

What is a Hologram?

- a three dimensional image formed from interference patterns formed from a laser
- a red laser is a narrow intense beam of monochromatic light
- the laser reflects off each point on the object and back onto the film

Applications of Holograms

- credit cards, passports
- computer software boxes
- bar code readers
- aircraft HUD (Heads Up Display)
- medical devices
- art



Types of Holograms

- transmission holograms
- reflection holograms

- created with different techniques
- viewed with different ways

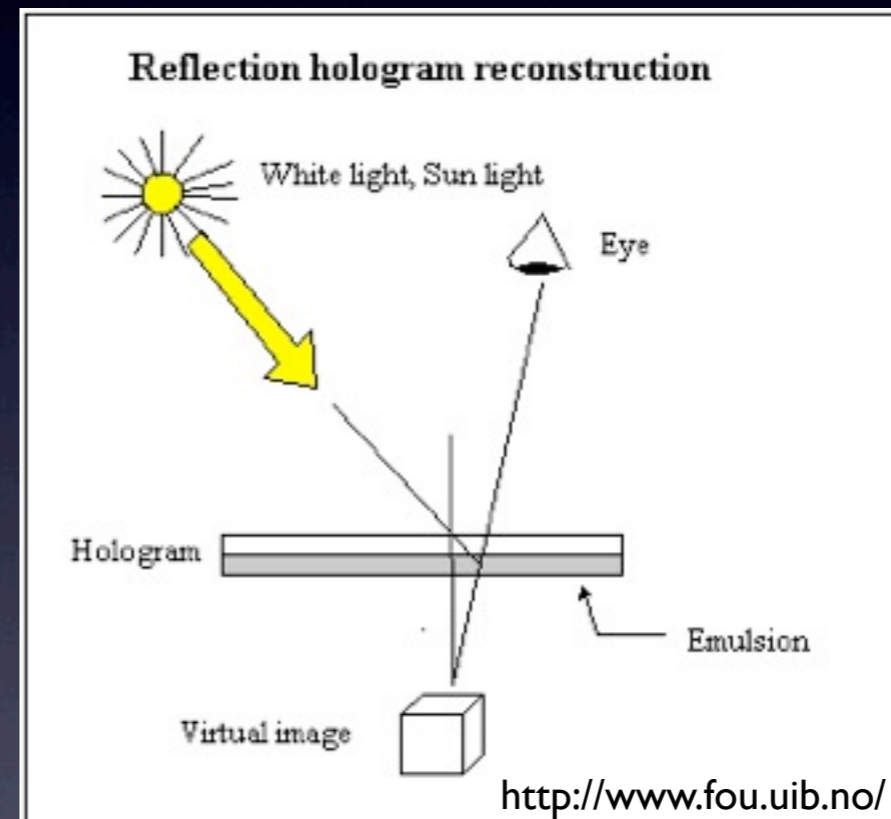
Reflection Holograms

- laser passes through the plate and reflects off the object
- reflected laser beam interferes with incident laser beam
- this interference is recorded in the emulsion



Viewing Reflection Holograms

- have a bright light over your shoulder
- hold the plate emulsion side down
- tilt the plate until you see the image



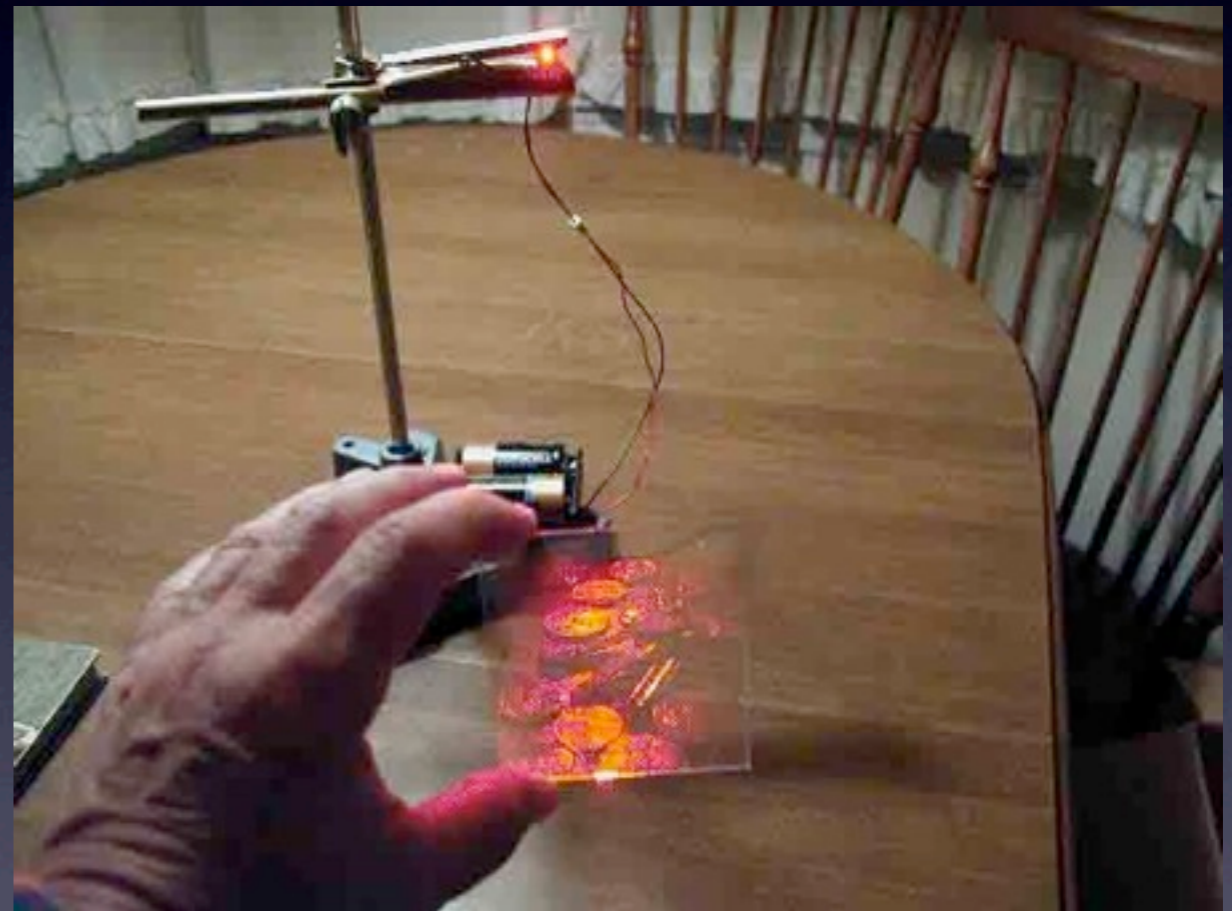
Transmission Holograms

- laser reflects off the object
- reflected laser beam interferes with incident laser beam
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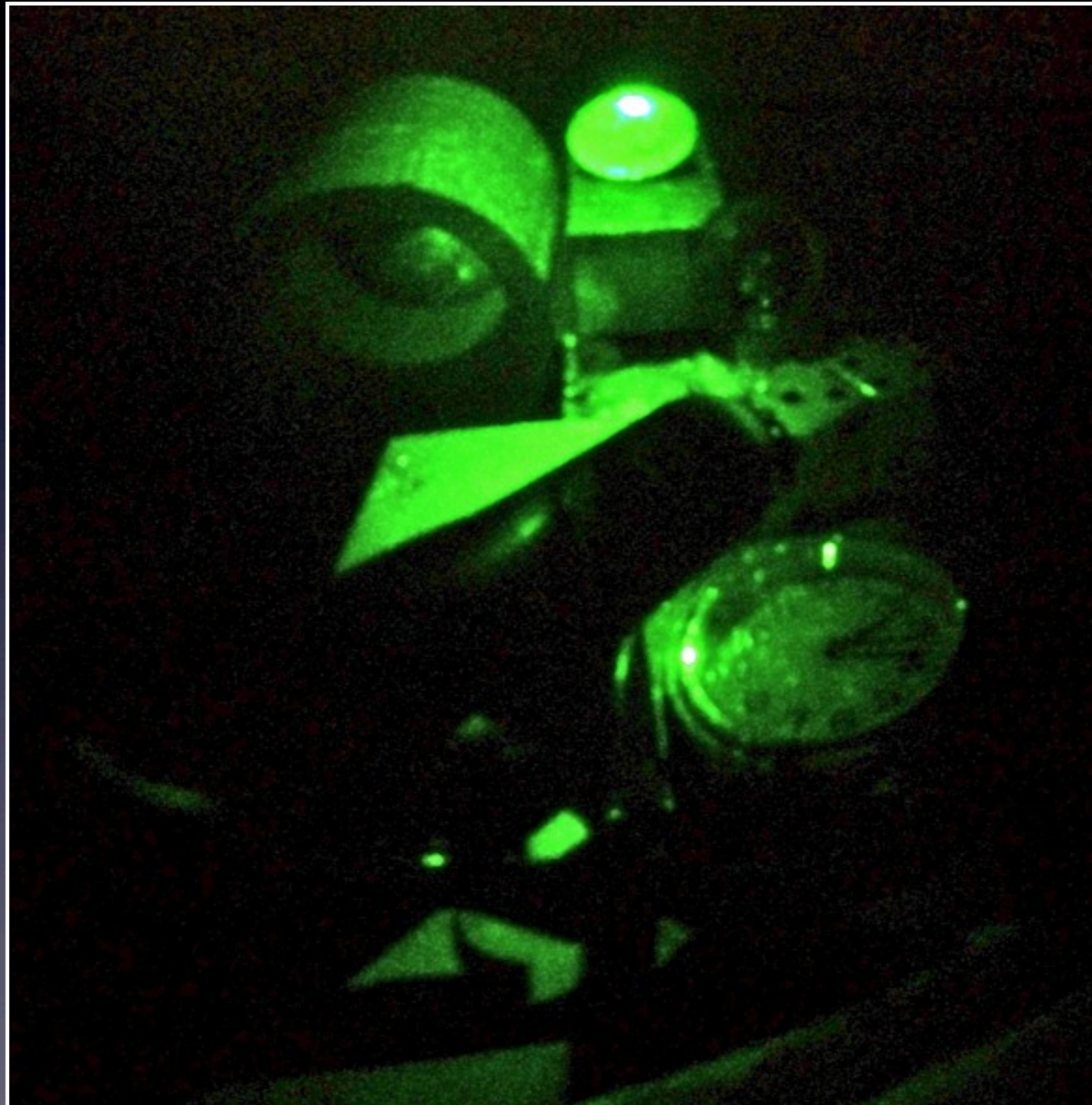


Viewing Transmission Holograms

- two methods
 - shine the laser light in the same manner as when creating the hologram and look through the plate to see the image
 - shine the laser light through the opposite side of the plate and project the image on a surface



Example Hologram



Selecting an Appropriate Object

- reflective
- many sharp edges
- coins, jewelry, medals, dice, belt buckles, keys
- approximately 6 cm x 6 cm

Timing

- warm up laser for > 5 minutes
- allow plate and object to settle for > 10 seconds
- expose for 10 seconds

Developing

- soak in distilled water for 10 seconds
- gently agitate in developer for 20 seconds
(turns plate black)
- gently agitate in distilled water for 60 seconds
- gently agitate in bleach for > 60 seconds
(turn plate clear + 10-20 seconds)
- gently agitate in distilled water for 60 seconds
- soak in photoflo for 30 seconds