Seeing the Light

John Tunney / Introduction to Photography

Photo Graph

Light *Writing*

Four Characteristics of Light

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- Quantity (Brightness/Luminance)

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Four Characteristics of Light

- Quantity (Brightness/Luminance)
- Quality/Texture (Direct or diffuse, hard or soft)
- Color
- Direction (front, side, back)

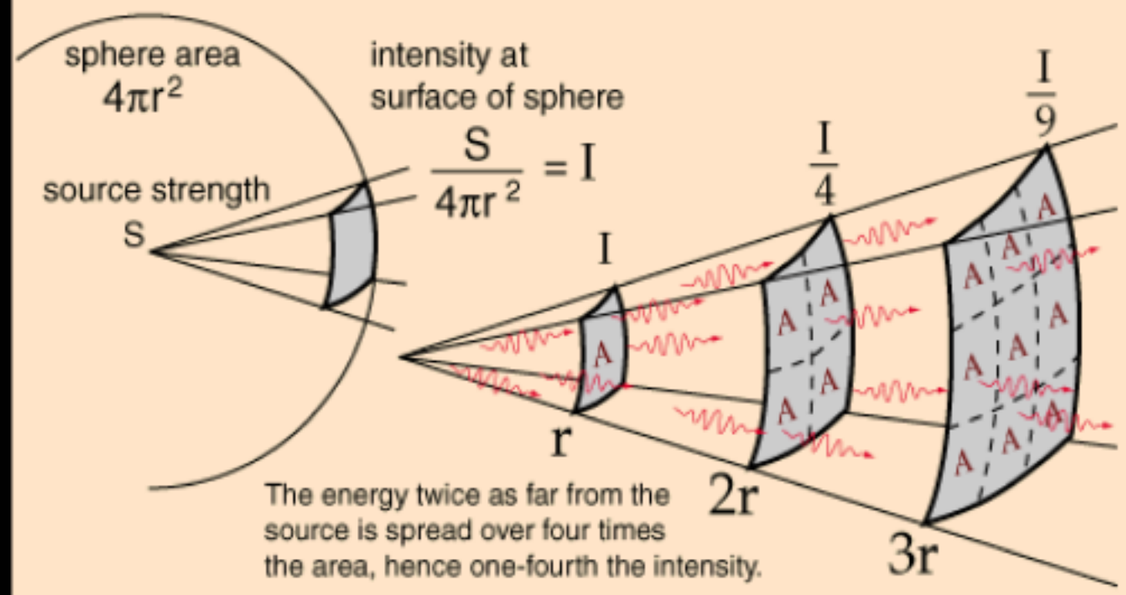
Quantity: Amount of Light

Inverse Square Law, Light

As one of the fields which obey the general inverse square law, the light from a point source can be put in the form

$$E = \frac{I}{r^2}$$

where E is called illuminance and I is called pointance.



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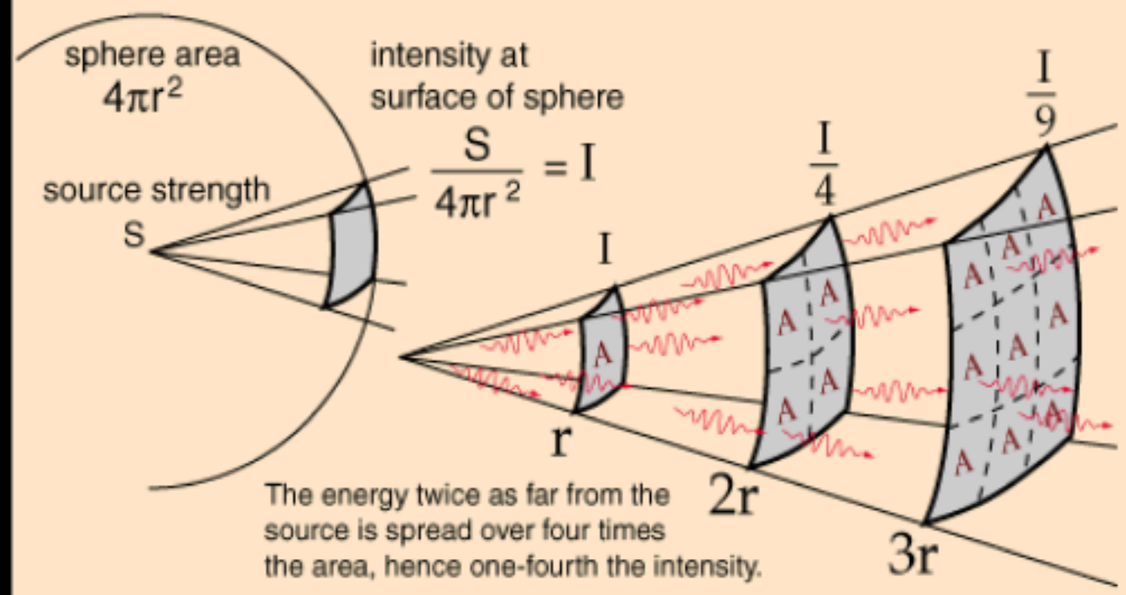


(Light gets weaker as it travels from its source)

Too Little Light

Histogram bunched on left

If not enough light...

- Adjust exposure (Exposure Compensation)

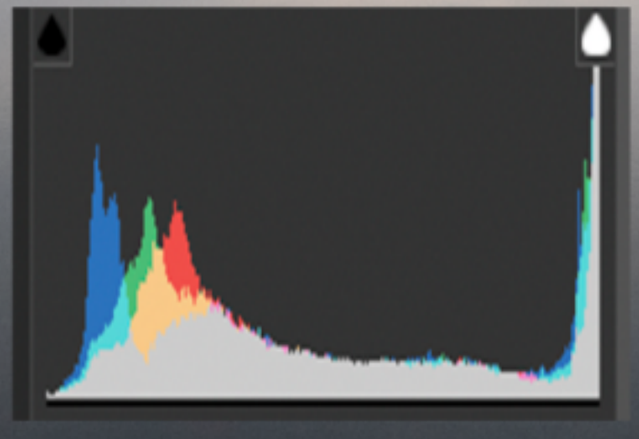
- Add light (flash, reflectors)

- Get closer to the light (Move light or subject)

- Come back another time

- Fix with editing (but it may not always work)

Too Much Light

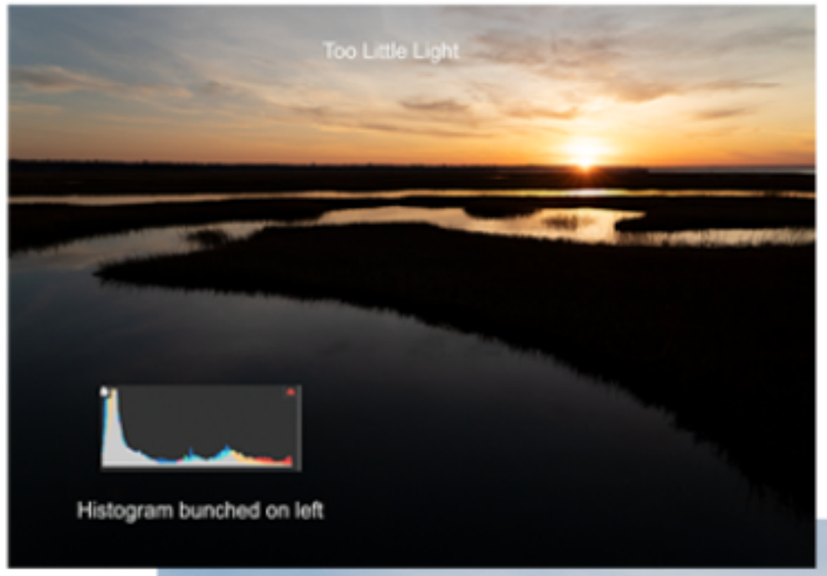


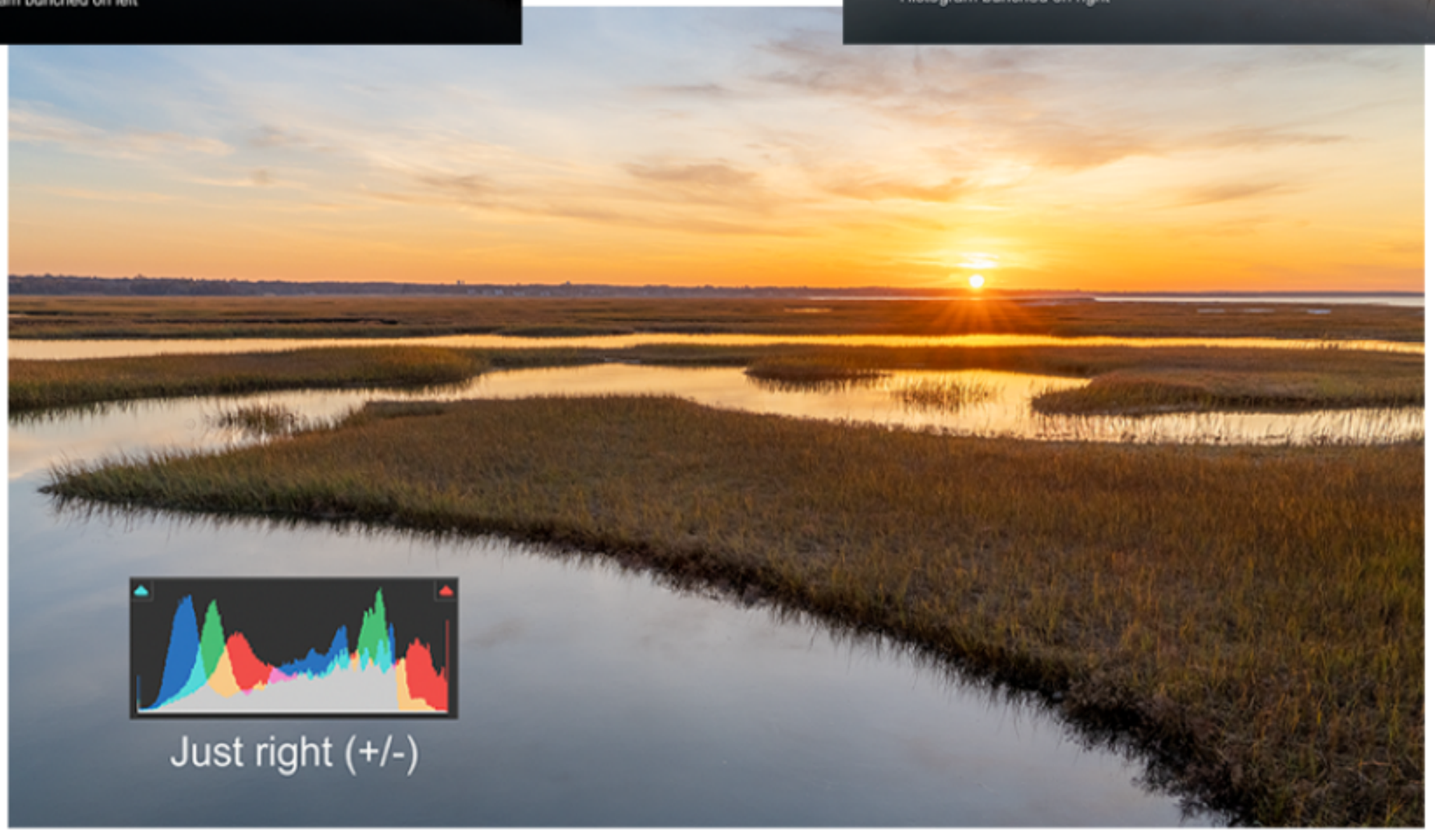
Histogram bunched on right

If too much light...

- Adjust exposure (Exposure Compensation)
- Move away from the light (Move light or subject)

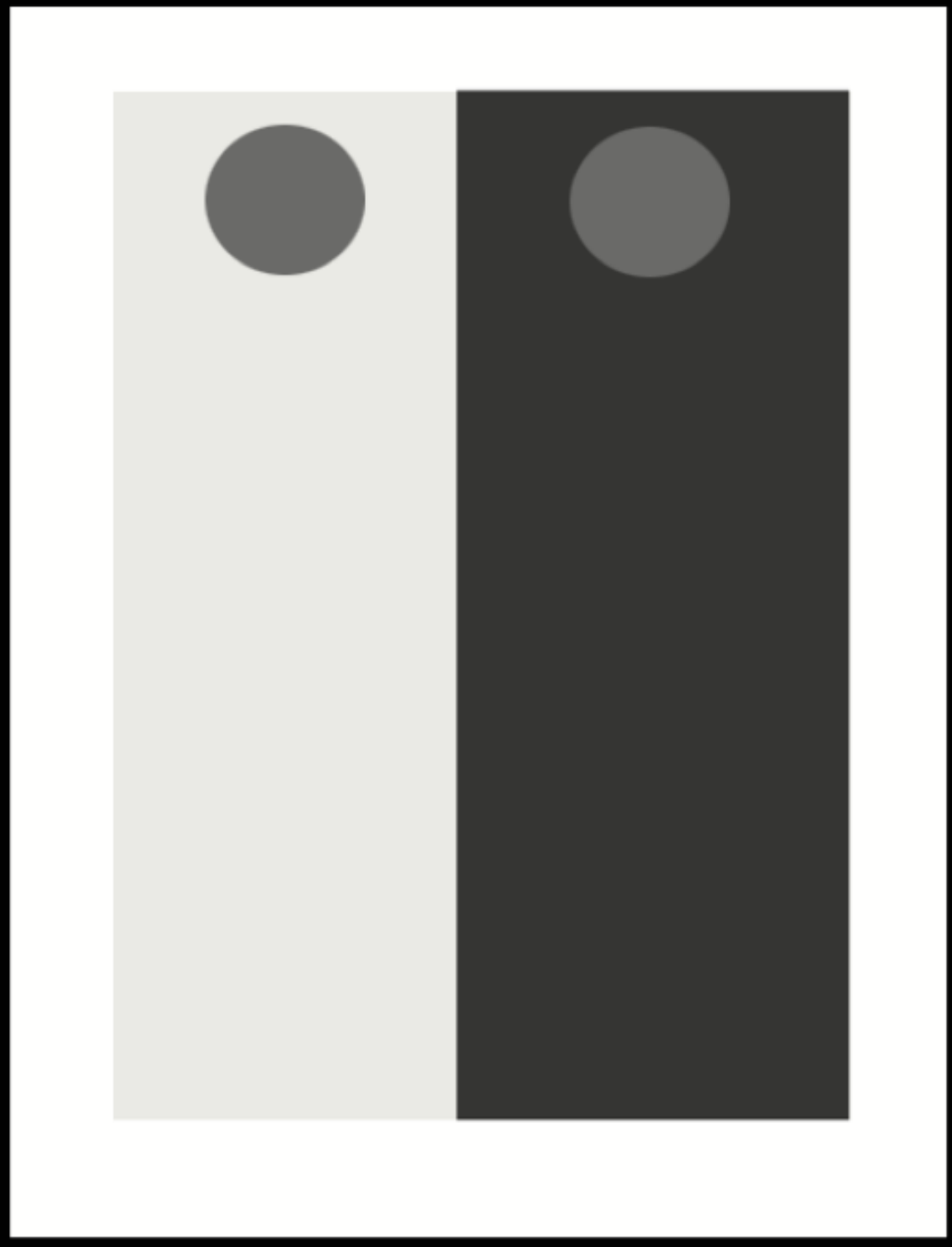
- Come back another time
- Fix with editing (but it may not always work)





Exposure Blending and HDR (high dynamic range)

Luminance can be relative



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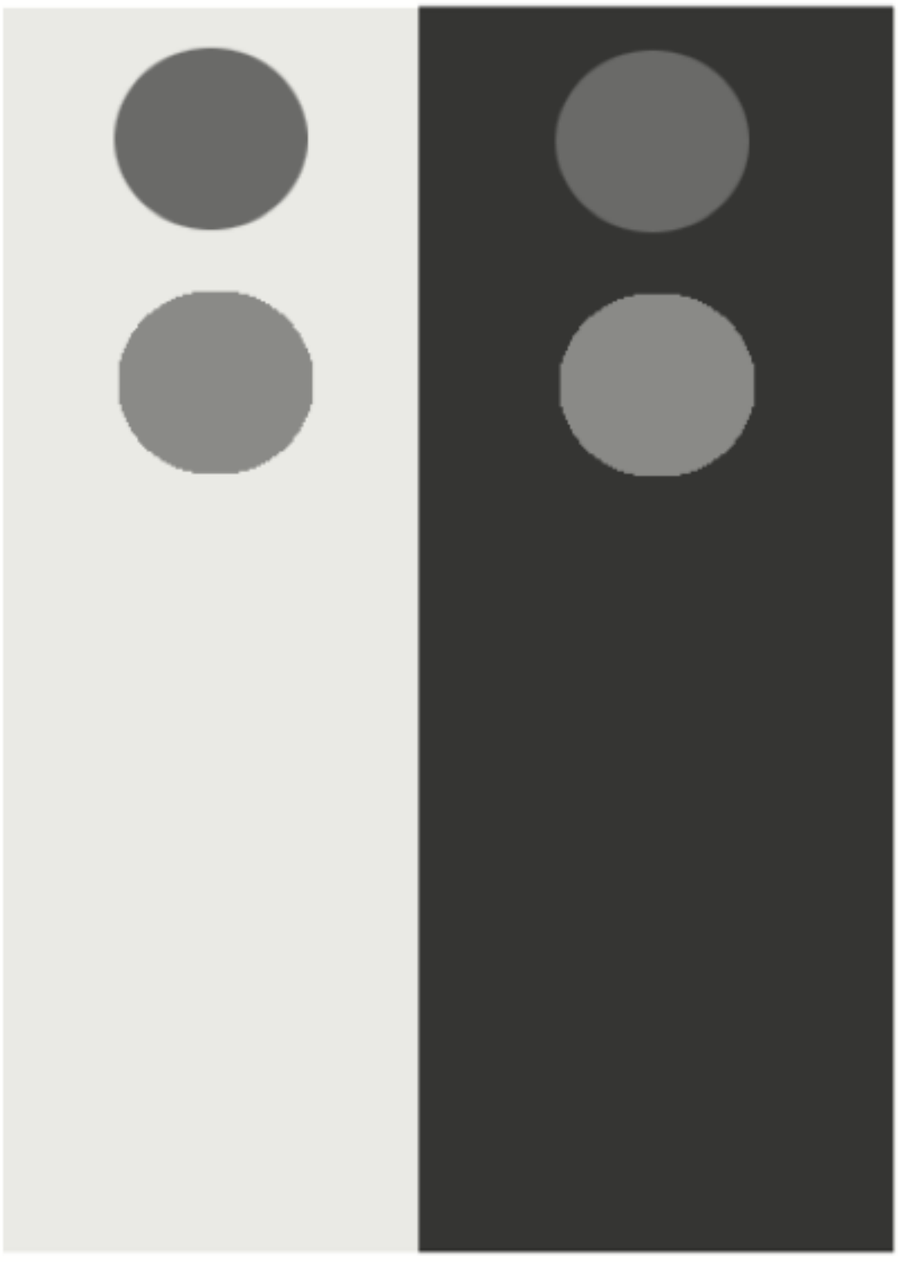

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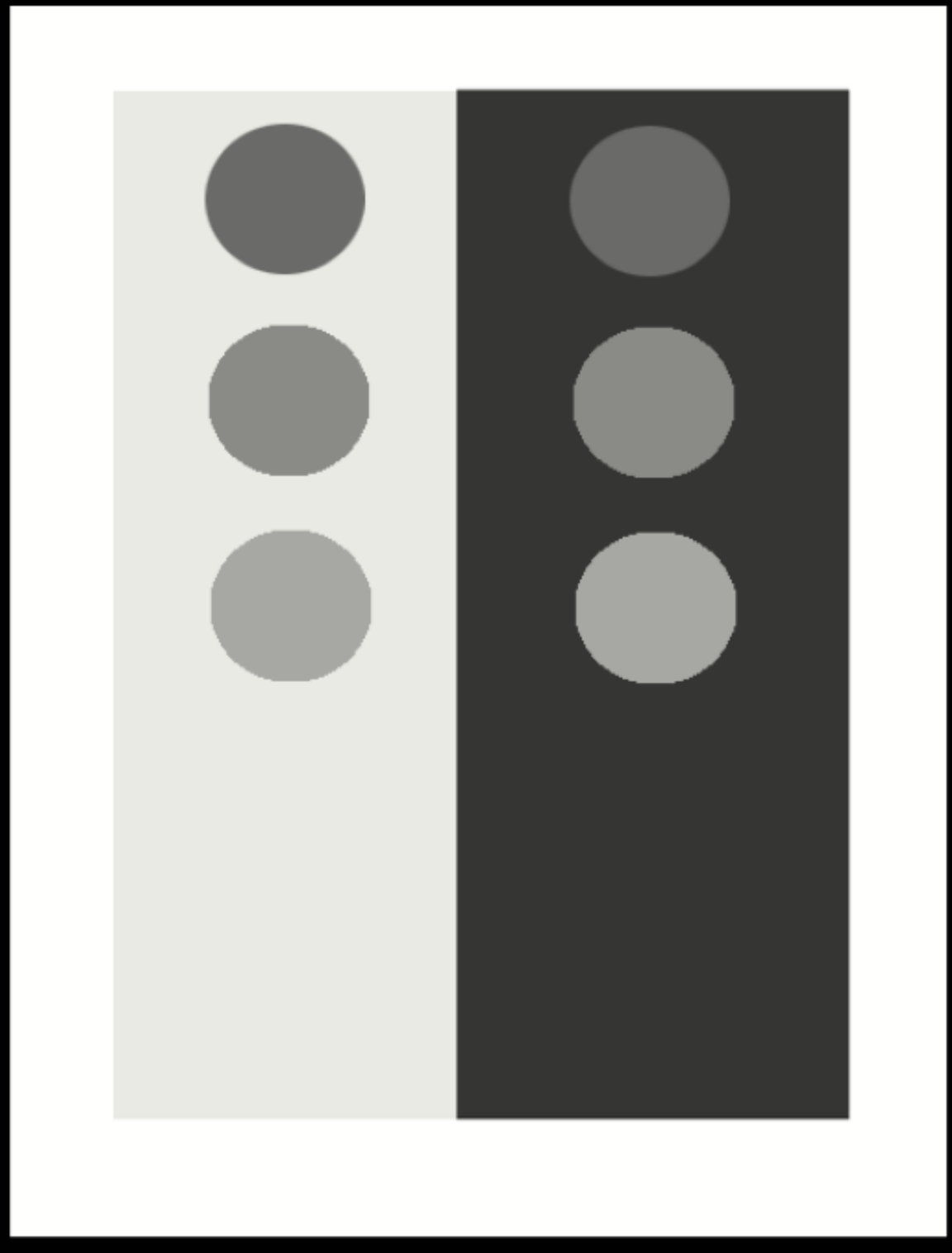

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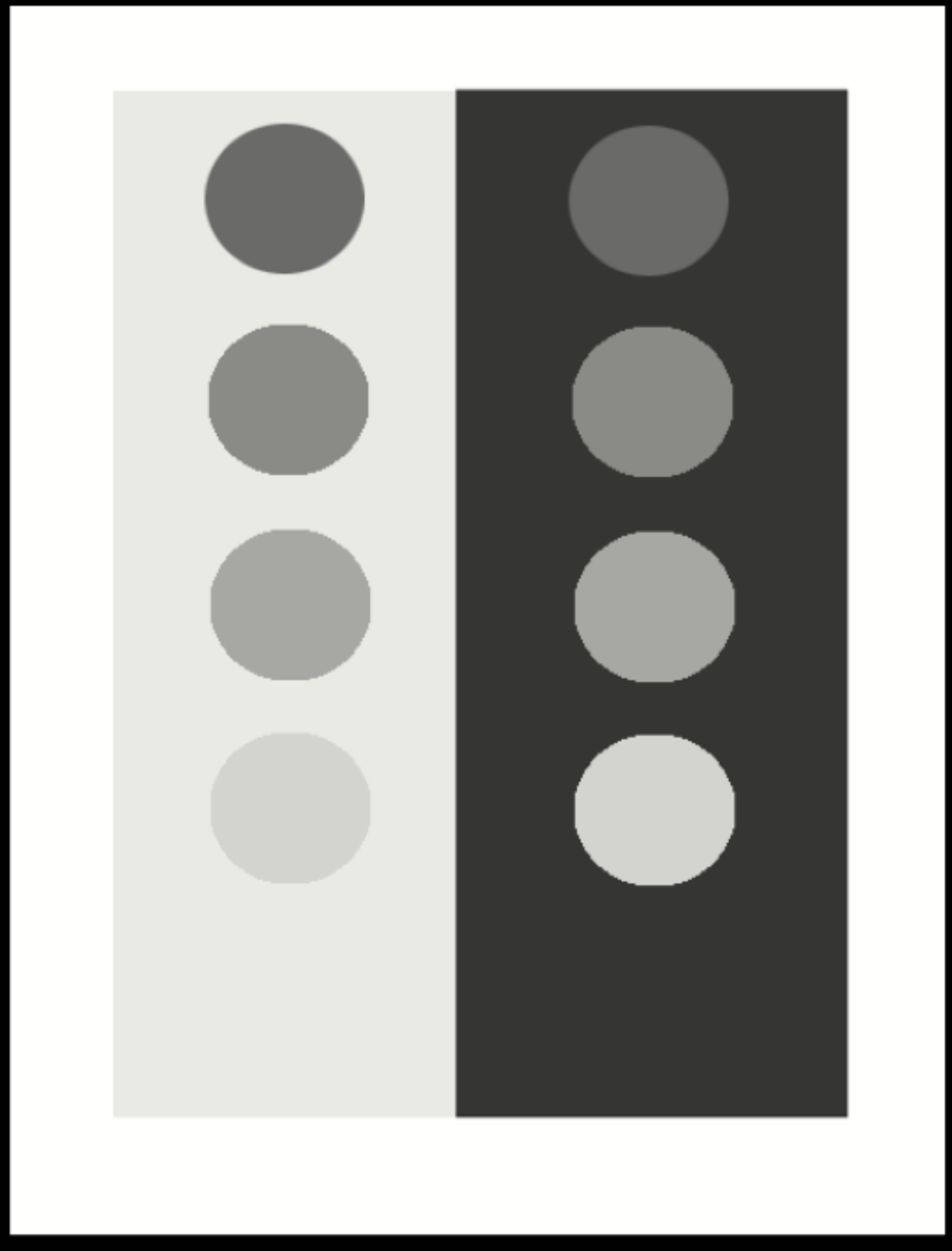

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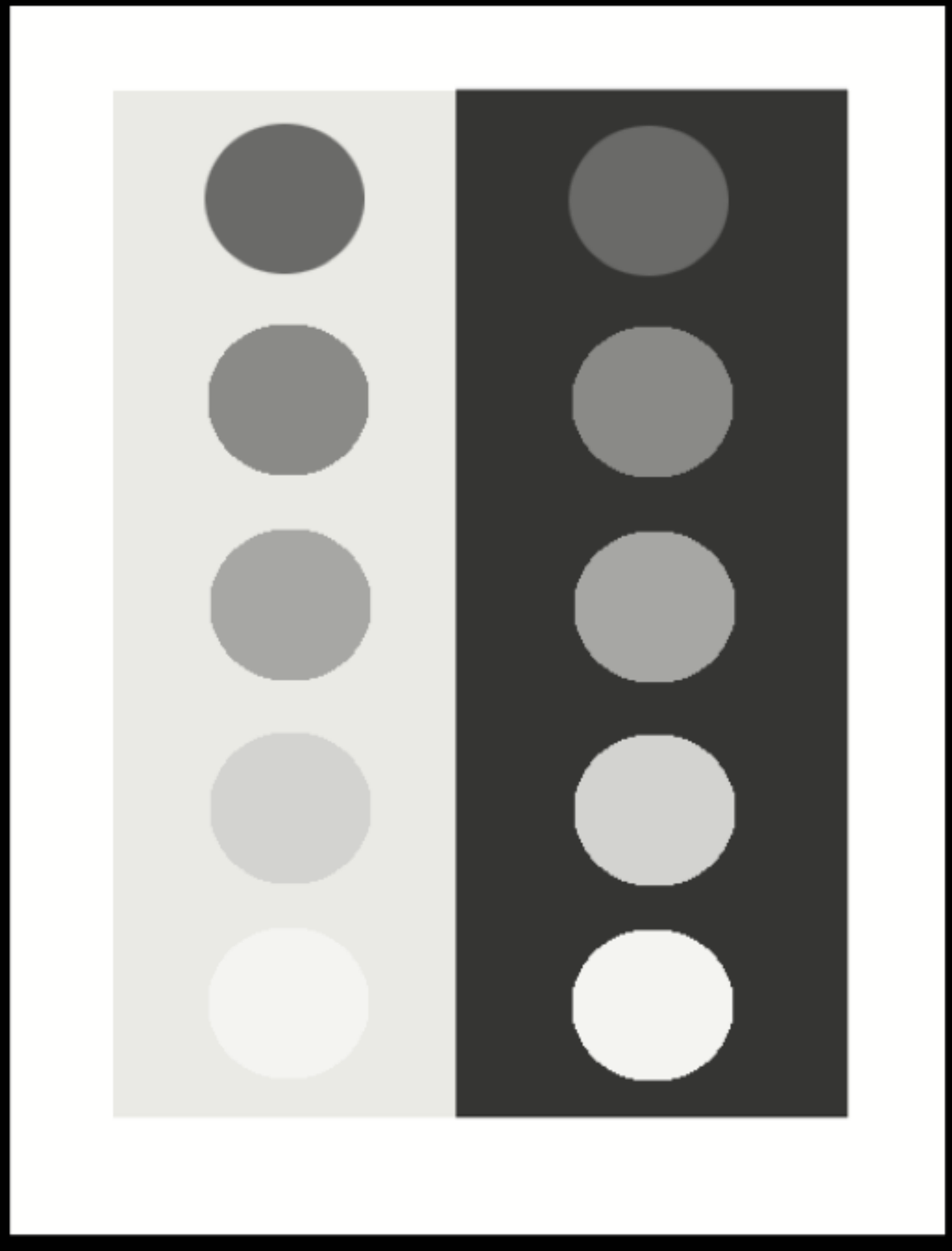


Making a Picture

Winter Sunrise

Ansel Adams

Texture: Direct or Diffuse, Hard or Soft

Texture creates contrast

Direct/hard light creates
high contrast, dark shadows
and bright highlights

Diffuse/soft light creates
low contrast, mellower
shadows and highlights

The smaller the light,
the more direct, harder it is

The bigger the light,
the more diffuse, softer it is

Hard/Direct Light

Soft/Diffuse Light


EVINRUDE

Hard/Direct Light


22
21
20

Soft/Diffuse Light

COLOR

Different light sources create different colors

Time of Day
&
the Color of Light

Time of Day

Early Morning/Late Afternoon

Time of Day

Golden Hours
(hour +/- after sunrise,
before sunset)

Time of Day

- Blue Hour/Twilight
  (half hour before sunrise, after sunset)

Time of Day

Midday

Time of Day

Night

Time of Day
&
the Color of Light

What else affects light?

The Weather

- Bright Sun
- Partly Cloudy
- Overcast
- Cloudy
- Hazy

Bright Sun/Partly Cloudy

- Direct Light

- Emphasizes shadows and highlights

- Directional Light

Overcast/Bright

Soft, even light. Few shadow

Good Subjects
- Portrait
- Detailed
  Landscapes/Scenes
- Nature (flowers)
- Macro/Close-p
- PJ/travel

Hazy

- Similar to Bright

- Softer Light, with softer shadows/highlights

- Less detail

- Soft colors, low saturation

- Directional Light

Cloudy

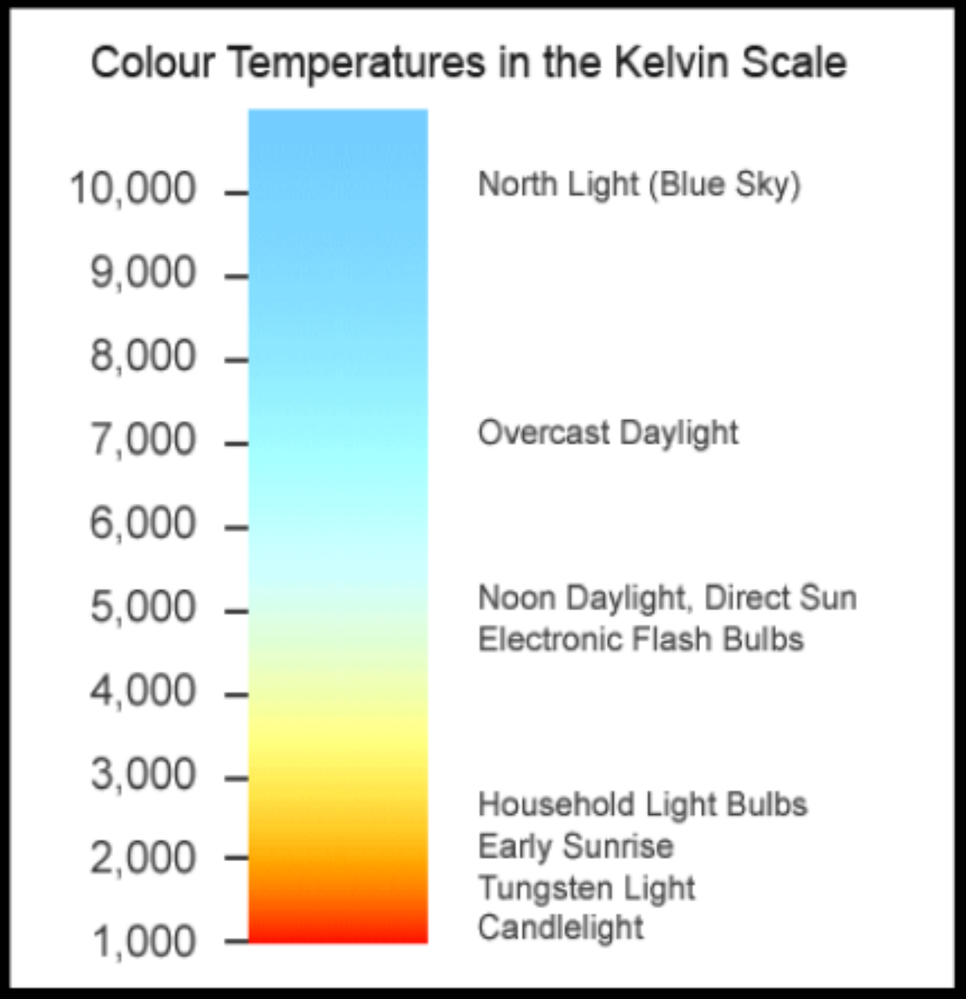
Low Light, Diffuse Light

Goods Subjects

- Moody/atmospheric
- Weather

White Balance:
Working with the color of Light

White balance adjusts color temperature
to make colors appear natural


Colour Temperatures in the Kelvin Scale
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
North Light (Blue Sky)
Overcast Daylight
Noon Daylight, Direct Sun
Electronic Flash Bulbs
Household Light Bulbs
Early Sunrise
Tungsten Light
Candlelight

Cool

Natural

Warm

White Balance Controls

Auto – Camera decides. Works well in most situations

Tungsten – Use indoors. Standard lightbulbs (tungsten) have yellowy cast. “Tungsten” setting adds a little blue to cool color down. Light bulb symbol.

Fluorescent – Fluorescent lights cast a greenish tint. This mode adds magenta to neutralize green. Fluorescent bulb..

Daylight/Sunny – Compensates for midday light. Adds warmth.

Cloudy – Adds warmth. More than “Daylight” setting, but less than “Shade.” Try with sunsets.

Shade – Warms up image. Adds more warmth than “Shady.”

Flash – Flash light is cooler than daylight. Warms up image. Similar to Shade setting.

AWB

5850

AWB

5850

Daylight

5500

AWB

5850

Daylight
5500

Cloudy
7500

AWB

5850

Daylight
5500

Cloudy
7500

Tungsten
2850

AWB

5850

Daylight
5500

Cloudy
7500

Tungsten
2850

Fluorescent
3800

What to do about White Balance

- Leave on AWB – Auto
  Auto works well in most cases

- If you notice funny tinge to images, adjust white balance

- RAW shooters can adjust white balance during processing

RGB Color Theory

Primary colors: Red, Blue Green

Secondary colors: Cyan, Magenta, Yellow

Combinations of red, blue & green
are used to create all colors.

Primary Color Systems

RGB is additive system, emitted light

CMYK (cyan, magenta, yellow, black)
subtractive system for reflected light

RYB (red, yellow, blue) subtractive system
used by painters, art schools

Color Wheel

Harmonious colors are next to each other on color wheel

Complementary colors are separated
by at least one other color

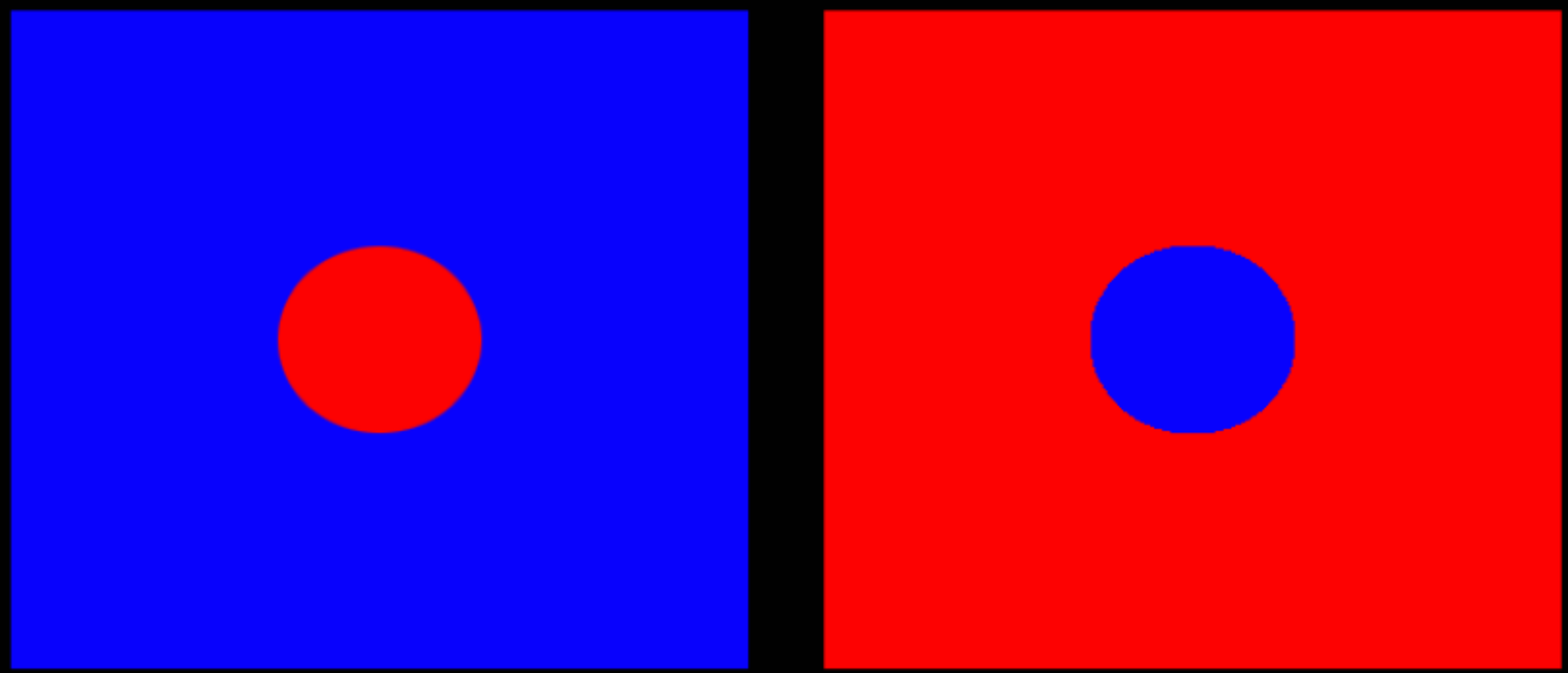
Color Affects/Effects

Warm colors advance, stimulate, excite

Cool colors recede, calm, relax

(Take theory with grain of salt. Psychological imapct is dependent on context, culture, etc.)

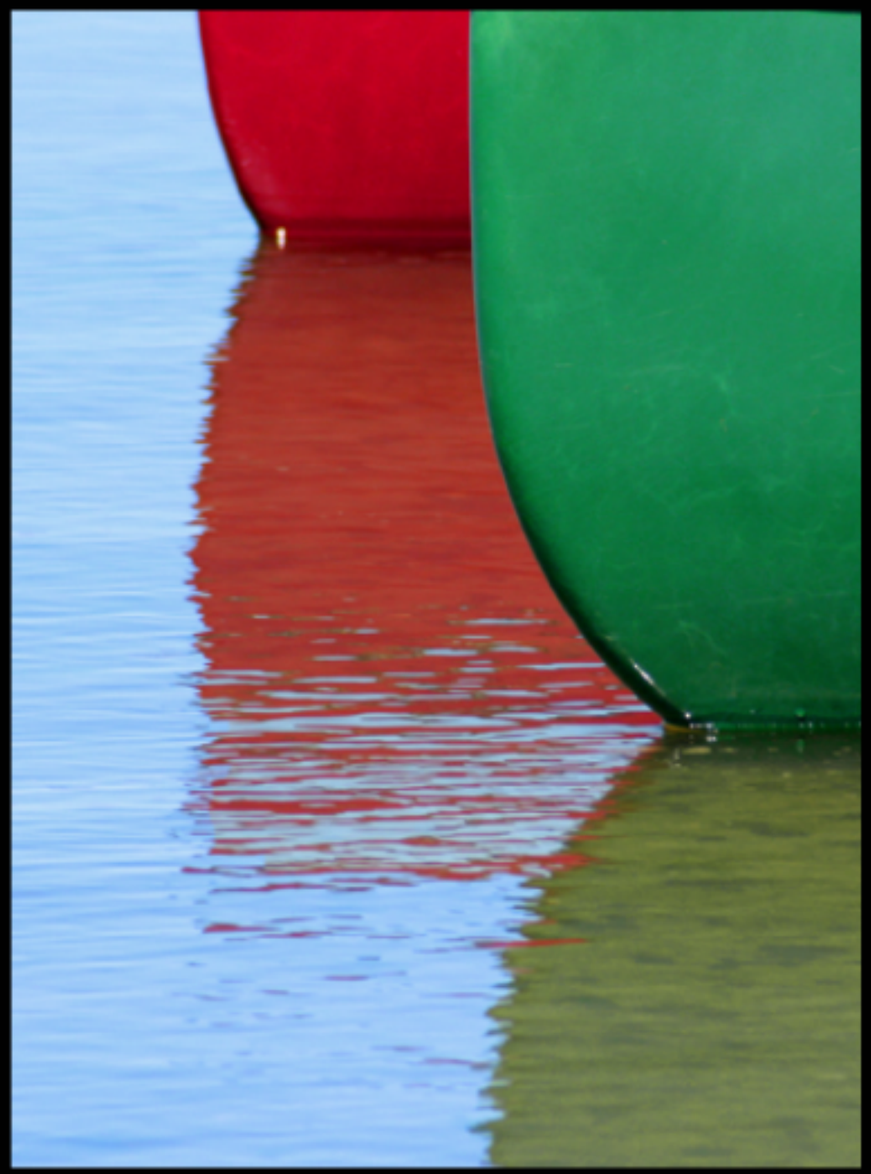
Color Affects/Effects



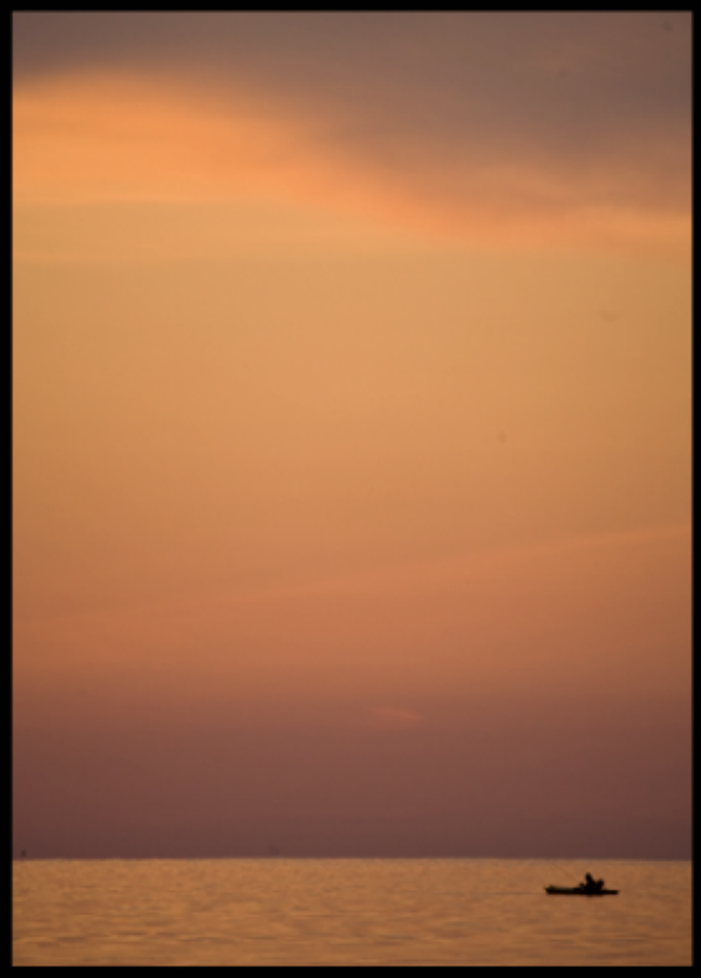
Warm colors advance, cool colors recede

Cool colors recede

Warm colors advance



Warm colors pop more than cool colors



Harmonious colors

Complementary/contrasting colors

Four Characteristics of Light

1. Quantity
2. Quality
3. Color
4. ?

4. Angle or Direction of Light

Angle or Direction of Light

Angle or Direction of Light

Side Lighting

Angle or Direction of Light

Side Lighting

Back Lighting

Angle or Direction of Light

Side Lighting

Back Lighting

Front Lighting

Direction of Light: Backlit

Direction of Light: Front lit

Front Lighting:

When light comes
from direction
of camera

45 degree angle

90 degree angle

Side light...*GOOD*


The History of Thucydides.
The History of Thucydides.

Front light...Not always good
(unless soft, diffused)

Back light...GOOD

Back lighting

Silhouettes

Silhouettes

See the Light

- Quantity (brightness)
- Quality (soft & hard/direct)
- Color
(time of day, weather, etc.)
- Direction/Angle

Shoot for the Light

Your eye compensates
(overlooks shadows, highlights, etc.)

The camera doesn’t - it records everything

Look past your subject to the light

Look for light...and the shadows

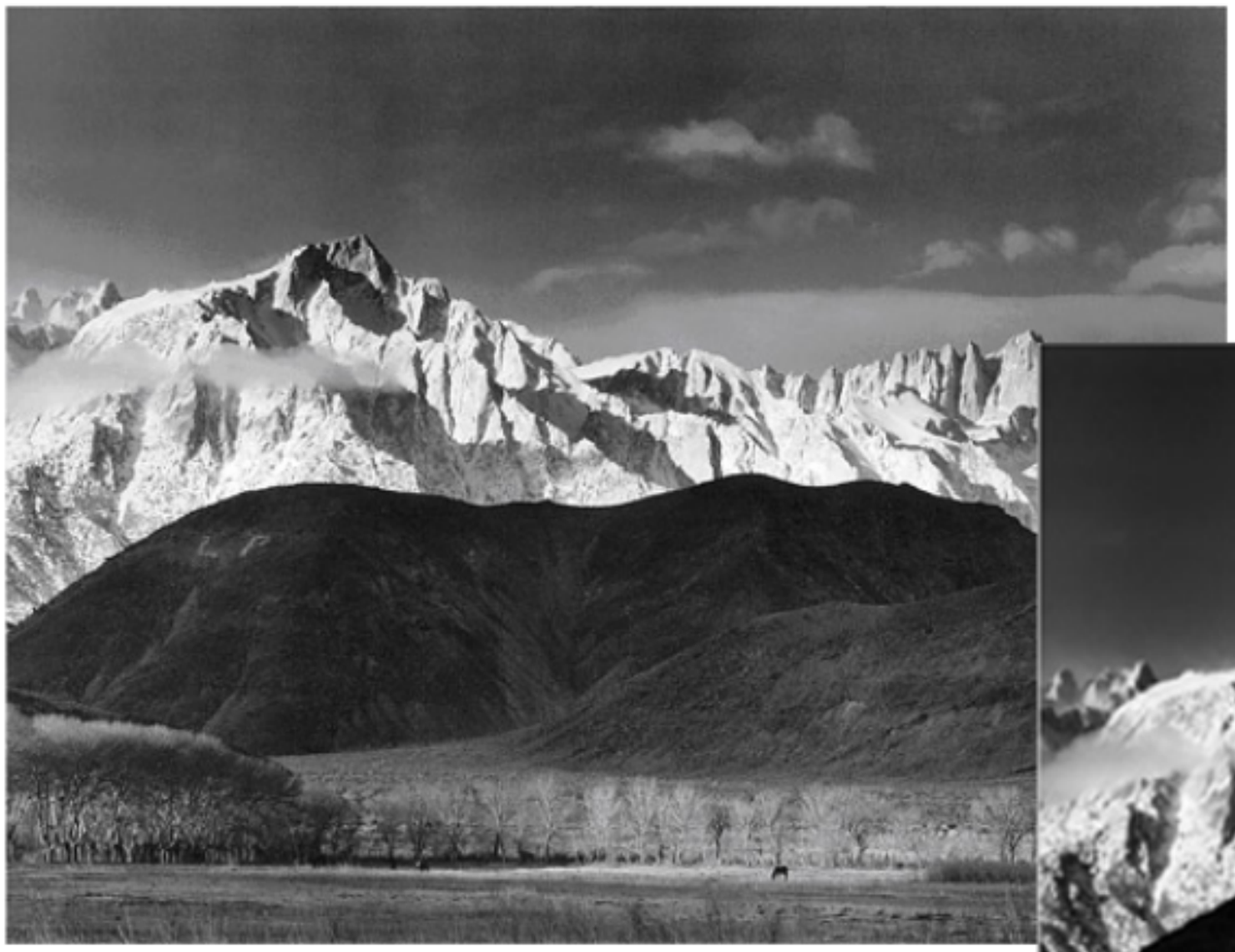
Look for color

Before

After

Editing is part of the process.

Dodge & Burn



Winter Sunrise
Ansel Adams

HDR (high dynamic range) exposure blending

Seeing the Light Exercises

1. Photograph an object from front, back and side to see the effect of light from different directions

2. Look for the line or point where two or more harmonious colors meet and photograph it. Do the same thing with contrasting colors. The point doesn't have to be the center of the composition (rule of thirds).

3. Look for the line or point where shadow and highlight meet and photograph it

4. Photograph an object or scene at different times during a single day to capture the changing color of light.

5. Look for colors in the form of geometric shapes (square, triangles, circles...)