The Stop

What is a Stop?

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

- x2
- or ½

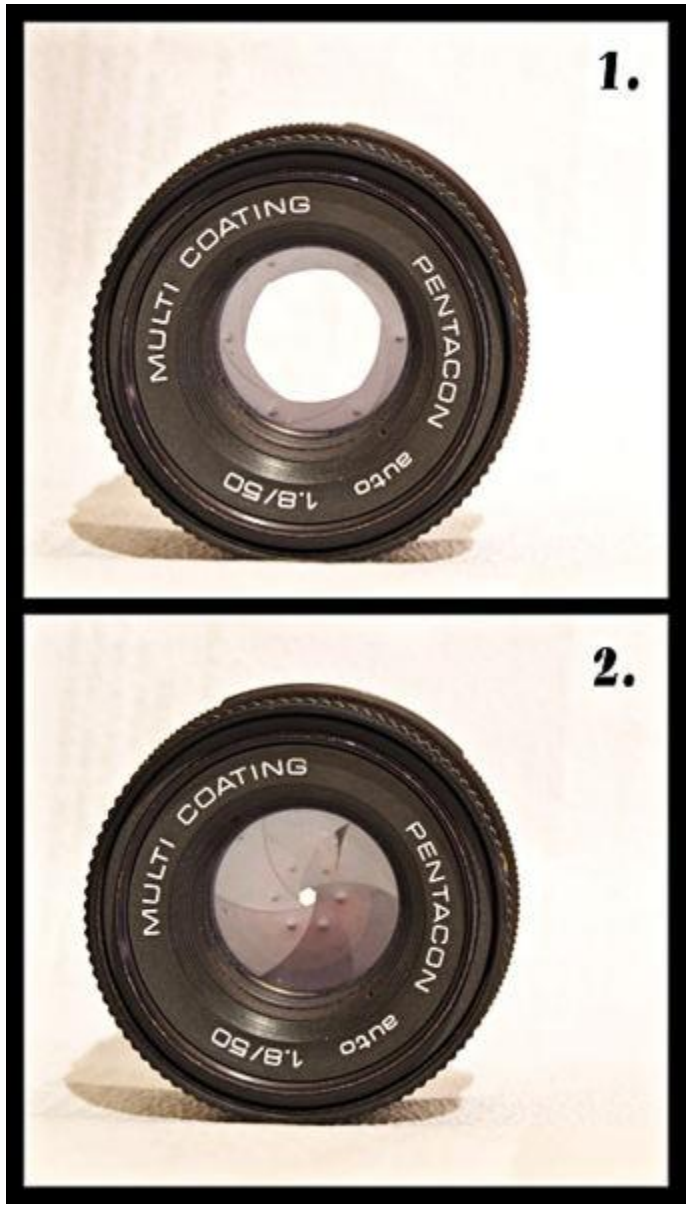
Aperture

Also known as f-stop

Aperture

Controls opening's size during exposure

Another term for aperture: **f-stop**

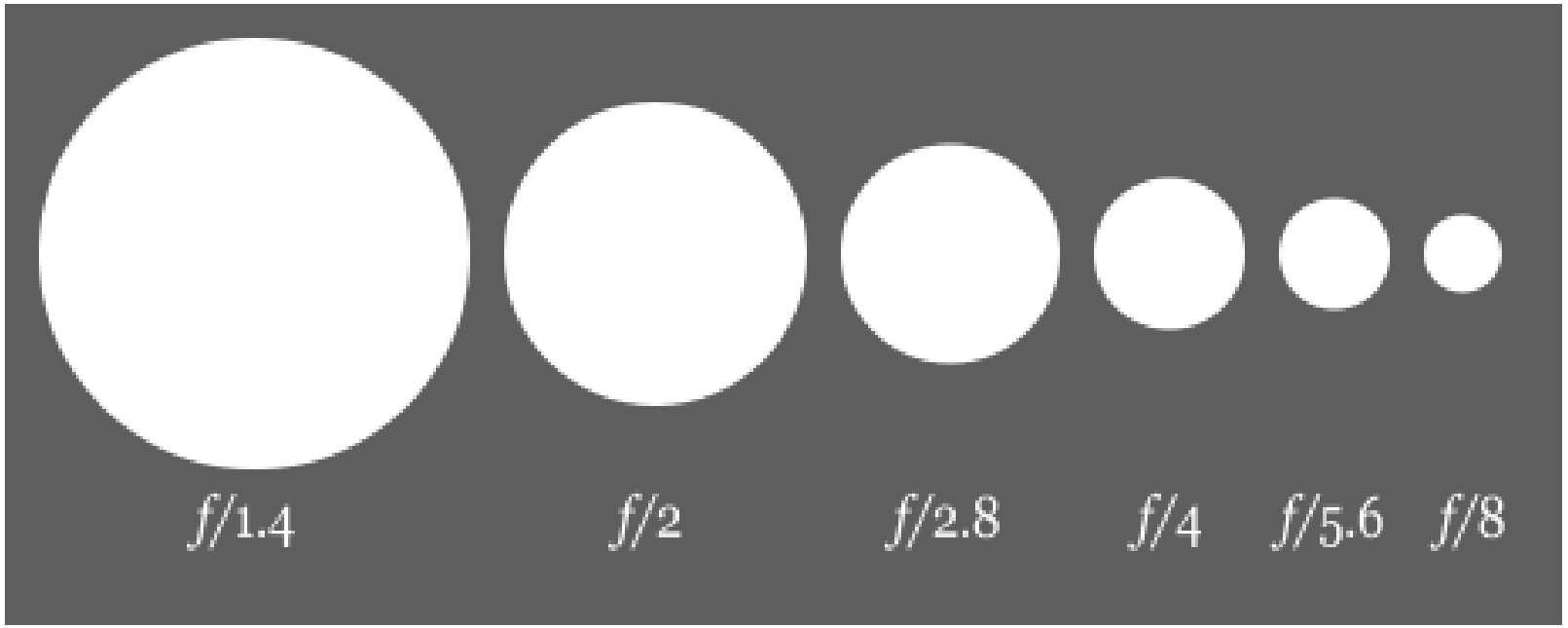


Why does a larger f-stop number actually represent a smaller aperture opening?

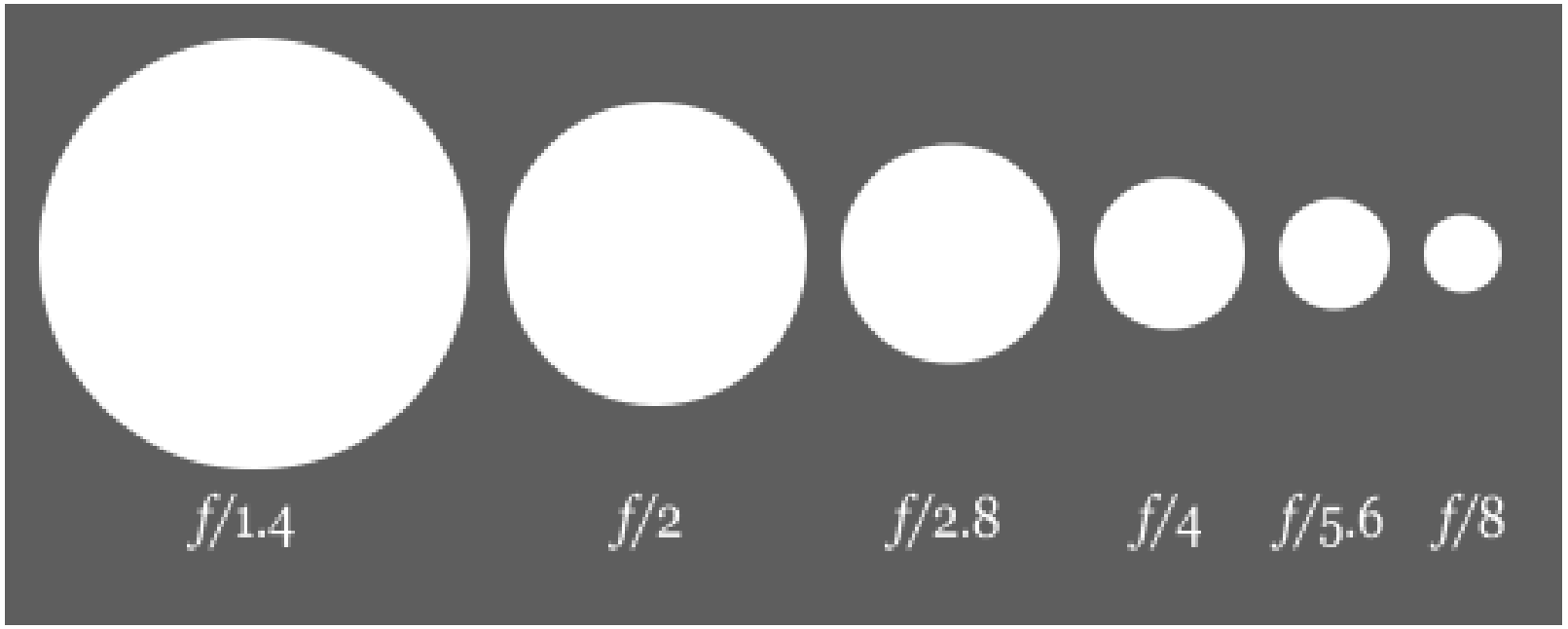
Higher numbers – smaller opening of the aperture?

- F-stop numbers represent fractions
- The f-stop number represents the denominator
- For example f-22 = 1/22, f-5.6 = 1/5.6

Each full stop on the aperture (f-stop) either doubles or halves the amount of light let into the camera

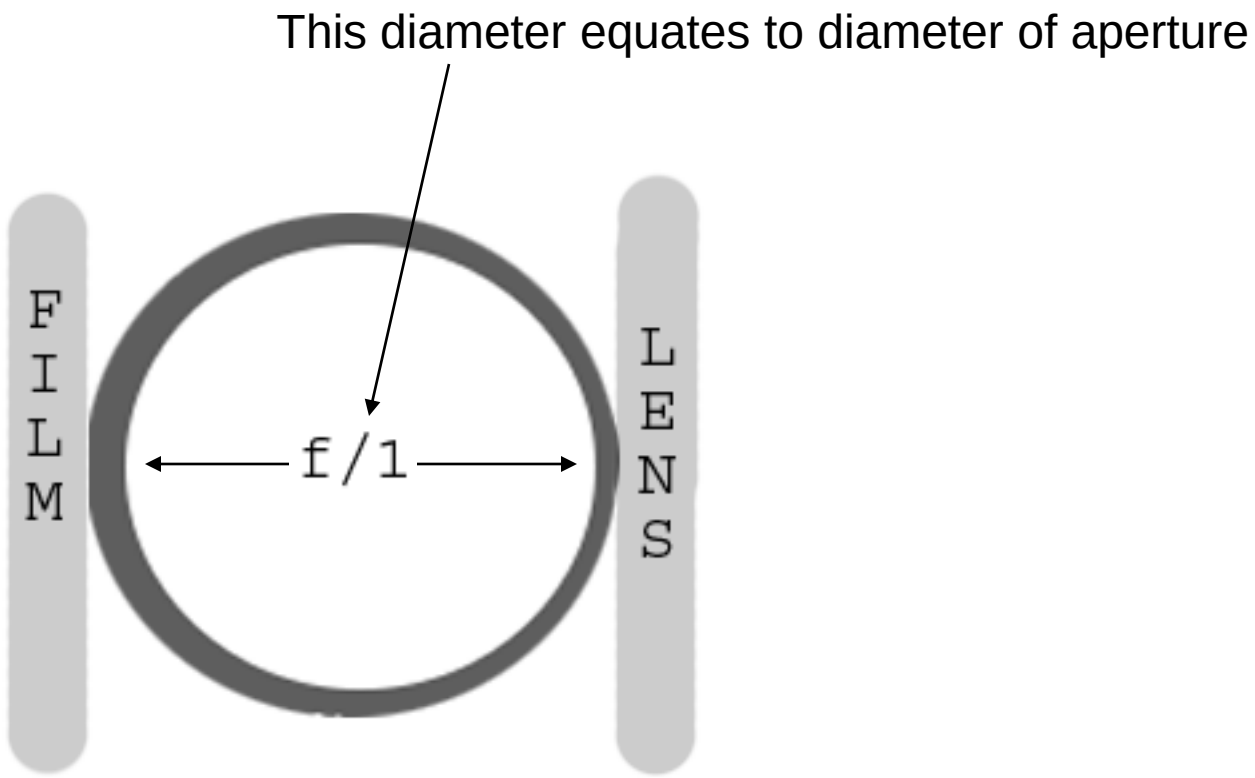

f/1.4
f/2
f/2.8
f/4
f/5.6
f/8

Light is halved this direction

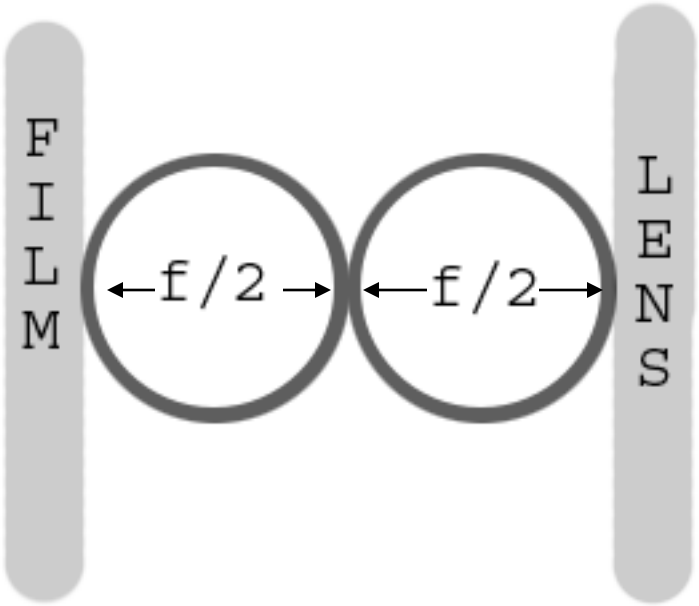


Light is doubled this direction

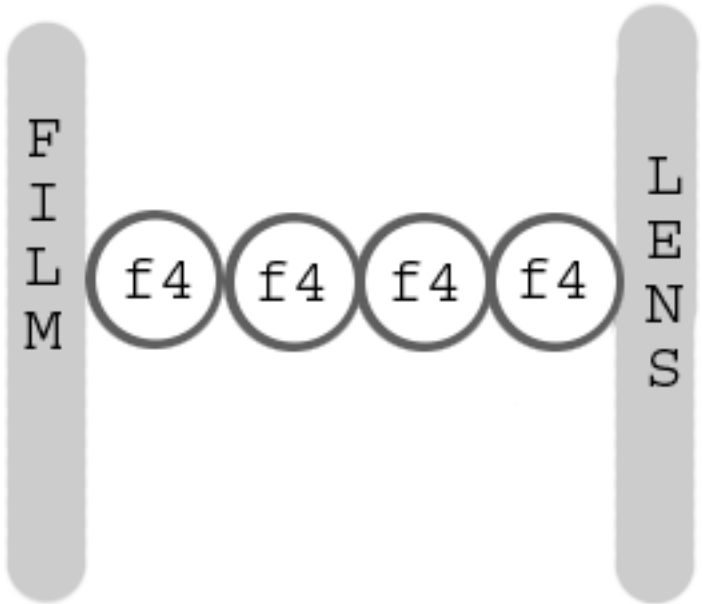
Where do these strange f-stop numbers come from?



Diameter is 1/1 the distance between film
and back end of lens

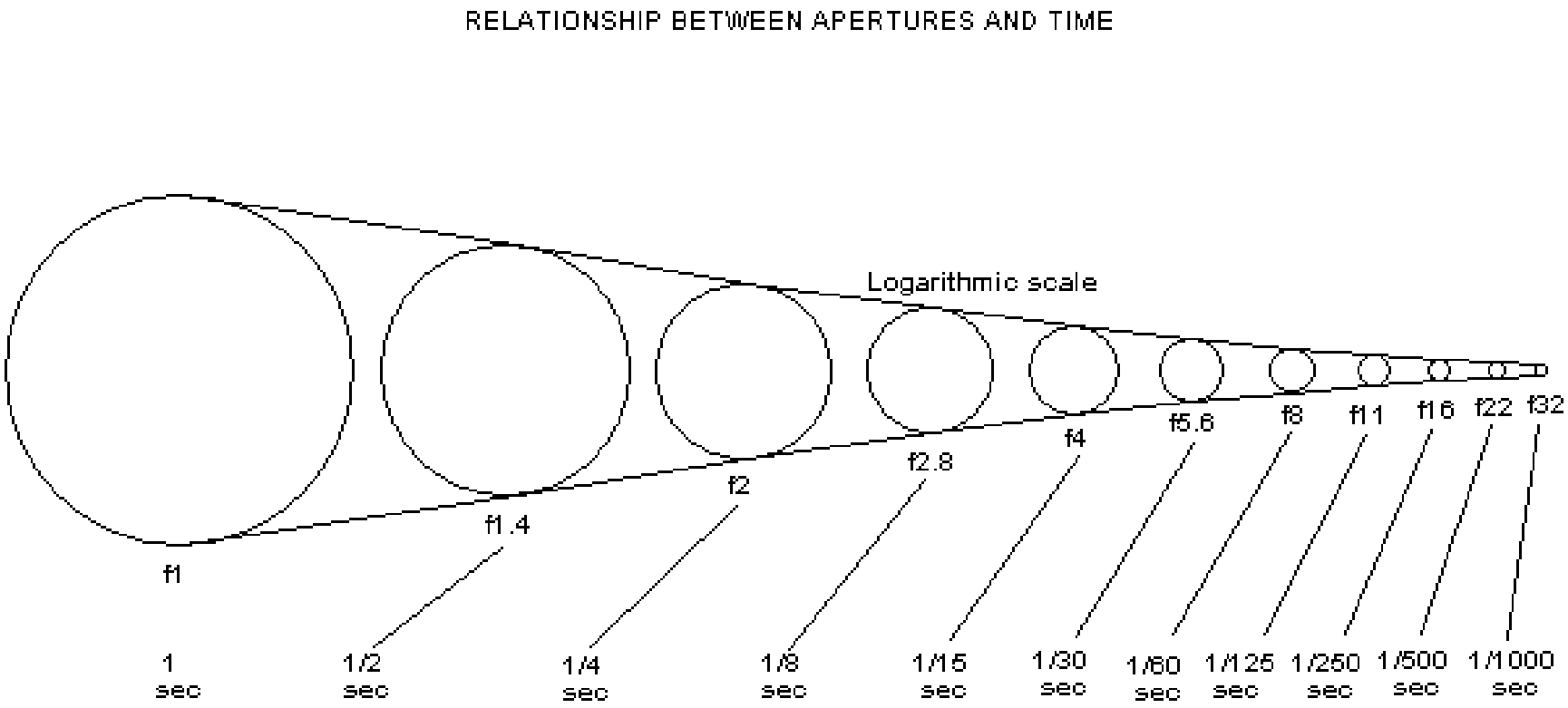


Diameter is 1/2 the distance between film and back end of lens



Diameter is 1/4 the distance between film
and back end of lens

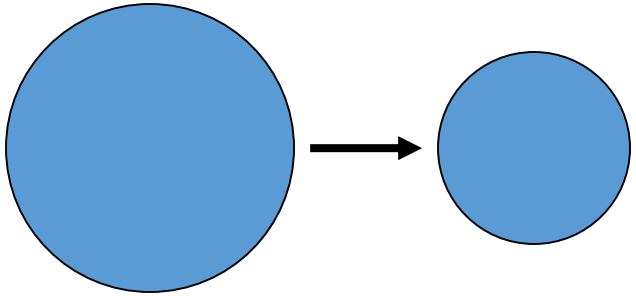
Numbers based on a Logarithmic Calculation



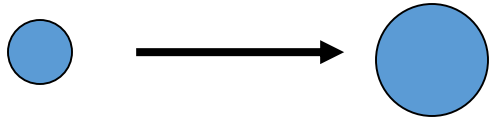
The above equates aperture and time as equals with regard to effect on exposure - i.e., be aware that each halving of time equates to a halving of aperture cross-sectional area, and thus, each step of halving (or doubling) has the same effect on the light transmitted to film. For example - a reduction of f2 to f2.8 causes a halving of light transmitted, as would a reduction in exposure time from, say, 1/4 sec to 1/8 sec.

How Stops Work with the Aperture (f-stop)

f/4 to f/5.6 will cut light in half ½



f/16 to f/11 will double light x2



Shutter Speed

Each full shutter speed stop either doubles or halves the amount of light entering the camera

How Stops Work with the Shutter Speed

1/125 to 1/250 cuts the amount of light in half ½

1/60 to 1/30 doubles the amount of light x2

Why does a larger shutter speed number represent a faster shutter speed?

Doubling Comparison for Shutter Speeds

Doubling Comparison for Shutter Speeds

- Doubling Sequence
- 1
- 2
- 4
- 8
- 16
- 32
- 64
- 128
- 256
- 512
- 1024

Doubling Sequence
1
2
4
8
16
32
64
128
256
512
1024

- Camera Shutter Speeds
- 1
- 2
- 4
- 8
- 15
- 30
- 60
- 125
- 250
- 500
- 1000

Higher numbers mean faster shutter speeds?

- Shutter speed numbers represent fractions as well
- The shutter speed number on your camera is the denominator
- For example, 125 = 1/125 of a second, 1000 = 1/1000 of a second