

Computer Science E-7

Exposing Digital Photography

Lecture 2: Software Tools & Light
September 7, 2010

danallan@mit.edu

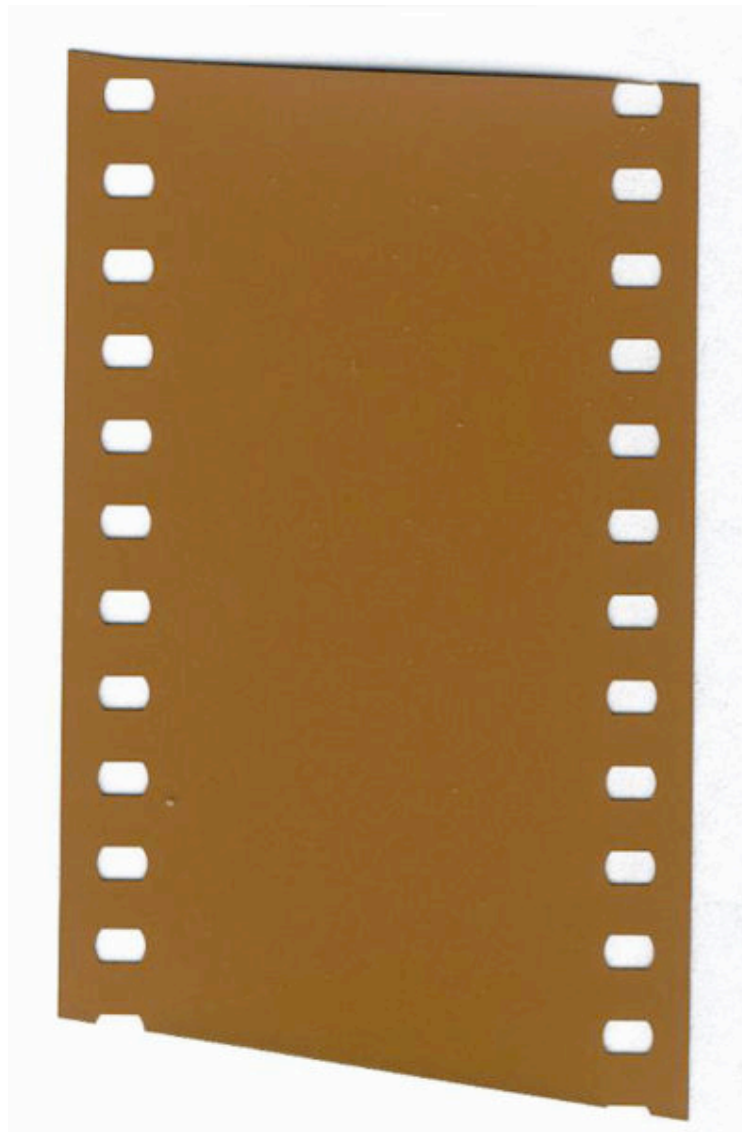


Image from http://en.wikipedia.org/wiki/35mm_film

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Similarity to Film



Photo by Dan Armendariz, 2007

Photographs

What makes a photo interesting?



Photo by Dan Armendariz, 2007

Composition

Rule of Thirds



Digital Photography

An Expensive Hobby



Image from <http://www.dpreview.com/reviews/panasonicfz8/>

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Cameras

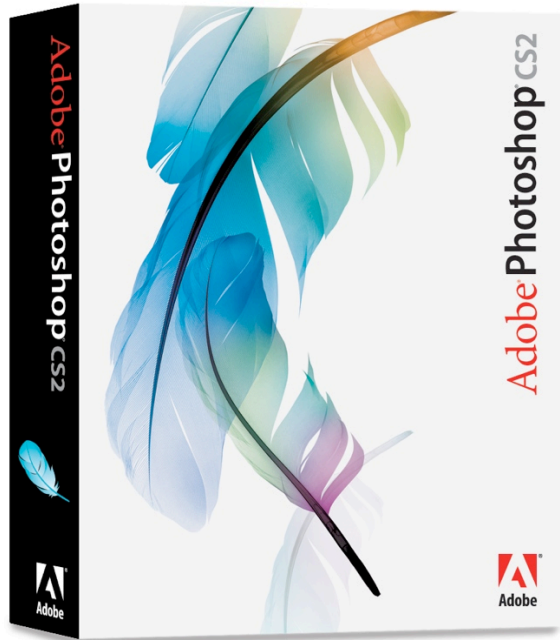
Day	Time	Location
Mondays	5:30 to 7:30	53 Church St. #201
Tuesdays	7:35 to 9:35	51 Brattle St. #123/5

<http://cse7.org/sections>

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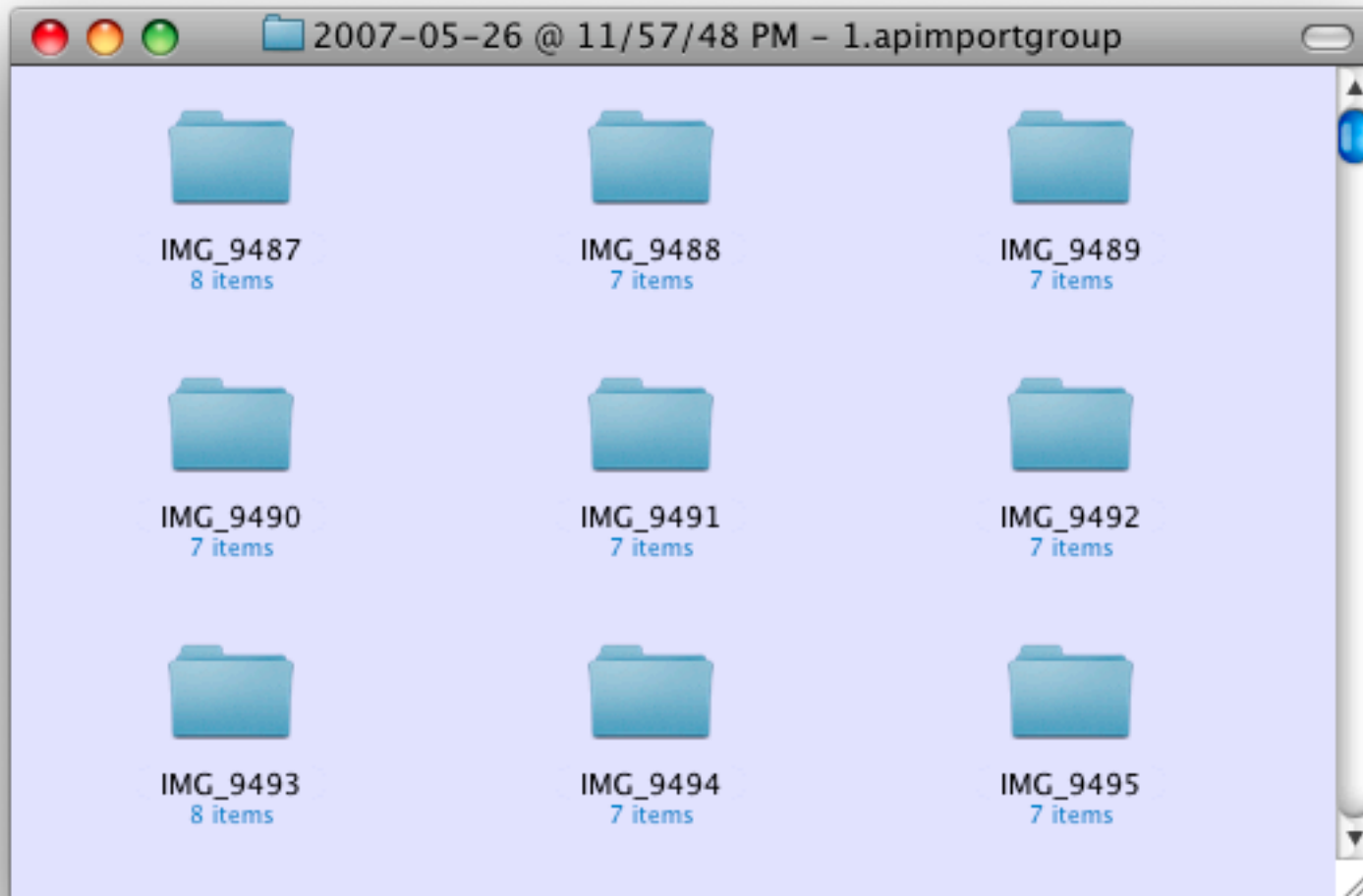
Tentative Section Schedule

PHASE**ONE**



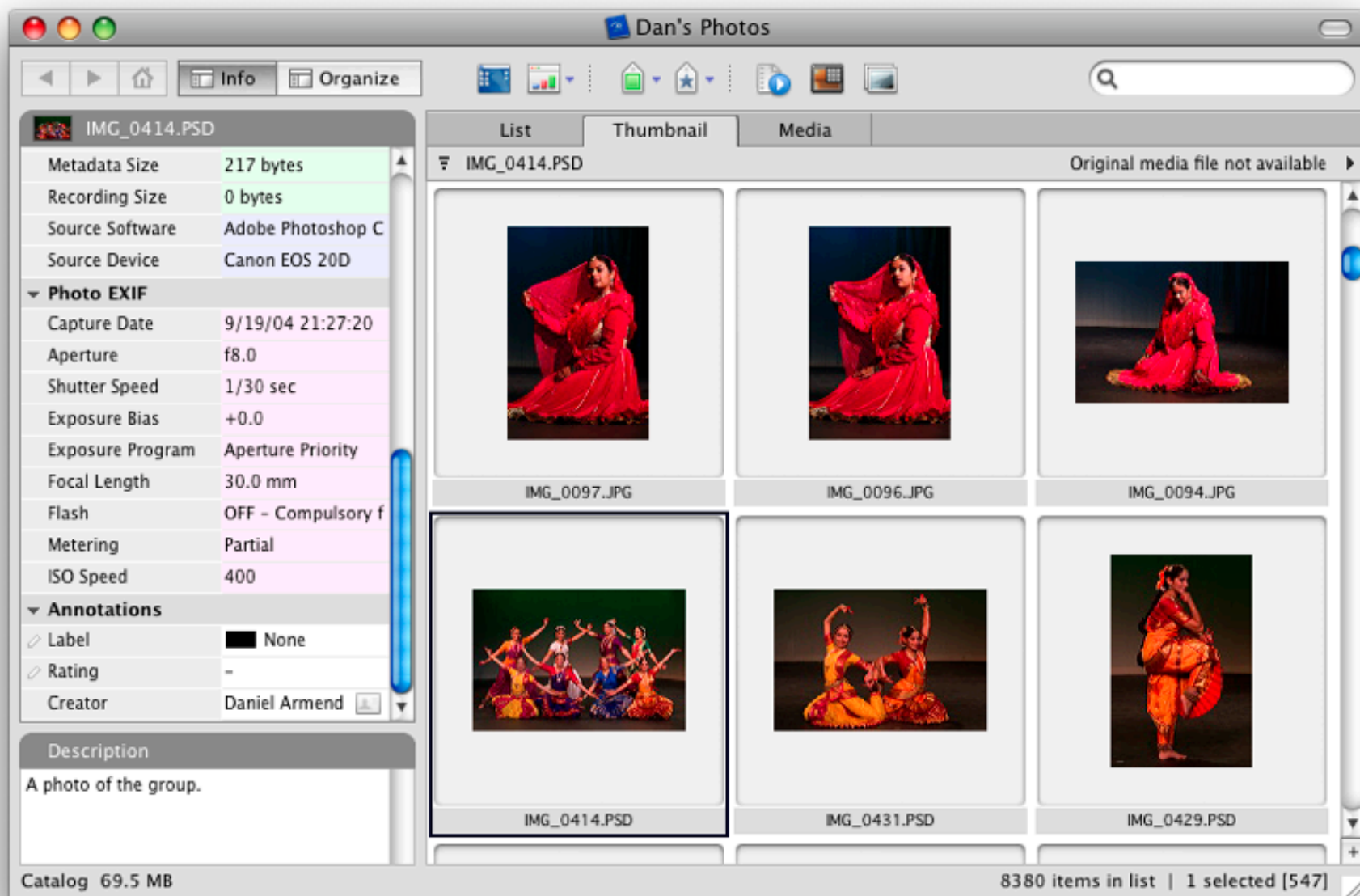
Software Tools

Available Tools



Software Tools

Photo Organization



Software Tools

Photo Organization



Software Tools

Photo Organization

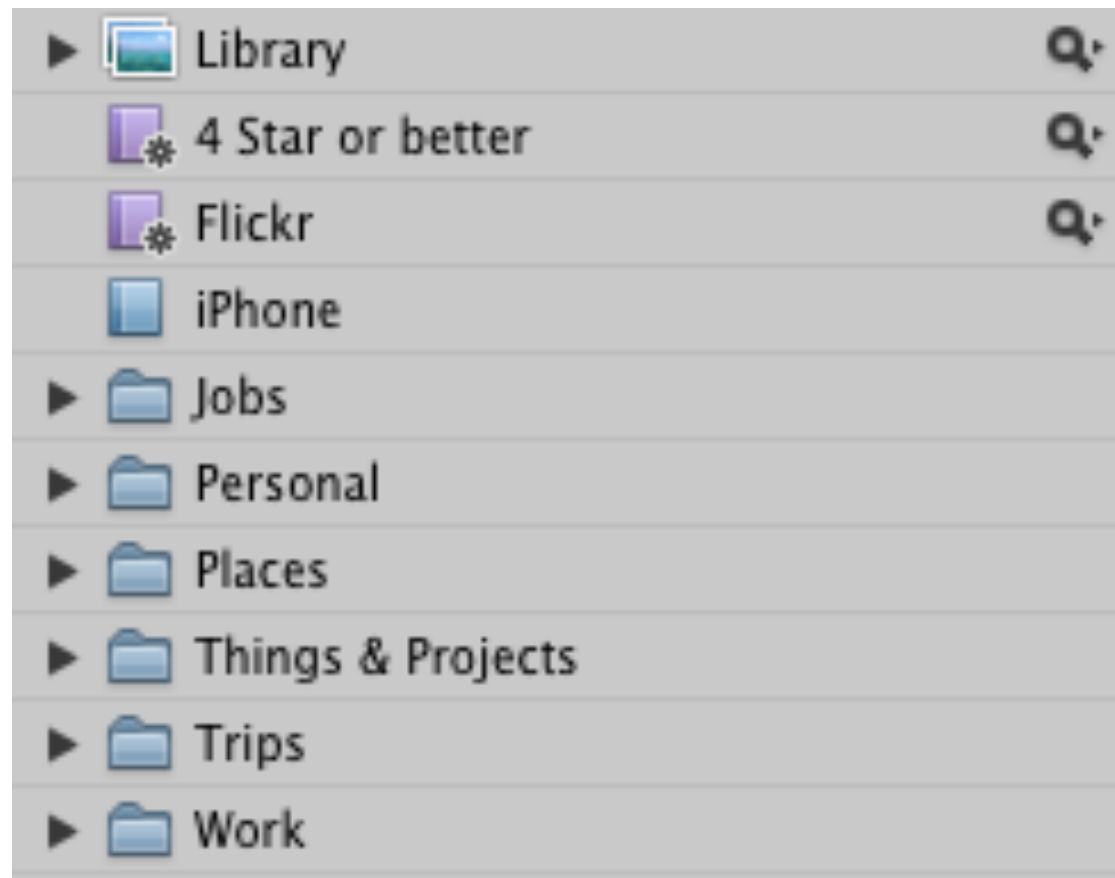


Photo Organization

Folders, Projects

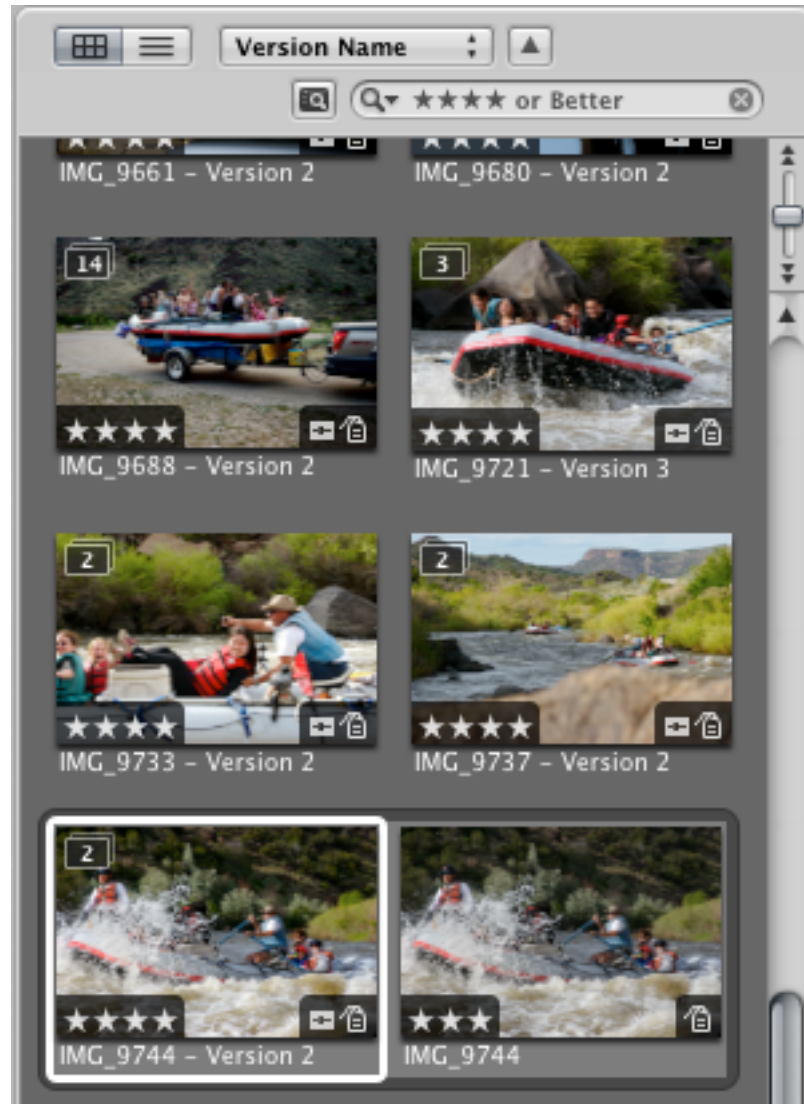


Photo Organization

Ratings, "Stacks"

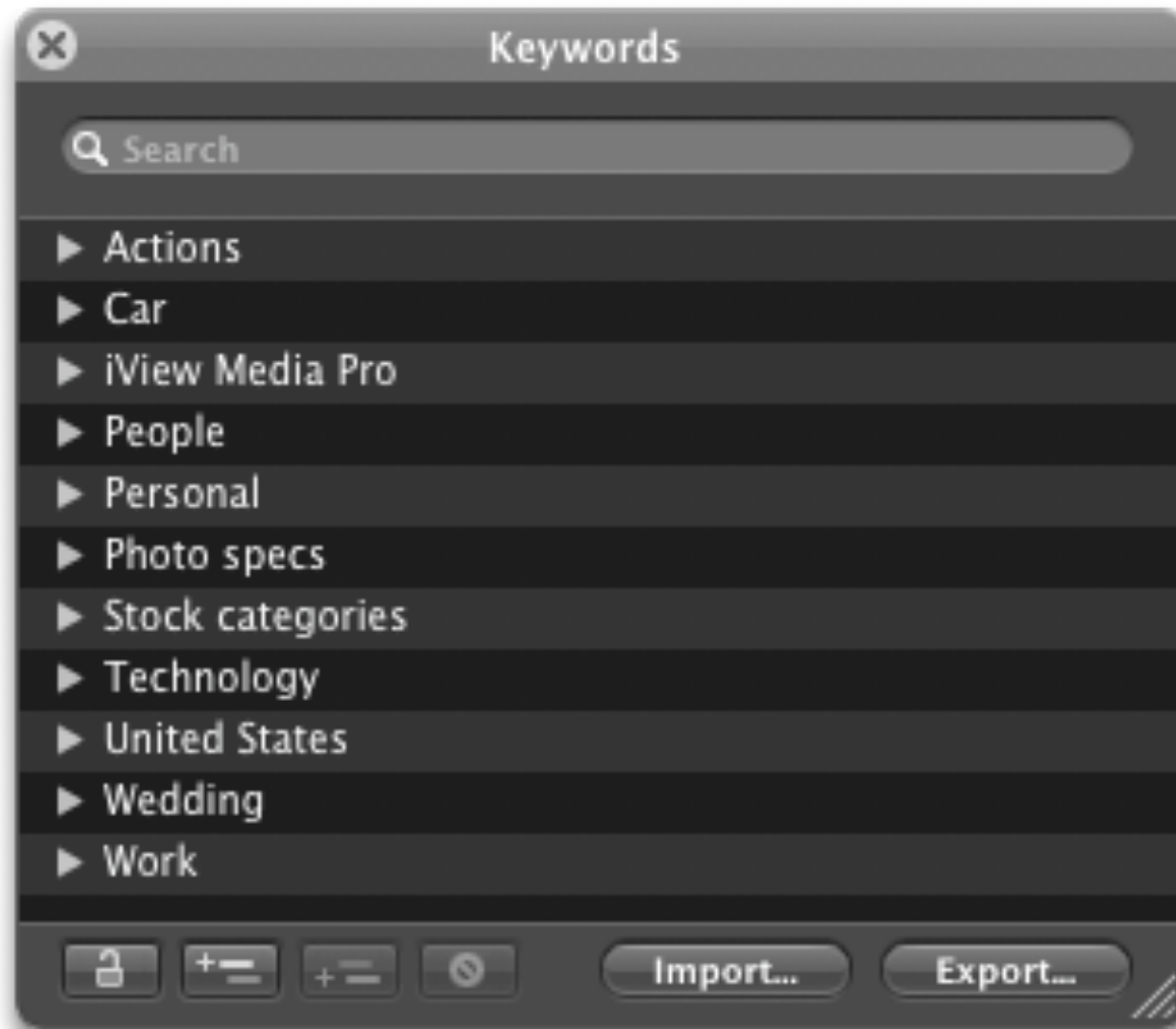



Photo Organization

Keywords

Metadata View: EXIF - Expanded 

Version Name:

Image Date:

Camera Make:

Camera Model:

Pixel Size:

Aperture:

Shutter Speed:

Exposure Bias:

Focal Length (35mm):

Focal Length:

ISO Speed Rating:

Aspect Ratio:

Orientation:

Depth:

Color Space:

Exposure Mode:

Flash:

Serial Number:

Lens Minimum (mm):

Maximum Lens Ap...:

Lens Maximum (mm):

Color Model:

Profile Name:

Badges:

Keywords | EXIF | IPTC | Other | Archive

Photo Organization

Metadata

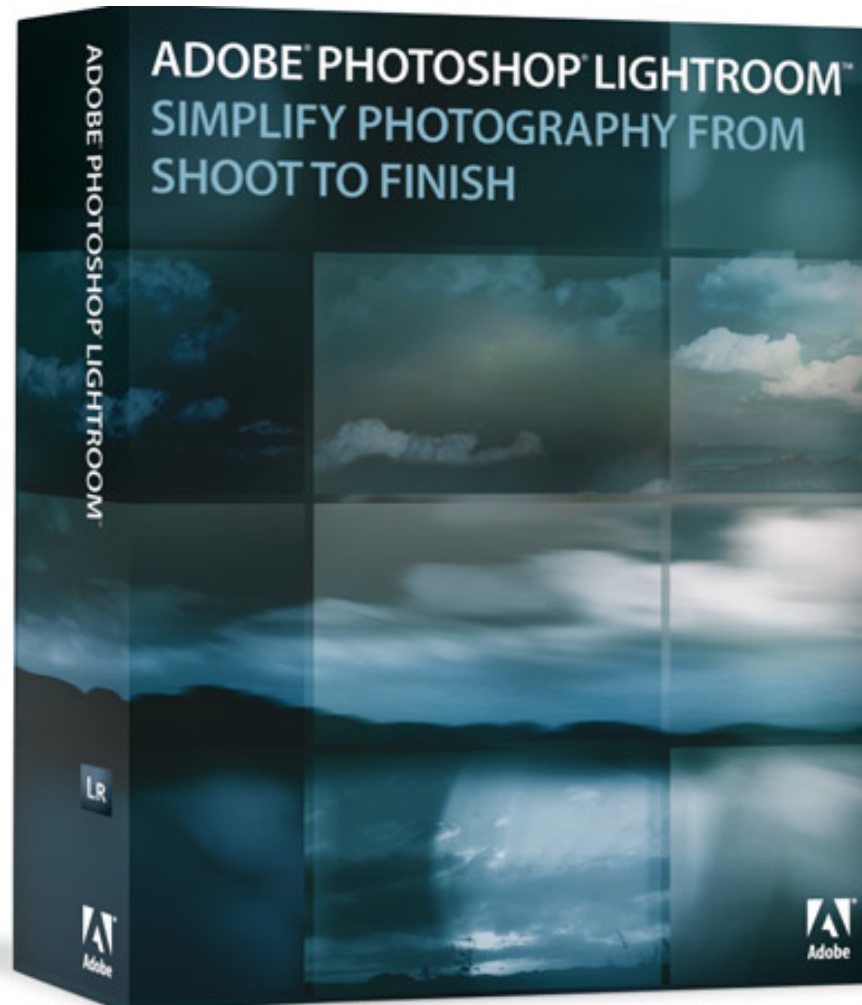


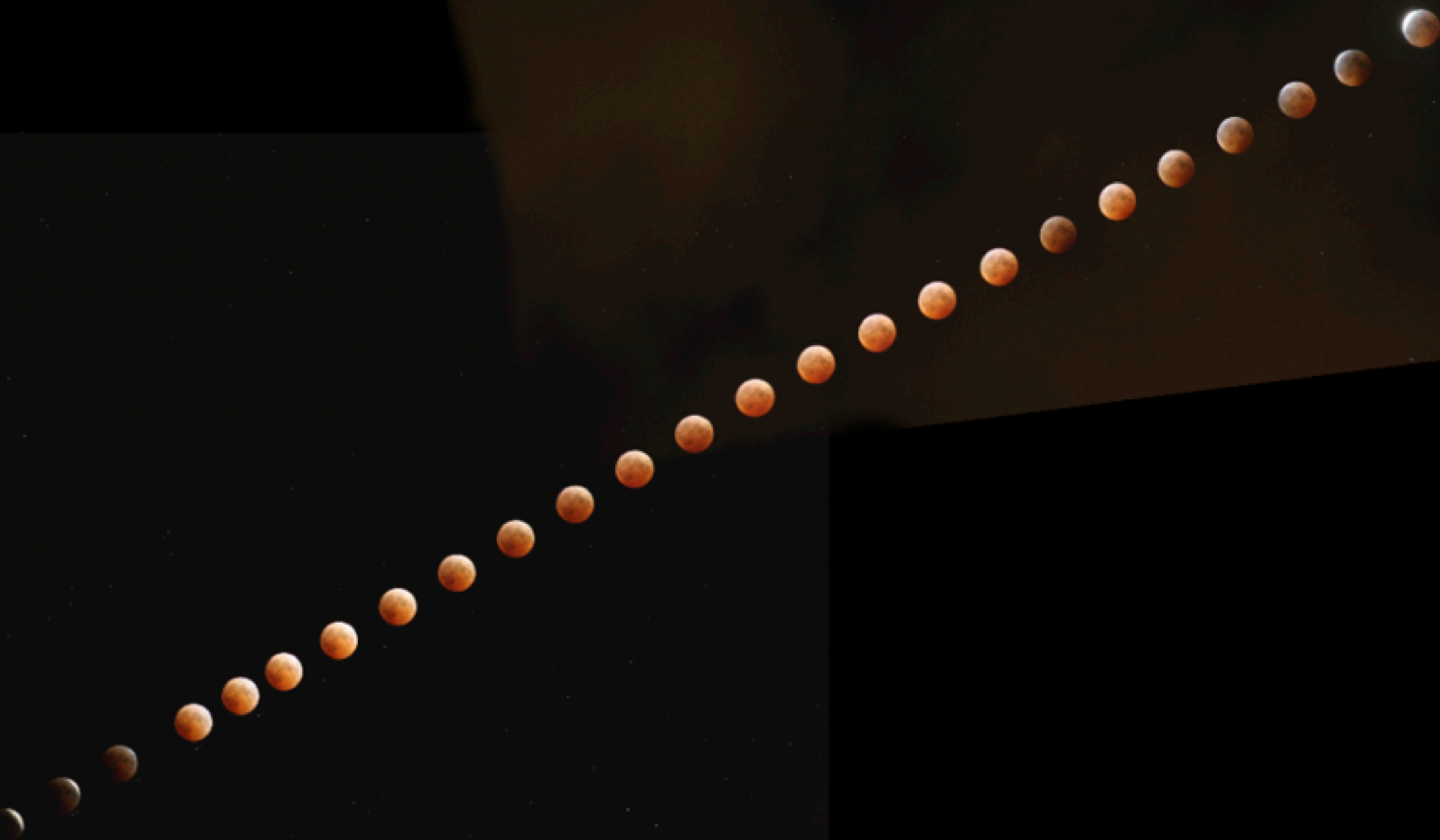
Photo Organization

My way or the highway!



Photo Organization

Backing up

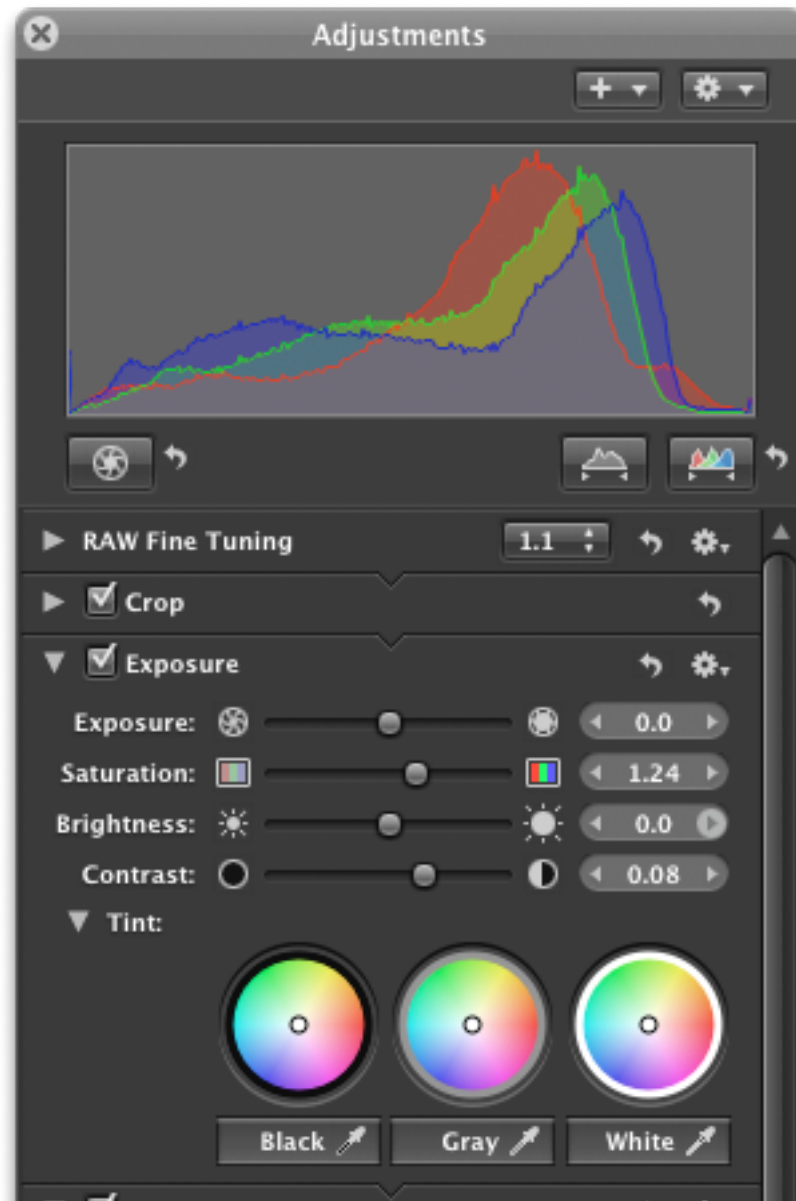


Around f/5.6, 1/20s, ISO 400

Photo sequence by Dan Armendariz, 2004

Software Tools

Interacting with a camera



Software Tools

RAW Processing



Photo by Dan Armendariz, 2007

Software Tools

Resizing and Cropping



Software Tools

Photoshop!

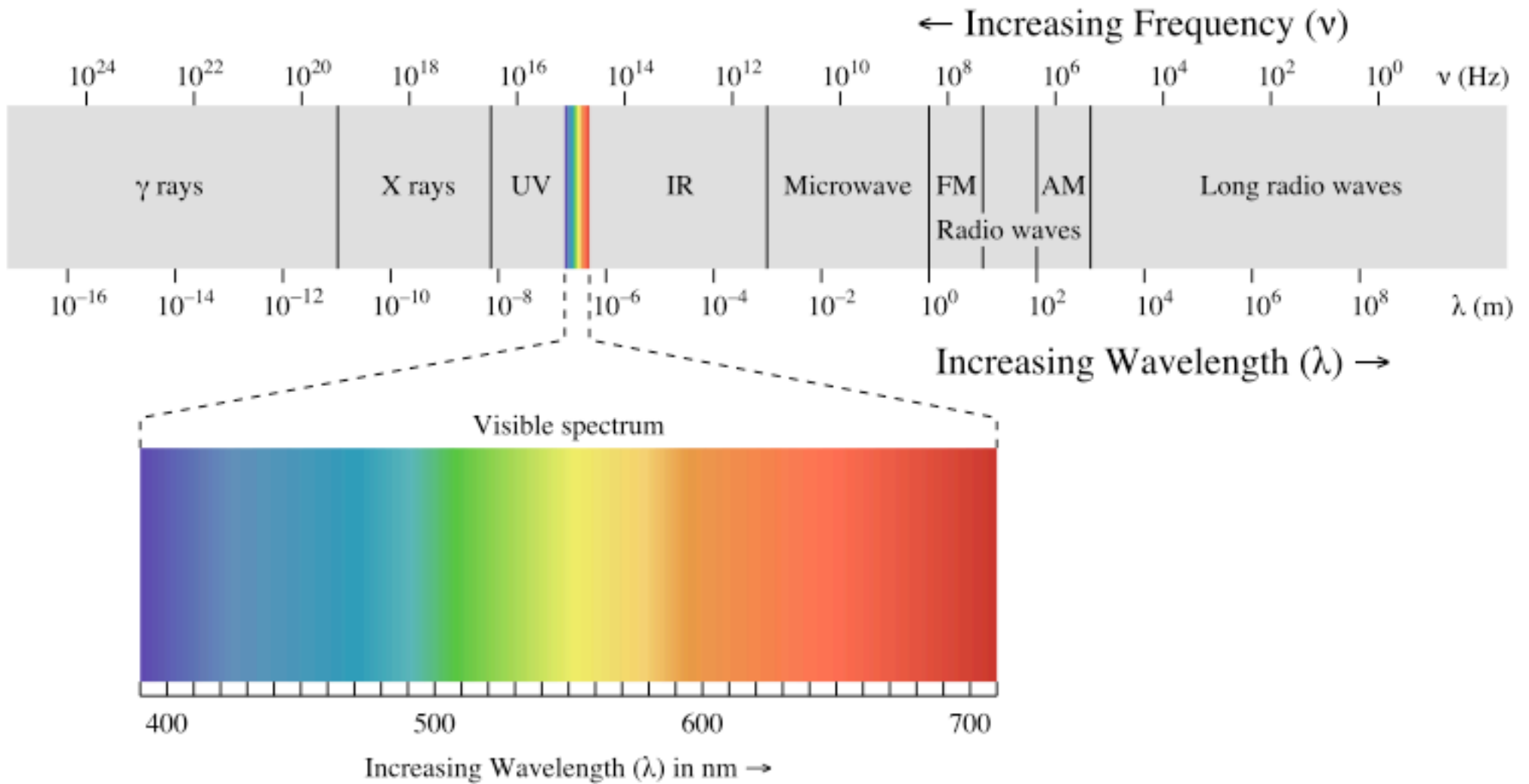


Image from http://en.wikipedia.org/wiki/Electromagnetic_radiation

Light

Properties of Waves & Particles

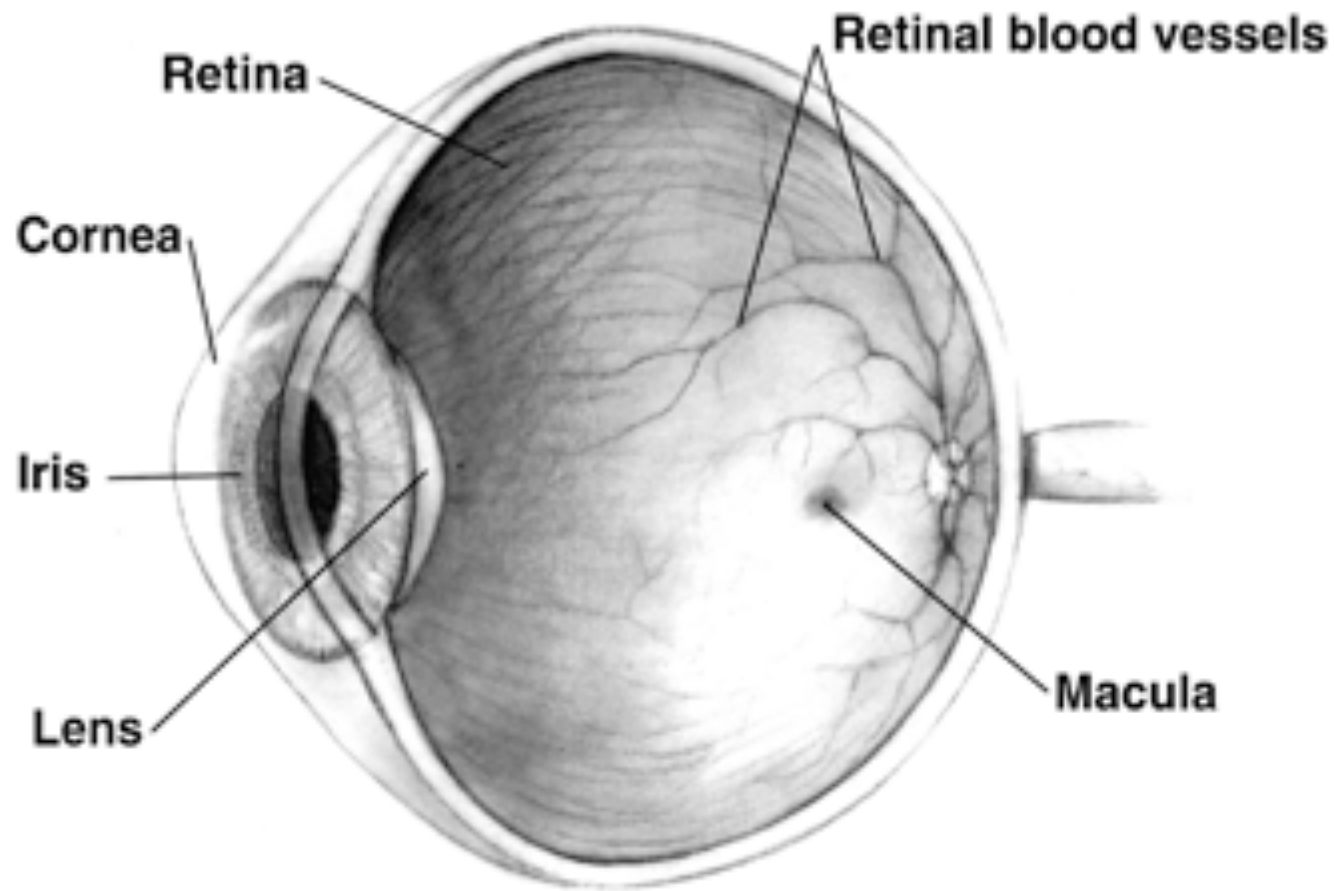


Image from <http://en.wikipedia.org/wiki/Eye>

The Eye

In a nutshell

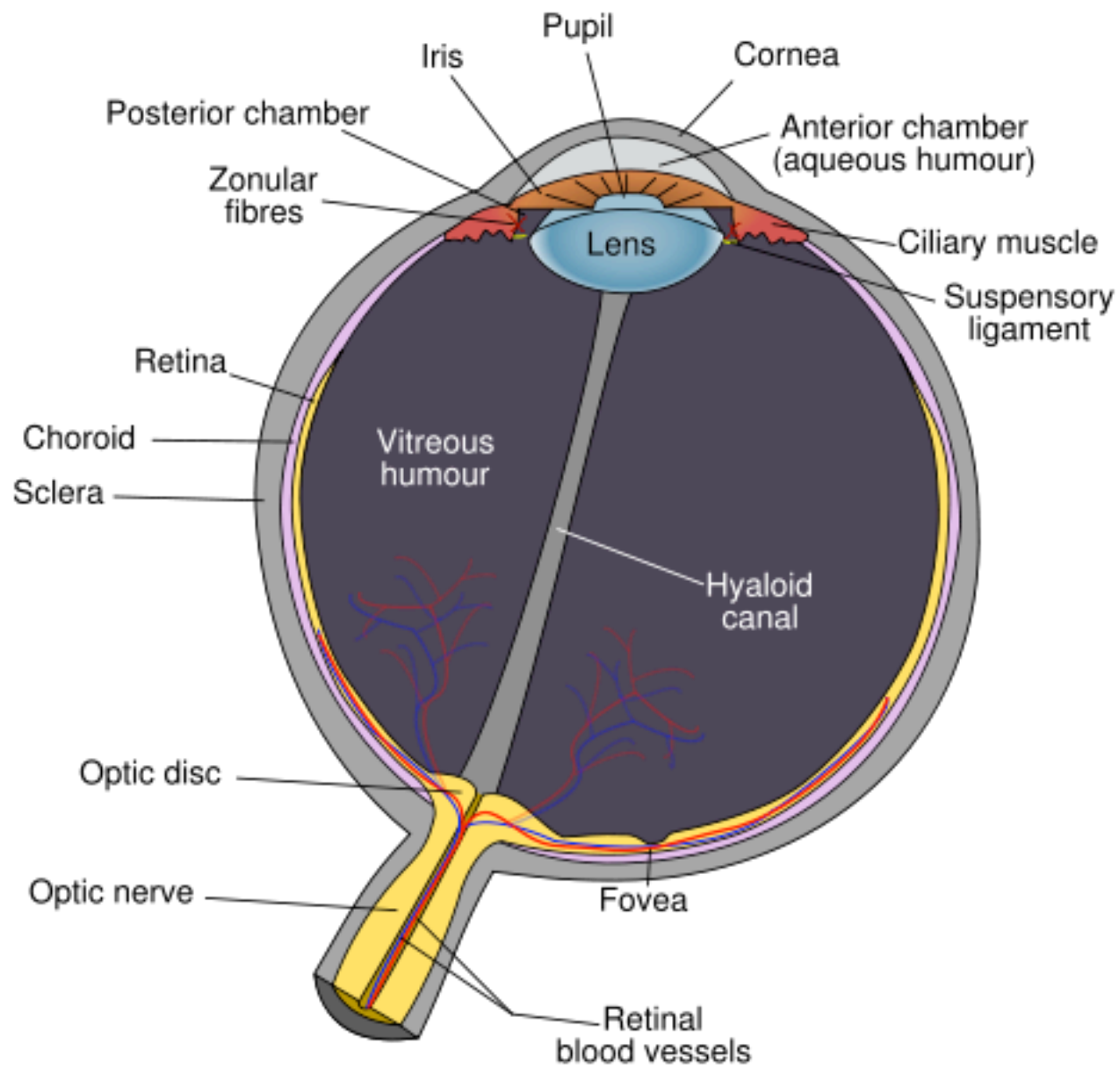


Image from <http://en.wikipedia.org/wiki/Fovea>

The Eye

Fovea

Rods	Cones
Night vision	Day vision
More sensitive to light	Less sensitive to light
Not in fovea	Concentrated in fovea
22 times as many rods than cones in retina	
Monochromatic stimulus	Trichromatic (color) stimulus
Preference to detect motion	Preference to detect detail

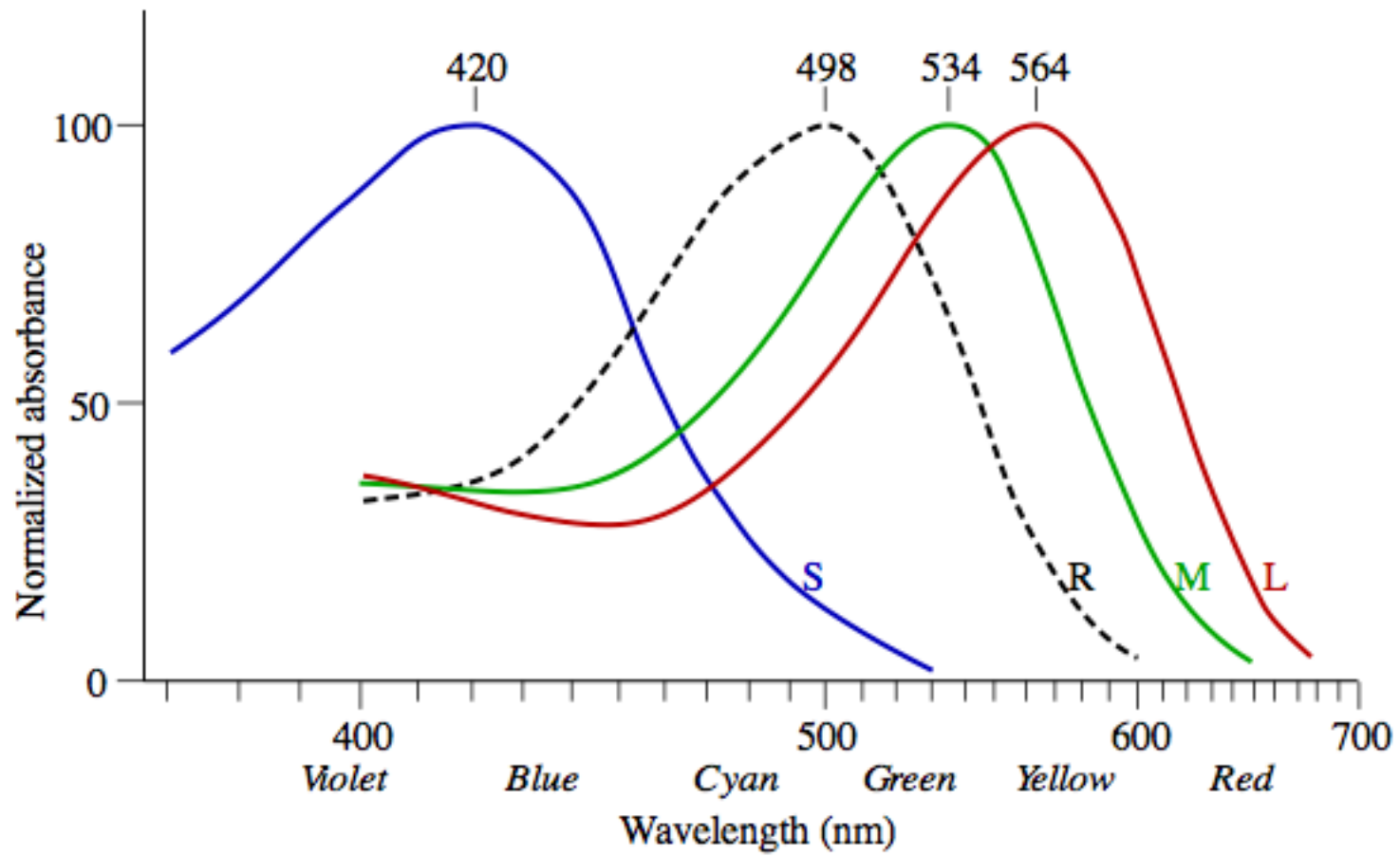
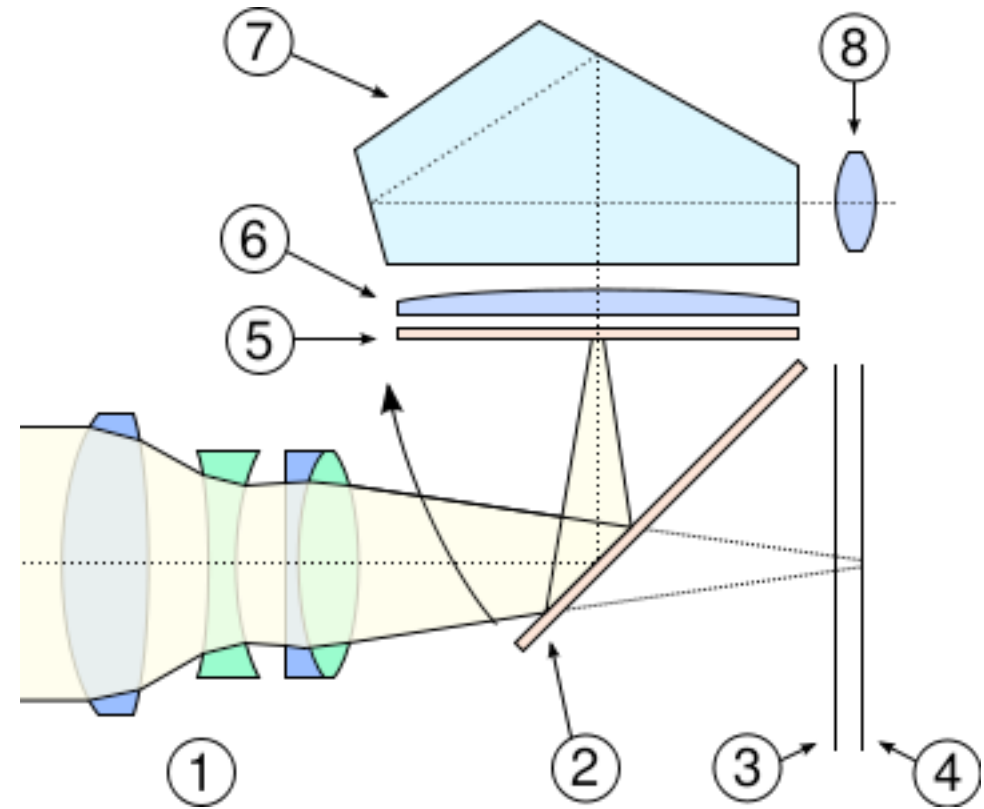
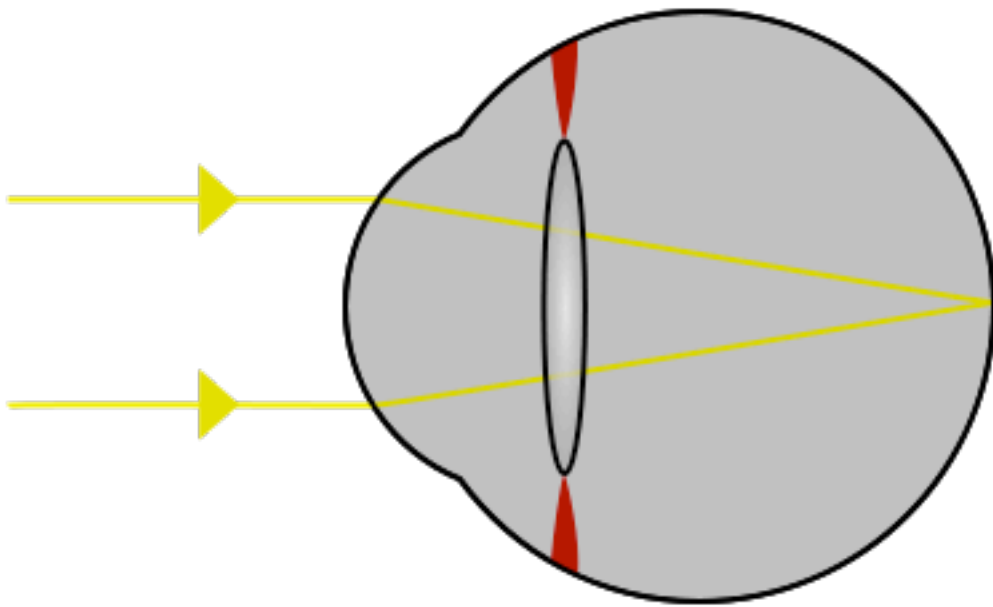


Image from <http://en.wikipedia.org/wiki/Trichromacy>

The Eye

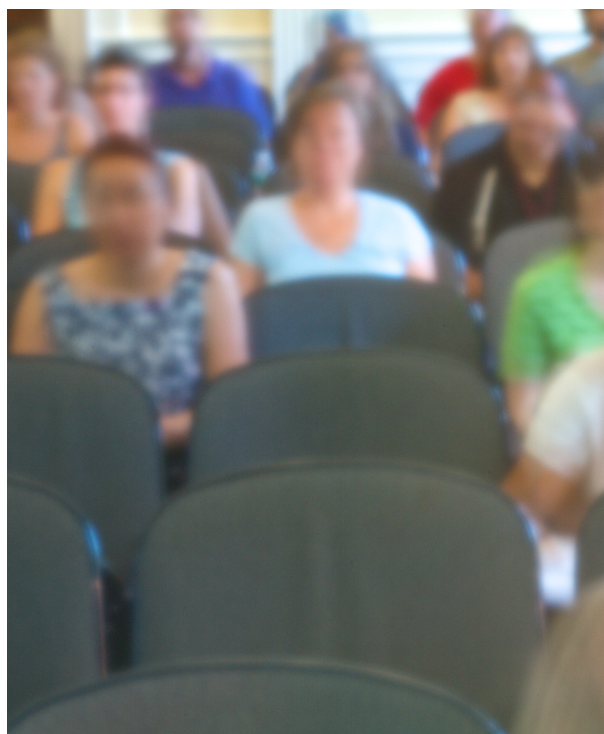
Rods & Cones



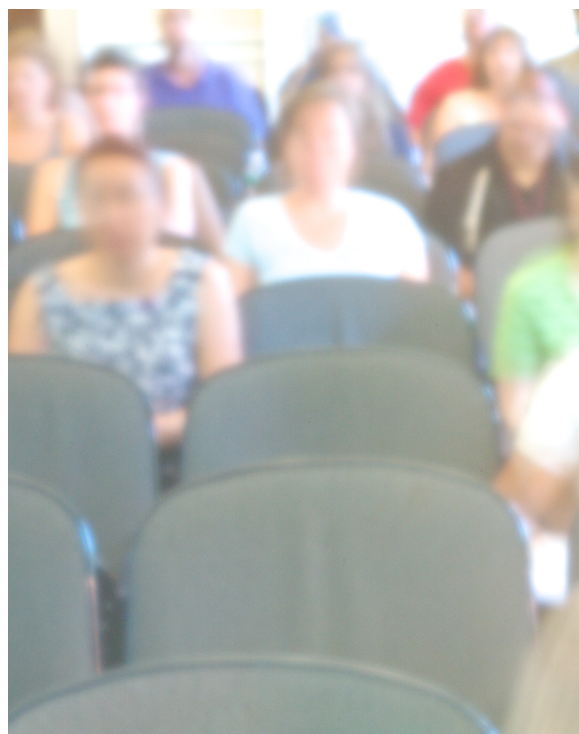
Images from <http://en.wikipedia.org/wiki/Eye> and http://en.wikipedia.org/wiki/Single-lens_reflex_camera

Cameras

Similarity to the Eye



+0 EV



+1 EV



+2 EV

Exposure

Stops & Exposure Value (EV)



367s, ISO 100

Photo by Dan Armendariz, 2009

Exposure

Shutter Speed



10.0s, ISO 100, f/8

Photo by Dan Armendariz, 2007

Shutter Speed

Effects



2s, ISO 100, f/13

Photo by Dan Armendariz, 2007

Shutter Speed

Effects

Shutter Speed

Stopping motion



Photo by Dan Armendariz, 2004
1/1250s, ISO 200, f/2.8



1/320s, ISO 100, f/9.0

Photo by Dan Armendariz, 2009

Shutter Speed

Mixing motion with still



2.5s, ISO 400, f/5

Photo by Dan Armendariz, 2006

Shutter Speed

Mixing motion with still



1/1000s, ISO 400, f/5.6

Photo by Dan Armendariz, 2007

Shutter Speed

Stopping motion

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