

Dr. Amy Lowitz

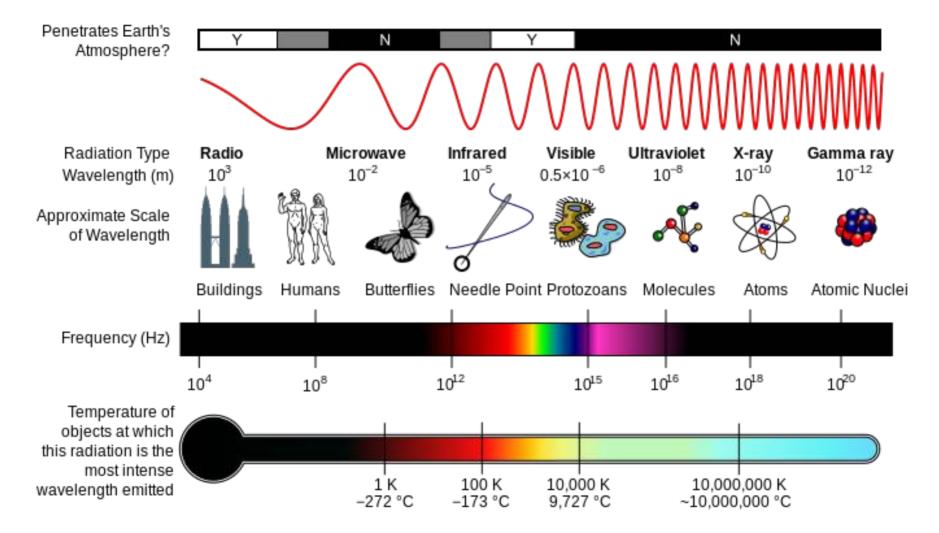
Kavli Institute for Cosmological Physics

13 Oct 2018

Gazing long into the abyss: A history of light detection

Lecture Overview

- Gazing Long into the Abyss: a history of light detection
 - Biological origins
 - First human-engineered chemical light detection
 - Early astrophotography
 - The digital era

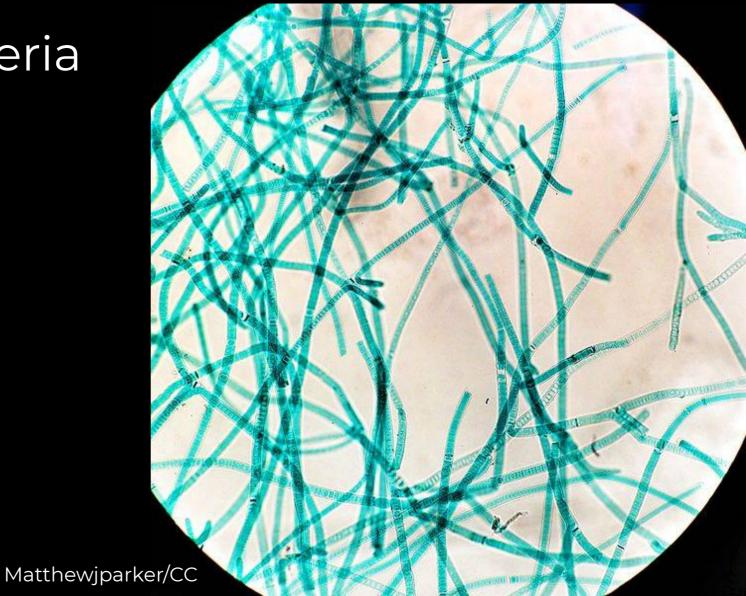


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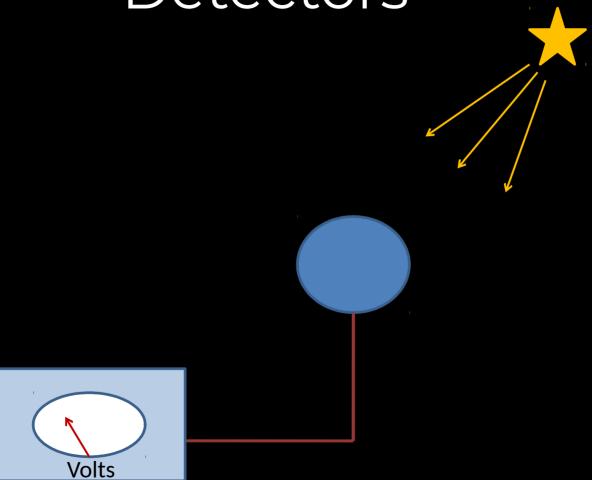


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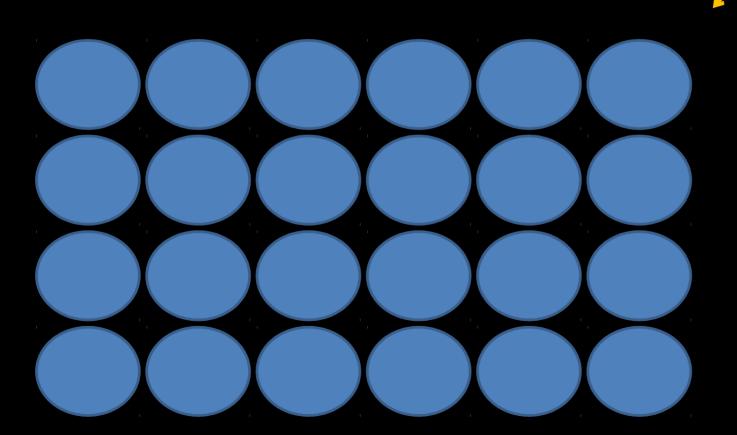
Cyanobacteria



Detectors



Detector Array



Vascular Plants

423 million years

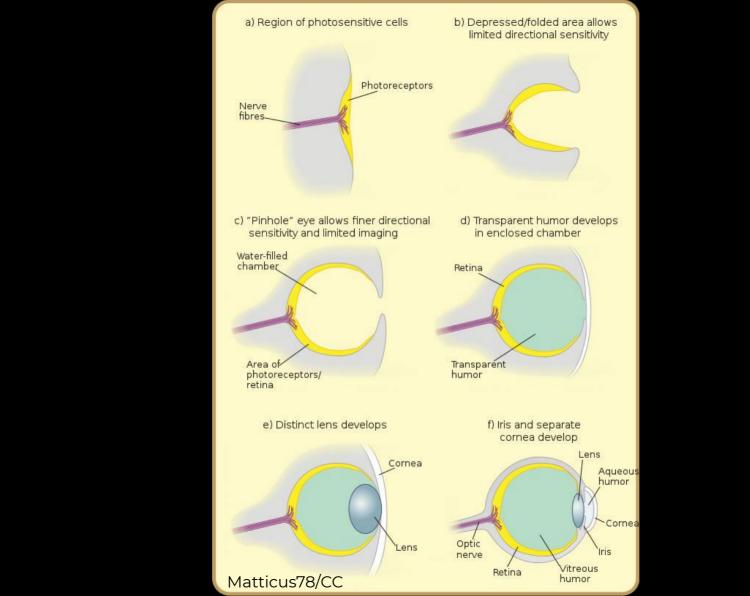


Phototropism

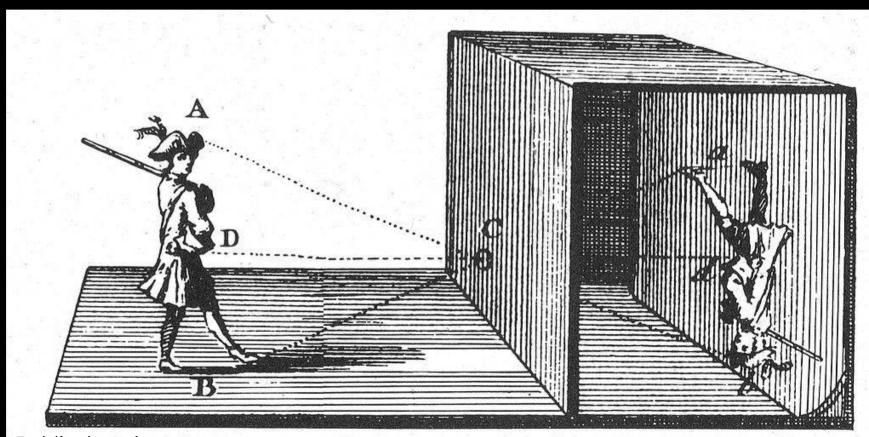
Eyespots







Camera Obscura



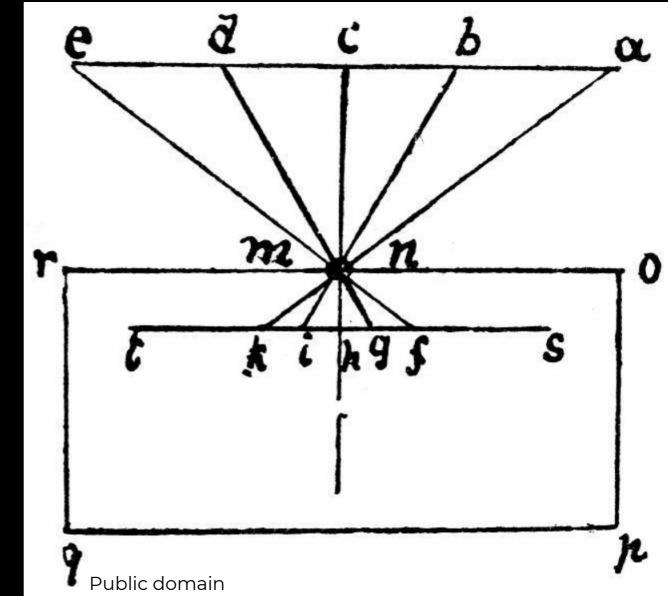
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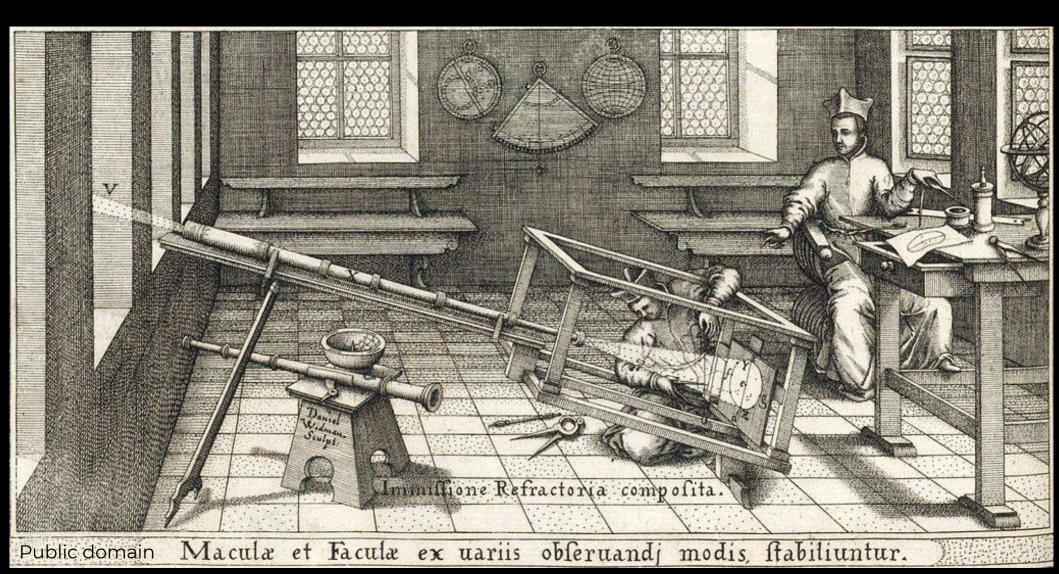
Perforated Gnomon

Image projection

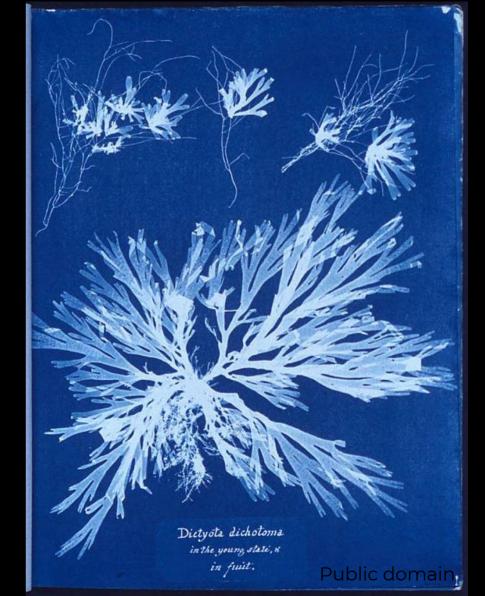


DaVinci 1502





What are sunprints?



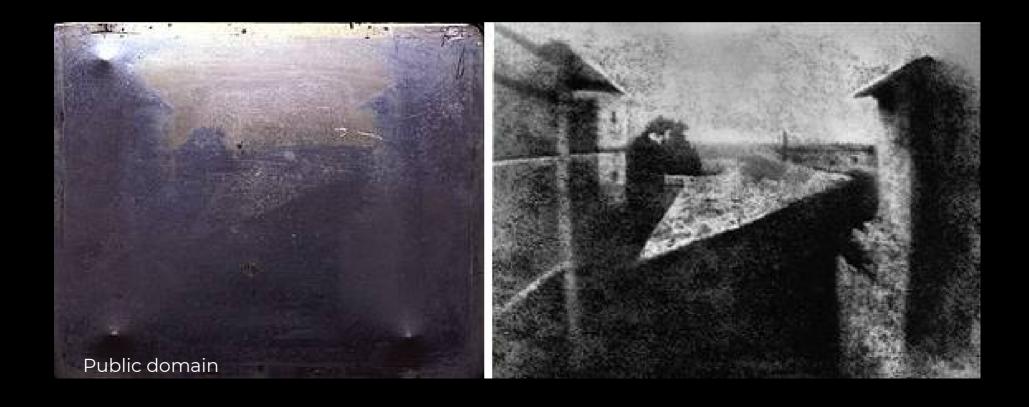
1717 Johann Schulze



Nicéphore Niépce - 1825

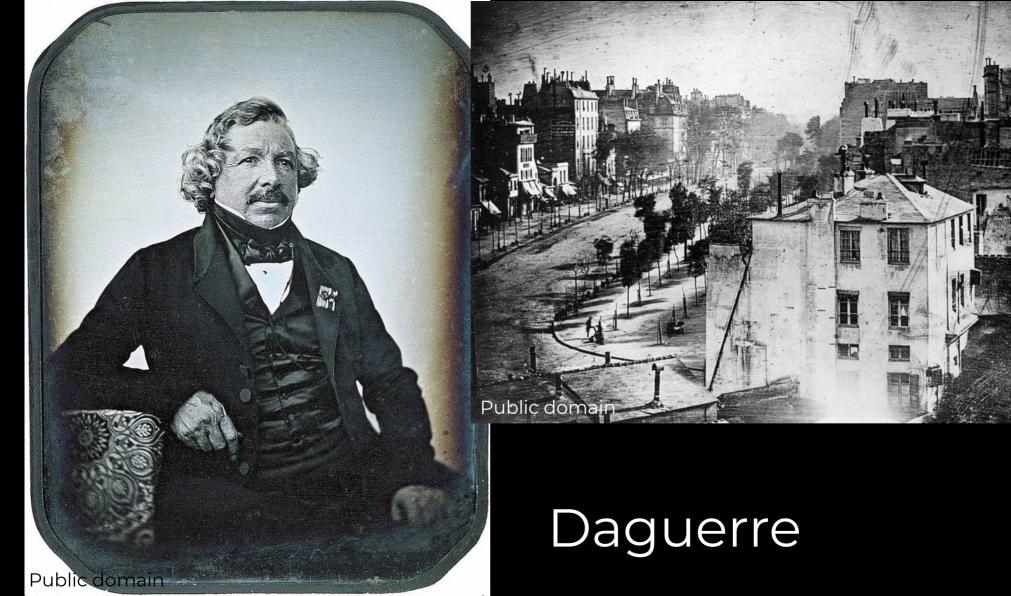


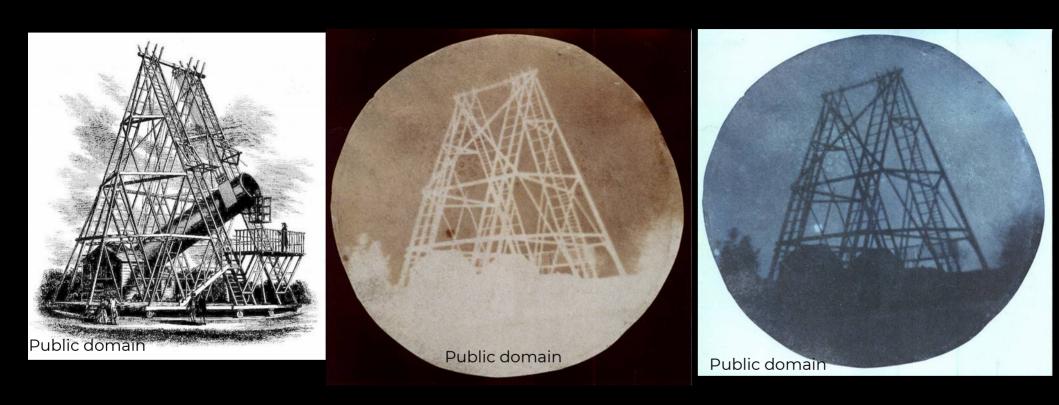
1826 or 1827 – First photograph





Henry Fox-Talbot

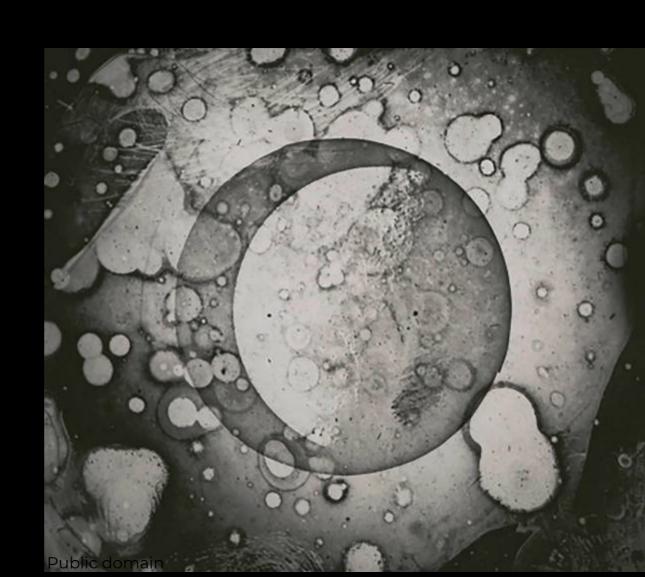




40 Ft Telescope - Hirschel

John William Draper

1840



Orion Nebula





CCD

Charge-Coupled Device

LSST

Next Lecture:

How digital pixels work