The Exposure Triangle

Dave Snider

Topics

- The three elements of exposure
- The interrelationship of the three elements
- Using this knowledge today

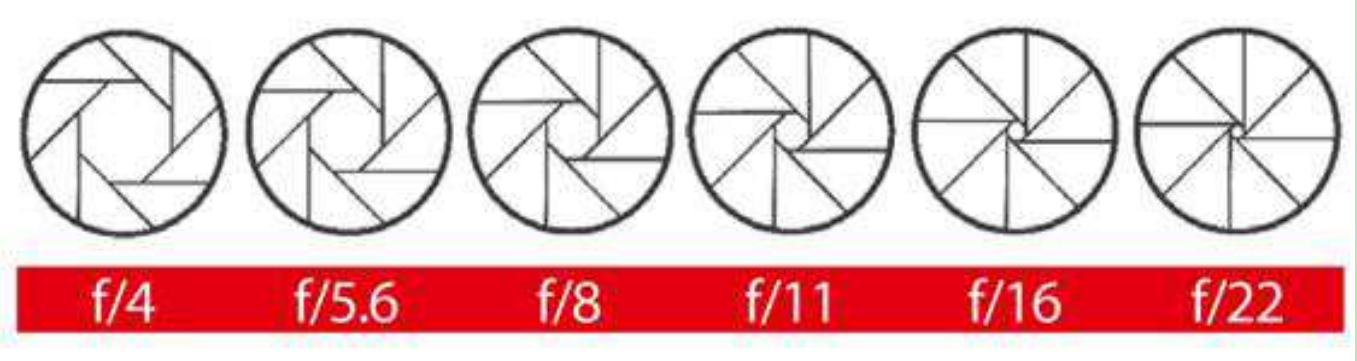
The three elements of exposure

*** Aperture**

Time

Collector sensitivity

- Aperture – size of the hole through which light enters the camera

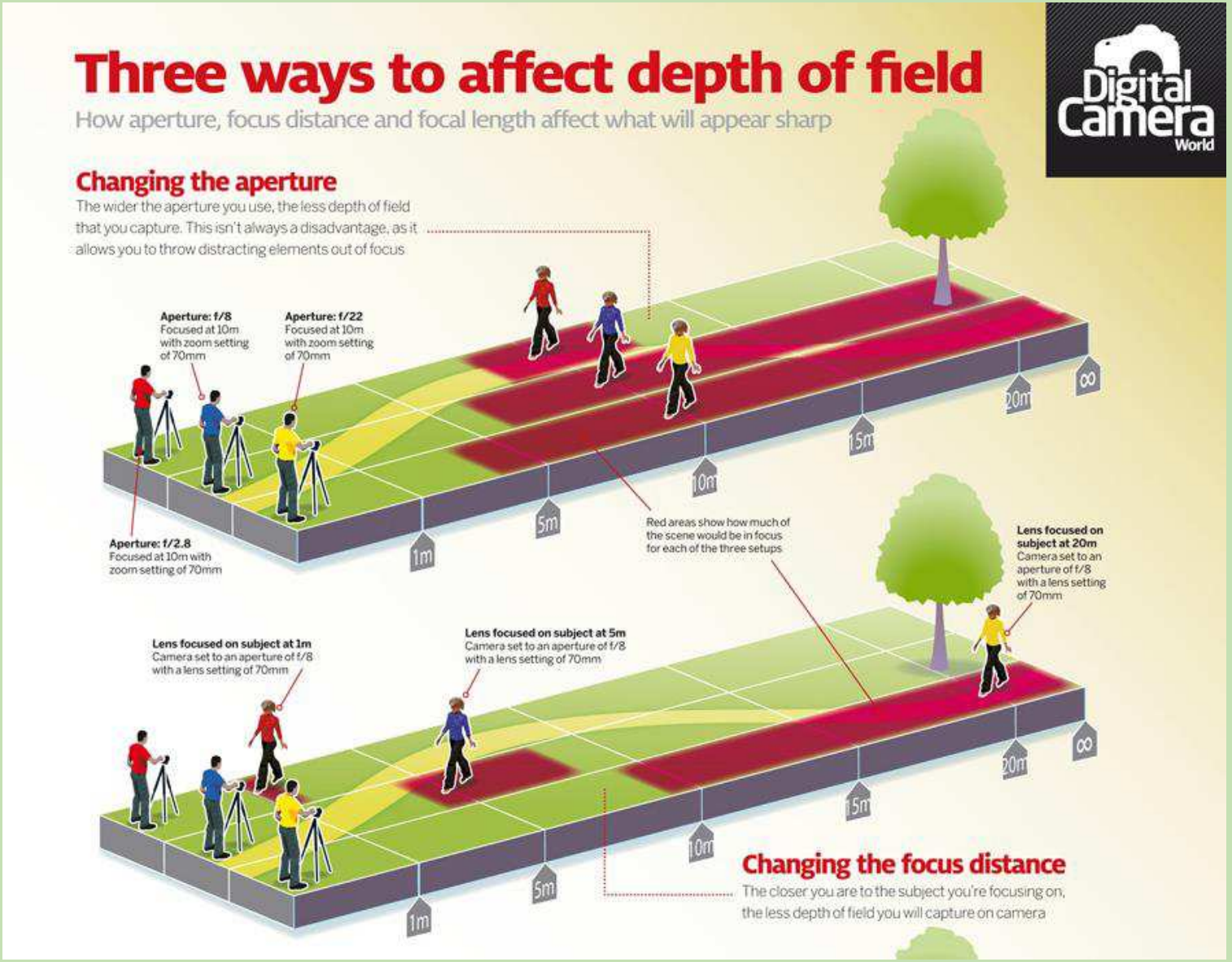


- Affects the amount of the area in front of the camera that will be in focus (Depth of Field)

Effect of aperture

Small number – small area in focus – little light reduction

Larger number – larger area in focus – more light reduction



Examples

Small aperture number - small area in focus

Large aperture number – large area in focus

The three elements of exposure

Aperture

*** Time**

Collector sensitivity

- The amount of time that the light is allowed to impact the collector
- Varies from camera to camera
- 1/2000 sec to ‘bulb’ are not uncommon
- The most common way to control exposure

Examples of the effect of shutter times

‘Normal’ - 1/250th sec

Slower - 1/13th sec

Very slow - 30 sec

The three elements of exposure

Aperture

Time

*** Collector sensitivity**

- The collector can be any of a number of things but the most popular today is the digital sensor
- Film used by some
- Wet plate used by a few specialist photographers
- ISO is an international standard

Collector sensitivity

Sensitivity measured in ISO terms

- low number, low sensitivity
- higher number, higher sensitivity
- higher ISO means more noise

- ISO number 100 fairly standard
- ISO number 200 twice as sensitive
- ISO number 800 eight times as sensitive as 100
- ISO number 6400 is 64 times as sensitive as 100
- ISO of 800 is eight times as sensitive as 100 and four times 200.

Examples

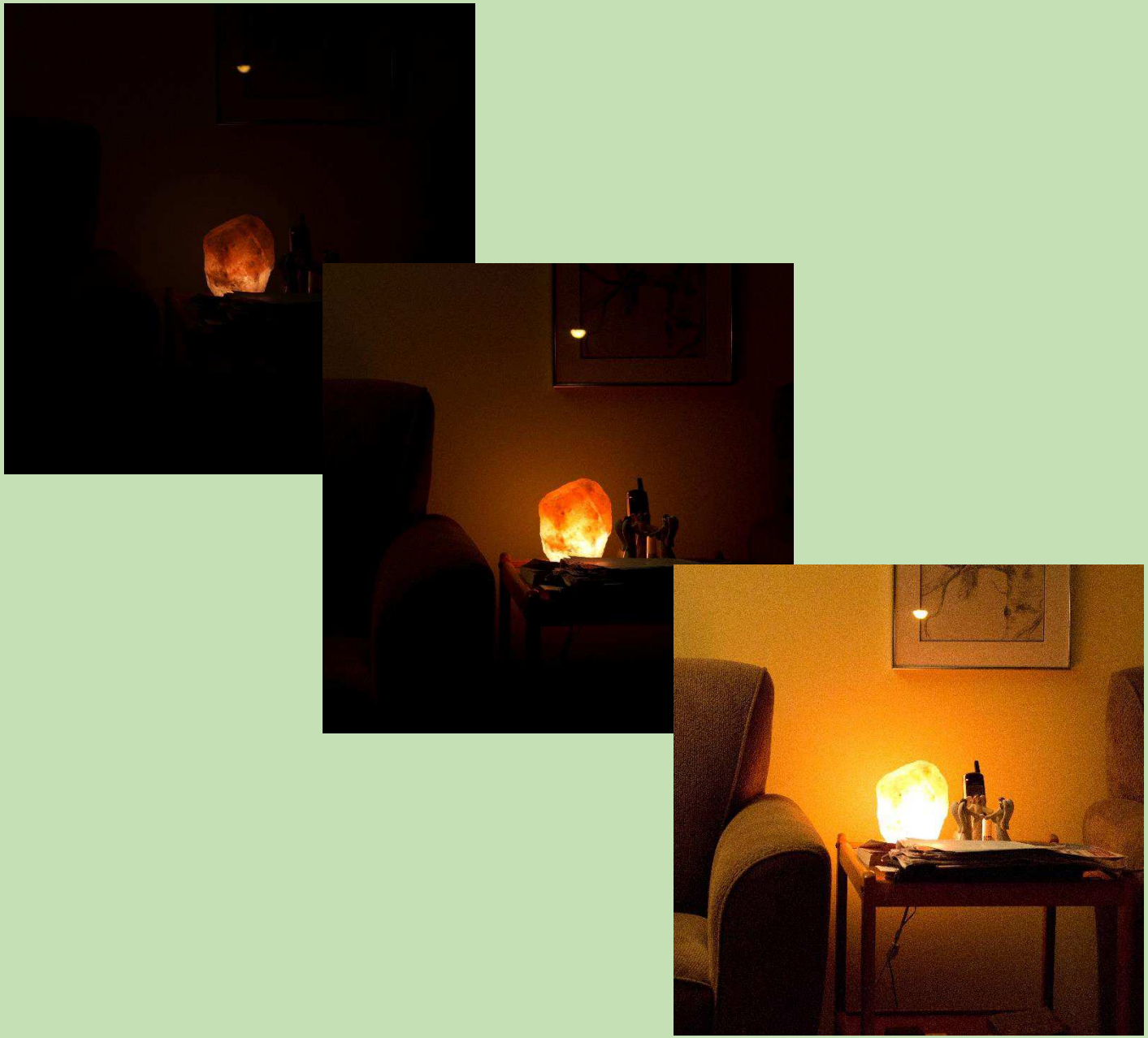
Low ISO – 100

Mid ISO – 800

Higher ISO – 6400

All at an aperture of 5.6 and speed of 1/15th sec

Very useful when flash is not allowed



The interrelationship and how to use it

A triangle is used to illustrate the direct relationship between time, aperture and sensitivity wrt exposure

To maintain the same amount of light recorded by the camera, any change in one point requires a corresponding change in one or both of the others

For example. If you reduce time by half you must open the aperture or change the ISO by a factor of two to maintain the same exposure.