
# Stereoscopy

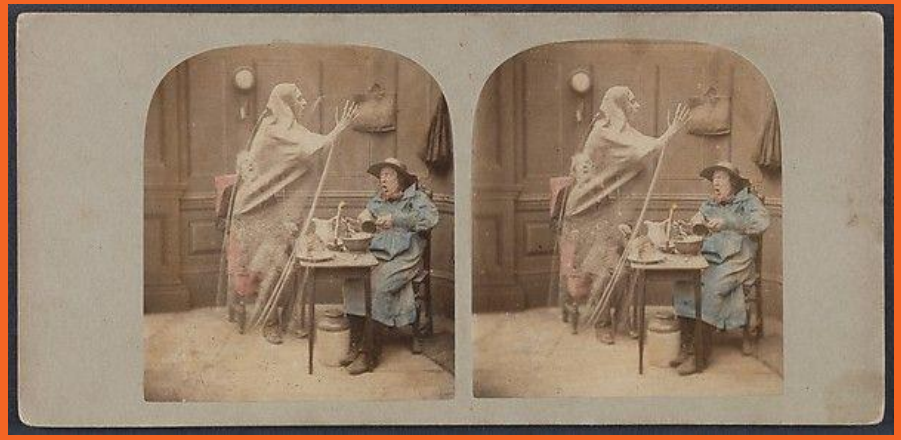
2.5 Dimensions

Our eyes see the world from two slightly different perspectives

**Stereoscopy** is a technique for creating or enhancing the *illusion* of depth by means of binocular vision; creation of 3D image from two or more slightly offset and overlapping images of a scene

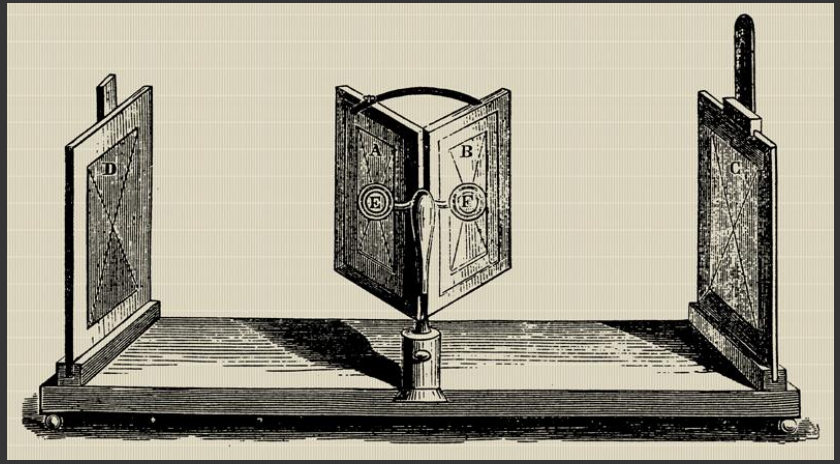
# Methodology

- **Presents a pair of 2D images**
  Left image to left eye and right image to right eye (slightly different images)
- **Perceives as 3D when viewing**
  Brain perceives only, it is without the actual proper focal depth
- **Vergence Accommodation Conflict**
  Brain mismatches cues



# 1838 Inventor

# Sir Charles Wheatstone



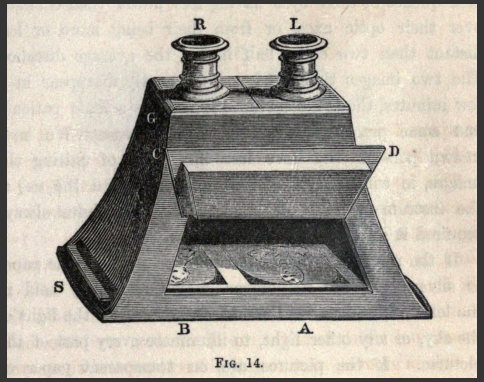



Fig. 14.

# 1849 Portable Device

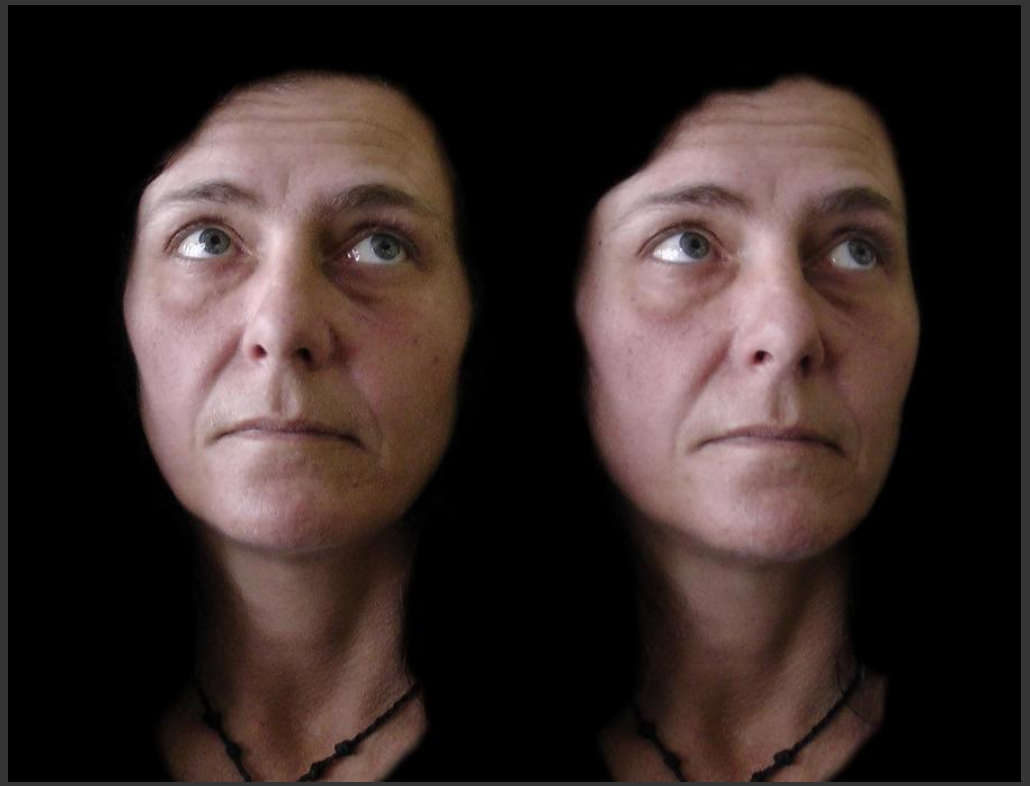
# Sir David Brewster

# In vision, much of the processing ensues in the brain as it strives to make sense of raw information

**Van Hare Effect:** the brain perceives stereo images even when the paired photographs are identical. This "false dimensionality" results from the developed stereoacuity in the brain, allowing the viewer to fill in depth information even when few if any 3D cues are actually available in the paired images.

# Disadvantages of Stereoscopy

1. **Limitations of quality images** (Low-resolution images, poor lighting conditions, and image distortion)
2. **Complexity**: The process of stereoscopy can be complex and may require specialized training to use effectively.
3. **Limited applications**: Stereoscopy is limited in terms of the types of objects and environments that it can effectively model.
4. **Time-consuming**: The process of stereoscopy can be time-consuming, especially when compared to other remote sensing techniques. This can make it a less attractive option for applications with tight

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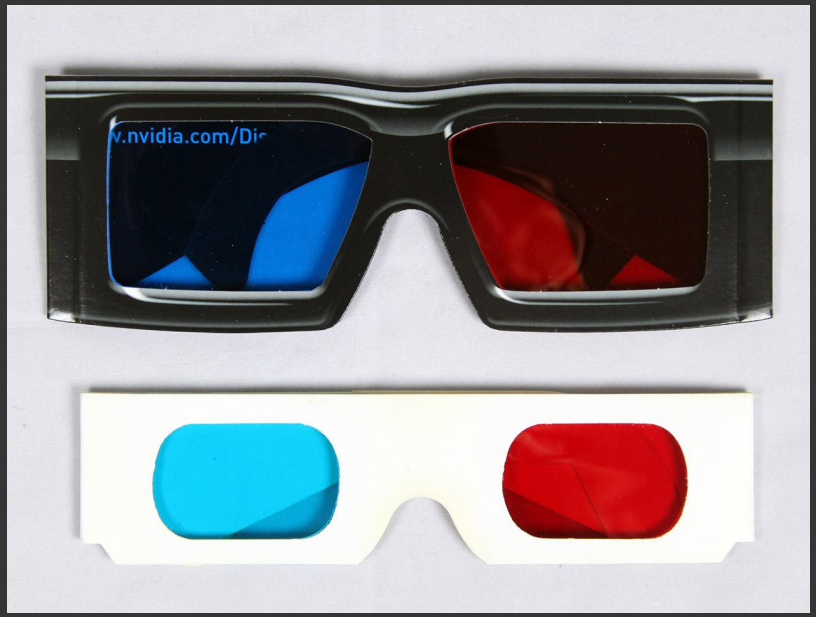
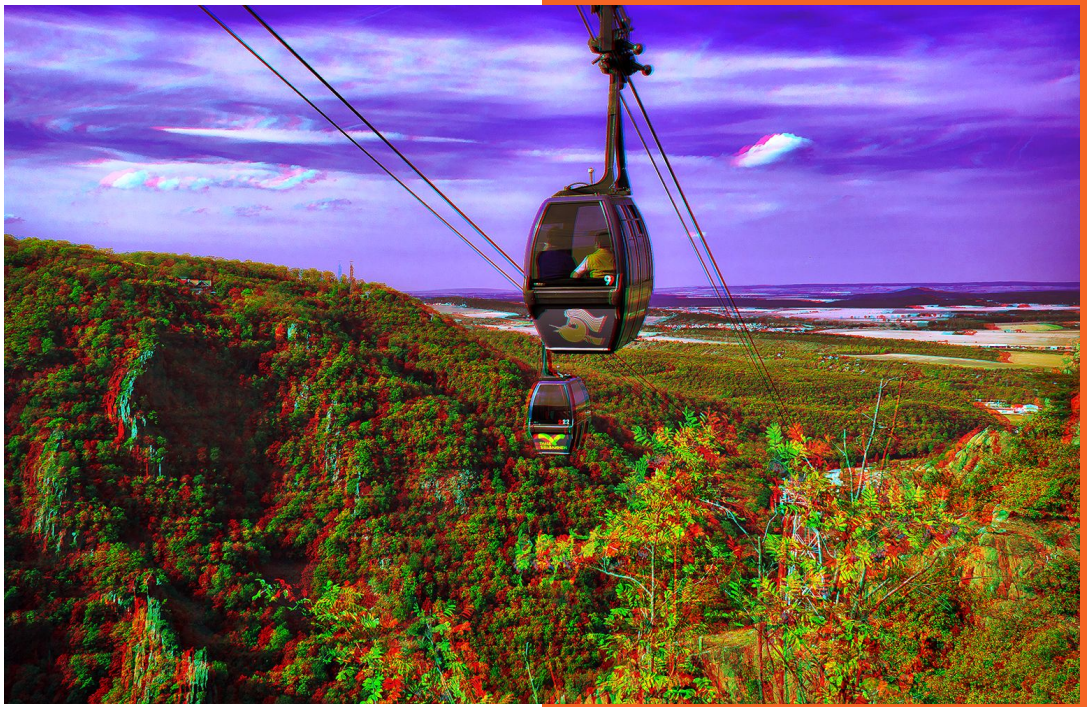



**Anaglyph 3D** is the stereoscopic 3D effect achieved by means of encoding each eye's image using filters of different (usually chromatically opposite) colors, typically red and cyan. The visual cortex of the brain fuses this into the perception of a three-dimensional scene or composition.

Stereographic technique is widely used in various applications, such as mapping, topographic surveys, digital terrain analysis, and the creation of 3D models for engineering, architecture, and entertainment purposes.



# References

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

https://thegisjournal.com/stereoscopy/

https://www.stereoscopy.com/