Basic Photo Techniques

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Musselburgh Camera Club

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The Two Sides of Photography

Technical

- Camera choice
- Lens choice - Focal Length
- Exposure
  - Shutter speed
  - Aperture
  - ISO
- Focus
- Gadgets
  - Filters, flash, reflectors, etc...
- Image Processing
  - Photoshop

Artistic

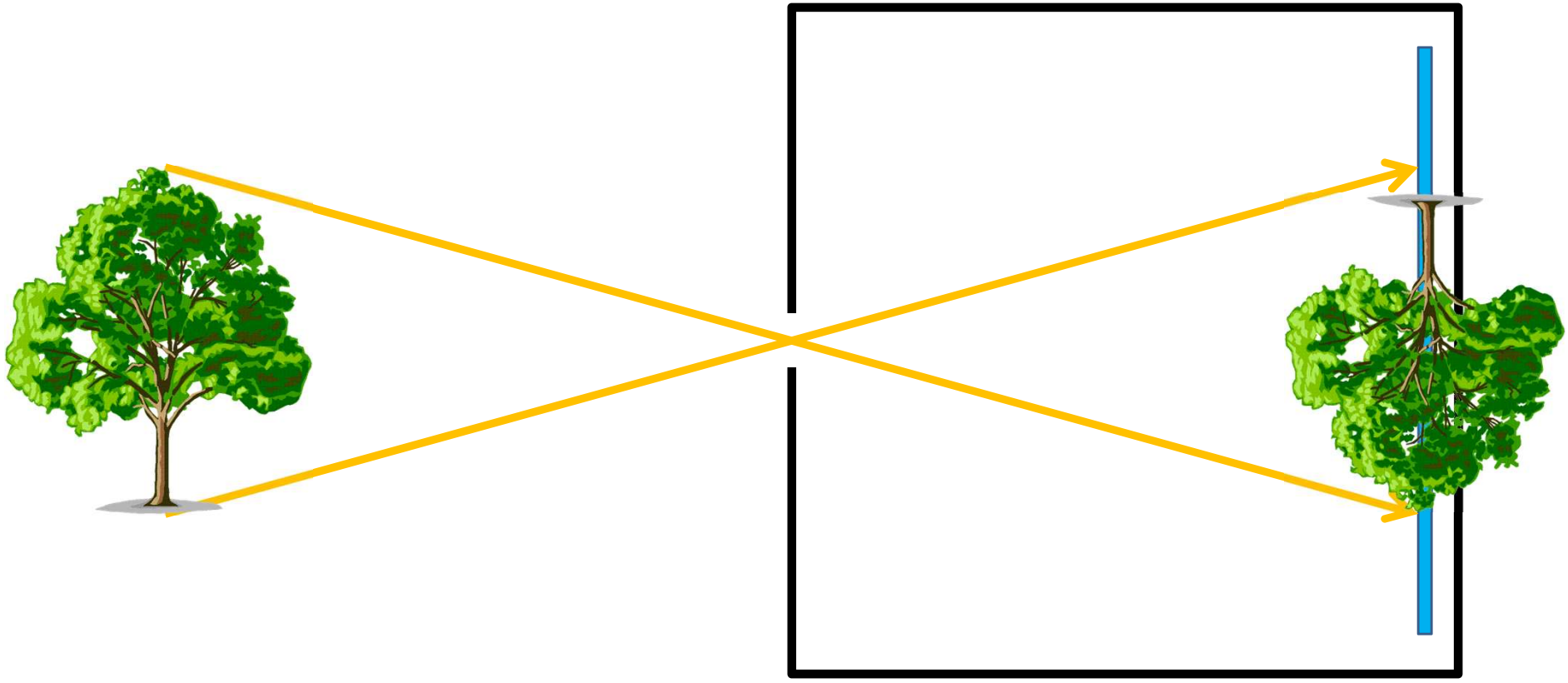
- Inspiration
  - Portrait
  - Landscape
  - Still life
  - Abstract
  - Light art
  - etc...
- Light and Colour
- Subject
- Composition
- Timing
- Digital art

Part 1

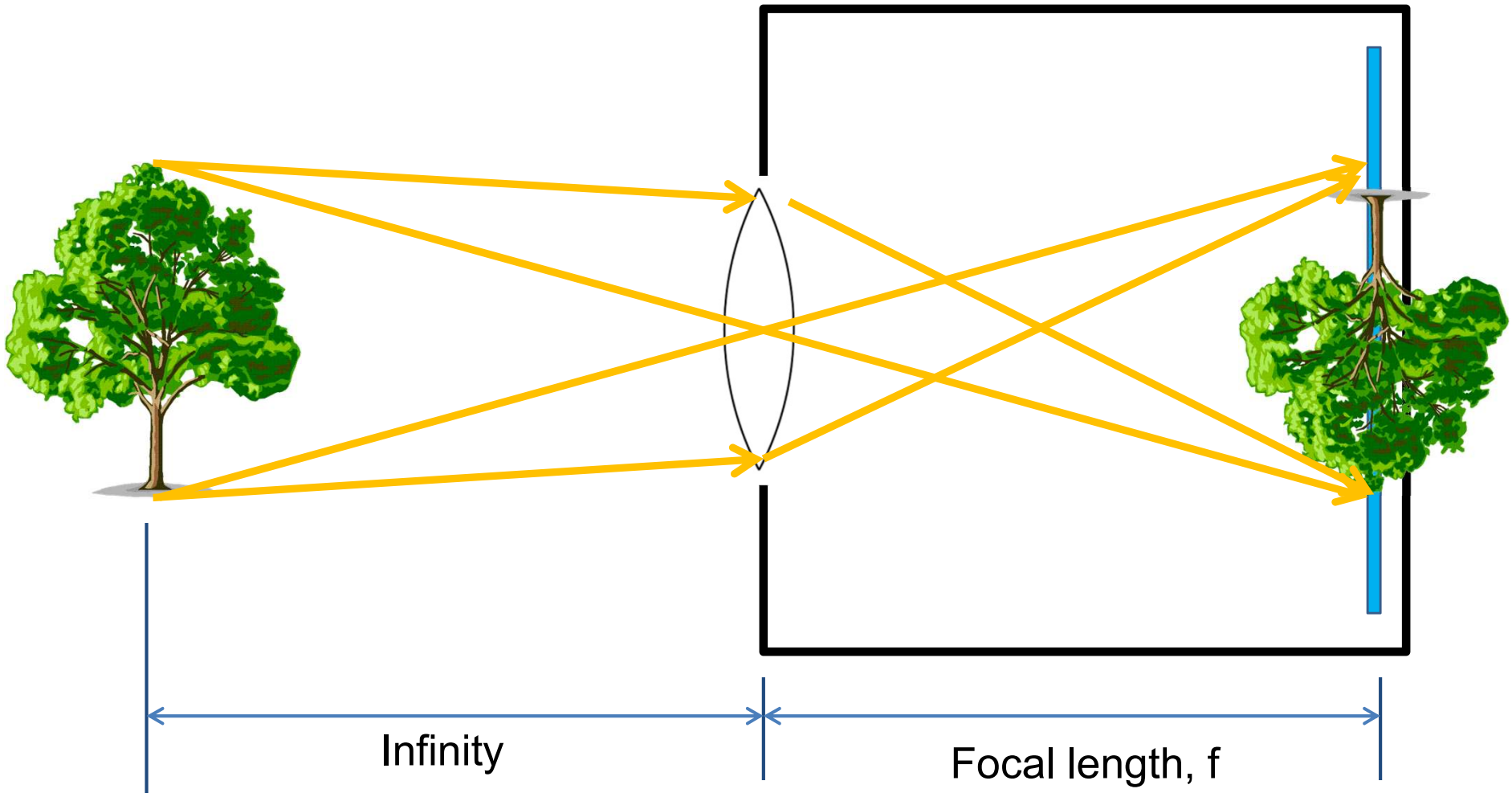
The ~~Dark~~ Technical Side

Fundamentals of Photography

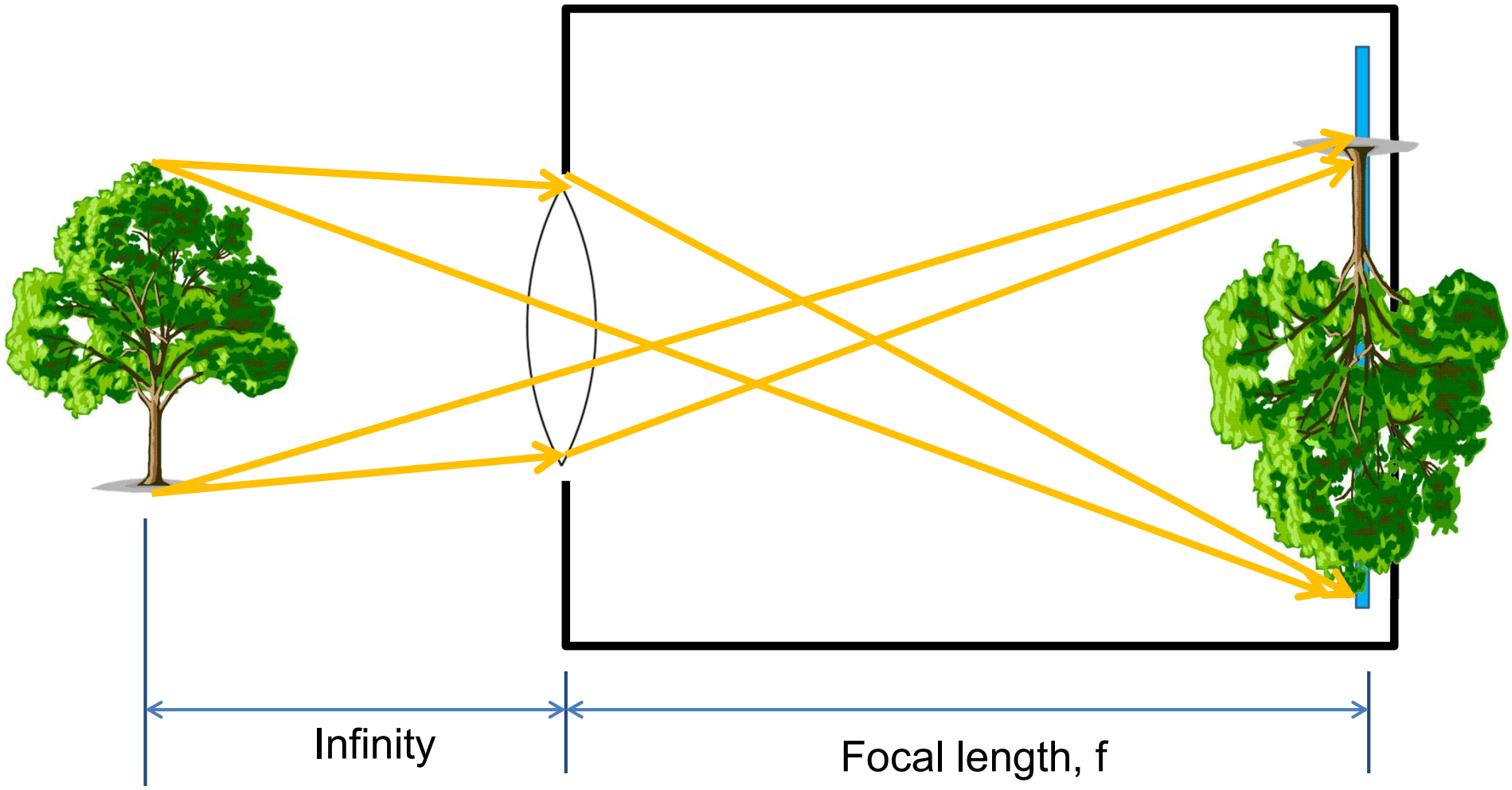
The Beginnings of Photography: Camera Obscura



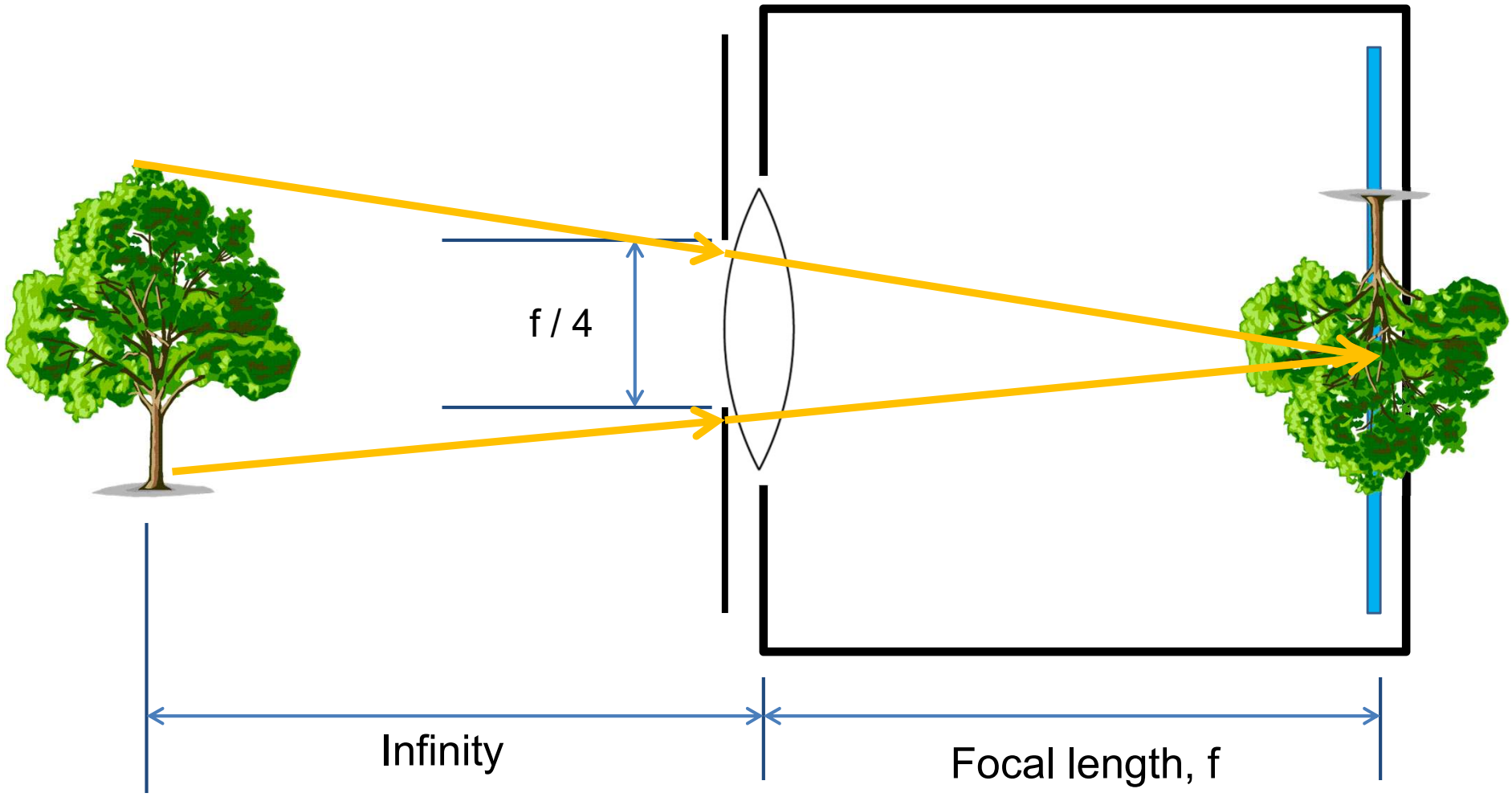
Simple Camera:
Short Focal Length



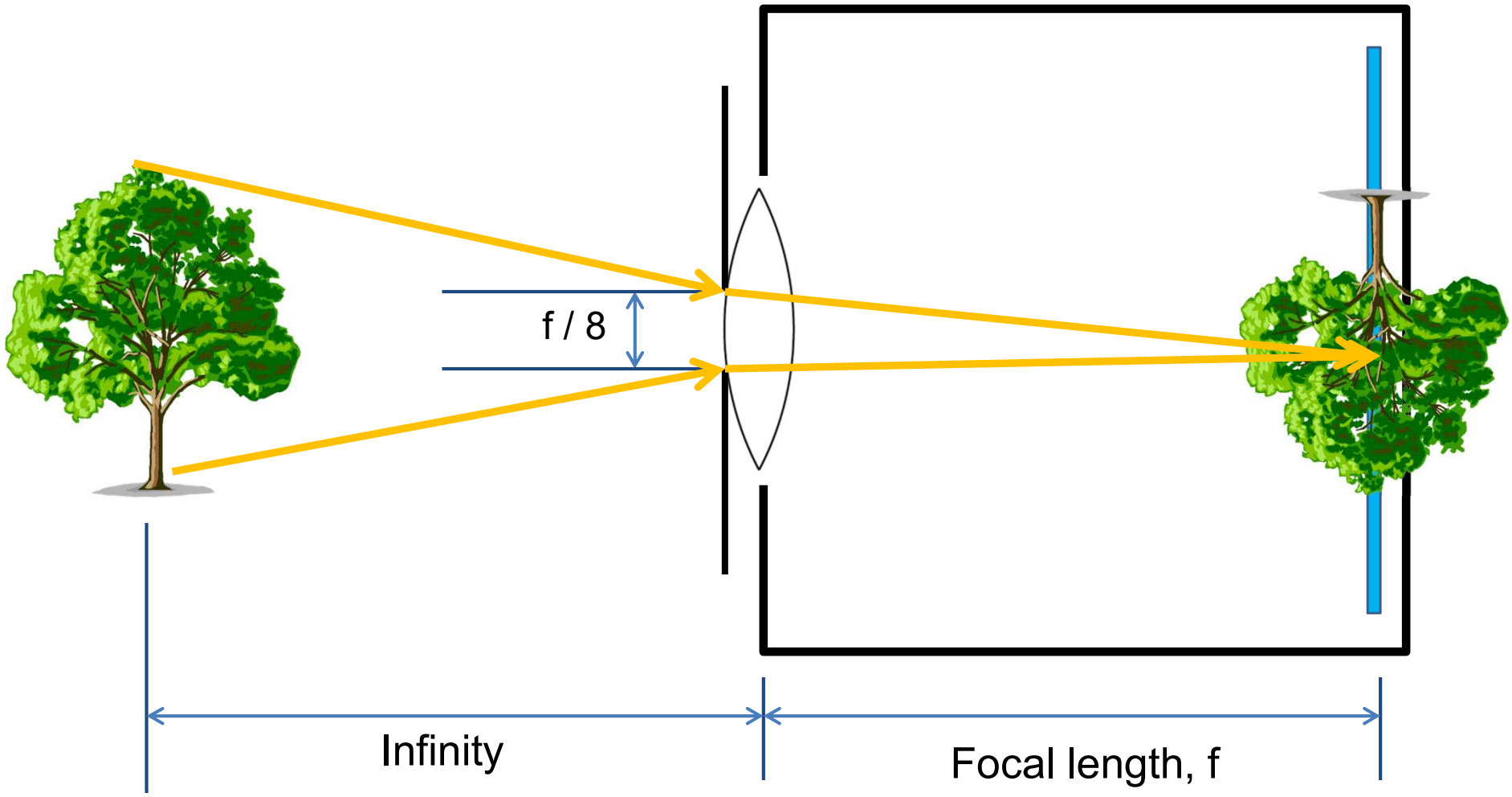
Simple Camera:
Long Focal Length



Aperture Size: The f number



Aperture Size: The f number

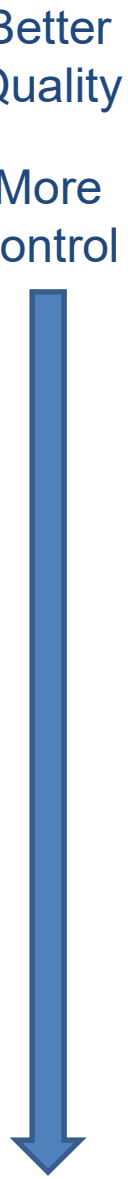


Choice of Camera

- The important thing is the image, not the camera.
- Images can be captured by Digital (or Film) SLR*s, point-and-shoot cameras, smartphones, tablets, or even digital scanners.
  - You can take a good image with a bad camera and a bad image with a good camera.
  - A better camera will be more tolerant of difficult situations and will give you more control.

** SLR = Single Lens Reflex*

- Smartphone/ Tablet
  - Fixed lens.
  - Limited situations.
  - Noisy.
  - Very limited control.
- Point-and-shoot
  - Mostly fixed lens.
  - Mostly auto control but some manual overrides.
- Digital SLR*
  - Interchangeable lens.
  - Lower noise (especially with “full-frame” sensor).
  - Manual control options.
  - Fittings for expansion.



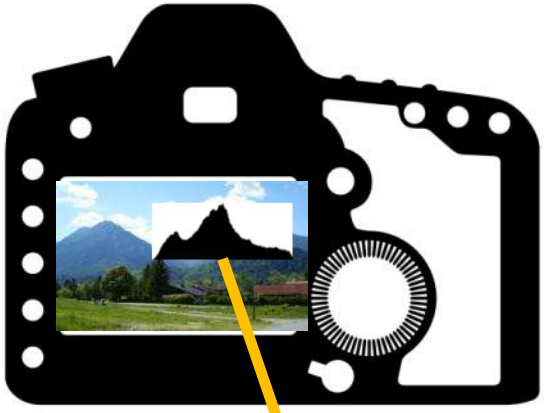
Which Camera Settings?

Shooting mode

Metering mode

Exposure compensation

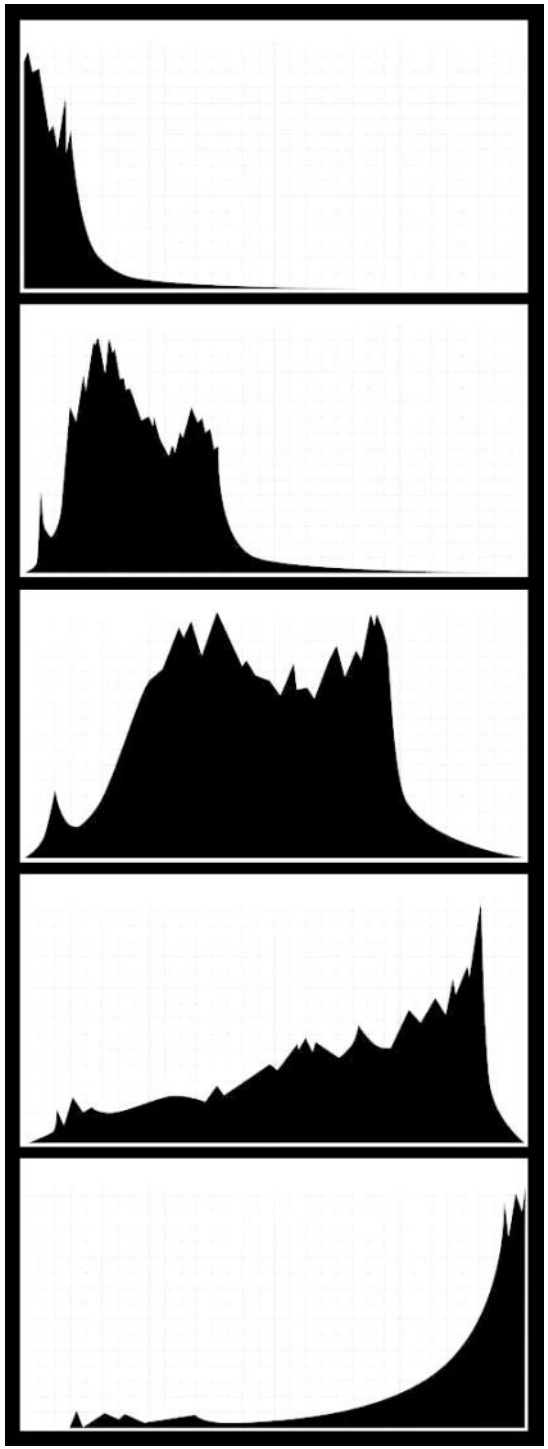
Exposure bracketing



AF/M Autofocus setting

Always check your image and look at the histogram.

Start with auto mode but try the manual modes. Ensure you are in control.



Underexposed: Shadow detail will be lost. Dark areas will be noisy.

Peak to the Left: Perfectly ok for low-key scenes, such as night sky or coal shed. Shadows may be noisy.

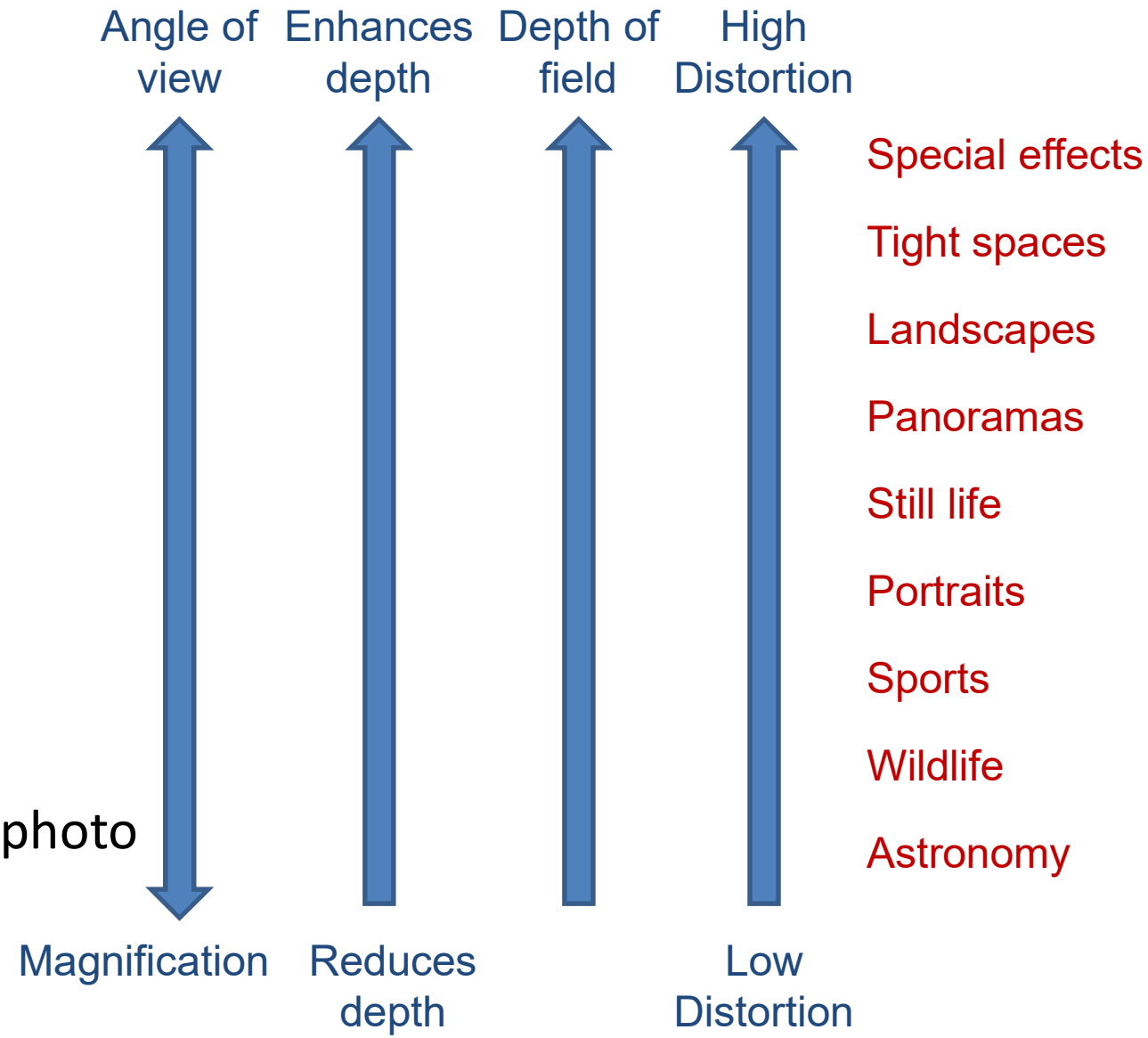
Neutral exposure: Safest result. There will be detail in shadows and highlights.

Peak to the Right: Expected for high-key scenes, such as snow. Optimum result, as long as highlights not clipped.

Overexposed: Highlights will be clipped. Detail lost in bright areas.

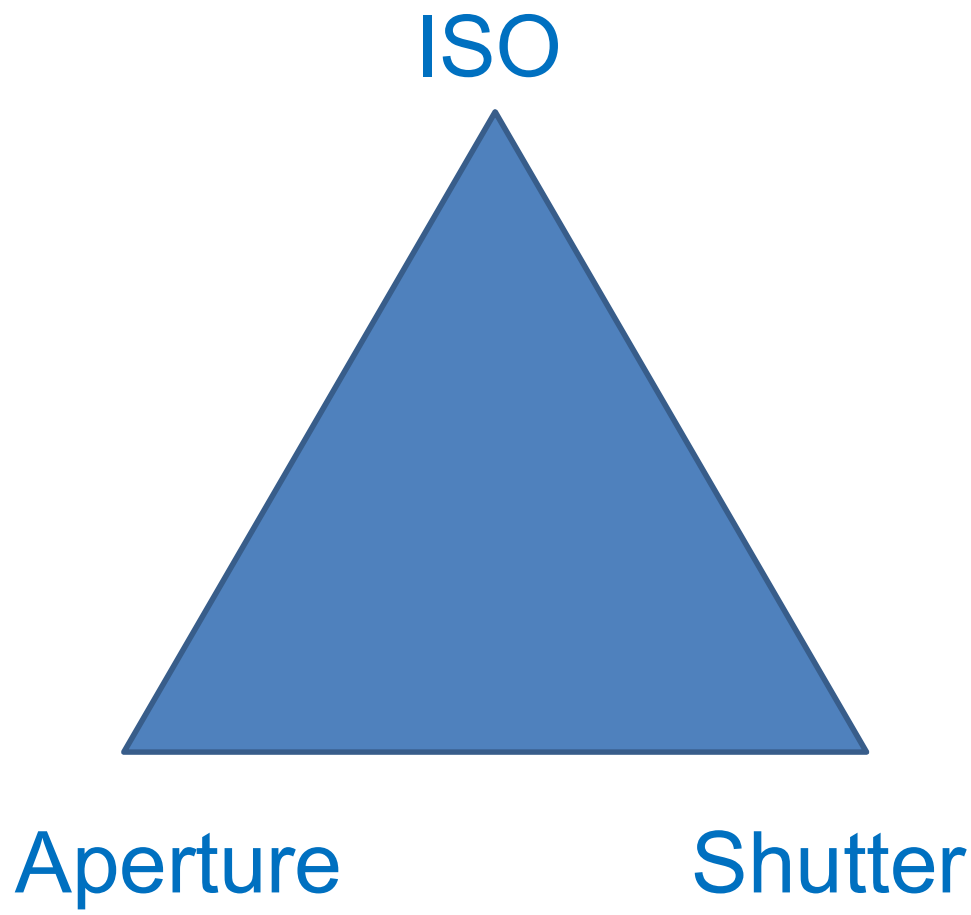
Choice of Lens: Focal Length

- Fish Eye
  < 15mm
- Wide Angle
  ~15-30mm
- Standard
  ~30-70mm
- Portrait
  ~70-120mm
- Telephoto
  ~70-500mm
- Extreme telephoto
  > 500mm



Exposure

- Exposure Value = EV
  - A measure of the amount of light captured and recorded by the camera.
- EV depends on
  - **ISO**: How sensitive is your film or detector?
  - **Aperture**: How much light can enter your camera?
  - **Shutter speed**: How long will your camera expose on that light?

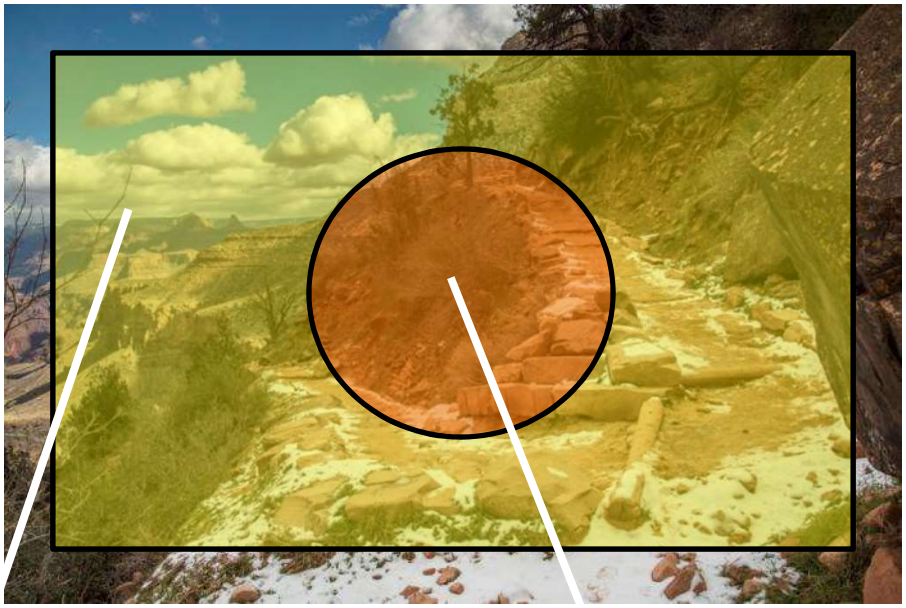


Exposure

- Exposure Value = EV
  - Changes by 1 stop when exposure doubled.
- Shutter Speed
  - 1/4s → 1/2s → 1s → 2s → 4s
  - Controls motion blur
- Aperture
  - f4 → f5.6 → f8 → f11 → f16
  - Controls depth of field
- ISO
  - 200 → 400 → 800 → 1600
  - Affects noise level.

Shutter	Aperture	ISO
1/125s	f/8	200
1/250s	f/5.6	200
1/500s	f/4	200
1/1000s	f/2.8	200
1/2000s	f/2.8	400
1/125s	f/8	200
1/60s	f/11	200
1/30s	f/16	200
1/15s	f/22	200
1/60s	f/22	800

Auto Exposure Settings

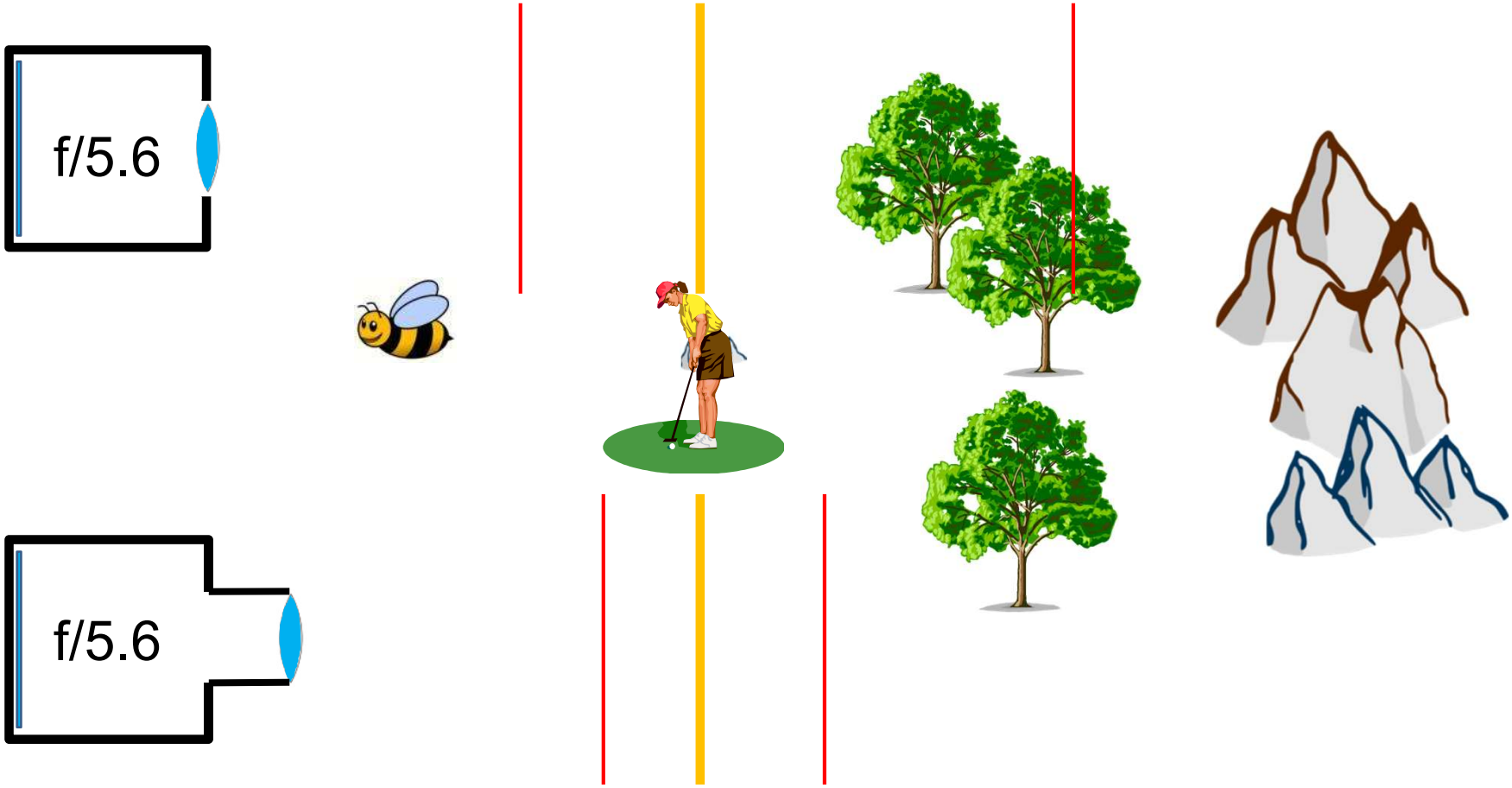


Spot: Useful when the subject is more important than the background.

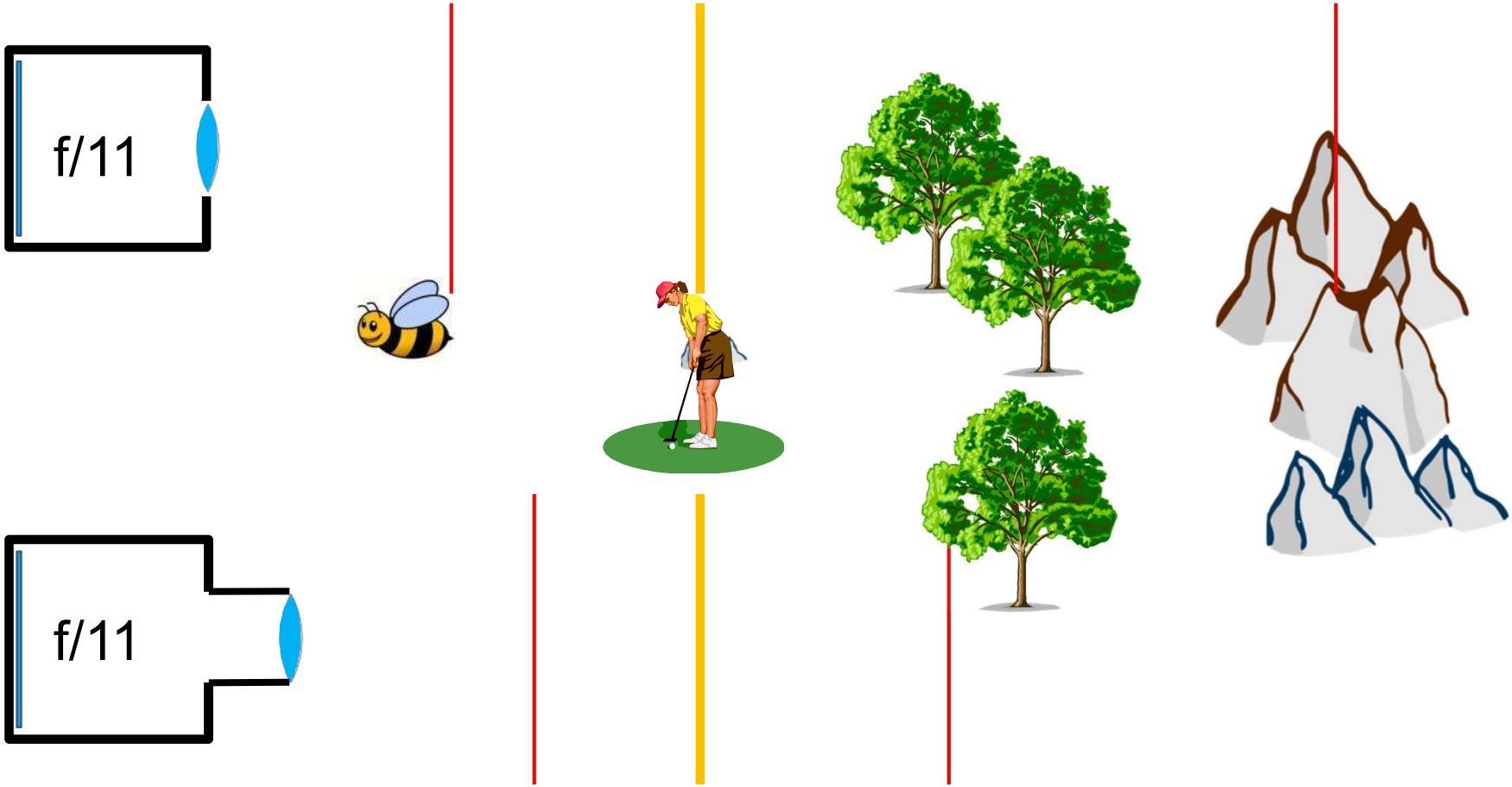
Matrix: Useful when the whole scene is important (e.g.landscapes).

Centre weighted: Useful when the edges are less important than the centre.

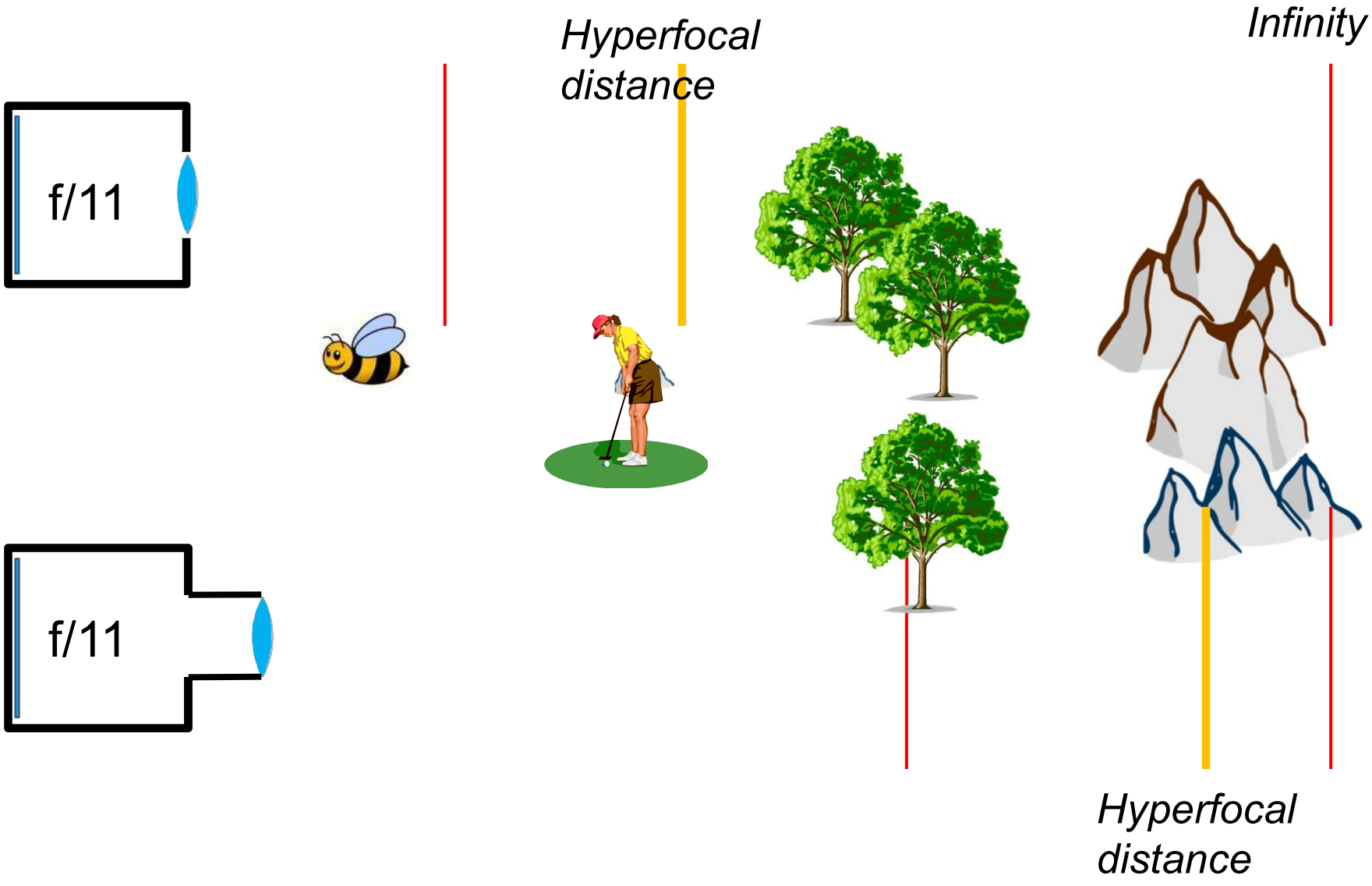
Focus (wide aperture)



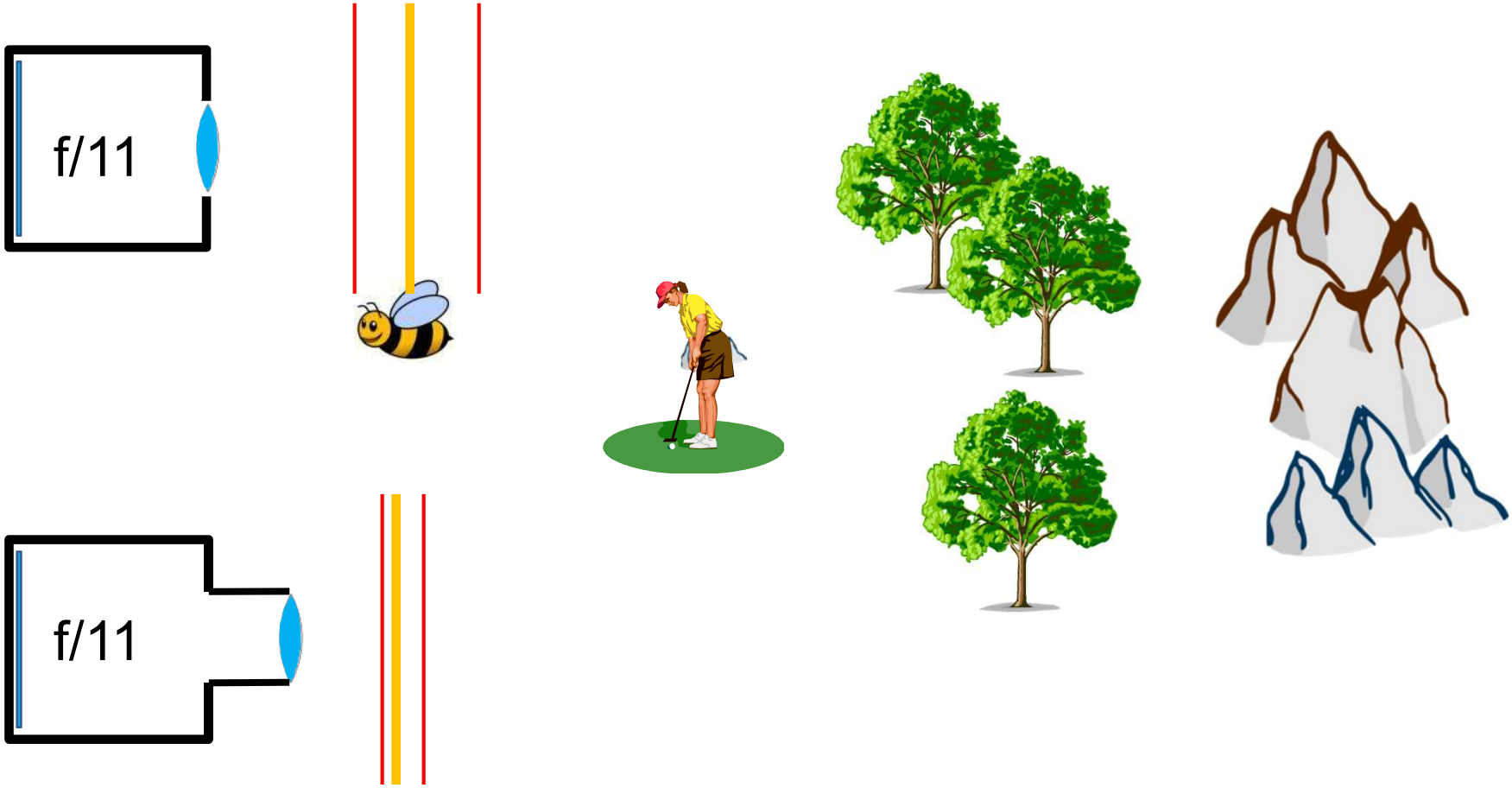
Focus (narrow aperture)



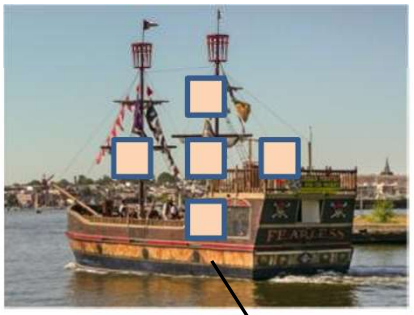
Focus (hyperfocal)



Focus (macro)



Focus settings



Autofocus on the nearest object.

What is back button focussing?

AE-L AF-L

f/2

Depth of field preview.

The wider the aperture and the more light is available, the easier it will be to focus.

Autofocus on a specific object.

How many focus points?

Manual focus

Gadgets

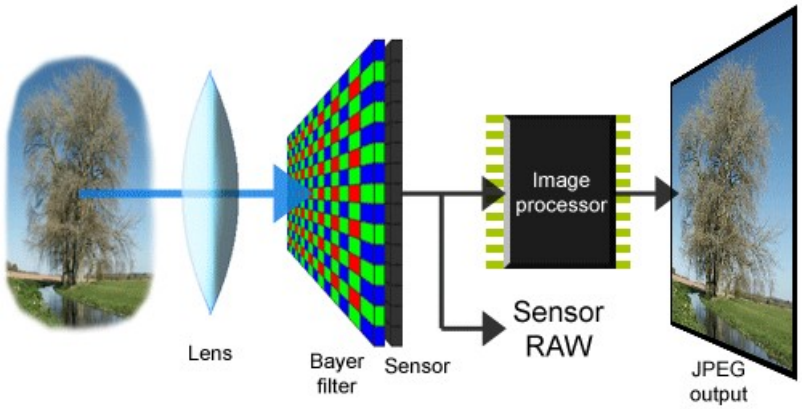
- Light control
  - **Flash**
  - Studio lights
  - Reflectors and diffusers
  - Torches / LEDs
- Camera steadying
  - **Tripod**
  - Monopod
  - Bean bag
- Control
  - Remote shutter release
  - Remote camera control

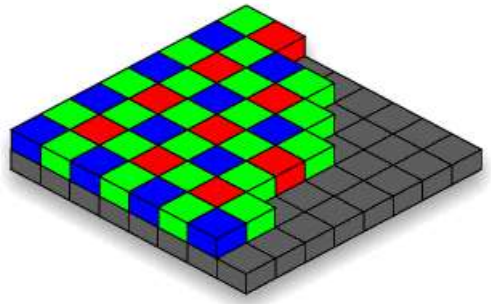
Note: Turn off vibration reduction.

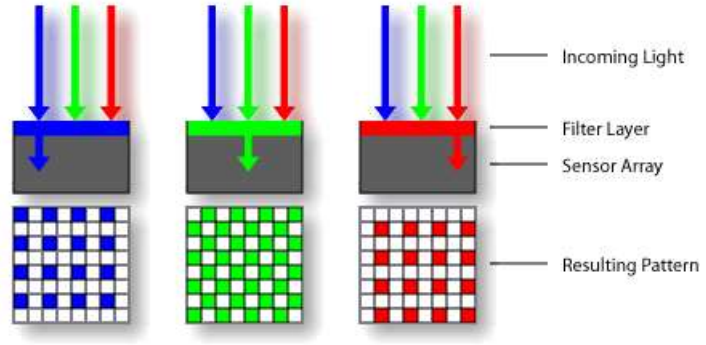
- Shielding
  - **Lens hood**
  - Eyepiece cover
- Light Filtering
  - UV filter
  - Polarizing filter
  - ND filter
  - ND graduated filter
  - Colour filter
- Lens enhancement
  - Extension rings
  - Teleconverter

Note: Filters and teleconverters can reduce the quality of a lens.

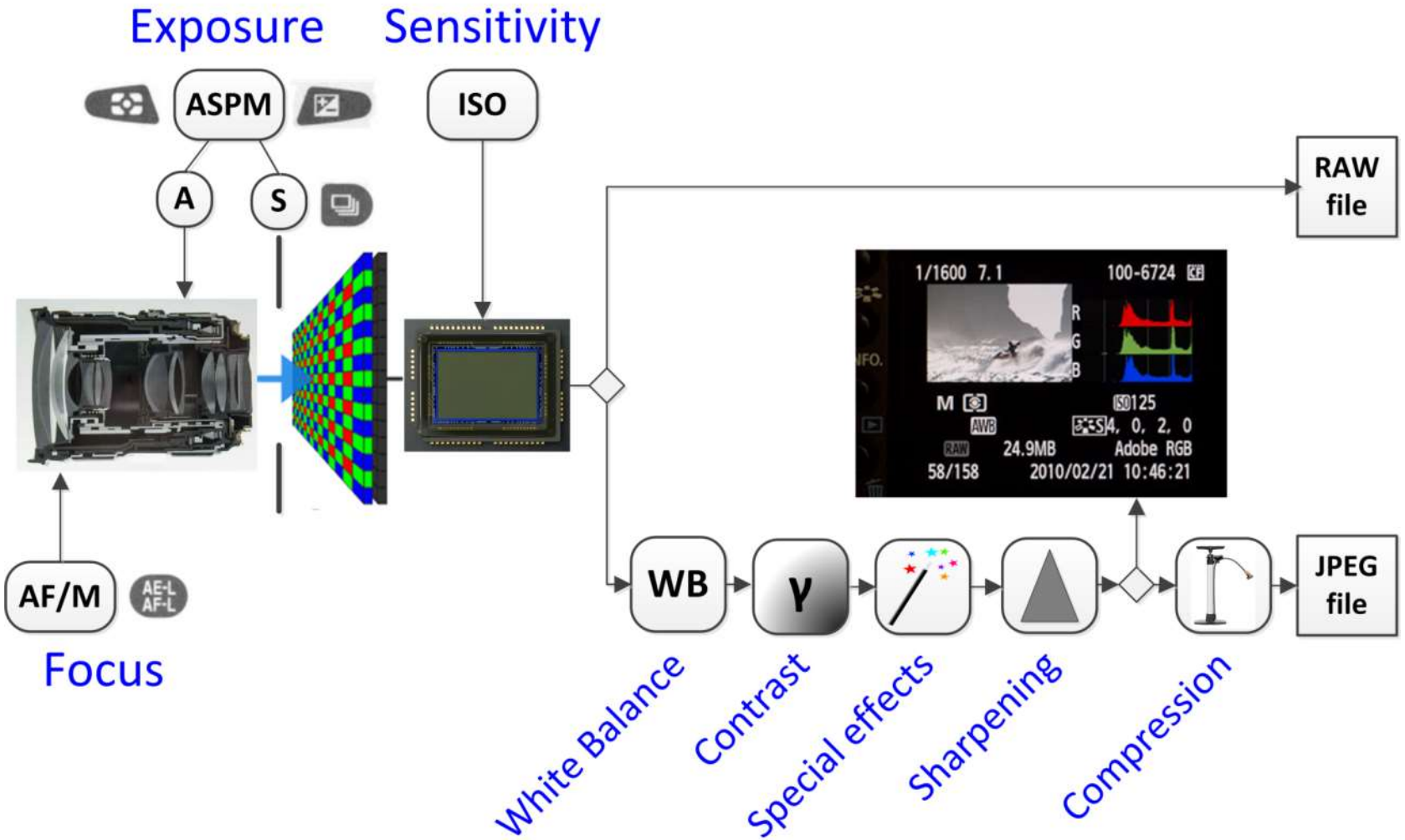
How Does a Digital Camera Work?



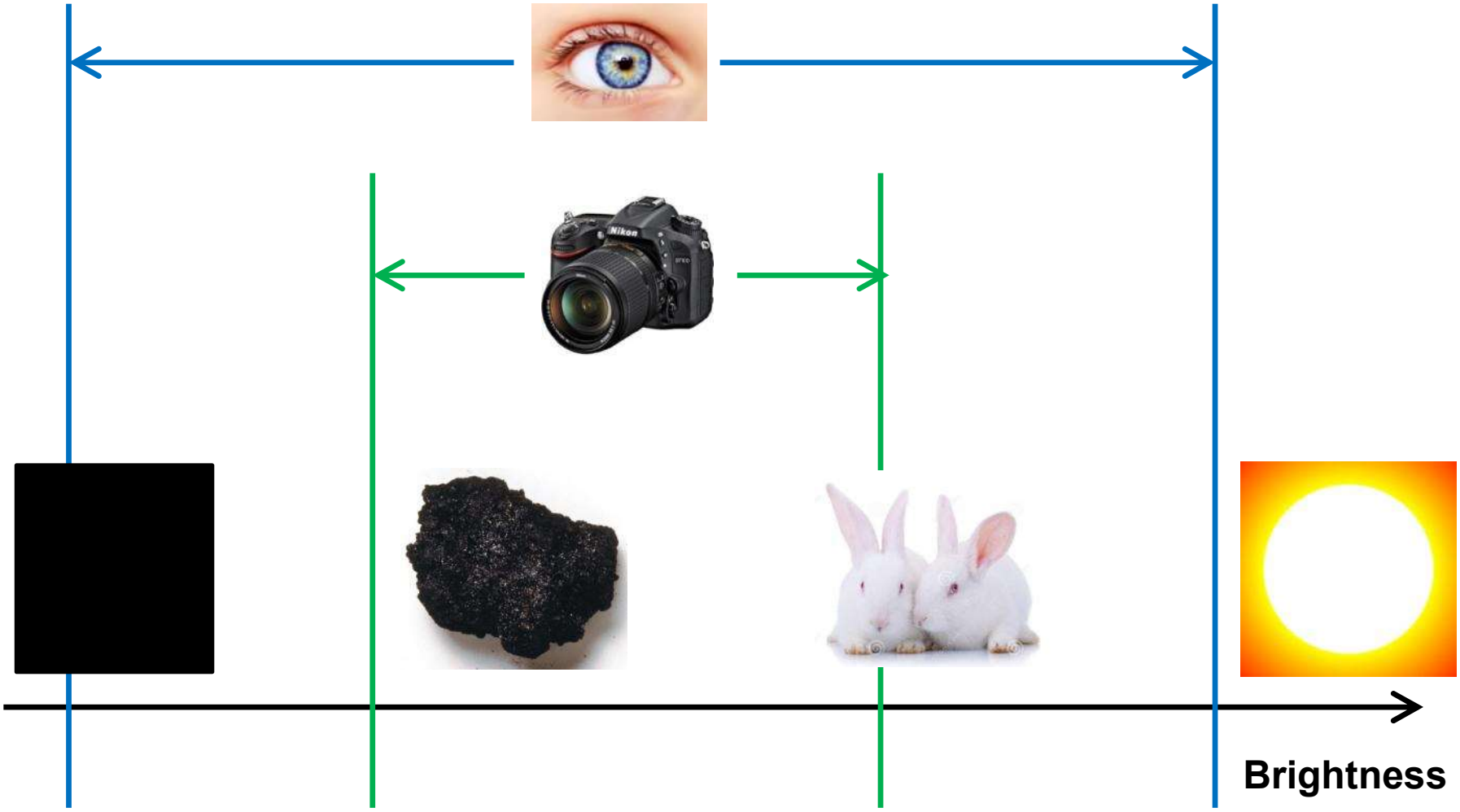




What Happens to Information Collected by a Digital Camera?



Dynamic Range and Histogram



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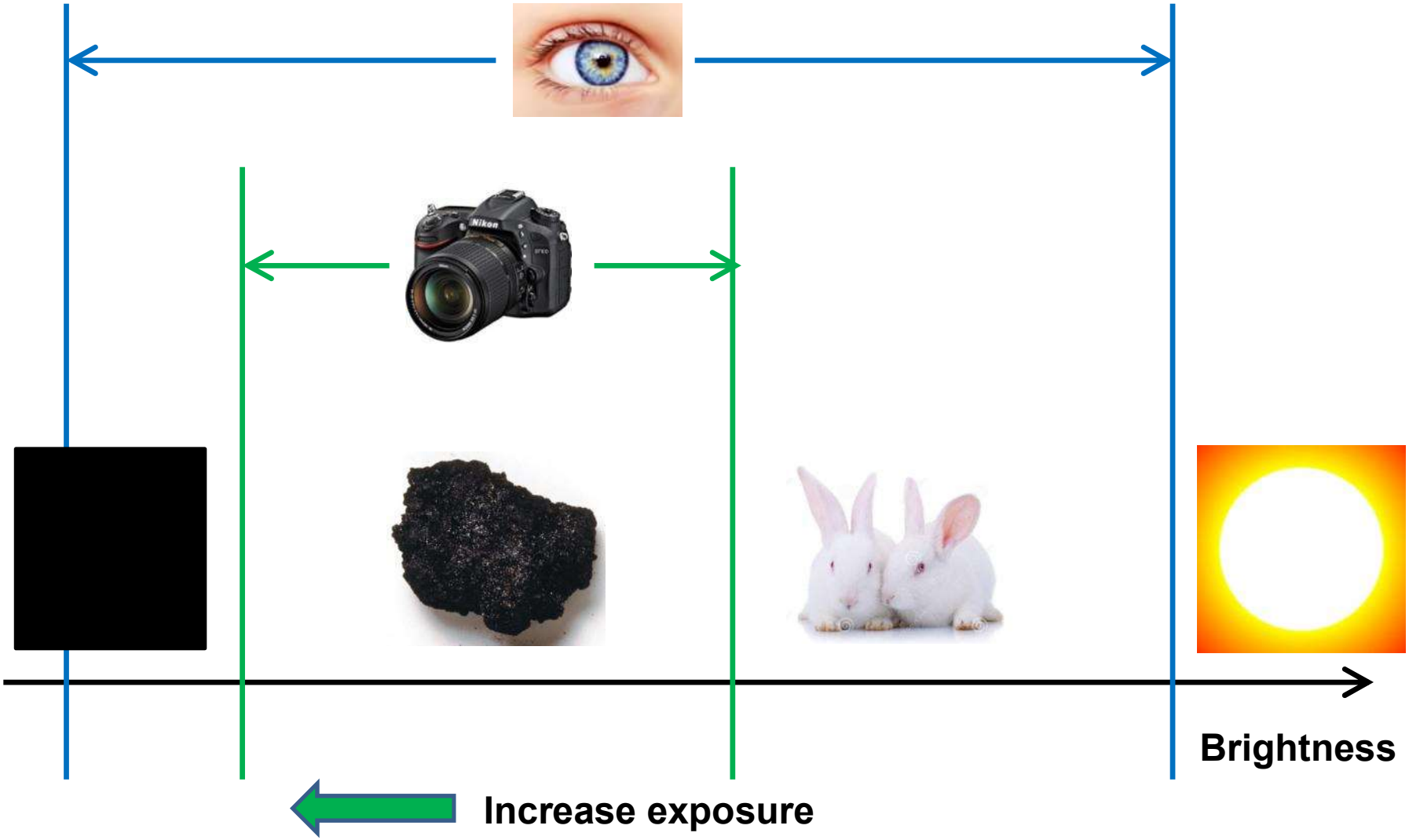

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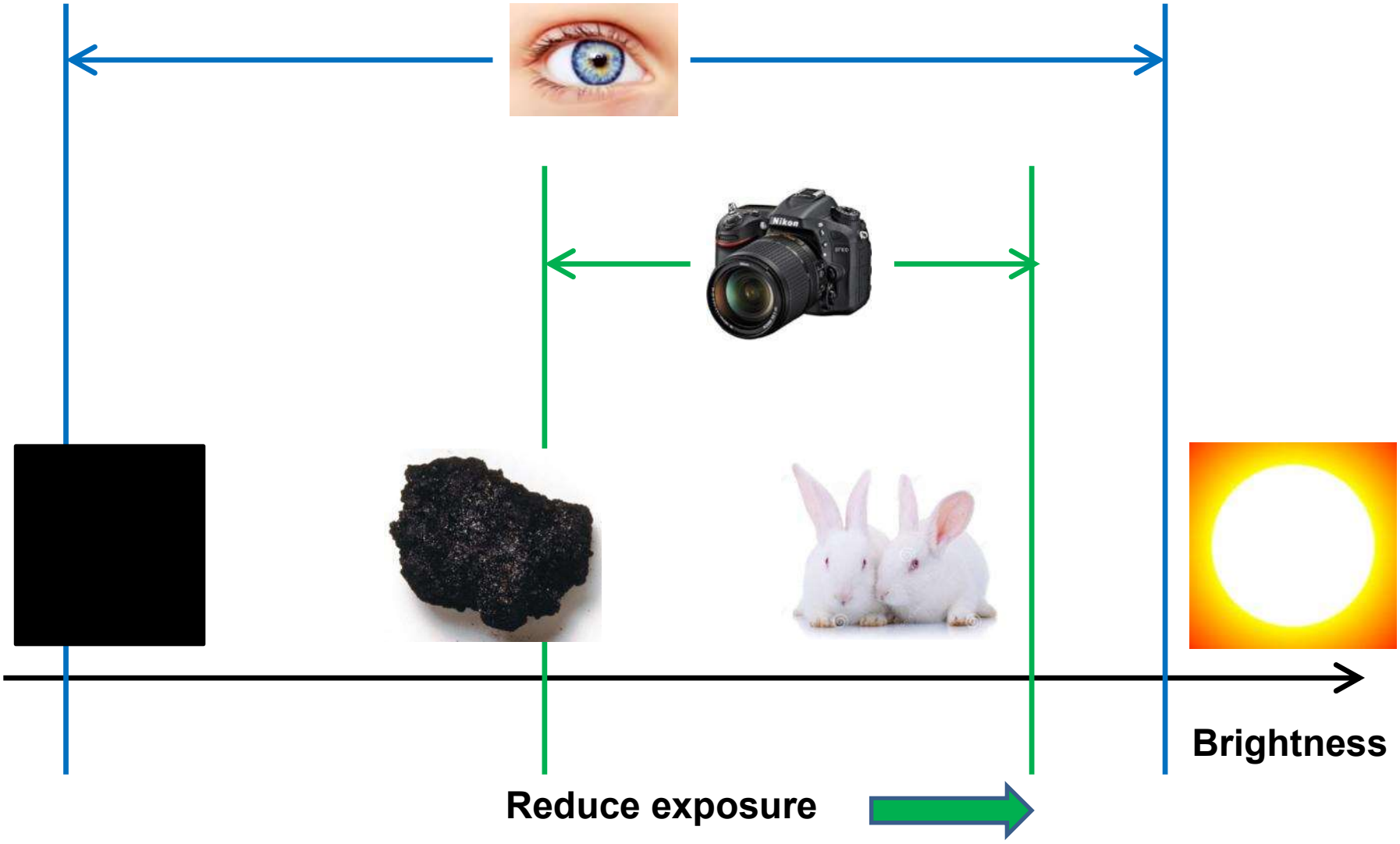

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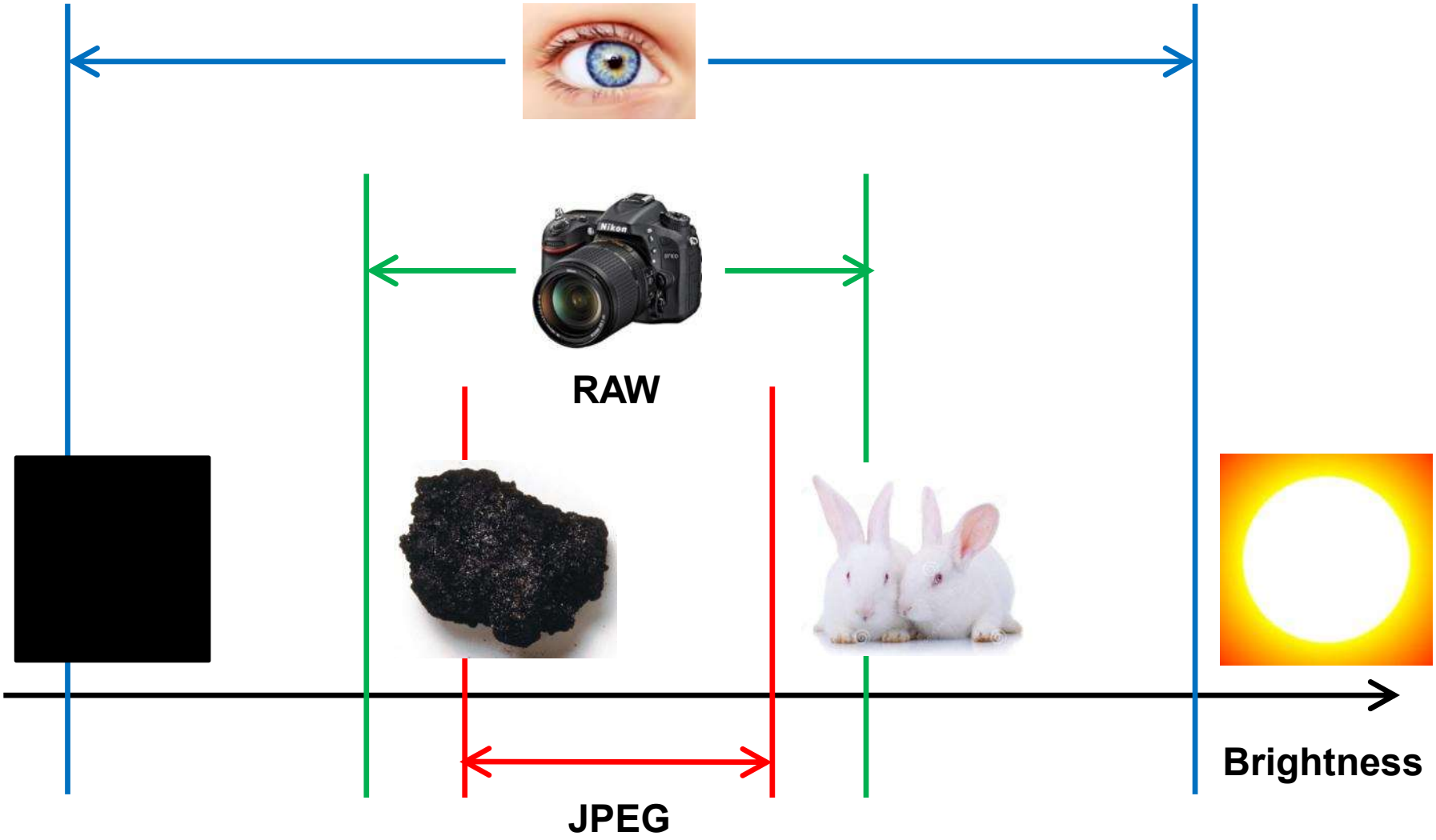

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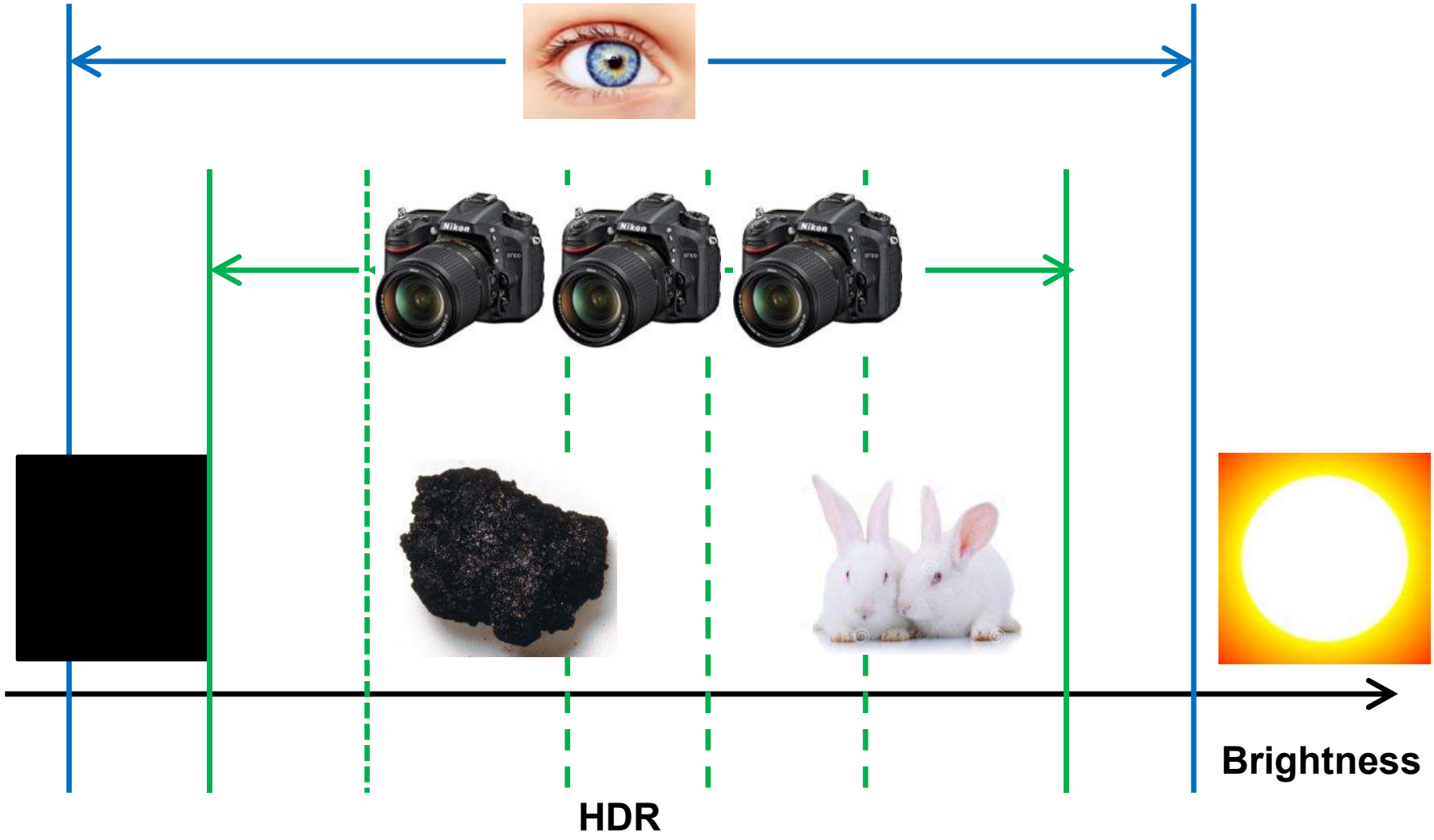
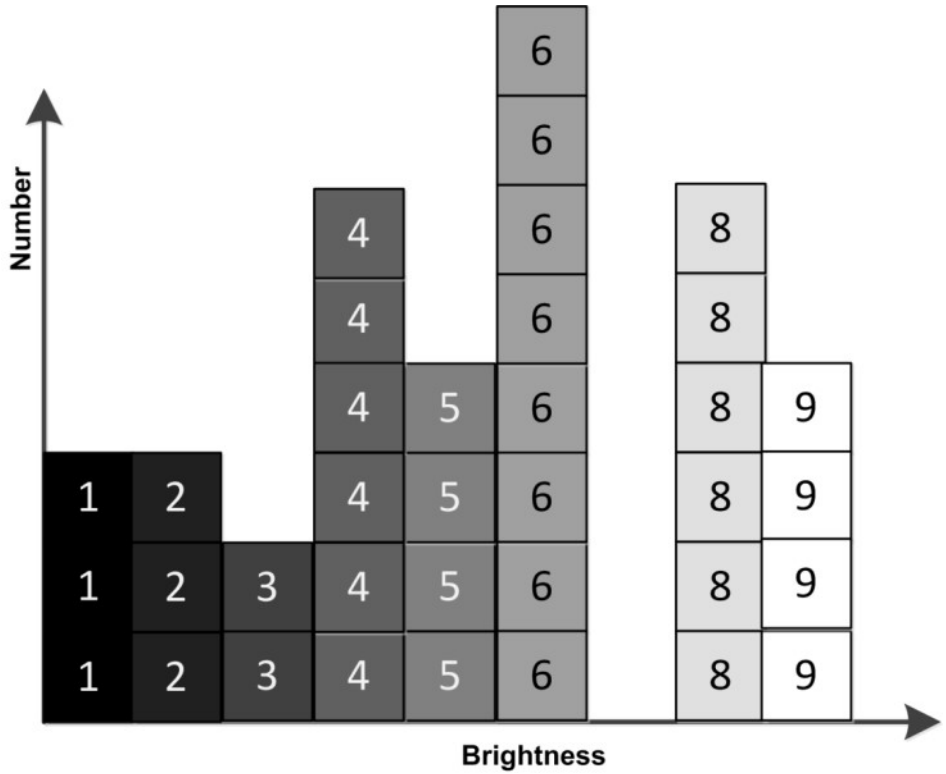


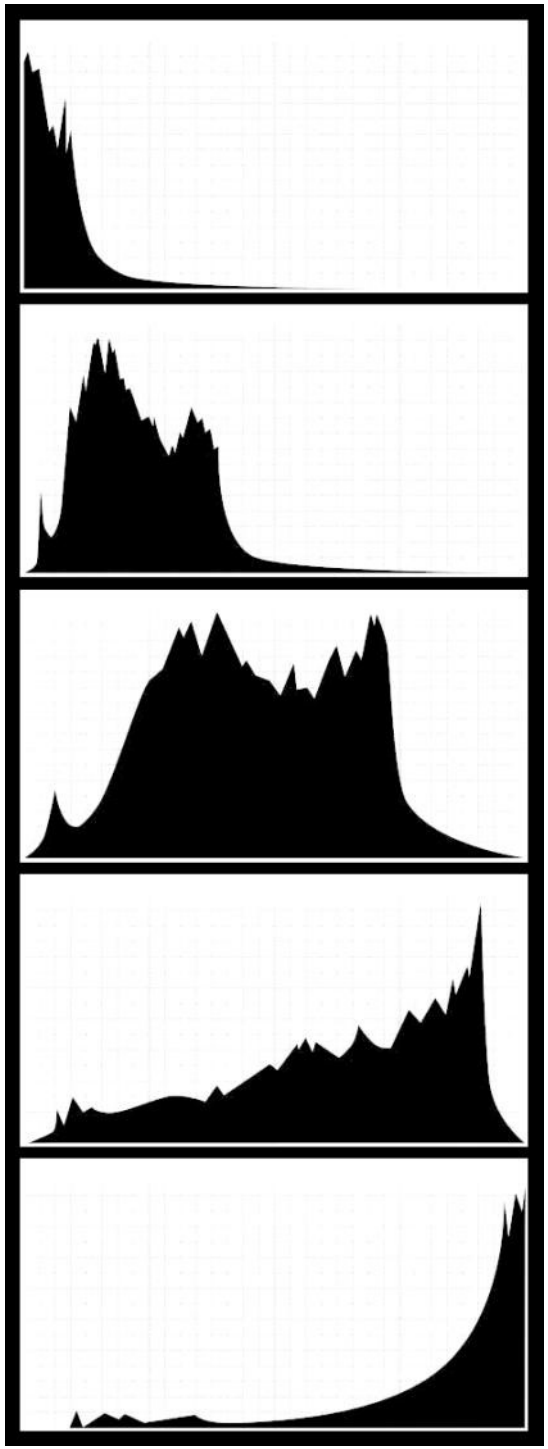
Digital Photography and Information

- A digital photograph is made of information.
  - Picture elements = Pixels
- The picture information is described by numbers.
  - Higher numbers mean brighter pixels
- It is important to know how to manage this information.

The Histogram

9	9	8	8	9	8
8	4	4	8	6	5
9	6	2	5	5	4
8	4	6	1	2	6
6	6	6	1	5	6
4	3	3	1	2	4





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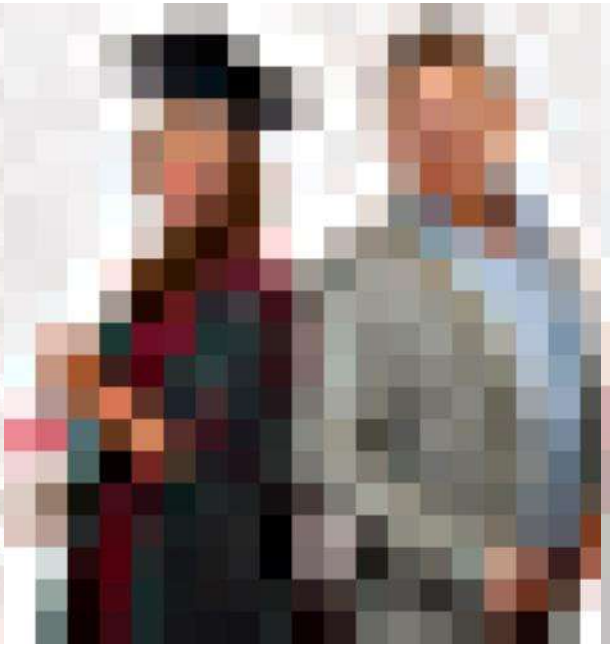
1000 x 1000

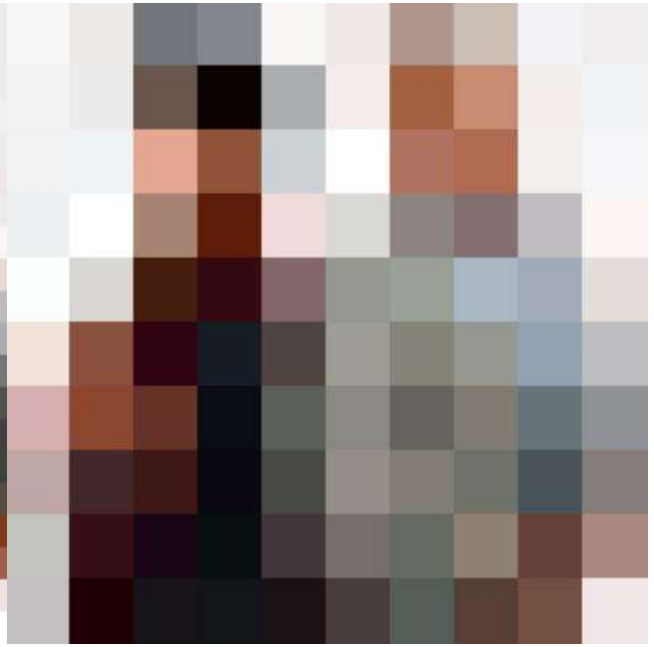
200 x 200

100 x 100

50 x 50



20 x 20



10 x 10

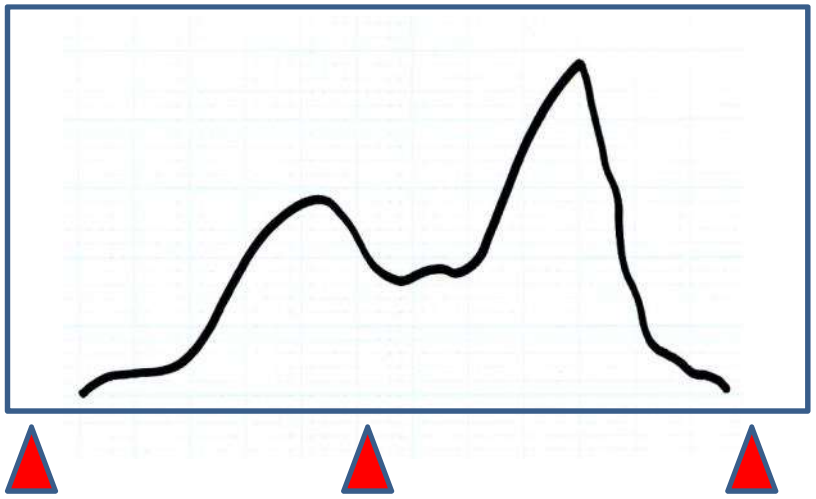
Image Processing

- Once an image has been saved by your camera, it can be adjusted using a photo editing program.
- Adobe Photoshop is the most popular, but others are available.
- Editing should be minimal. You should aim to capture a good image “in camera”.

- Selecting a portion of your image
  - Cropping
- Exposure correction
  - Brightness / Contrast
  - Shadows / Highlights
- Colour correction
- More complex correction
  - Levels
  - Curves
- Choosing which parts to correct
  - Dodging and Burning
  - Selection
  - Masking

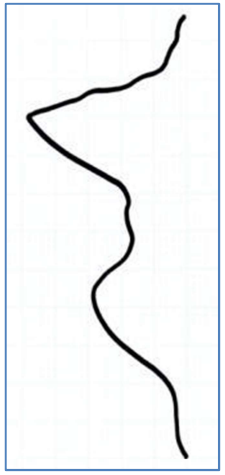
Using Levels and Curves

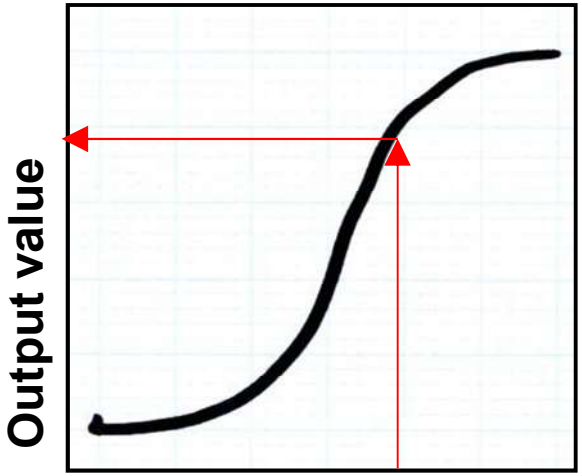
Levels

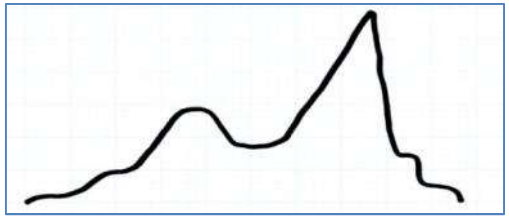


Minimum **Middle** **Maximum**

Curves

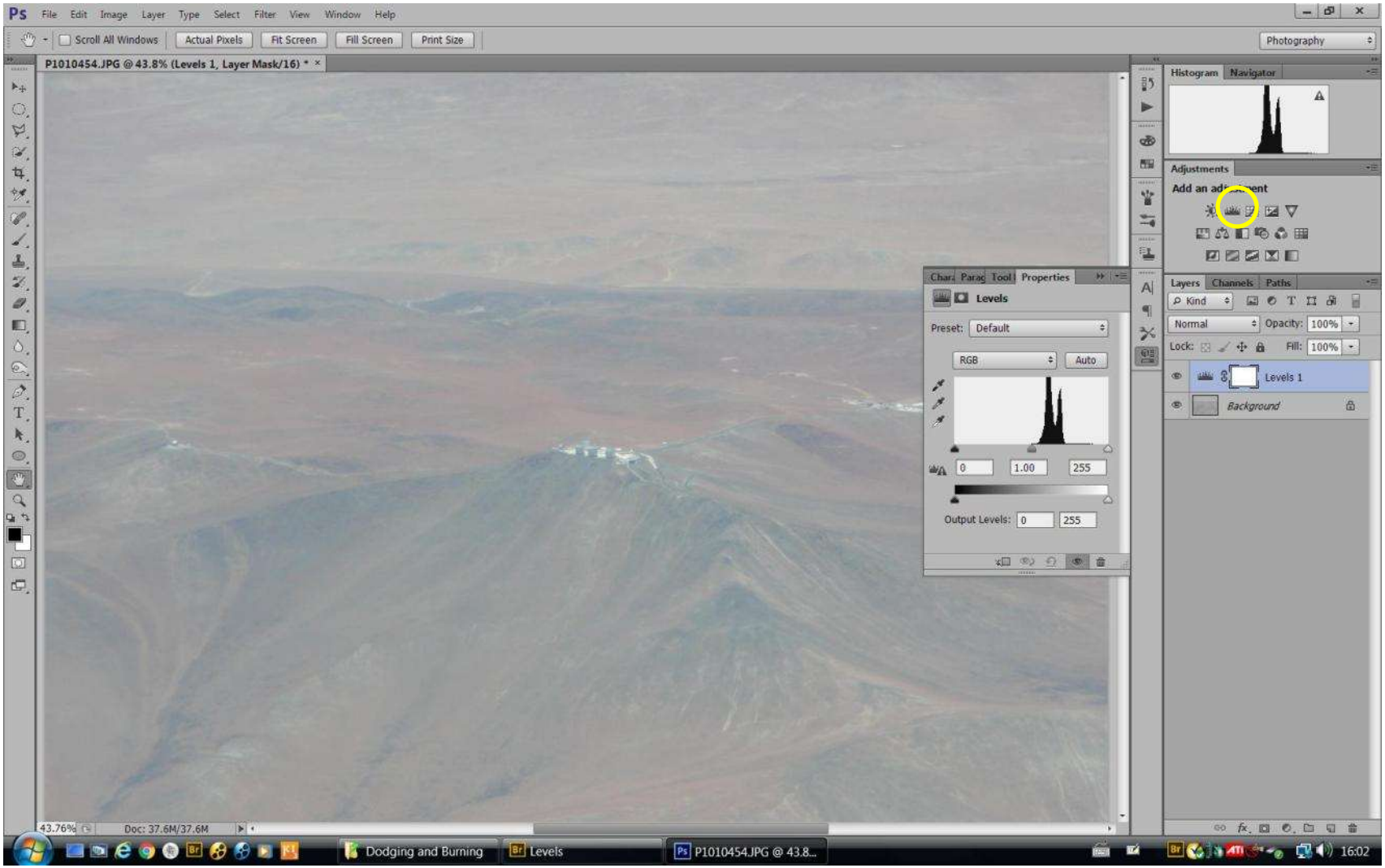






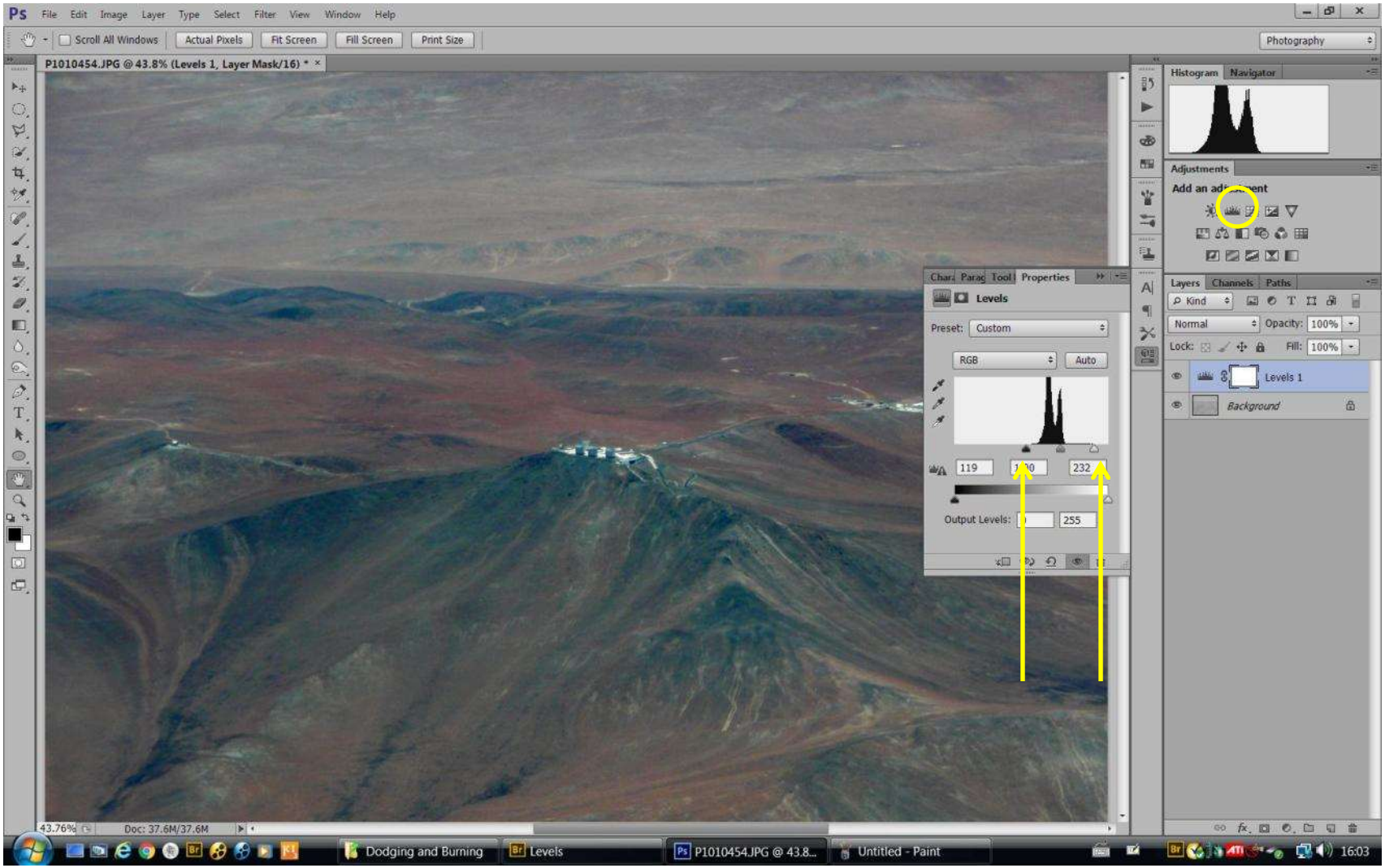
Using Levels and Curves

A horrible image before levels adjustment



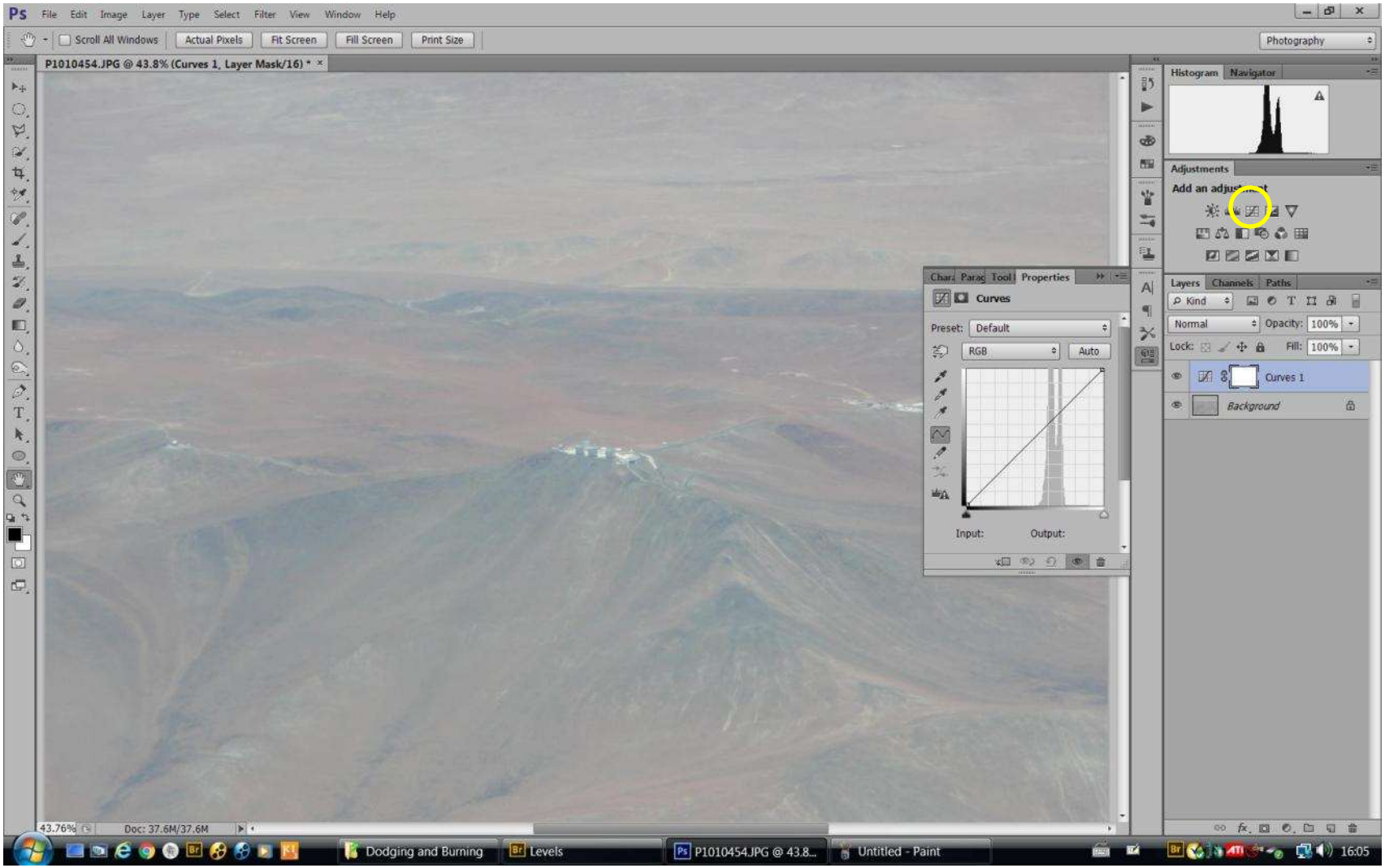
Using Levels and Curves

Move the sliders to meet the ends of the histogram.



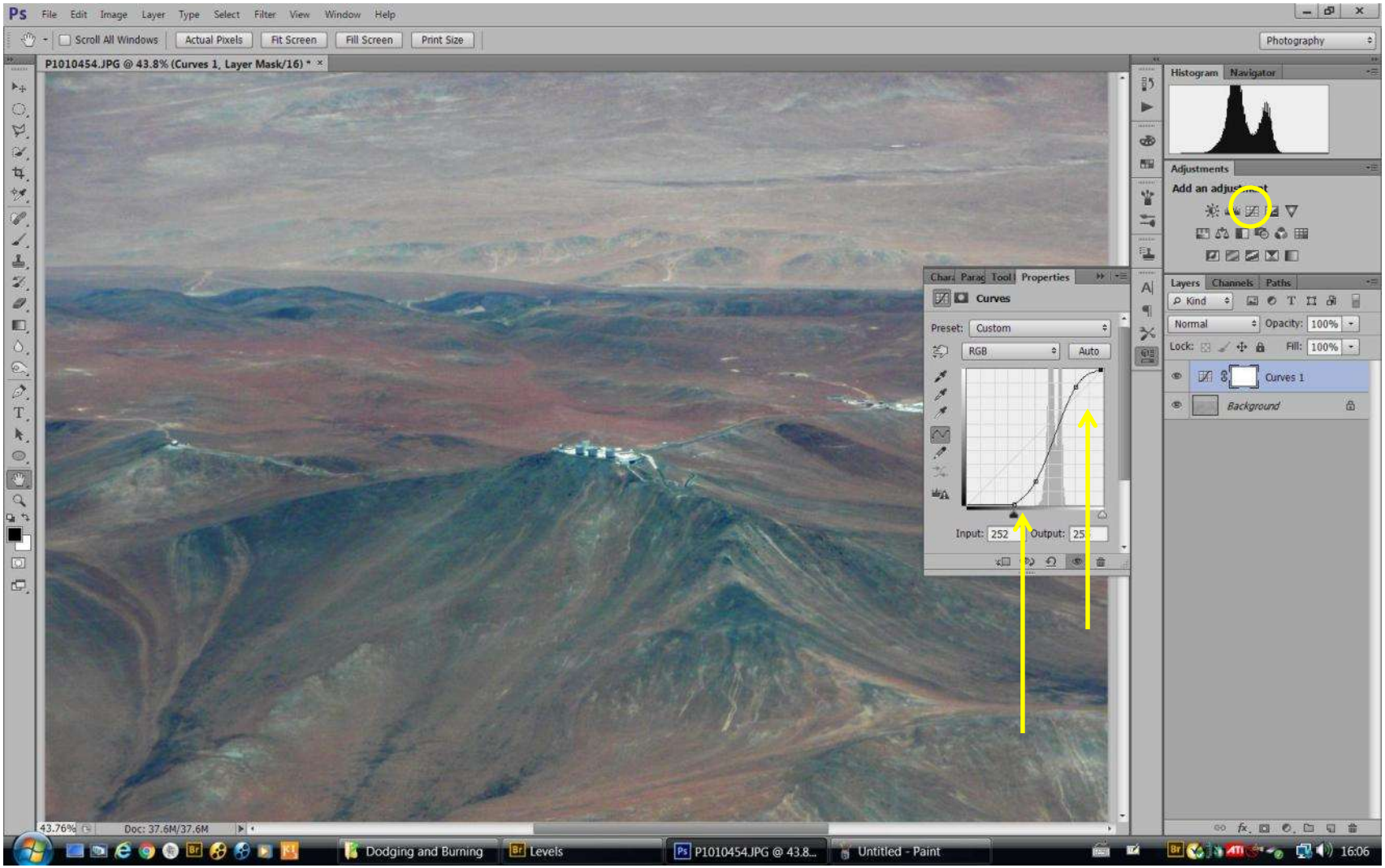
Using Levels and Curves

A horrible image before curves adjustment



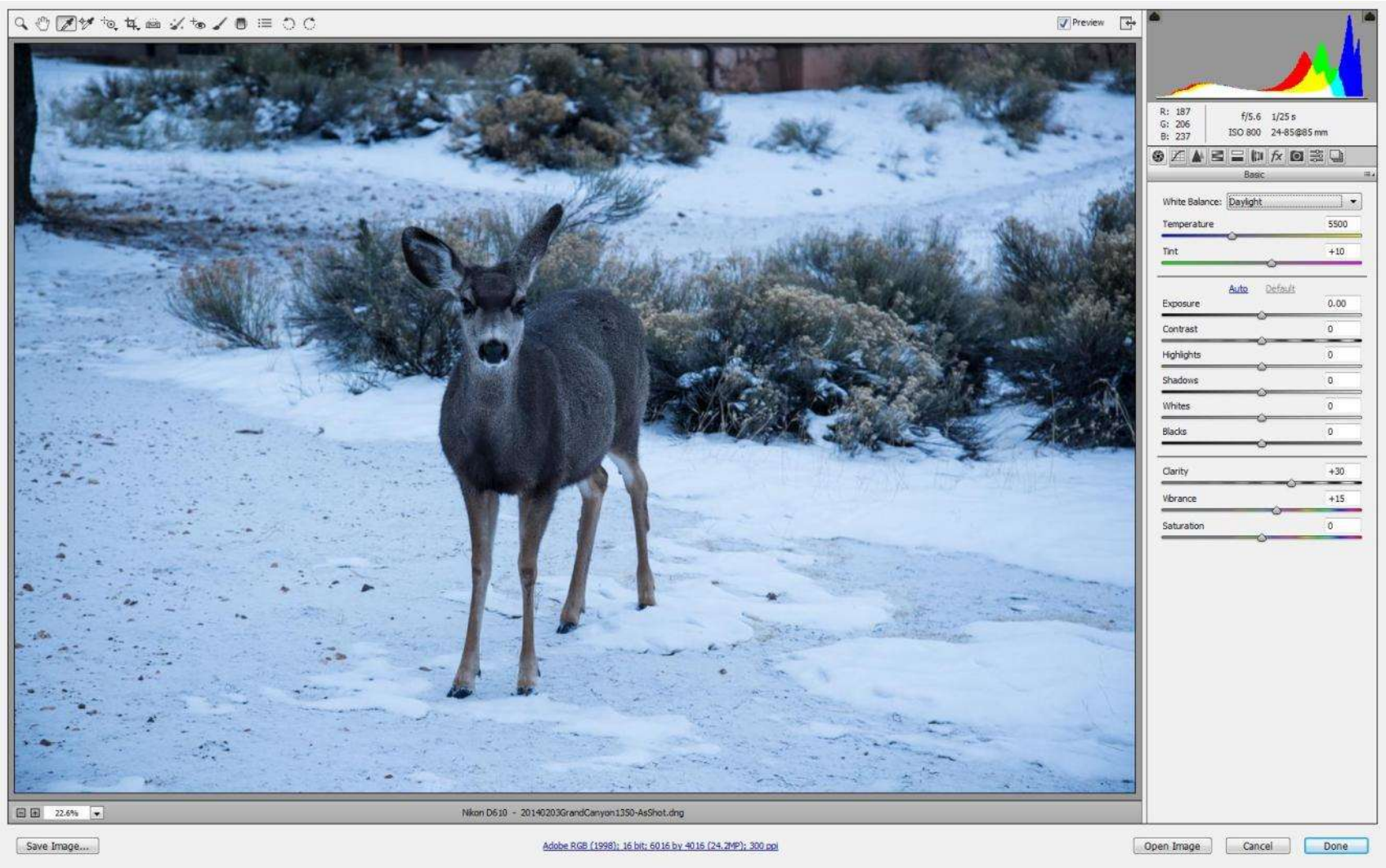
Using Levels and Curves

Push the curve up on the right of the spike and down on the left.



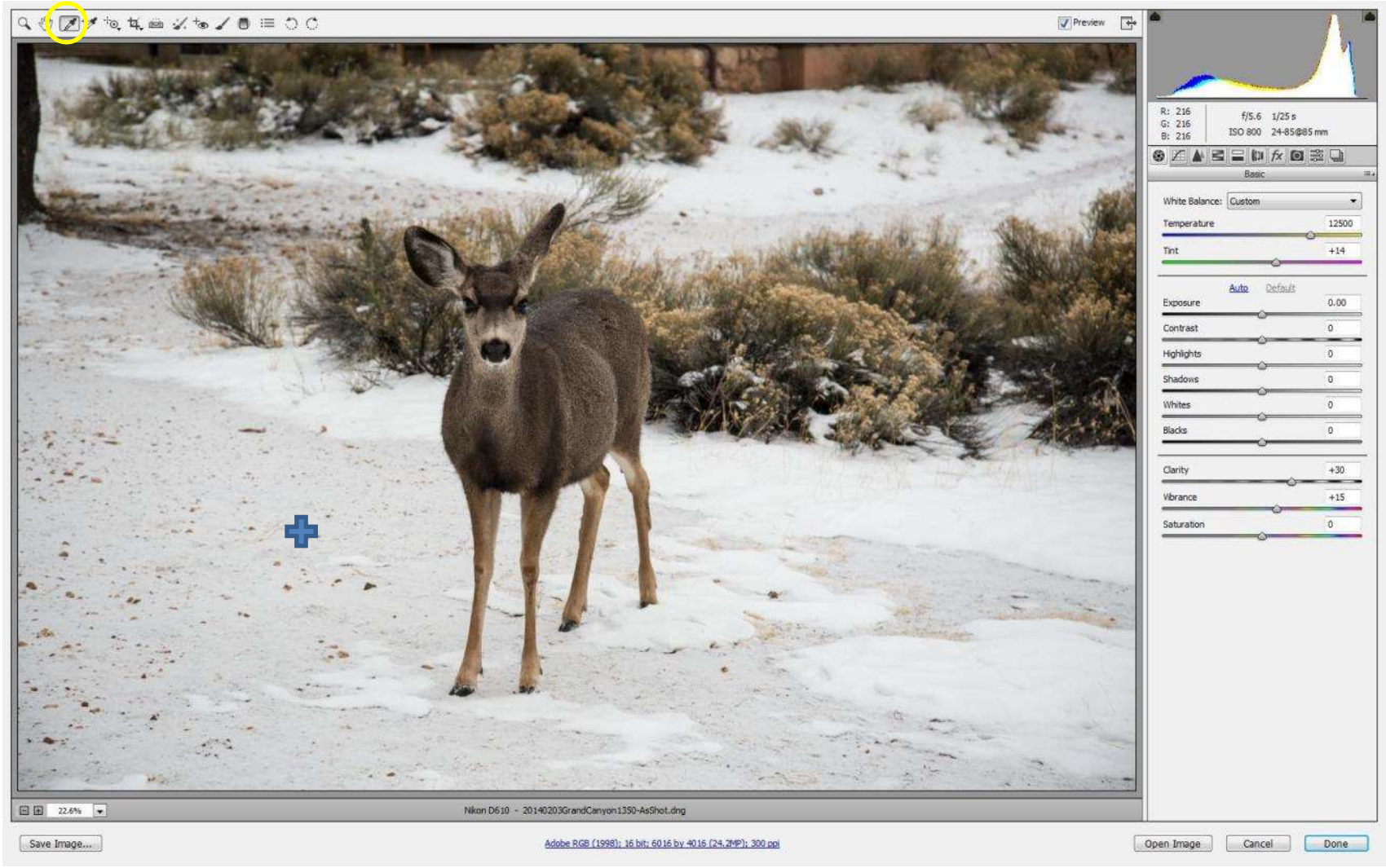
Colour Correction

Sometimes images end up with a poor colour balance.



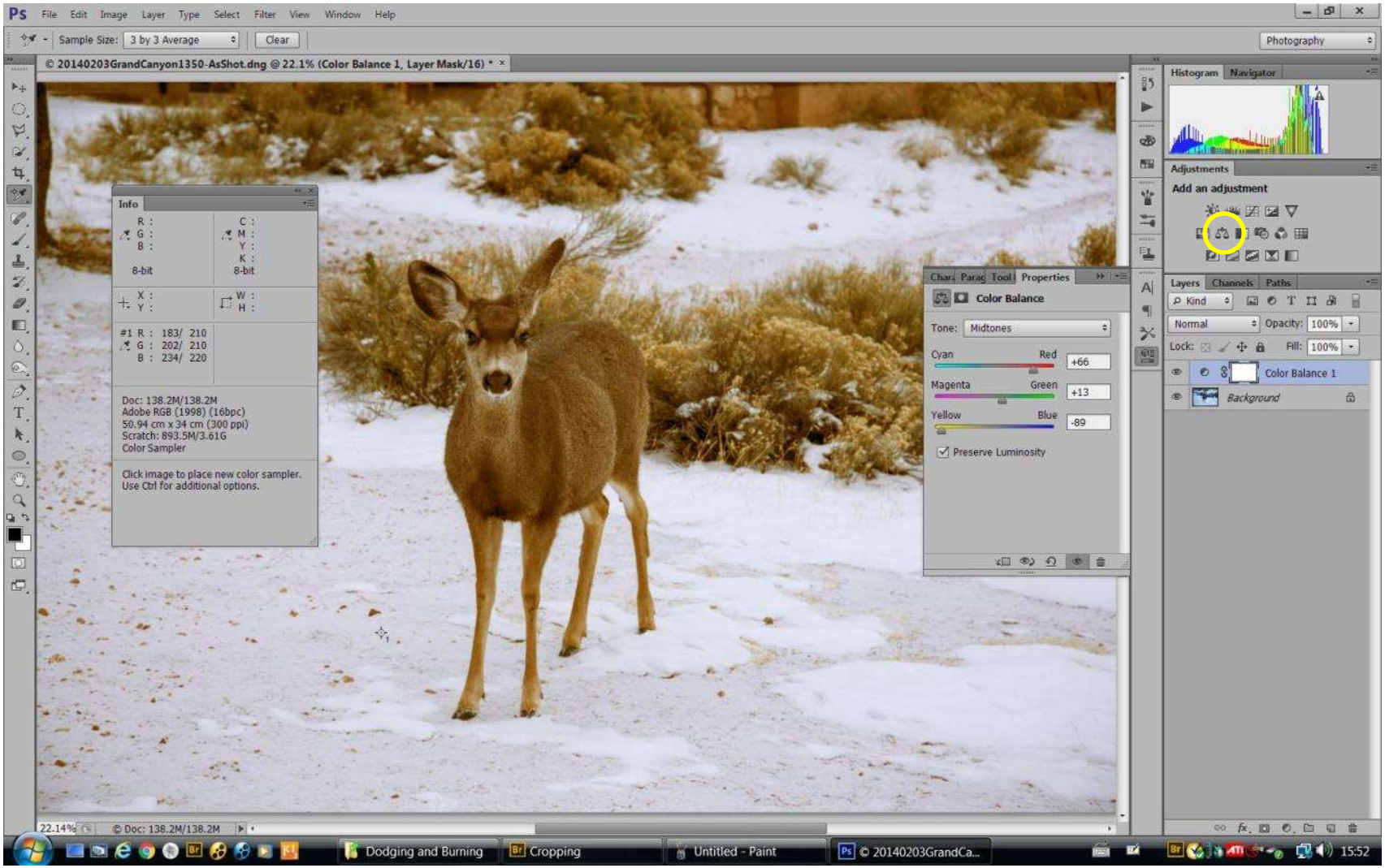
Colour Correction

In Camera Raw, select the colour sampler and click on what should be grey.



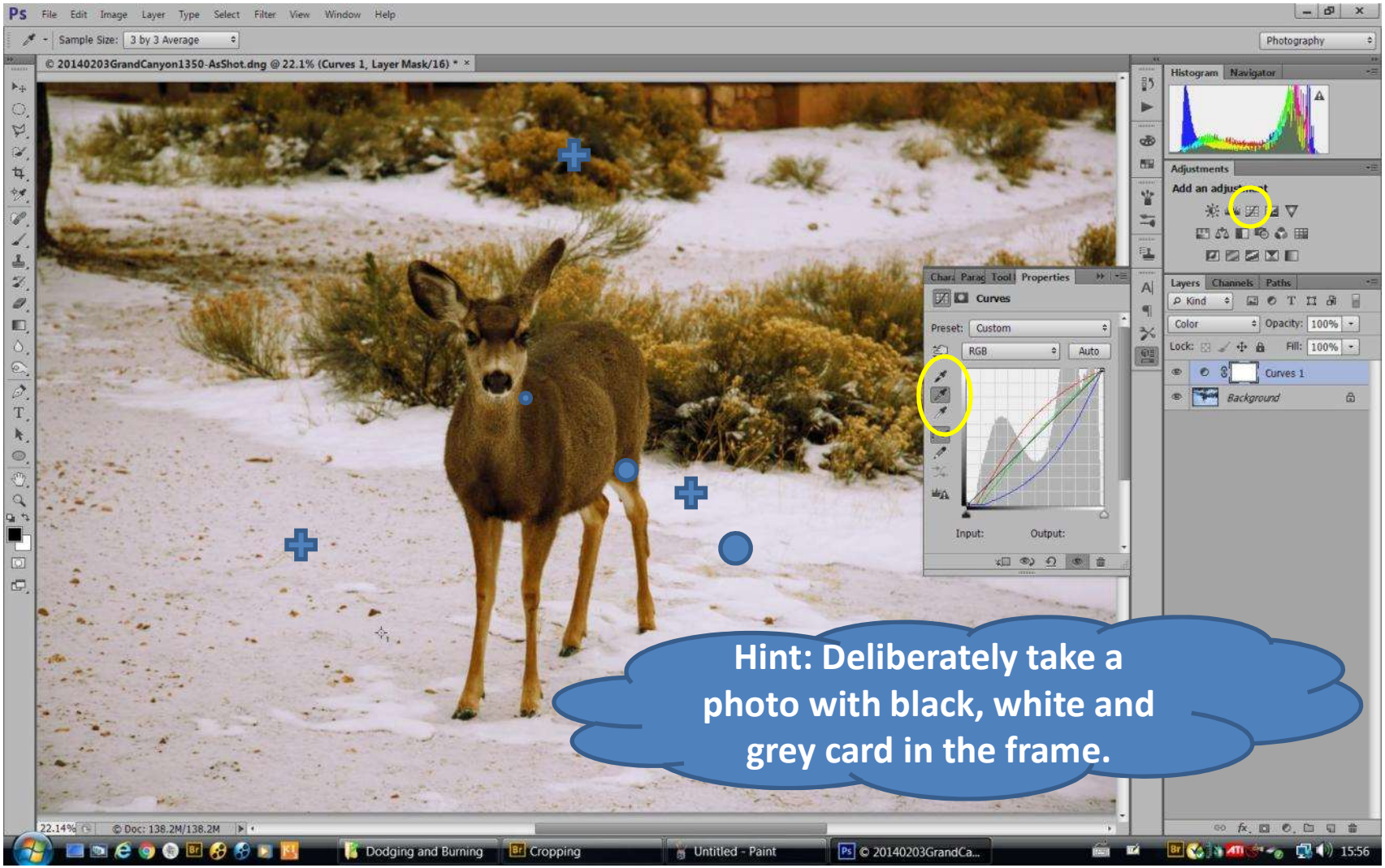
Colour Correction

You can make a manual colour balance adjustment in Photoshop.



Colour Correction

“curves” can do it semi-automatically if you can find white, black and grey points

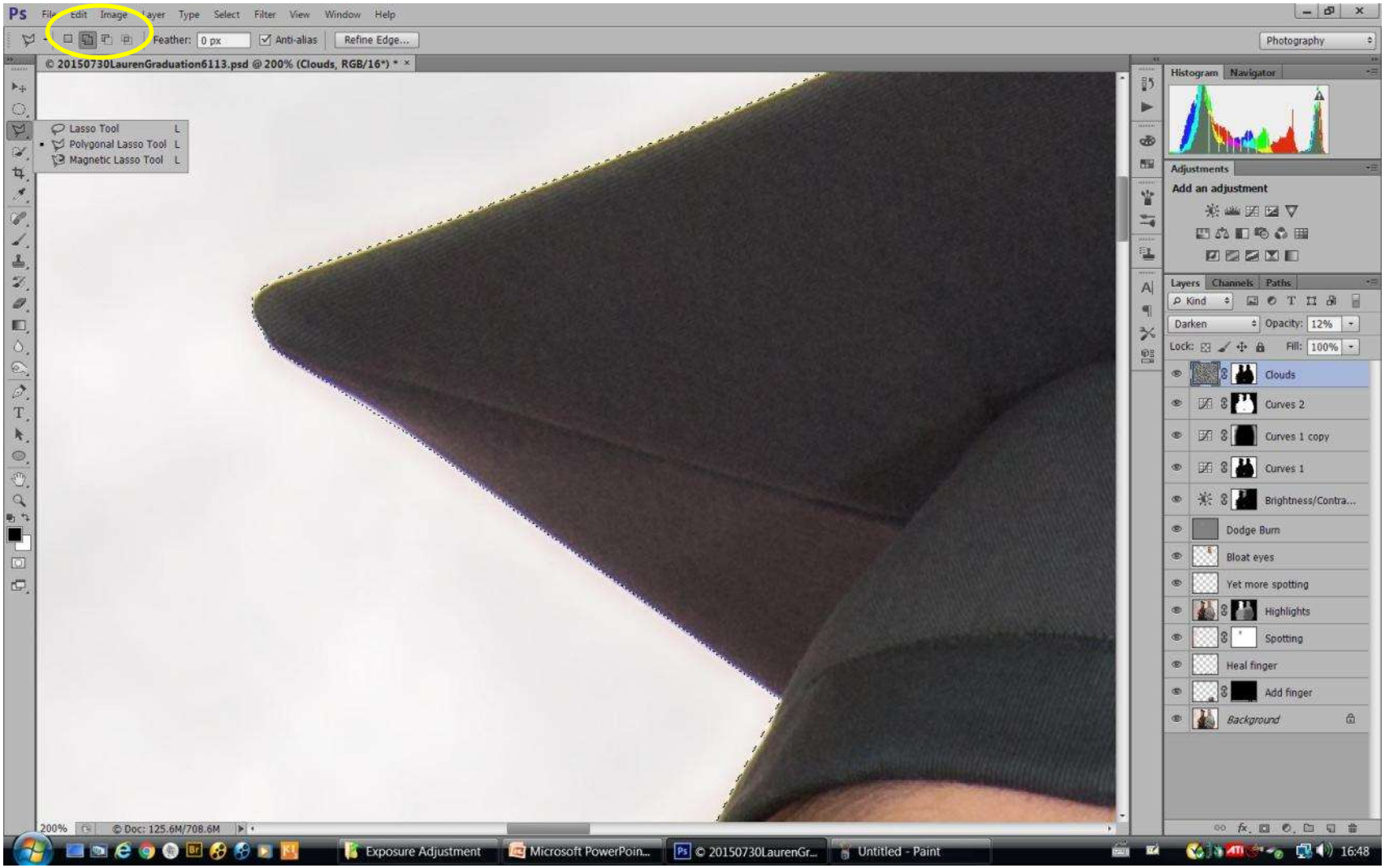


Making a Selection

A simple shape selection. Useful for cut-outs, vignettes and spotlights.

Making a Selection

Polygonal lasso tool. Slow and tedious, but accurate.

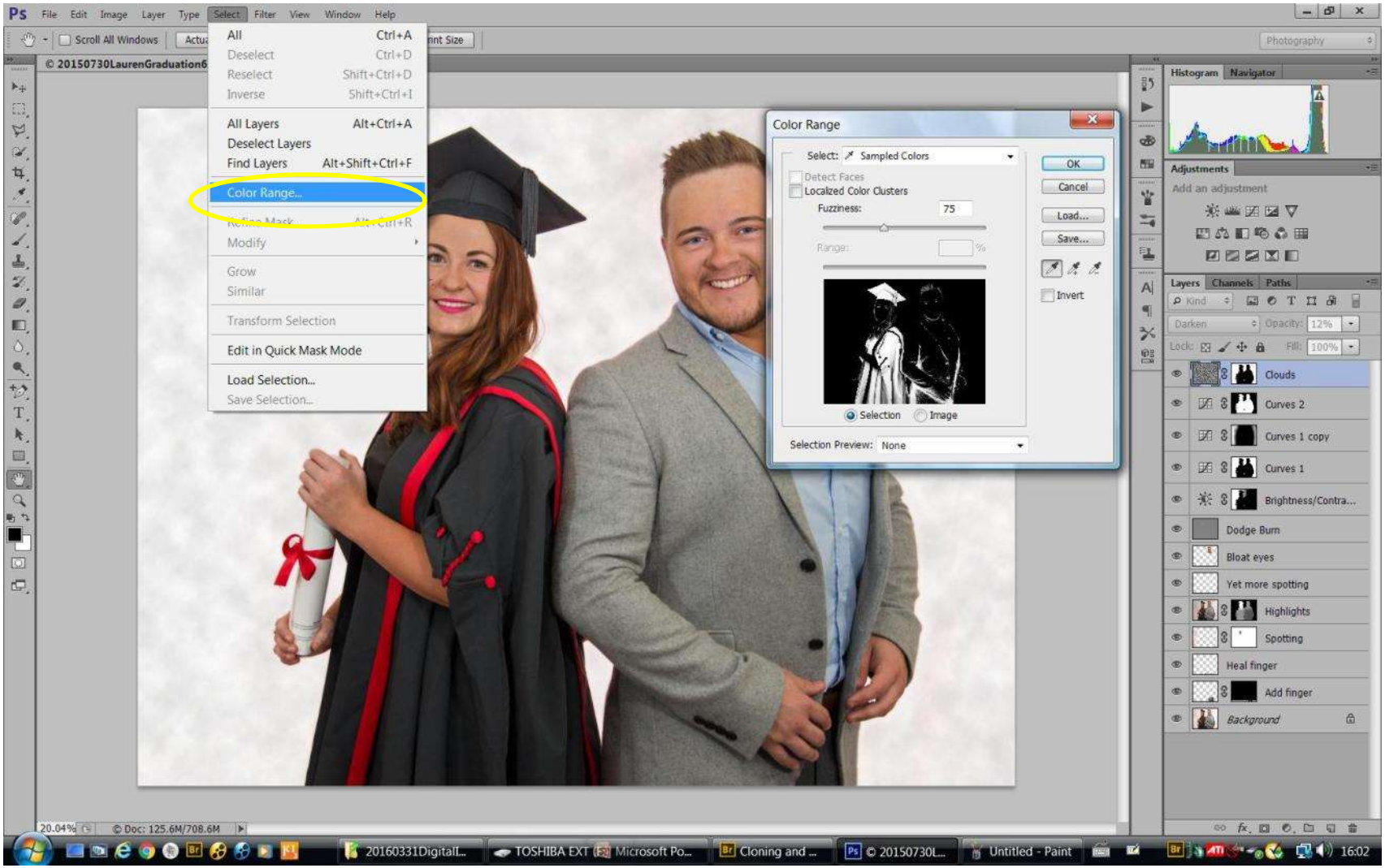


Making a Selection

Quick selection or Magic Wand. Fast but not as accurate.

Making a Selection

Colour range. Useful for non-contiguous or intricate blocks of colour.



Making a Selection
The Best of Both Worlds

- Time-saving selection method
  - Quick select
  - Magic wand (or colour range)
  - Lasso
  - Adjust using polygonal lasso in + or – mode.

- Slow and tedious, but accurate selections
  - Pen tool → Path → Selection
  - Polygonal lasso
  - Don’t use “Magnetic lasso”. It will drive you nuts.

Part 2

The Artistic Side

Making photographs pleasing to the eye.

Telling a story.

Achieving impact.

Guidelines

Lighting and Technique

- Wait until the light is right.
  - Sunrise, Sunset, Stormy, Cloudy, Foggy, Night
- Or make your own light.
  - Flash, Spotlight, Reflector, Diffuser, Torch
- Experiment
  - Unusual angles.
  - Long / Short exposures.
  - Intentional camera movement.
  - etc...

Composition

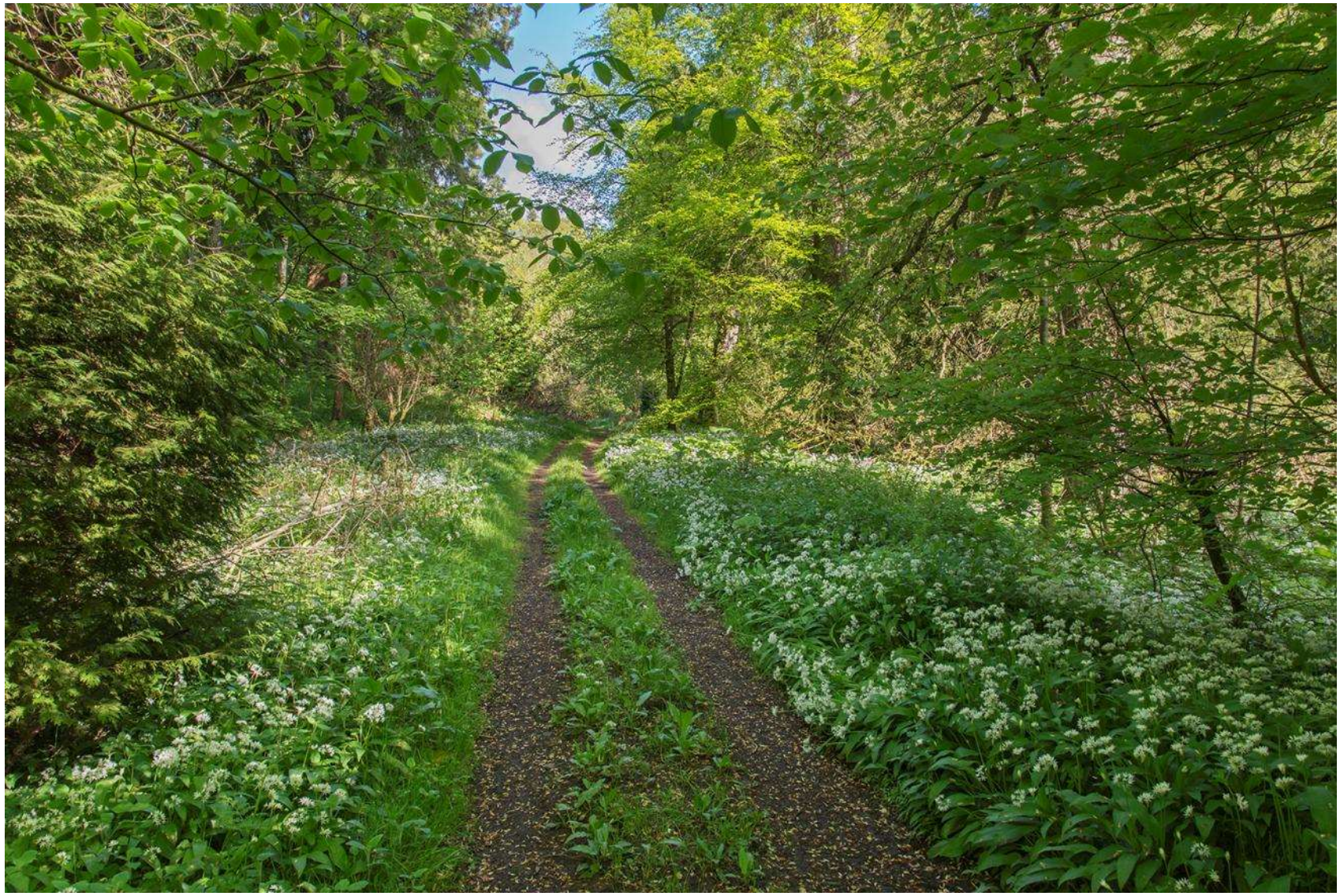
- Get in close.
- Photograph at subject's eye level.
- Cut out distractions.
- Rule of thirds.
- Odd numbers.
- Leading lines.
- Diagonals.
- Horizontal / Tilted
- Symmetry / Asymmetry

Dahlia with distracting background

Same Dahlia, better background

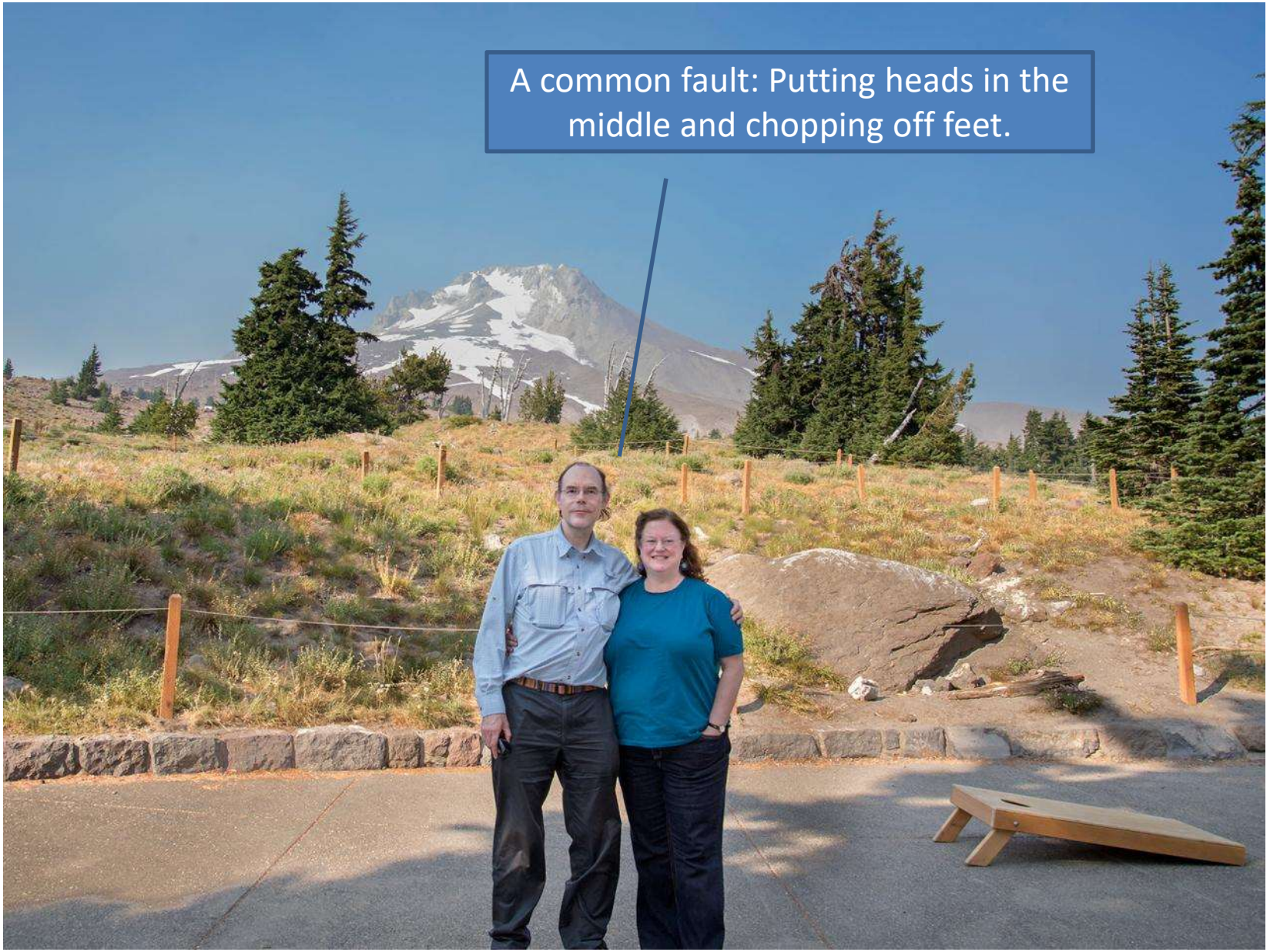
Same Dahlia, plain background

Leading Lines



Leading Lines

Rule of Thirds



Rule of Thirds

Get in close, and avoid distractions