EXPOSURE: GET IT RIGHT IN THE CAMERA

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SUMMER, 2022

QUICK REVIEW

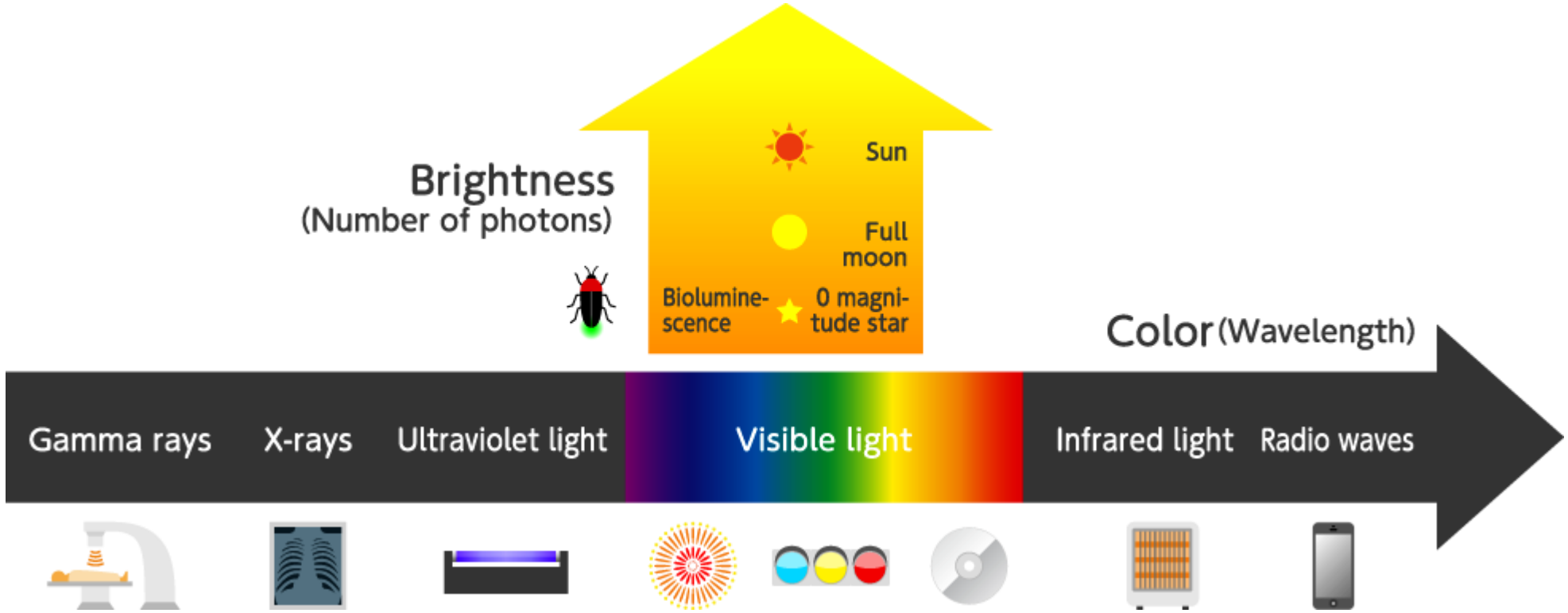
LAST TIME WE DEFINED

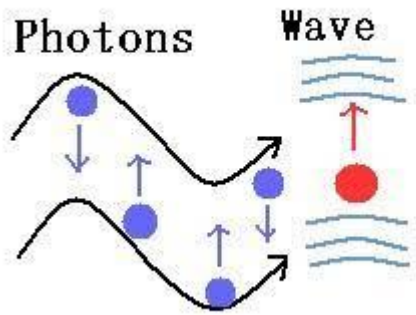
EXPOSURE

AS THE TRANSFER OF ENERGY TO A SENSOR!

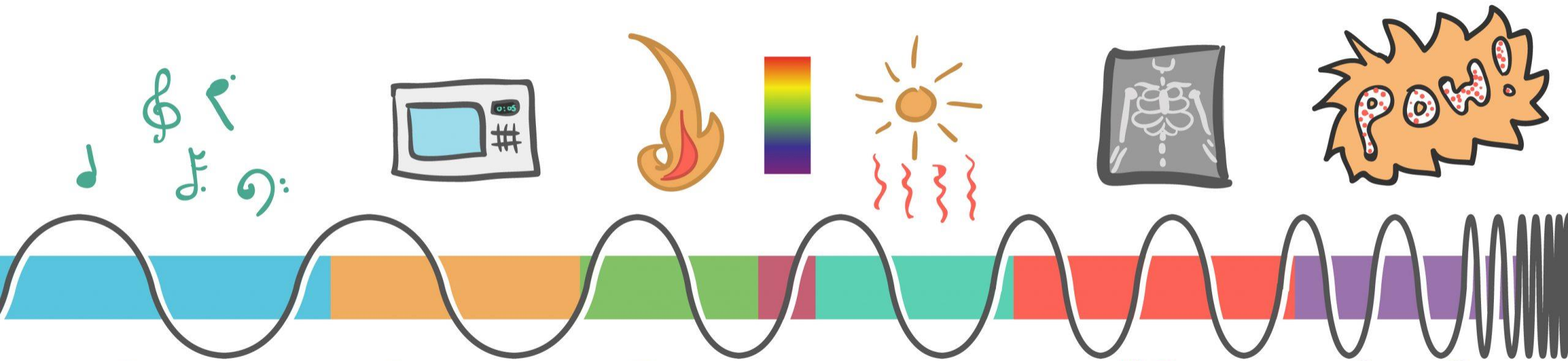
LIGHT

SEE DISCUSSION IN THE SECOND SESSION OF MY ***VISUAL DESIGN*** CLASS FROM 2020.


Brightness
(Number of photons)
Sun
Full moon
Biolumine-scence
0 magni-tude star
Color (Wavelength)
Gamma rays
X-rays
Ultraviolet light
Visible light
Infrared light
Radio waves


Photons
Wave

The Electromagnetic Spectrum



Radio

long wavelengths that are used for radio stations

Microwaves

Cooks snacks!

Infrared

Makes up heat

Visible Light

All the colors of the rainbow - what we see

Ultraviolet

Responsible for sunburns :(

X-Ray

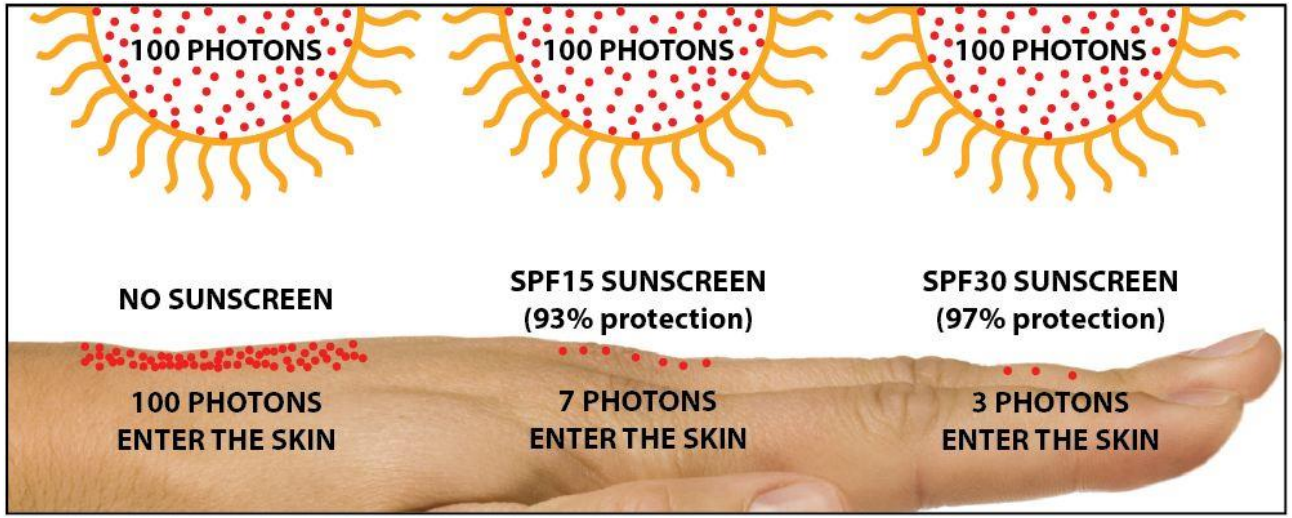
Takes pictures of your bones!

Gamma Ray

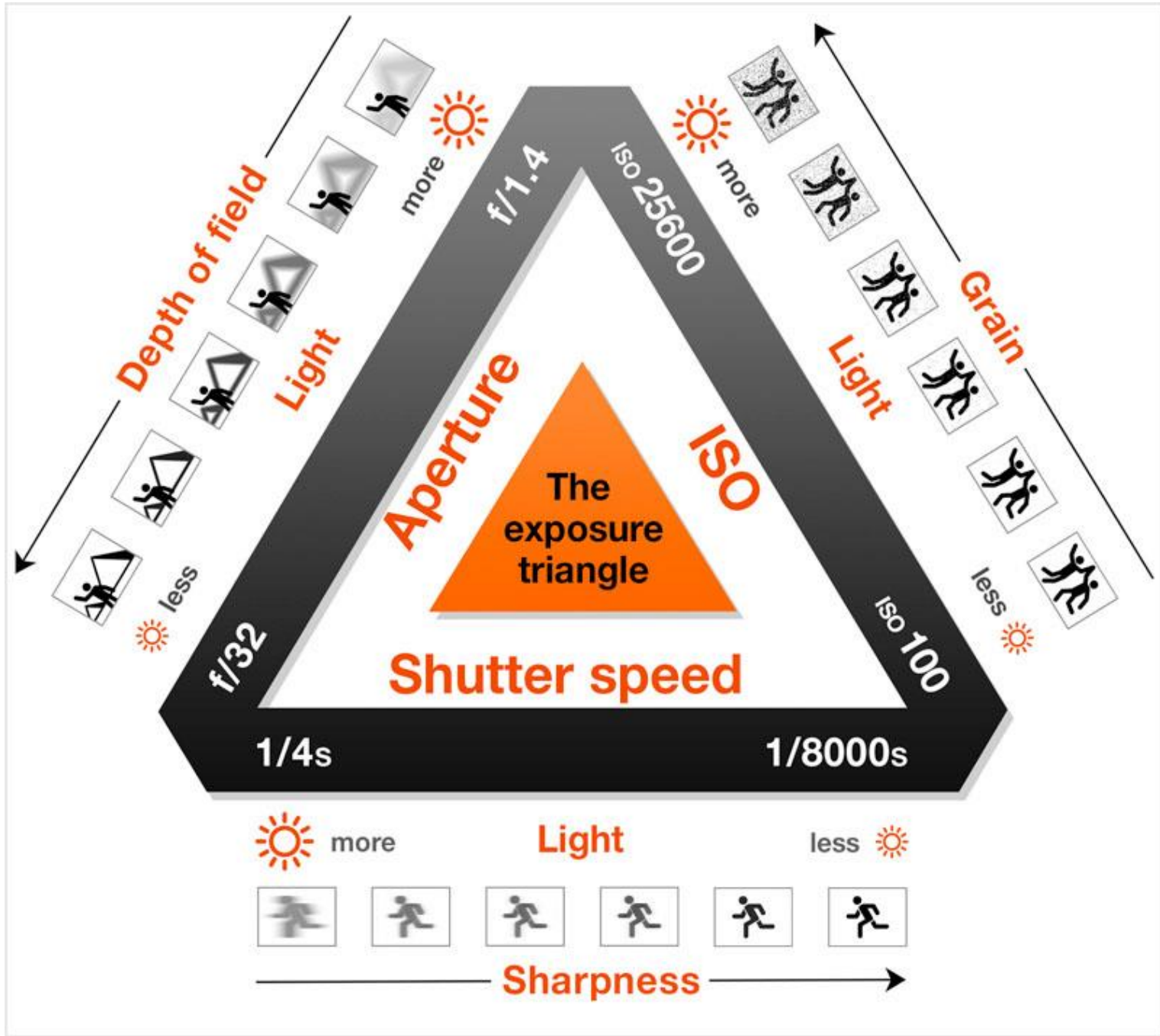
Part of many superheros' origin stories - like the Incredible Hulk!

SUNBURN

1st Degree Burn



THOUGHT SHOTS OR SNAP SHOTS?


Depth of field
more
Light
less
f/1.4
ISO 25600
Aperture
ISO
The exposure triangle
Shutter speed
f/32
ISO 100
1/4s
1/8000s
more
Light
Grain
less
more
Light
less
Sharpness

ANY QUESTIONS?

SESSION #2

- HOMEWORK SHOW AND TELL
- DISCUSS HISTOGRAMS, BLINKIES, EXPOSURE COMPENSATION
- *EXPOSE TO THE RIGHT, “ETTR”*
- HOMEWORK ASSIGNMENT#2

HOMEWORK

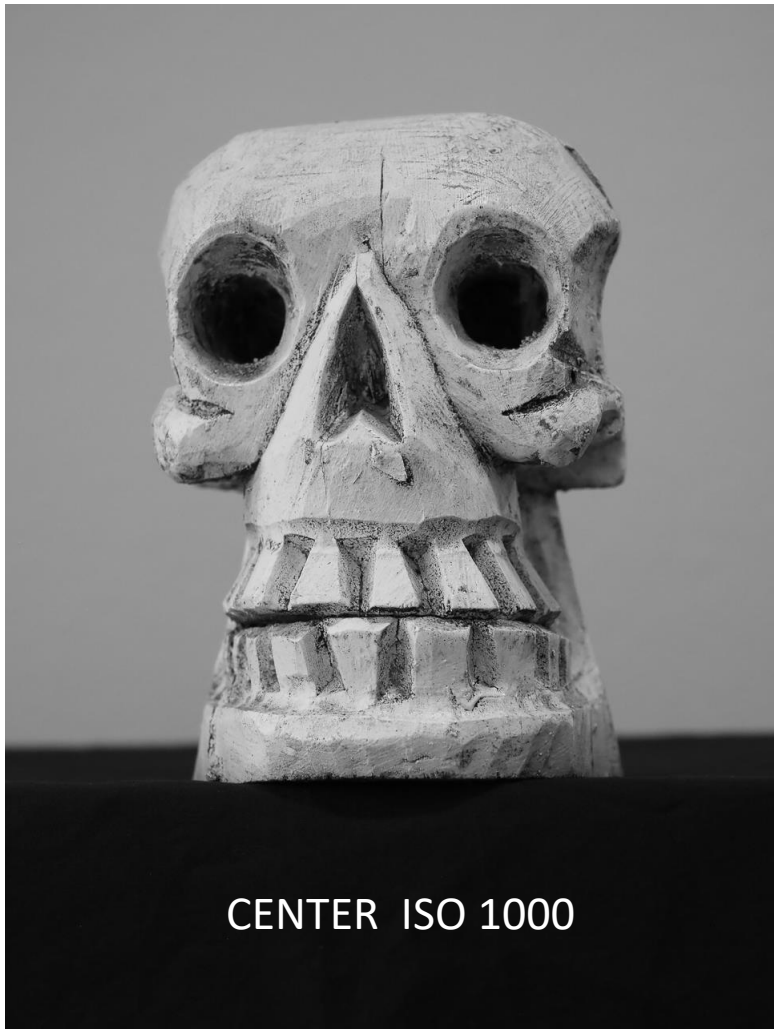
MEET YORICK

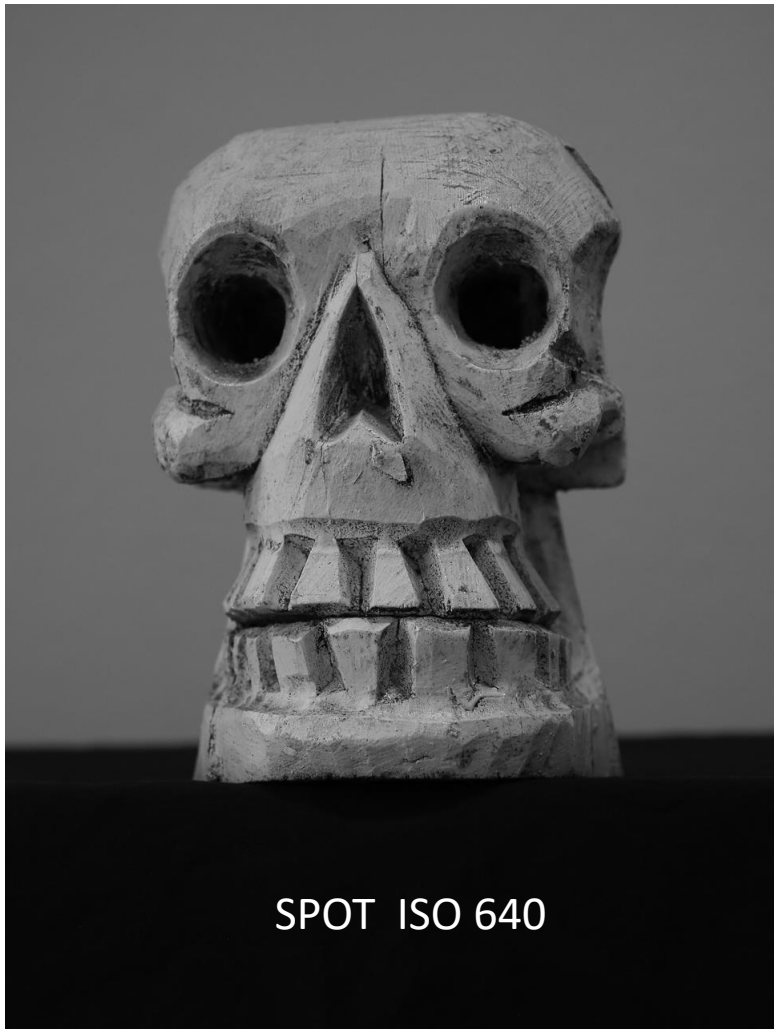
TAKEN ON AUTO!

My camera was set up to out put monochrome jpeg files.

Settings: ISO 5000, 1/125 sec, f/4

MANUAL EXPOSURE MODE:
AUTO ISO, 1/20, F4





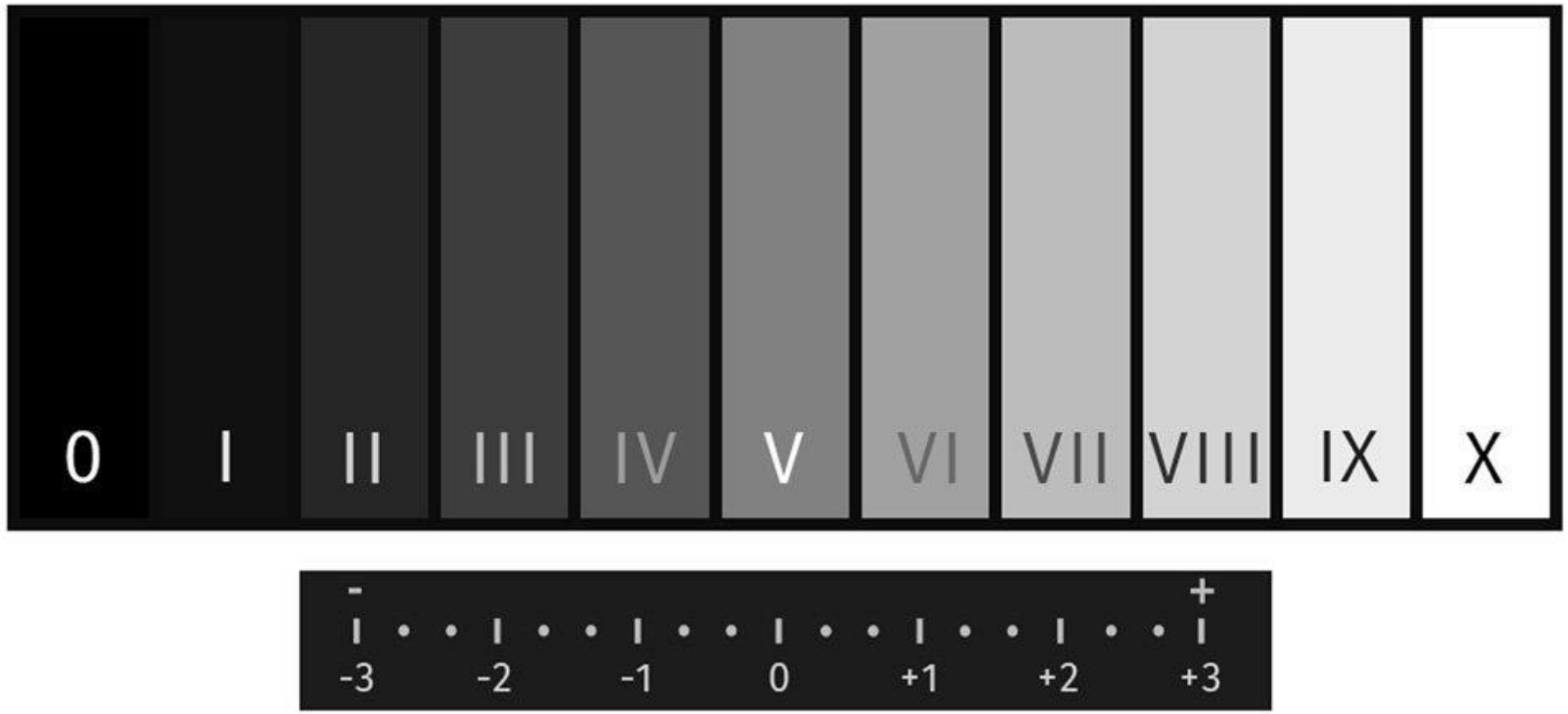
HISTOGRAMS

“Exposure used to the single most difficult technical problem in photography, but digital cameras have made this thorny issue much easier. Does that mean you can now just turn on Program mode and turn off your brain? Sorry! Thought and care are still required. The basic problems of exposure have not changed. The only difference is that you can see right away whether you got it or not.”

“Don’t judge the exposure by how it looks on your LCD screen.”

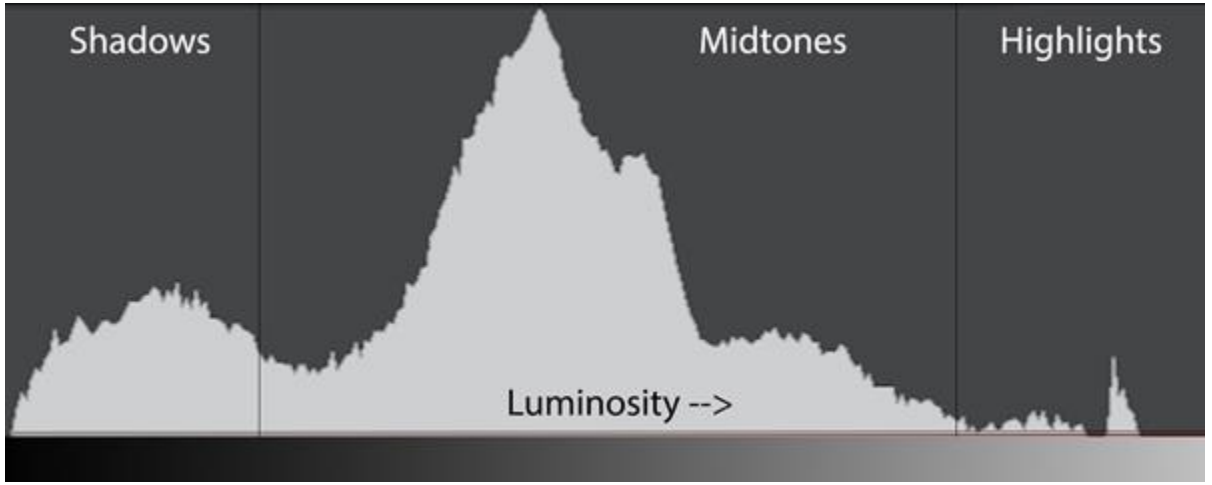
(Michael Frye)

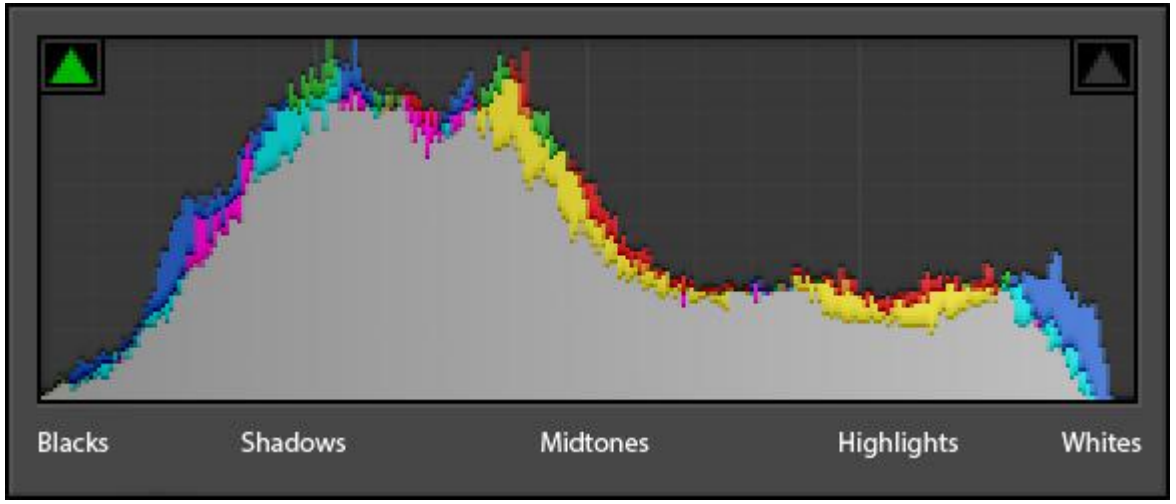
The Zone System



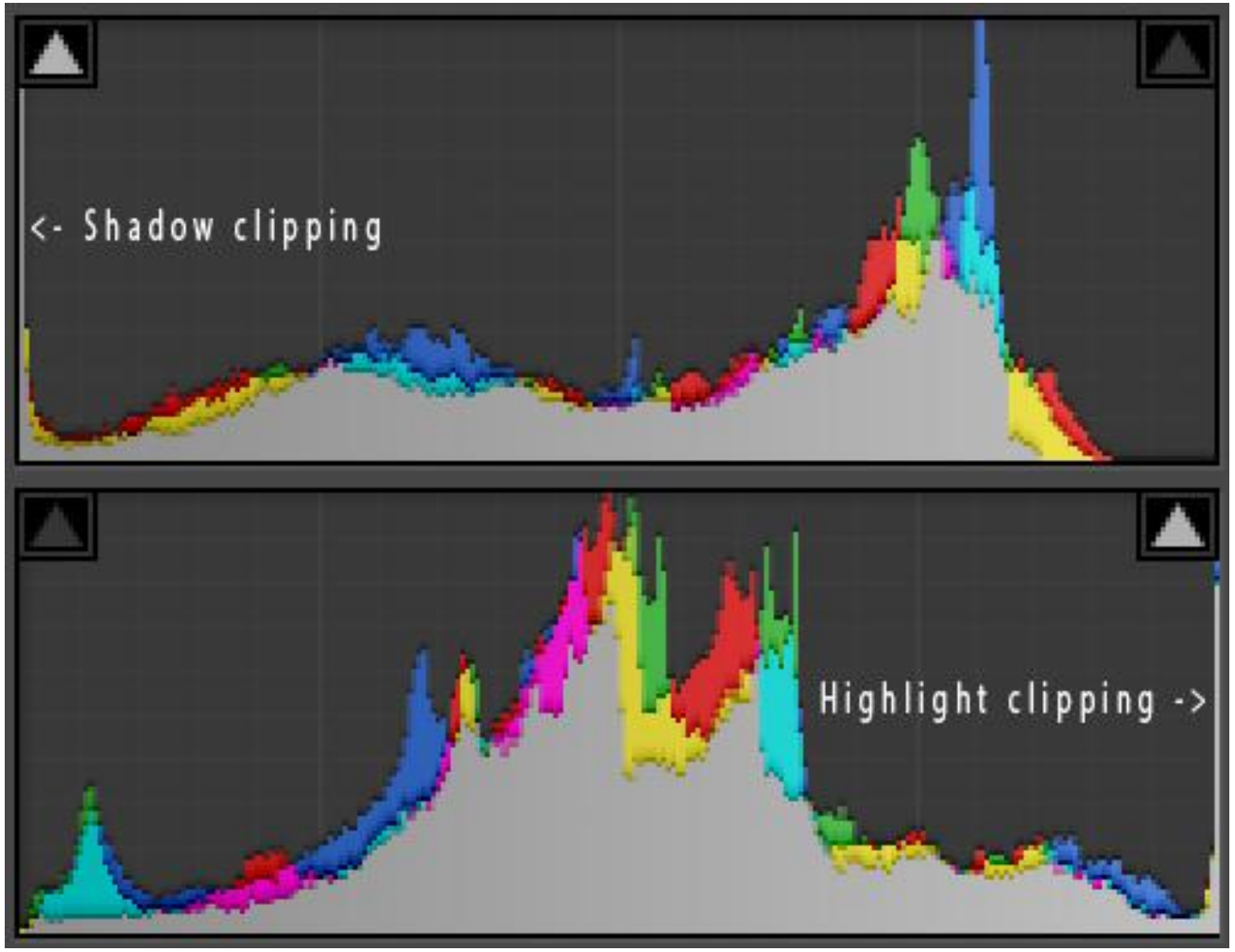
ANSEL ADAMS &
FRED ARCHER, 1940

HISTOGRAMS


Shadows
Midtones
Highlights
Luminosity -->


Blacks
Shadows
Midtones
Highlights
Whites

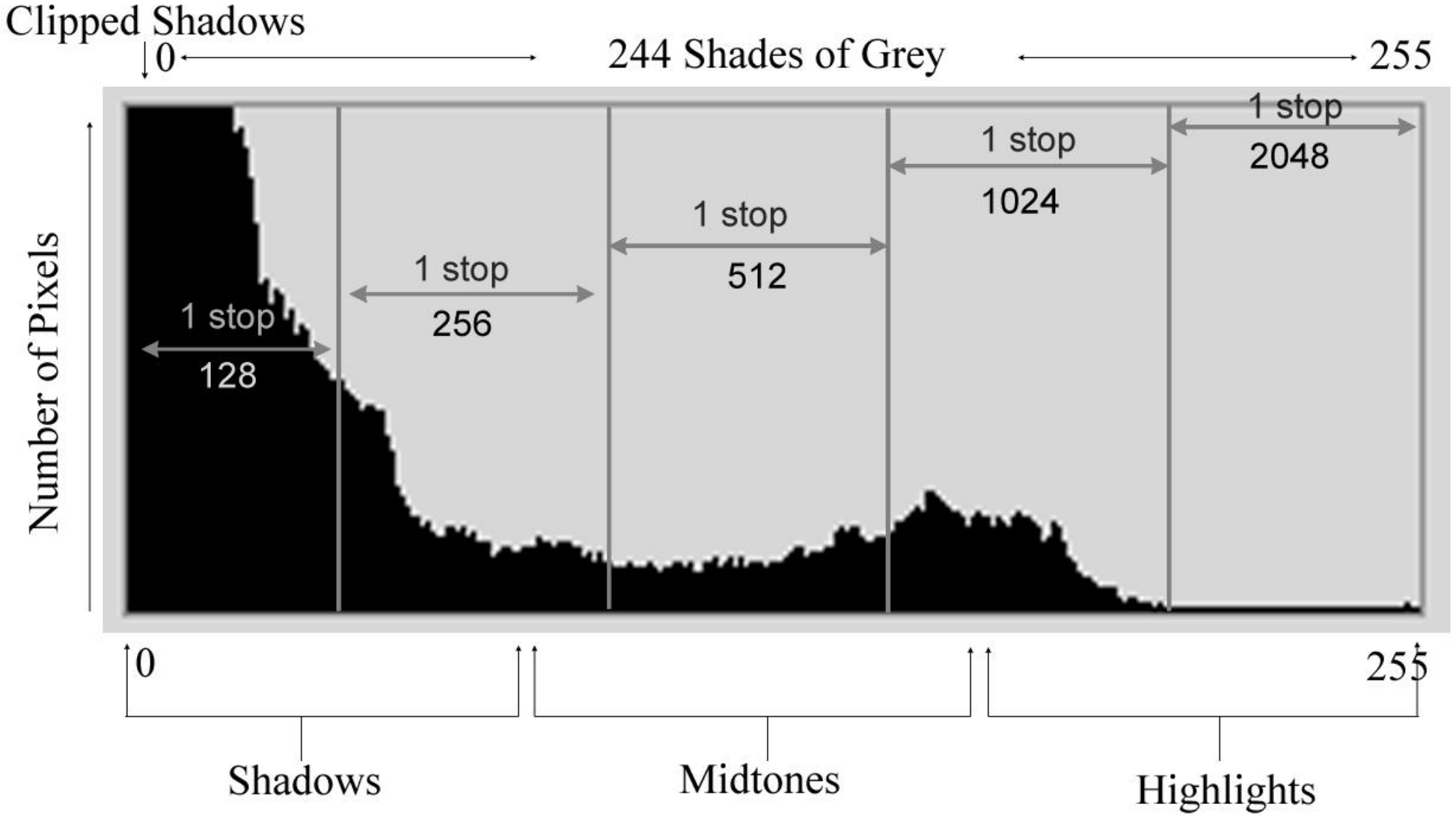
HISTOGRAMS



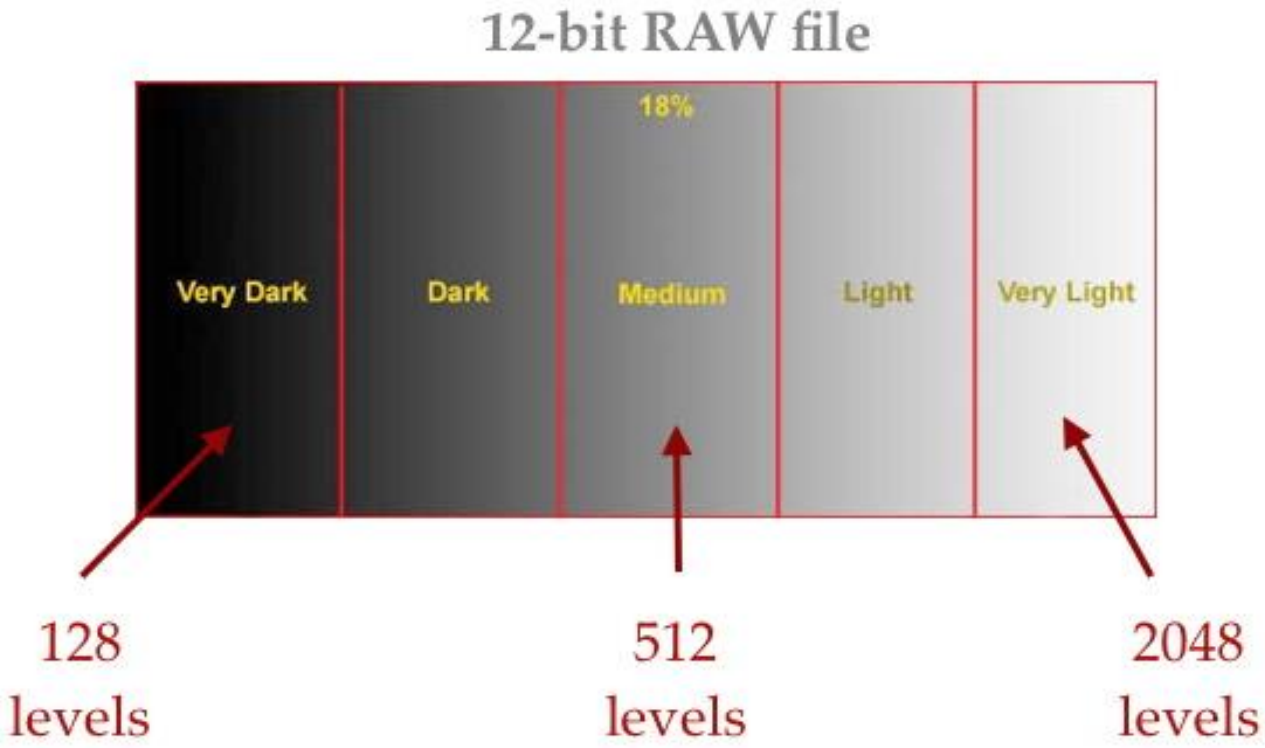
HISTOGRAMS

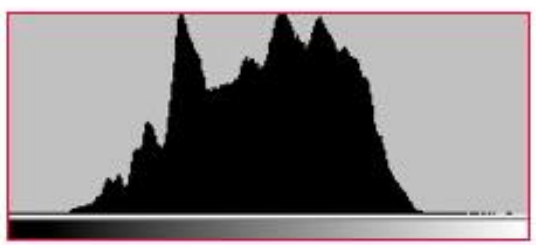
“All digital camera sensors capture light in a linear fashion, starting from black to white (left to right on the histogram). This means they capture fewer levels of information in the shadows, and the maximum number of levels in the highlights, just before clipping. In other words, the sensor is much more sensitive to brighter levels of light that darker ones.” Robert Rodriguez, Jr.

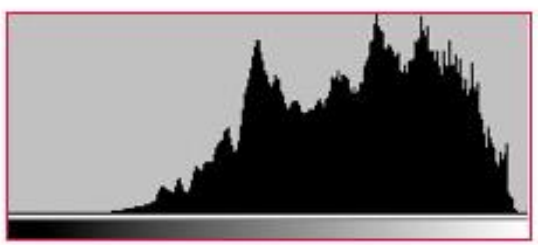
HISTOGRAMS


Clipped Shadows
0
244 Shades of Grey
255
Number of Pixels
1 stop
128
1 stop
256
1 stop
512
1 stop
1024
1 stop
2048
0
255
Shadows
Midtones
Highlights

HISTOGRAMS


12-bit RAW file
18%
Very Dark
Dark
Medium
Light
Very Light
128
levels
512
levels
2048
levels





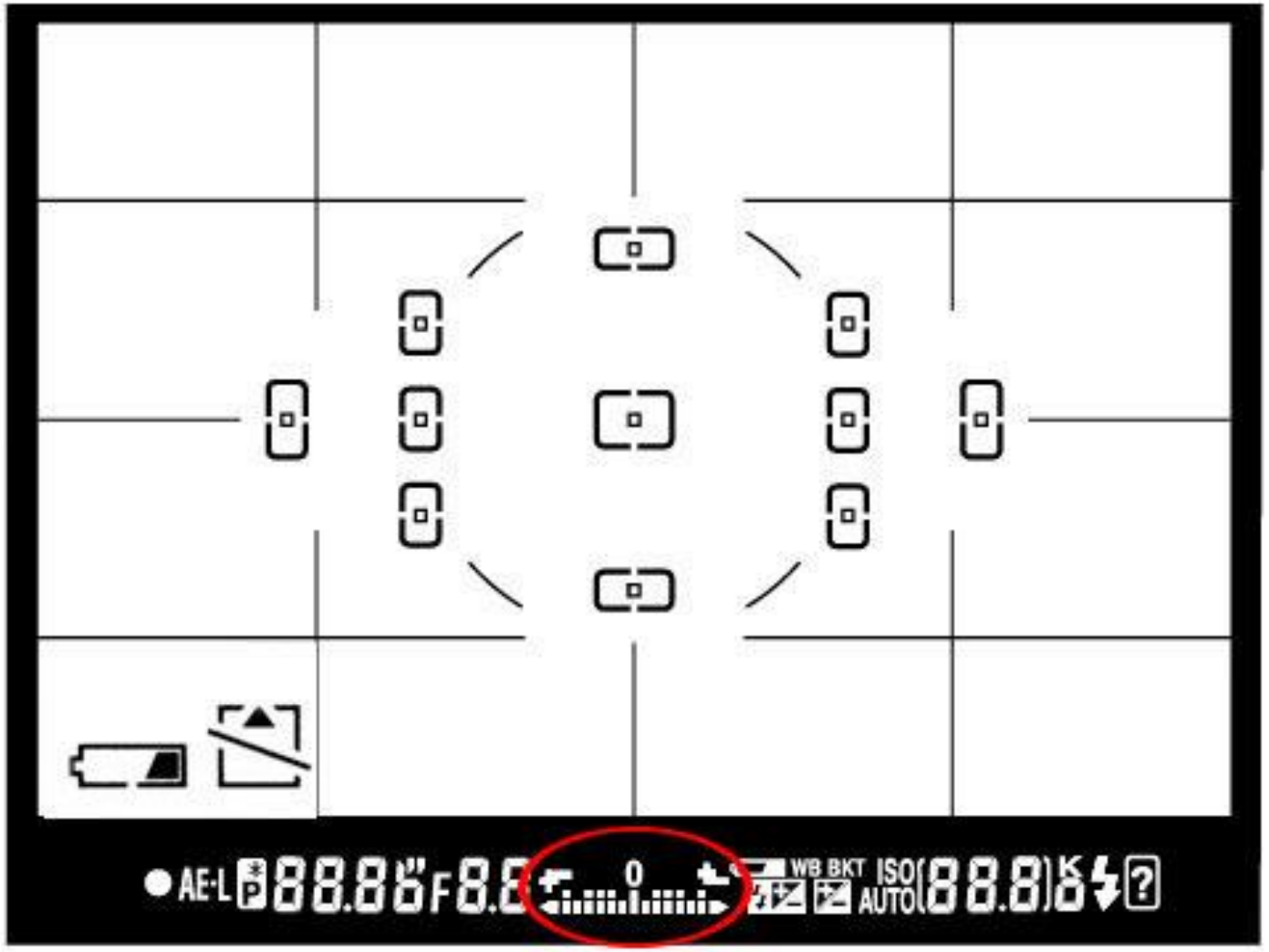
HISTOGRAMS

“This is the main reason why we see digital noise in the shadows and not the highlights. The “signal to noise” ratio is much higher in the highlights, therefore noise can only rear its ugly head in the shadows where this ratio is much lower.”

Robert Rodriguez, Jr.

EXPOSURE COMPENSATION

“Exposure Compensation allows photographers to override exposure settings picked by camera’s light meter, in order to darken or brighten images before they are captured.” (photographylife article)



CAMERA METERED EXPOSURE (APERTURE PRIORITY)				
f/1.4	f/2.0	f/2.8	f/4.0	f/5.6
1/1000	1/500	1/250	1/125	1/60

APERTURE PRIORITY, -1 EV EXPOSURE COMPENSATION				
f/1.4	f/2.0	f/2.8	f/4.0	f/5.6
1/1000	1/500	1/250	1/125	1/60

APERTURE PRIORITY, +1 EV EXPOSURE COMPENSATION				
f/1.4	f/2.0	f/2.8	f/4.0	f/5.6
1/1000	1/500	1/250	1/125	1/60

https://photographylife.com/exposure-value

CAMERA METERED EXPOSURE (SHUTTER PRIORITY)				
f/1.4	f/2.0	f/2.8	f/4.0	f/5.6
1/1000	1/500	1/250	1/125	1/60

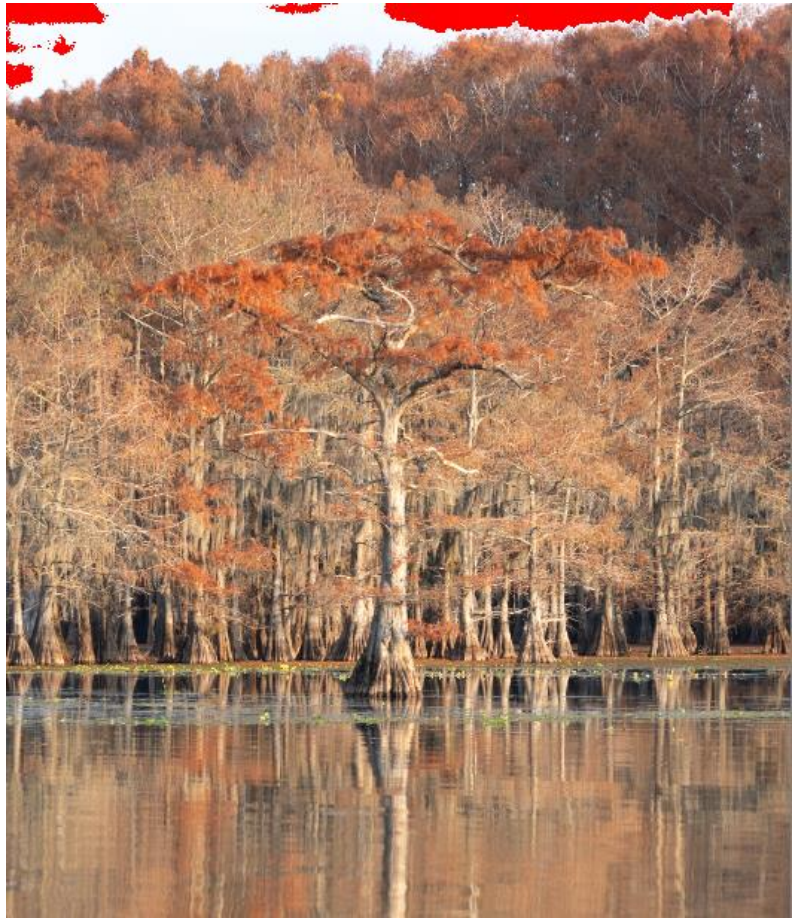
SHUTTER PRIORITY, -1 EV EXPOSURE COMPENSATION				
f/1.4	f/2.0	f/2.8	f/4.0	f/5.6
1/1000	1/500	1/250	1/125	1/60

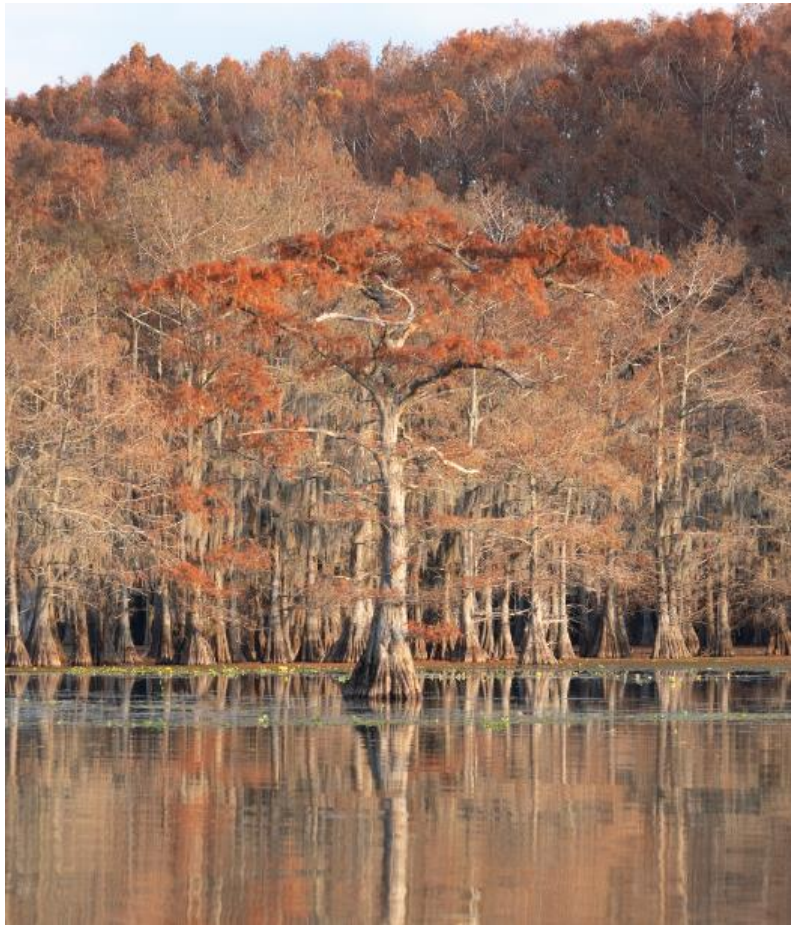
SHUTTER PRIORITY, +1 EV EXPOSURE COMPENSATION				
f/1.4	f/2.0	f/2.8	f/4.0	f/5.6
1/1000	1/500	1/250	1/125	1/60

https://photographylife.com/exposure-value

BLINKIES (EXPOSURE WARNINGS)

BLINKIES (EXPOSURE WARNINGS)





BLINKIES

BLINKIES

EXPOSE TO THE RIGHT (ETTR)

The basis of ETTR is simple: optimize your exposure, and get the highest-quality image possible. Most people expose a scene so that the image looks how they want — and, at face value, this makes sense. Optimum exposure is different, though. Instead of exposing the scene "correctly", it is better to expose a scene to be as bright as possible, without blowing out the scene's highlights and losing all of that data. Then, in post-processing, you darken the image so that it looks how you want. (Spencer Cox, Exposing to the Right Explained (photographylife.com))

EXPOSE TO THE RIGHT (ETTR)

By darkening an exposure in post-processing, you are effectively using a lower-than-base ISO. It brings similar benefits, too — a decrease in image noise, richer colors, and a greater dynamic range. Images exposed using ETTR are more malleable in post-processing, making it easier to produce the photo you have in your mind's eye.

(Spencer Cox, Exposing to the Right Explained (photographylife.com))

ADDITIONAL REFERENCES

- Understanding Digital Camera Sensors (cambridgeincolour.com)
- **Histograms in Photography: A Guide**
https://petapixel.com/histogram/
- **Exposure Compensation: An Easy Guide**
https://www.lightstalking.com/exposure-compensation-easy-guide/
- The most useful DSLR feature? HIGHLIGHT OVER-EXPOSURE WARNING — Robert Oliver, photographer (robertoliverphoto.com)
- Exposing to the Right Explained (photographylife.com)
- https://photographylife.com/exposure-value
- Henry Carroll. *Read This If You Want To Take Great Pictures.* 2014, Laurence King Publishing.

HOMEWORK (YOU MAY NEED TO CONSULT WITH YOUR OWNER'S MANUAL)

The purpose of these exercises is to gain a better understanding of exposure compensation and "Expose to the Right (ETTR).

1. Compare and contrast photographs of the same scene at an exposure set by your camera to exposure above and below the camera settings.

2. Take a shot using any metering mode you wish and then repeat it as an under exposure and again using ETTR. Process the over and under exposure to look like the exposure your camera suggested and compare the image quality of the three images.

3. Email (lpetterborg@gmail.com) me a set of images that best represents what you learned from these exercises. Be prepared to talk about your experience next time.


Any
Questions