encounter a gap or aperture, the waves spread out the other side of this gap. This characteristic of waves to bend around obstacles and spread out past gaps is referred to as diffraction.

The pinhole of the camera, works using this light diffraction. And modern cameras to this day use this simple discovery and subsequent invention. Because of the way the light waves travel, when they hit the surface opposite the aperture (gap) they appear upside down. Modern cameras use mirrors to reverse the image back, so what you see through your viewfinder is the correct way up.

How to make a Camera Obscura



What you need:

Toilet roll tubes

Tin foil

Tracing paper (synthetic vellum works best)

Scissors

Tape (black tape works best)

Plus paper, glue, paint, pens and anything else you want to decorate your camera obscura.

Step 1.

Take two toilet roll tubes. Cut a 5 cm length on one of them.

Step 2.

Cut a square of tracing paper and tape to the end of the longer tube.

Step 3.

Attach both pieces together, with the tracing paper end, using tape

Step 4.

Cut a square of tin foil and attach to the end of the shorter tube.

Step 5.

Use a thumb pin to make a tiny hole in the middle of the tin foil.

Step 6.

Decorate the outside of the tubes, covering the join to avoid any light getting in through the cracks.

Step 7.

Look through the end and you will see an upside down image!