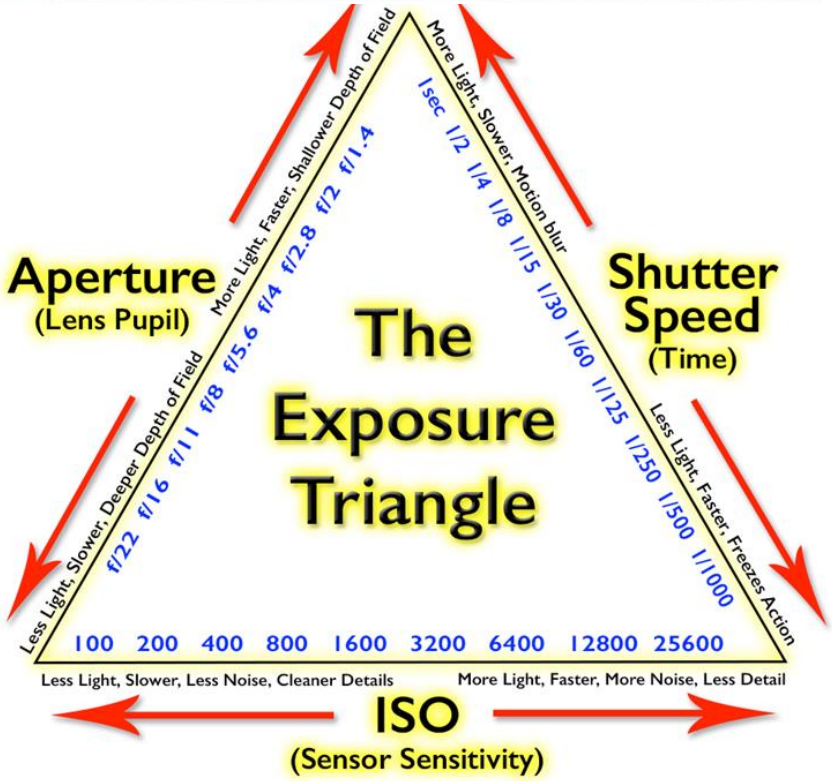
Exposure Control

Using light meter to control the amount of light allowed into camera

Exposure Control

Please go to 2048 on your mobile device, personal computer or one of our computers

Exposure Control



Increased exposure for a brighter image

Decreased exposure for a darker image

Exposure Control

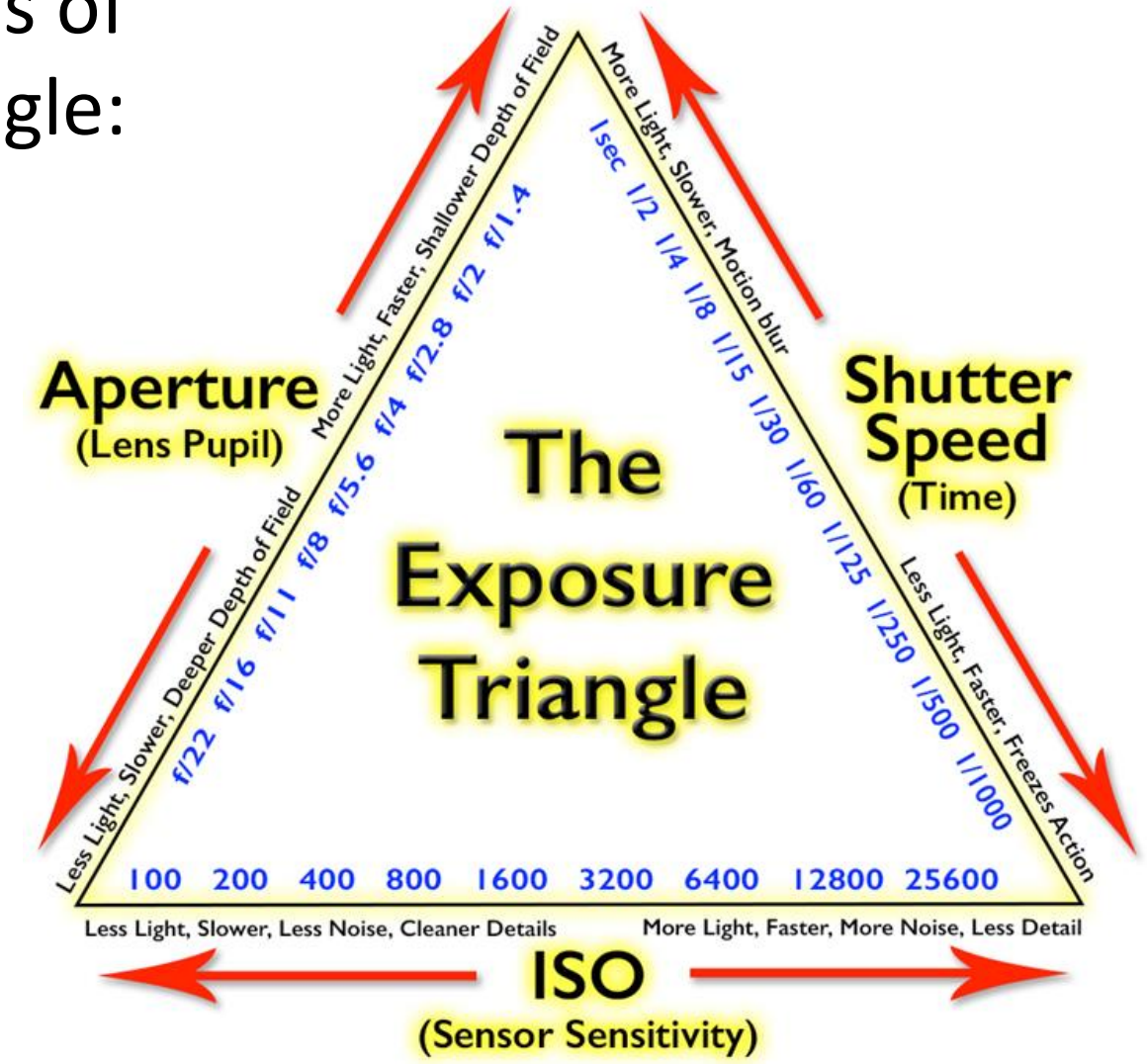
Review

- Exposure Triangle
- Light meter function
- 18% gray

New information

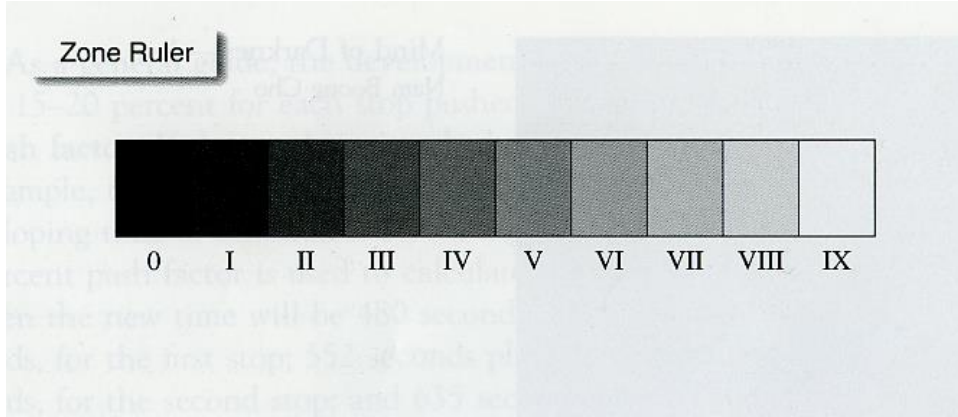
- Exposure defined
- Exposure Compensation
- Define Stop
- Exposure Bracketing
- Why are we doing this?

Three functions of Exposure Triangle:
Aperture
Shutter Speed
ISO

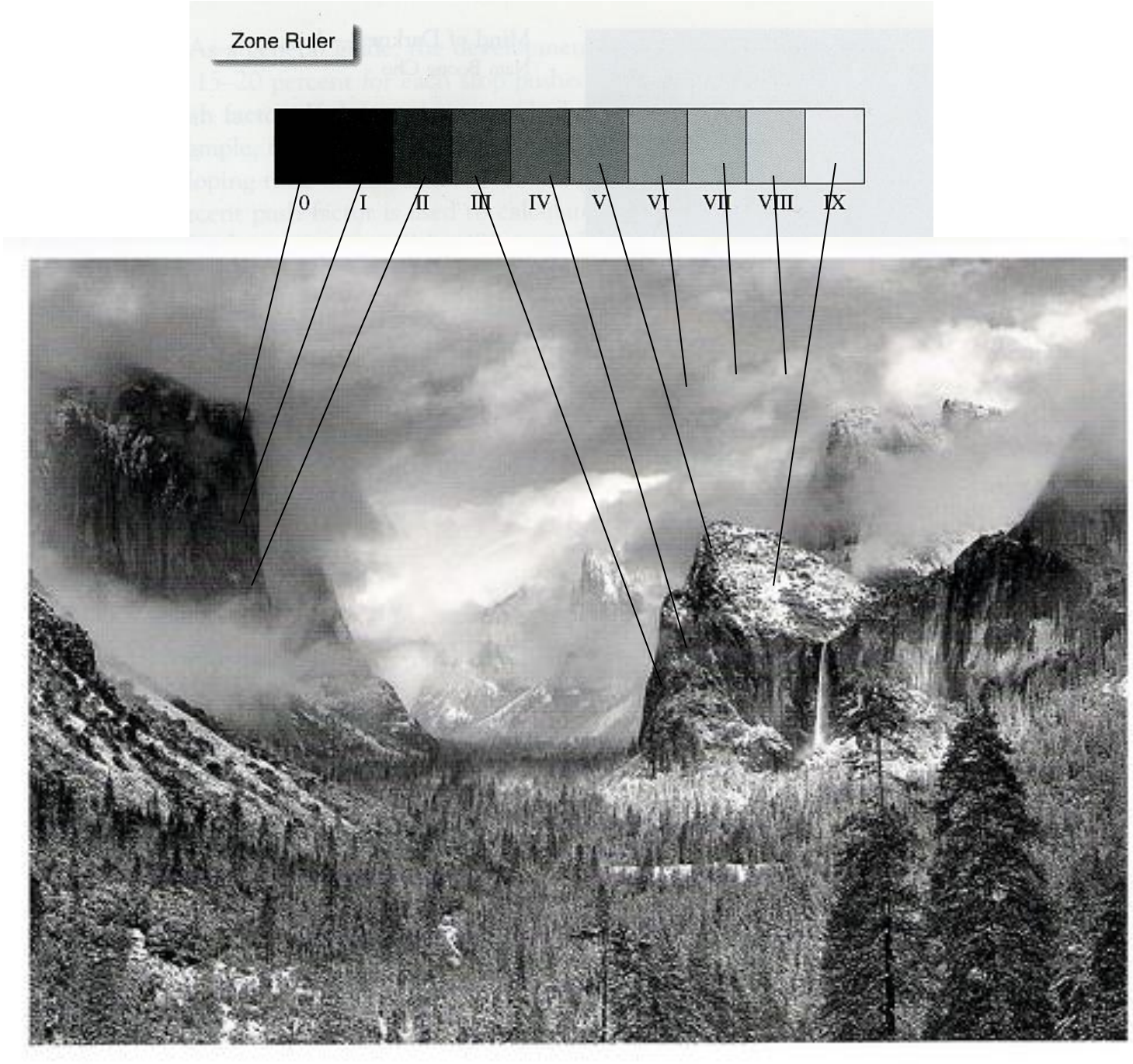


Light Meter

- Purpose = tells you how much light is being allowed into the camera based on the current APERTURE, SHUTTER SPEED, and ISO settings
- Averages all light in scene to 18% gray which is ZONE V on Zone system scale
- Is correct most of the time

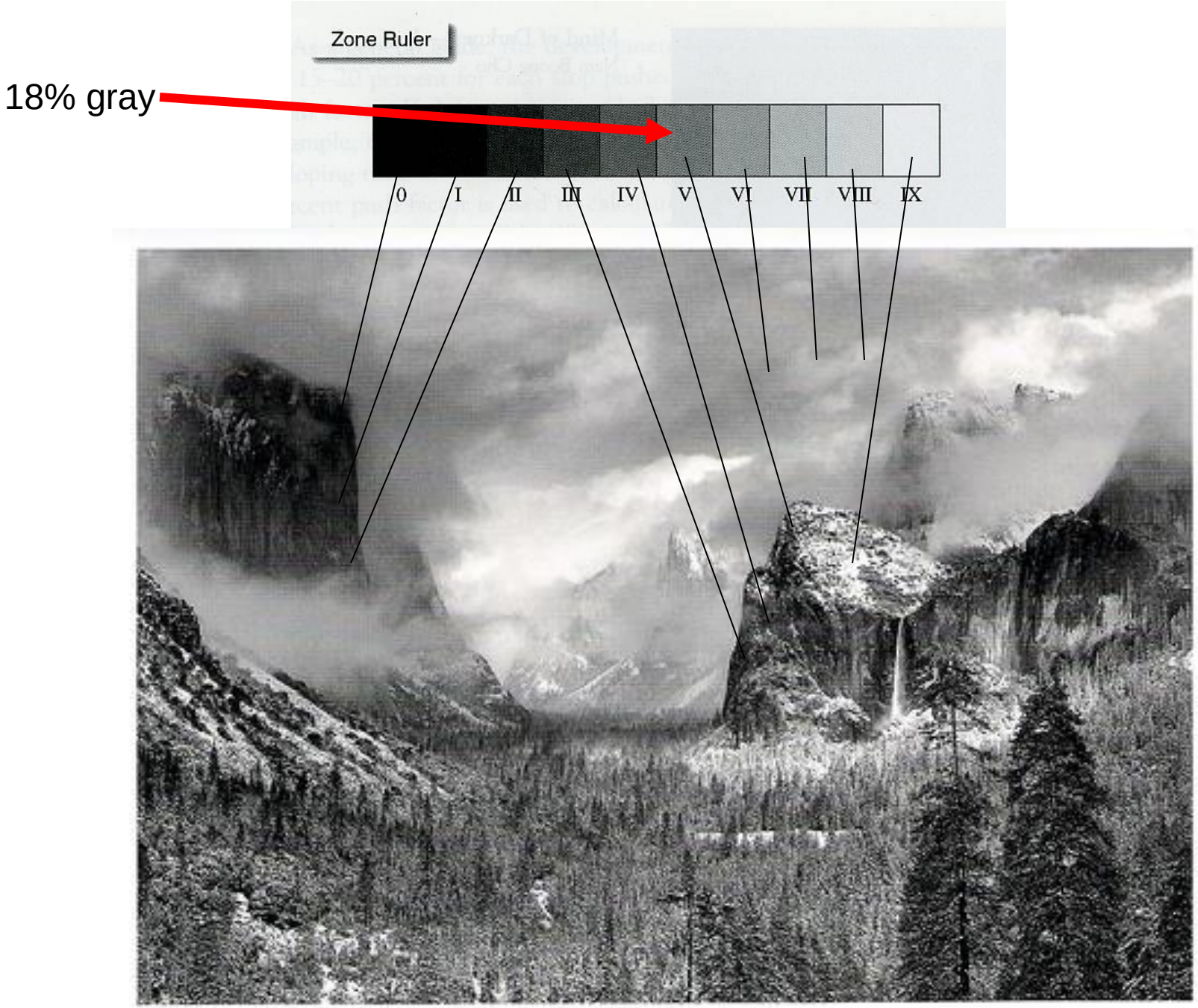


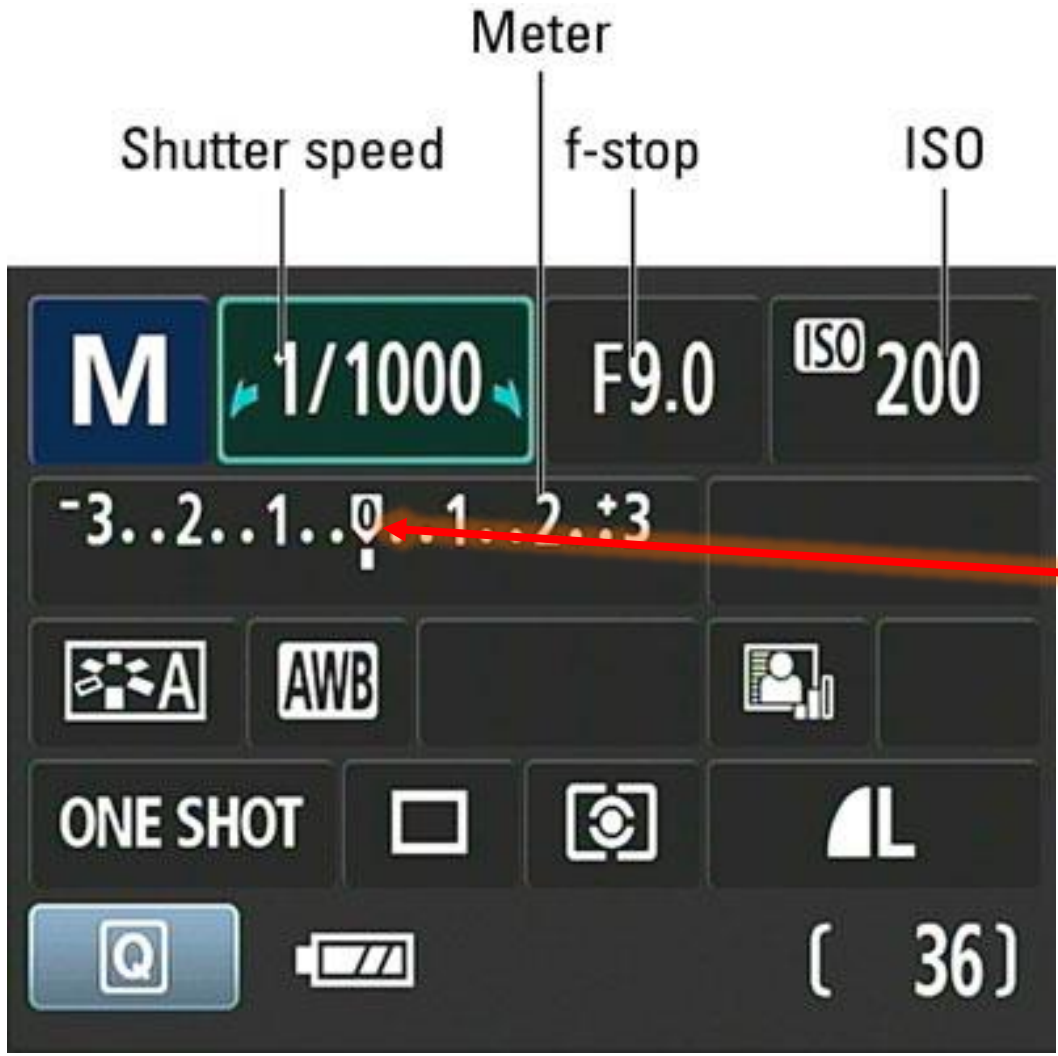
ZONE	DESCRIPTION
0	Maximum black
I	The first tone distinguishable from black with no detail
II	The first visible texture in a very dark area
III	Black with detail—a highly textured dark area with distinct detail; this zone is considered the shadow detail area for average value metering
IV	Dark gray
V	Middle gray, with 18 percent reflectance
VI	Light gray
VII	White with detail; the lightest area in the photograph that will have distinct texture or detail; this is the highlight area for the average value method
VIII	The brightest tone distinguishable from white
IX	Paper white

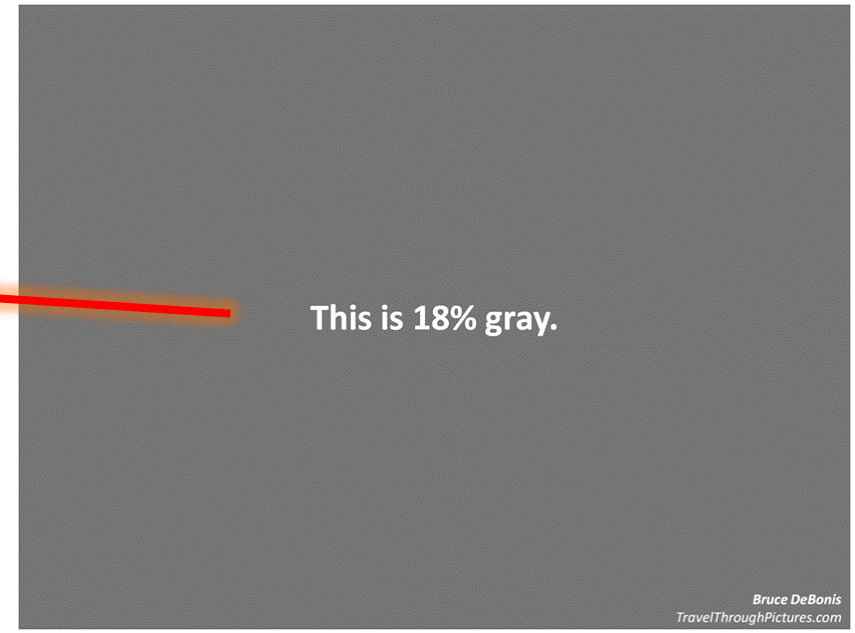

Zone Ruler
0
I
II
III
IV
V
VI
VII
VIII
IX

18% gray

- Tone to which all light meters average the light given off by the scene which is being photographed


Zone Ruler
18% gray
0
I
II
III
IV
V
VI
VII
VIII
IX

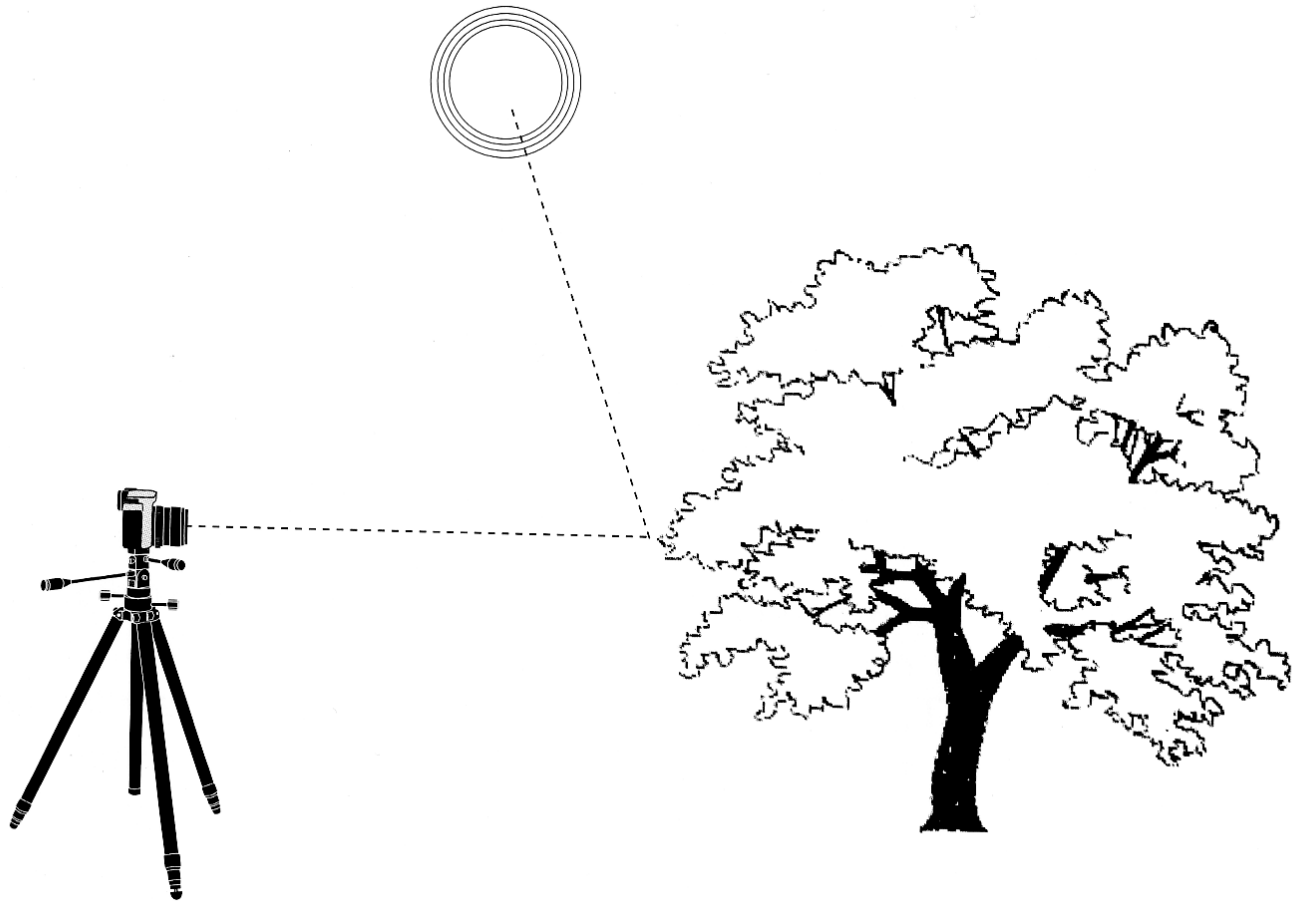

Meter
Shutter speed
f-stop
ISO
M
1/1000
F9.0
ISO 200
-3..2..1..0..1..2..+3
AWB
ONE SHOT
Q
36


This is 18% gray.
Bruce DeBonis
TravelThroughPictures.com

What is an exposure?

Photography – Greek

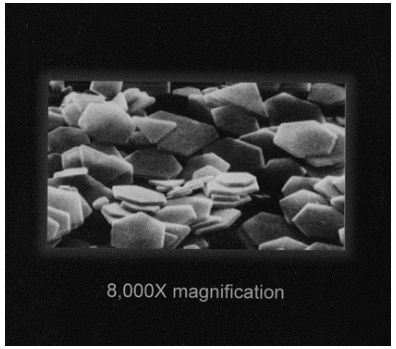
photo = light
graphy = writing

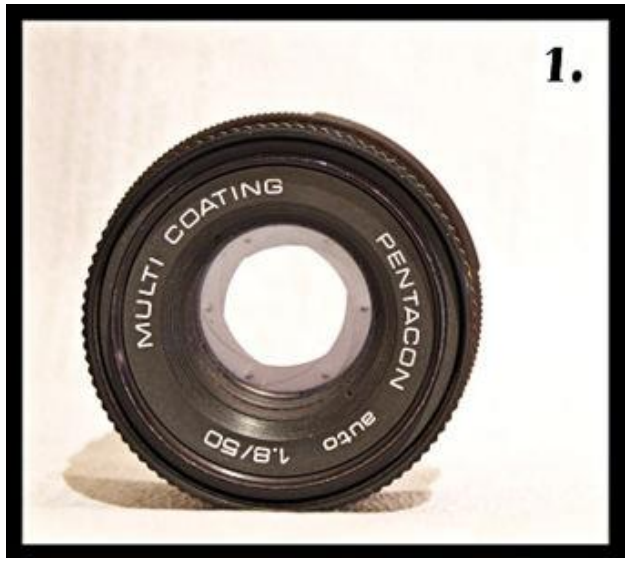


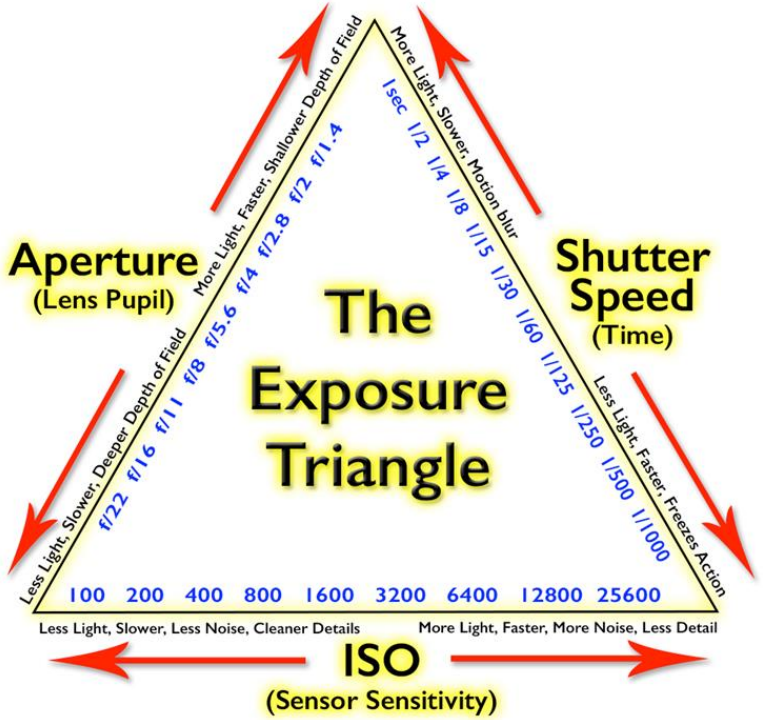
Exposure

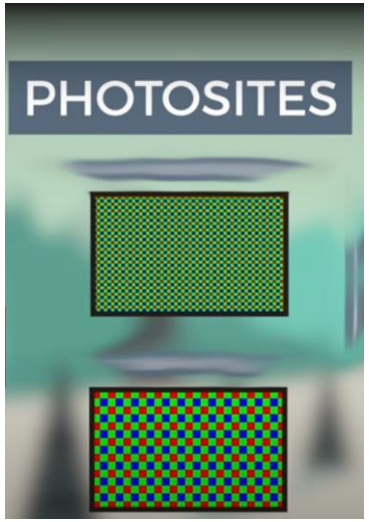
- Combined effect of ***volume*** of light hitting the film or sensor, its ***duration***, and the ***density*** of light sensitive surface
- ***Volume*** is controlled by the **aperture** (f-stop)

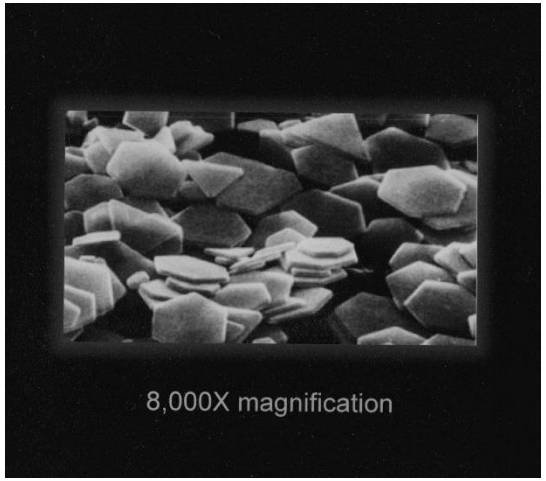
  using the size of the opening
- ***Duration*** (time) is controlled by the **shutter speed**
- ***Density*** is controlled by the **ISO setting**



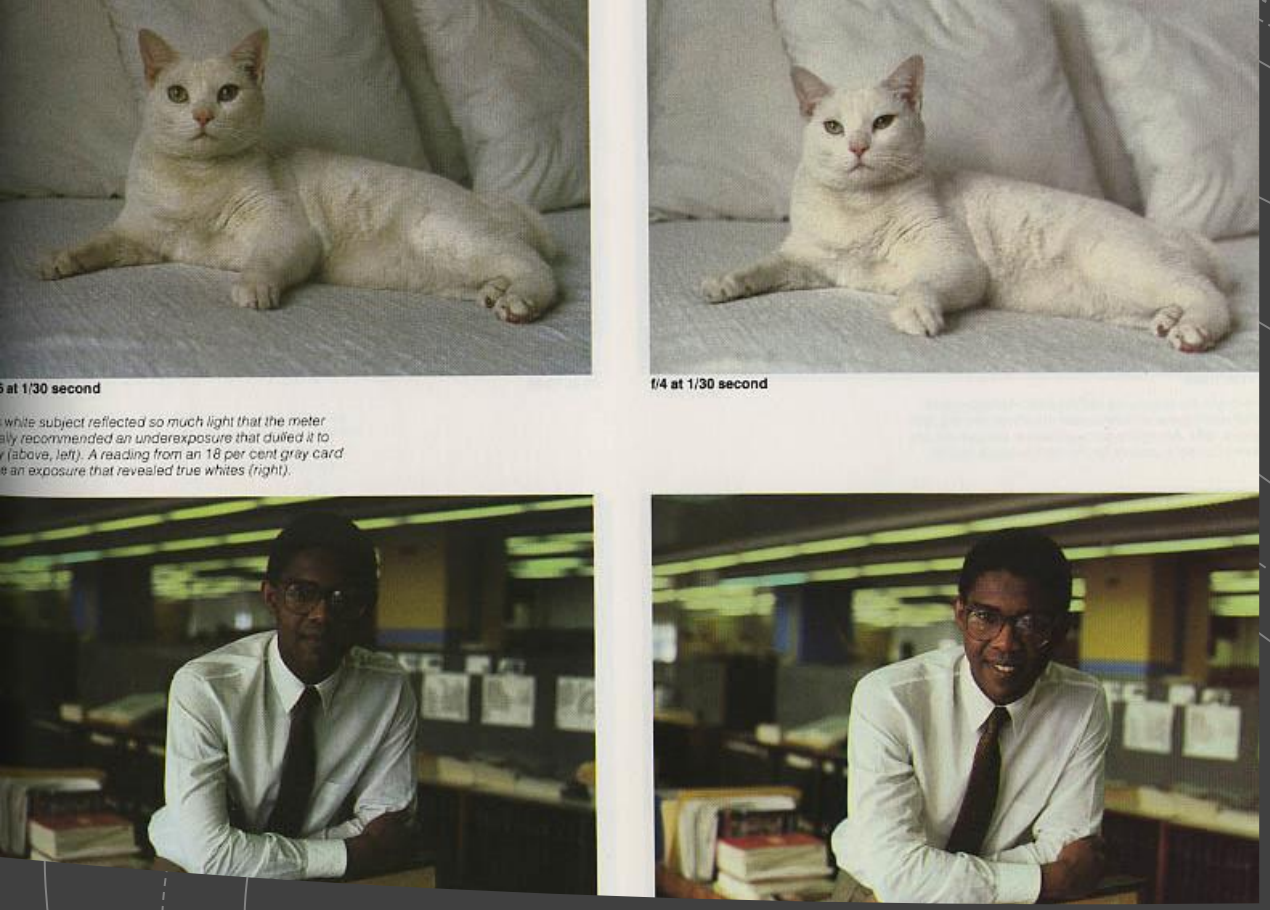

1.
MULTI COATING
PENTACON
auto
1.8/50


The Exposure Triangle
Aperture
(Lens Pupil)
More Light, Faster, Shallower Depth of Field
Less Light, Slower, Deeper Depth of Field
f/22 f/16 f/11 f/8 f/5.6 f/4 f/2.8 f/2 f/1.4
Shutter Speed
(Time)
More Light, Slower, Motion blur
Less Light, Faster, Freezes Action
1sec 1/2 1/4 1/8 1/15 1/30 1/60 1/125 1/250 1/500 1/1000
ISO
(Sensor Sensitivity)
100 200 400 800 1600 3200 6400 12800 25600
Less Light, Slower, Less Noise, Cleaner Details
More Light, Faster, More Noise, Less Detail


PHOTOSITES

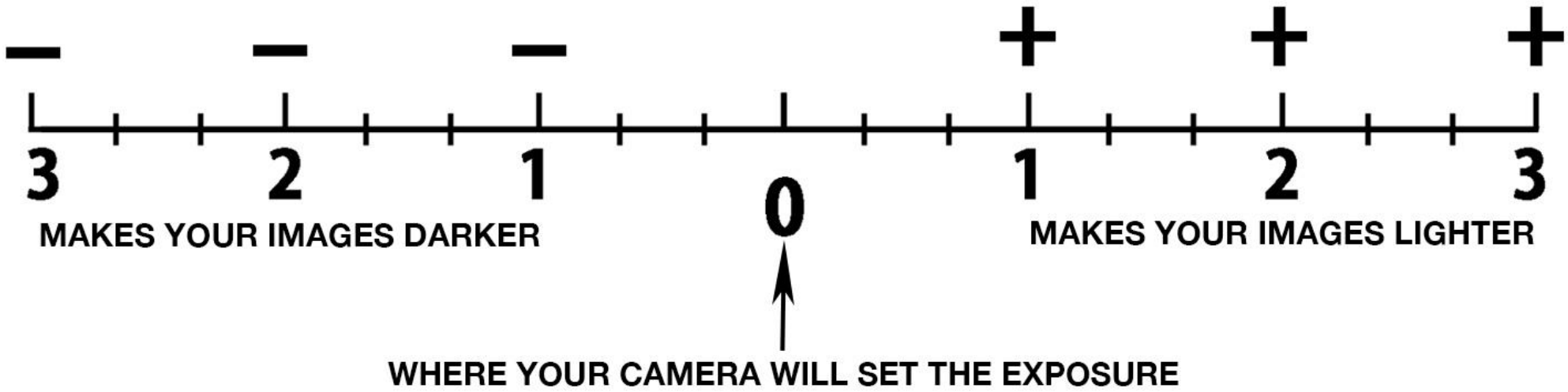

8,000X magnification

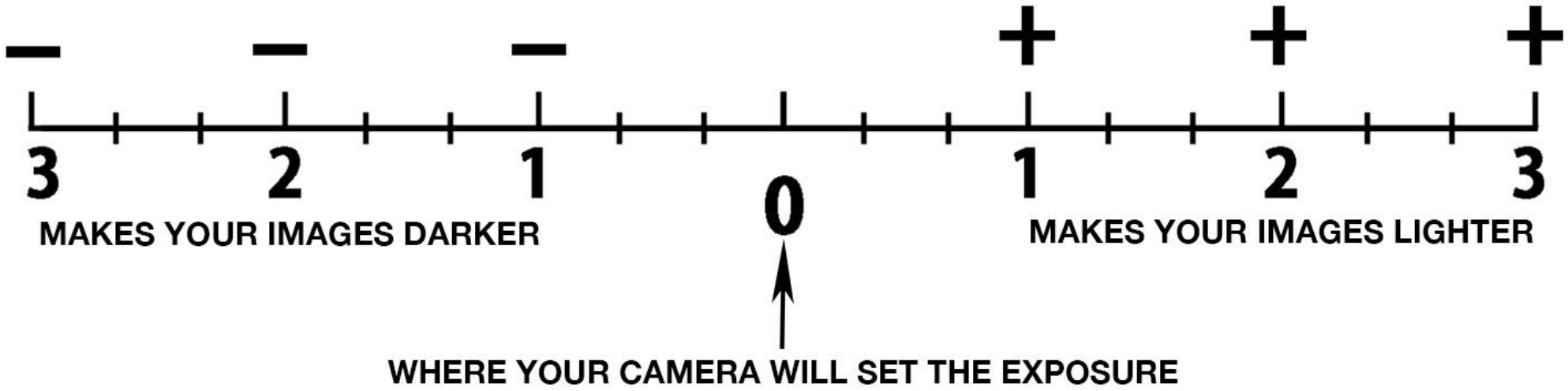
How to control exposure



This is 18% gray.

The problem with only knowing one way to expose


−
−
−
+
+
+
3
2
1
0
1
2
3
MAKES YOUR IMAGES DARKER
MAKES YOUR IMAGES LIGHTER
WHERE YOUR CAMERA WILL SET THE EXPOSURE



Underexposure **Overexposure**

Why is learning about exposure control important?

To possess control of light as it is expressed in your image

Increased exposure for a brighter image

Decreased exposure for a darker image

Exposure Compensation

Exposure Compensation

Technique for adjusting the exposure indicated by a photographic exposure meter, in consideration of factors that may cause the indicated exposure to result in a less-than-optimal image.

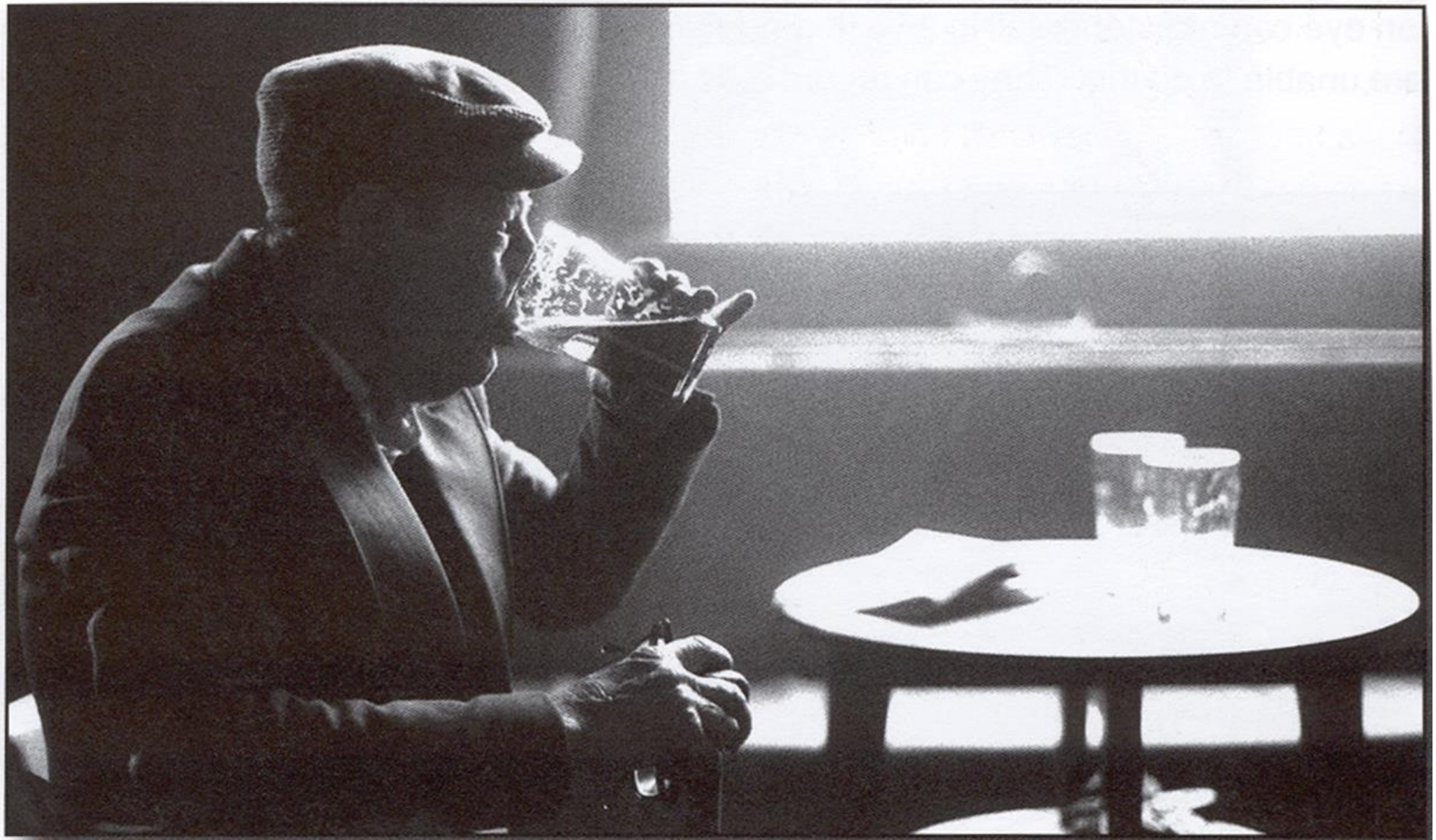
Exposure Compensation

Shot on auto meter

Shot to overexpose so that shadow detail is visible (more light is allowed into camera)

Increased exposure for a brighter image

Decreased exposure for a darker image



The Rhondda - Mark Galer

ONE-OF-A-KIND EXPERIENCES FOR YOUR NEXT ADVENTURE

California

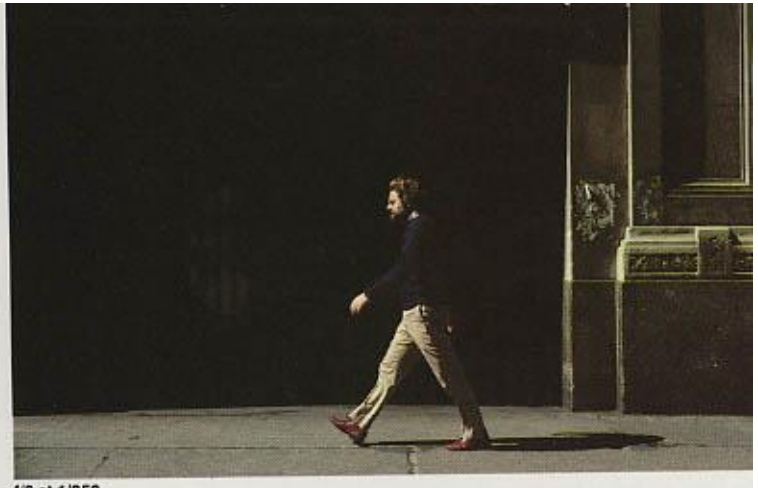
VISITCALIFORNIA.COM

ROAD TRIPS

11 UNFORGETTABLE DRIVES

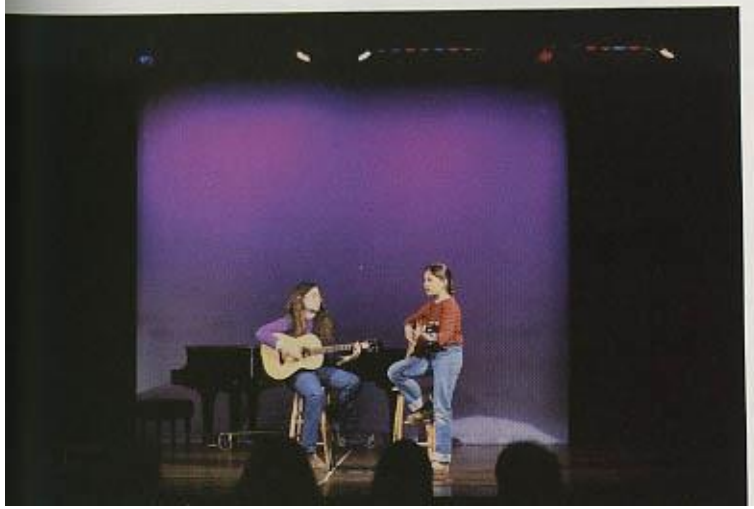
Take the wheel. Take control.
Take the trip you've been dreaming about.

.8 at 1/250



f/8 at 1/250

e problem here is the opposite of that caused by the sky left. The dark background so dominates the frame that the ter measurement overexposes the figure (above, left). A ose-up reading of the man's face gave correct exposure.



'11 at 1/250

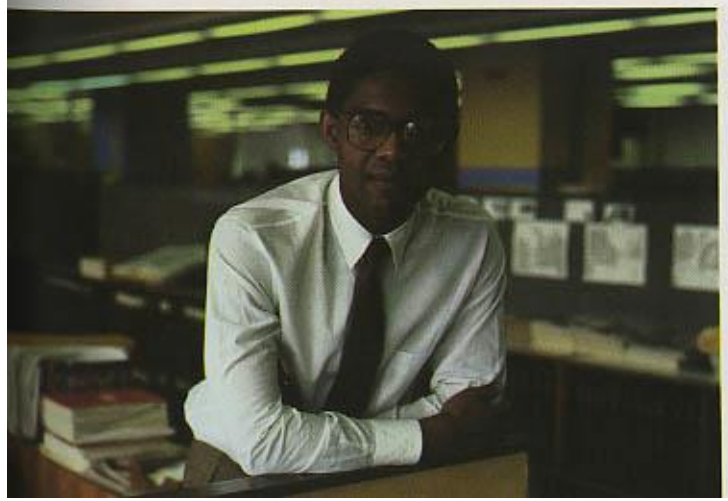
he bright sky occupying half the picture produced an itial reading that underexposed the sheep and the farm above, left). Aiming the camera lower to exclude the sky ave a correct exposure for the main subjects (right).

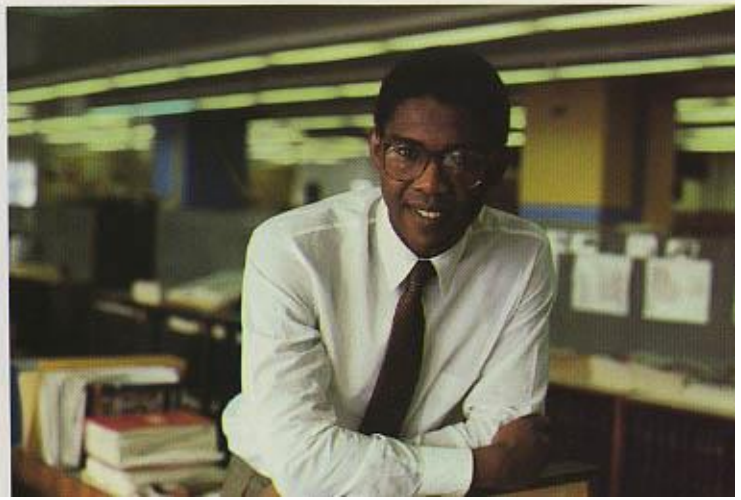
f/8 at 1/250

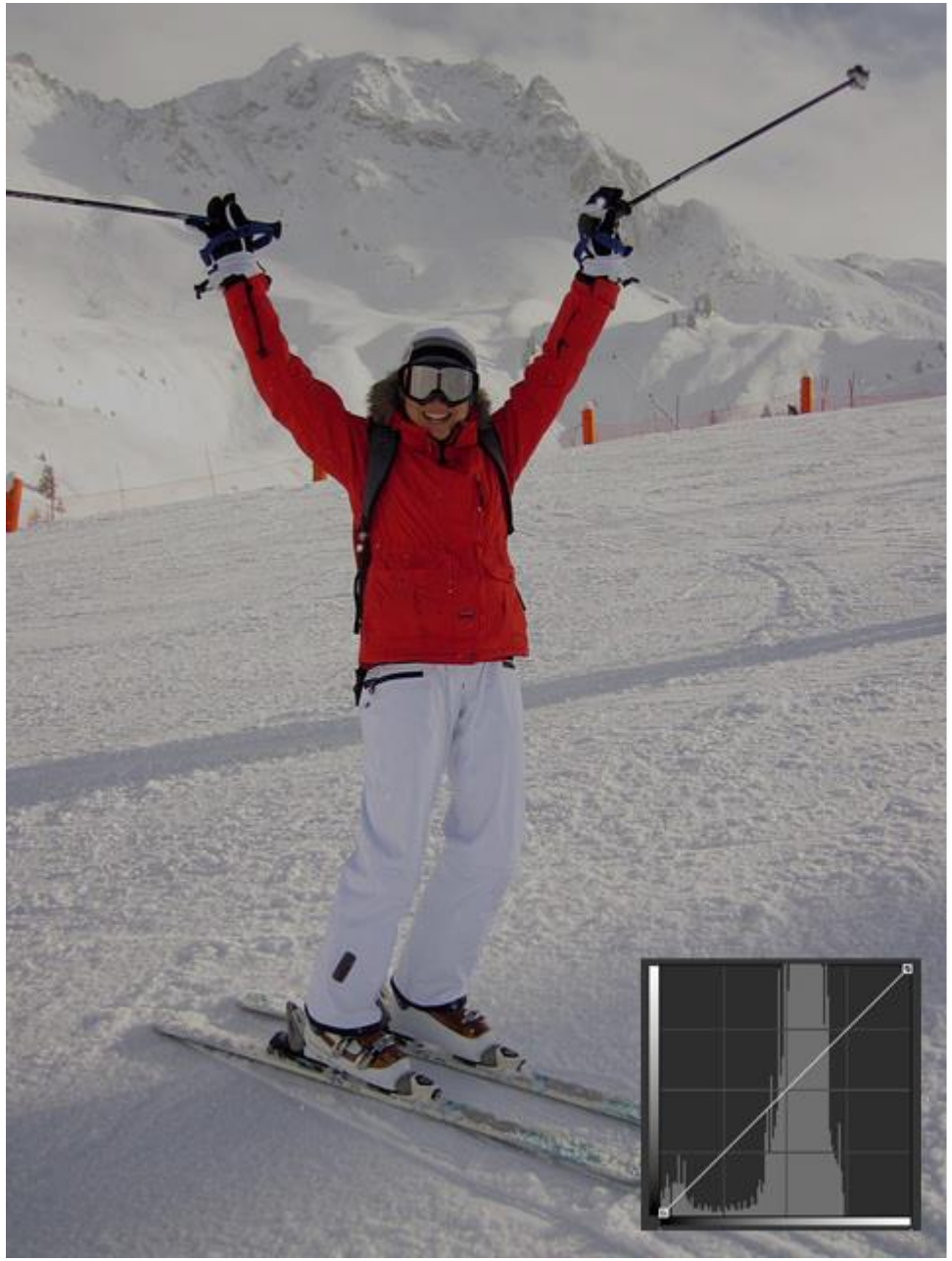
5 at 1/30 second

f/4 at 1/30 second

white subject reflected so much light that the meter
ally recommended an underexposure that dulled it to
(above, left). A reading from an 18 per cent gray card
an exposure that revealed true whites (right).





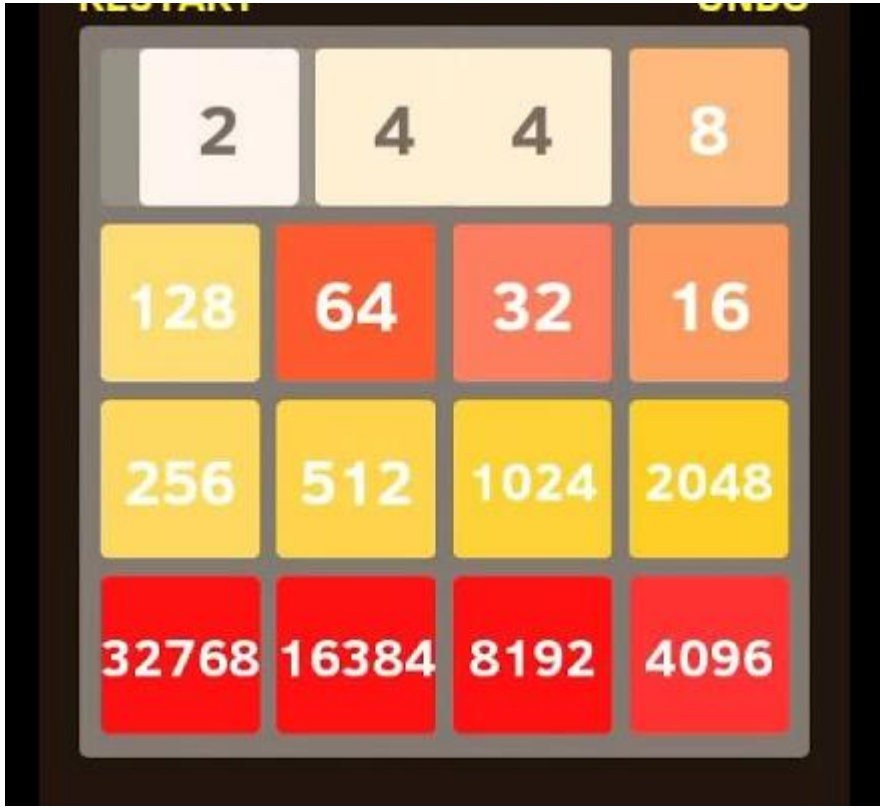


Tyler Chandler

What is a Stop?

- A change in an exposure setting, either **aperture**, **shutter speed**, or **ISO** that either doubles or halves exposure

- x2
- or ½

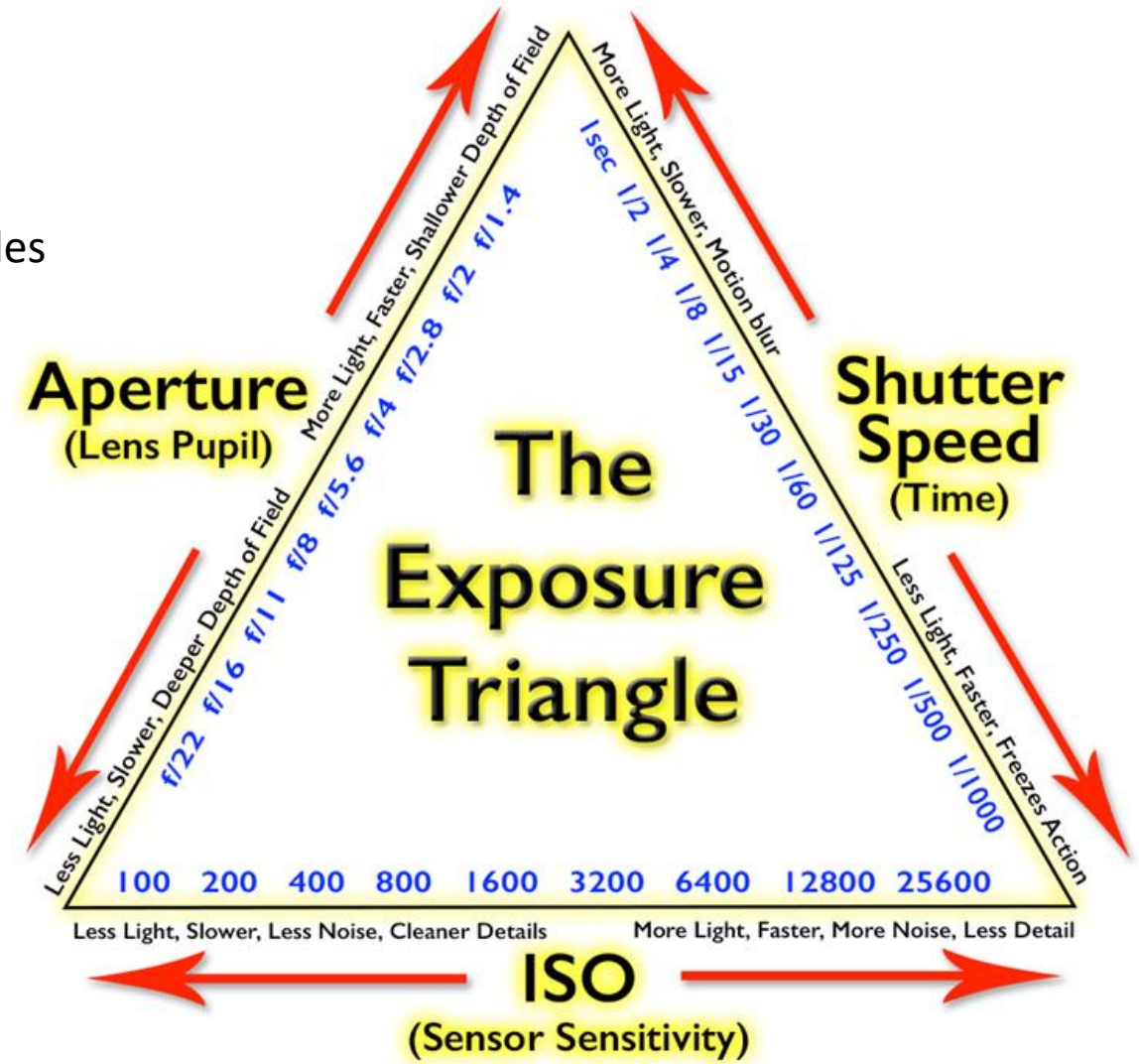


Doubles

Doubles

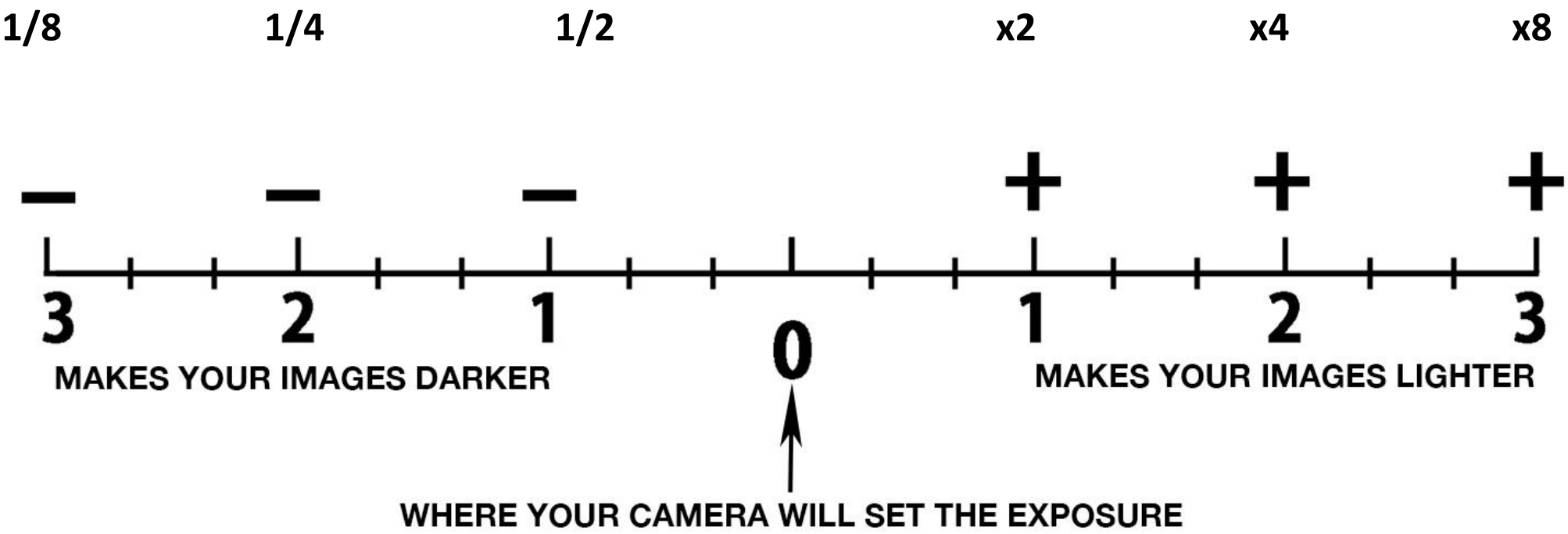
Halves

Halves



Doubles

Halves



Underexposure **Overexposure**

Bracketing

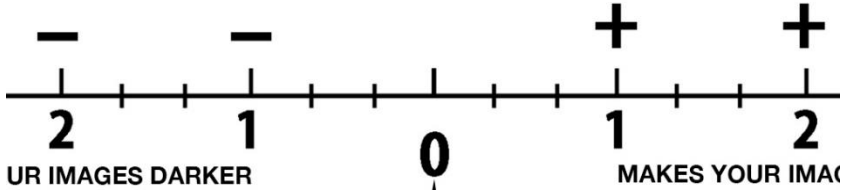
-1

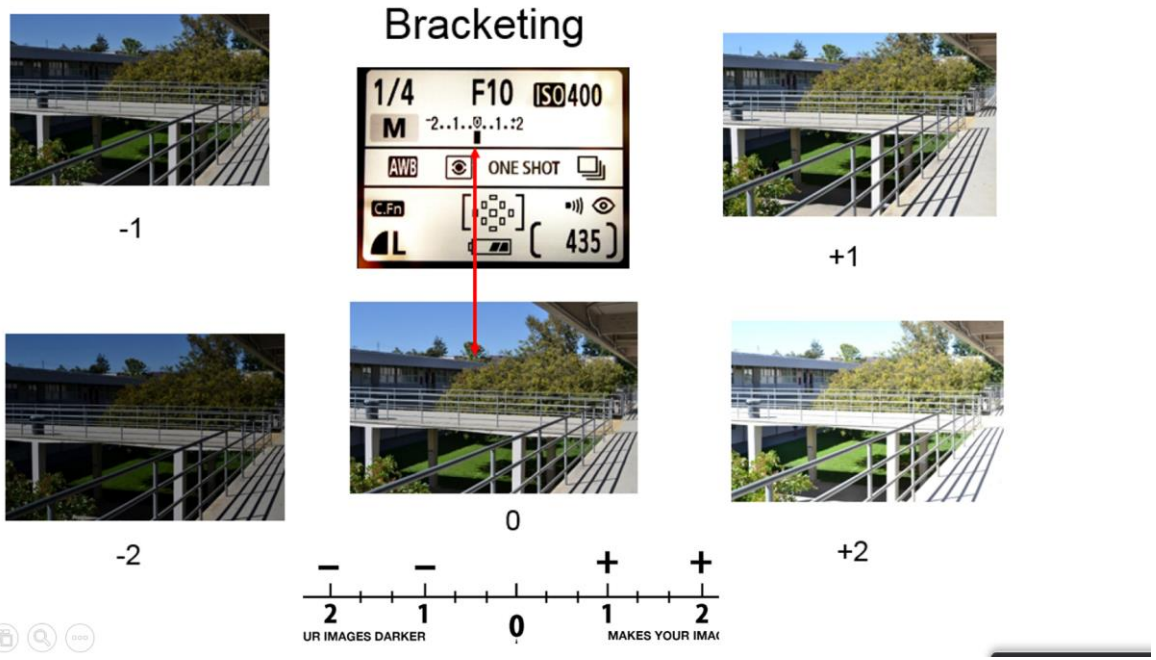
-2

0

+1

+2





Exposure Bracketing - Shooting the same scene at different stop settings to get different amounts of exposure

Bracketing

-1

1/2

-2

1/4

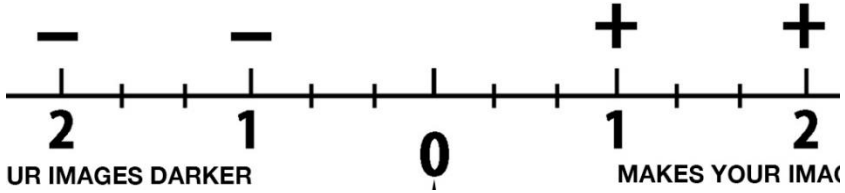
0

+1

x2

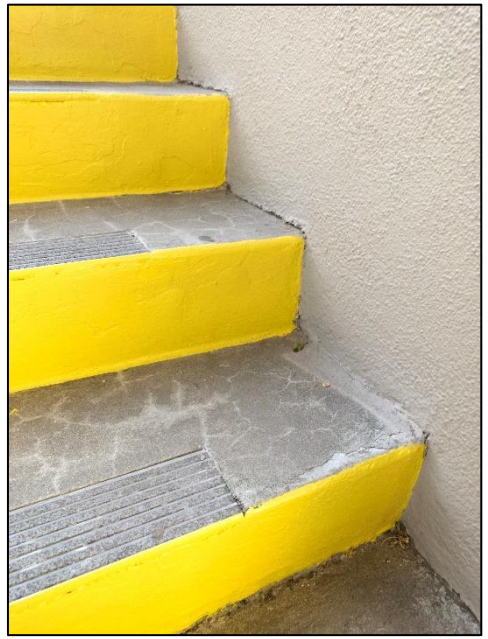
+2

x4



+2

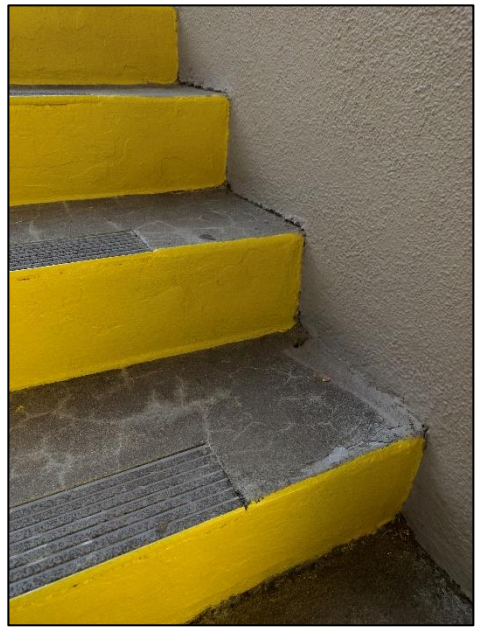
Cannot usually go this far with a cellphone camera due to aperture size limit

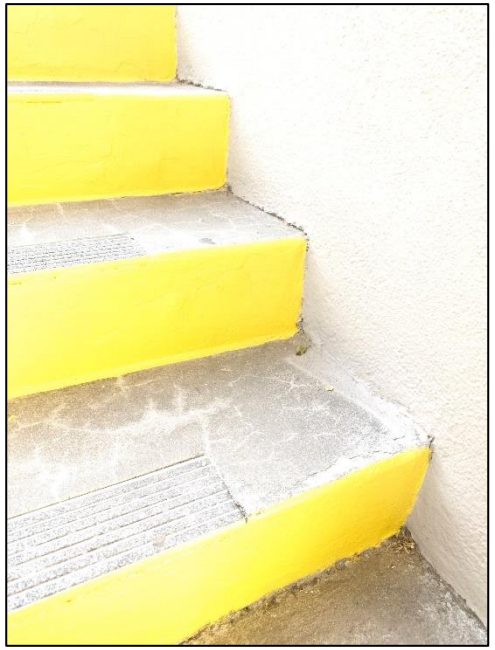


0

18% gray

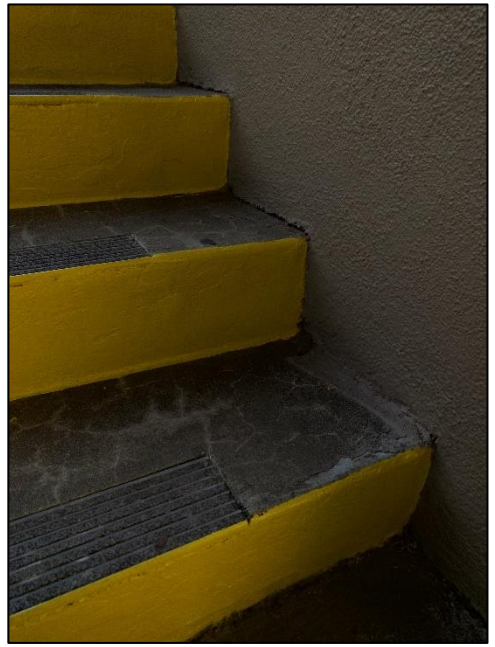
-1





+1

-2



Summary

- **Exposure**: Combined effect of ***volume*** of light hitting the film or sensor, its ***duration***, and the ***density*** of light sensitive surface
- **Exposure Compensation**: Technique for adjusting the exposure indicated by a photographic exposure meter, in consideration of factors that may cause the indicated exposure to result in a less-than-optimal image
- **Stop**: A change in an exposure setting, either **aperture**, **shutter speed**, or **ISO** that either **doubles** or **halves** exposure
- **Exposure Bracketing**: Shooting the same scene at different stop settings to get different amounts of exposure