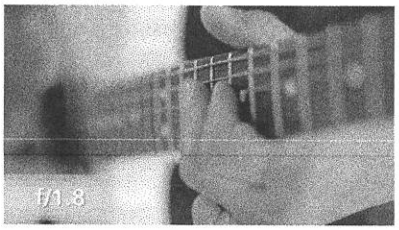
UNDERSTANDING

HYPERFOCAL DISTANCE

by Clem Wehner

HYPERFOCAL DISTANCE
is all about
DEPTH OF FIELD



Hyperfocal Distance:

Where you focus the camera
to get a clear image
of near and far objects

DEPTH OF FIELD

(The in-focus area of your image)

CLOSE		*FAR*
BLUR	**← CLEAR →**	**BLUR**

Depth of Field

DOF CAN BE CHANGED

(CAN BE MOVED AND SIZE CHANGED)

← CLEAR → | BLUR

BLUR | ← CLEAR →

Aperture vs. Depth of Field

(Large aperture) Small f/stop number = short Depth of Field

(f/1.4, f/2.8, f/4.0)

(Small aperture) Large f/stop number = long Depth of Field

(f/11, f/16, f/22)

Short DOF

photo by John Powers

Long DOF

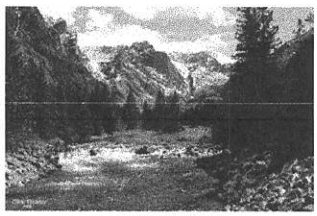


photo by Clem Wehner

Focal Length vs. Depth of Field

Long focal lengths (telephoto) = short Depth of Field

Short focal lengths (wide angle)= long Depth of Field

Things that affect DOF

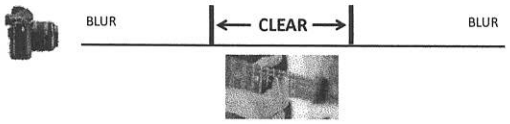
- Aperture (f/stop)
- Focal length (zoom)
- Focus point (where)

Summary

Size of DOF (clear area) depends on f/stop (aperture) and focal length (zoom)

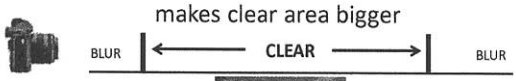
LOWER f/stop or MORE focal length (zoomed in)

makes clear area smaller

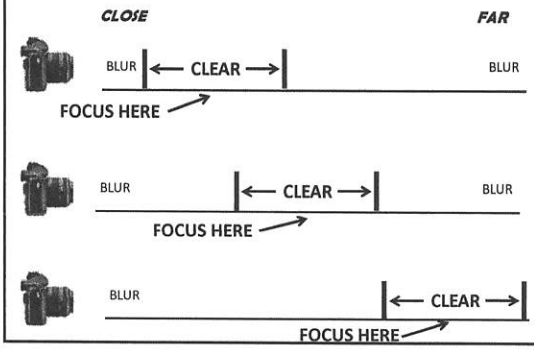


HIGHER f/stop or LESS focal length (wide angle)

makes clear area bigger



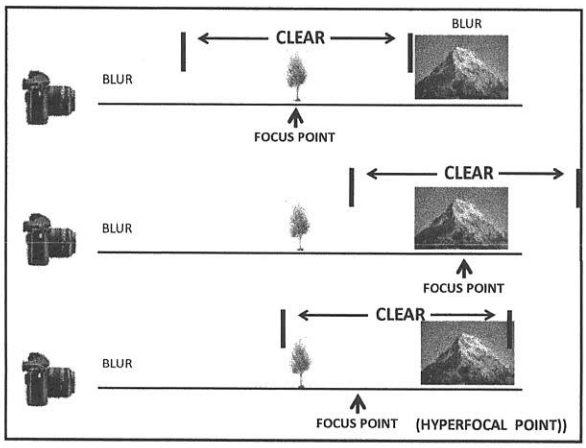
LOCATION of clear area depends on <u>where you focus</u>



QUIZ

1. Changing f/stop from f/11 to f/4.0 would make the DOF :
   a. Shorter
   b. Longer
   c. Can't determine

1. Zooming in closer would make the DOF :
   a. Shorter
   b. Longer
   c. Can't determine

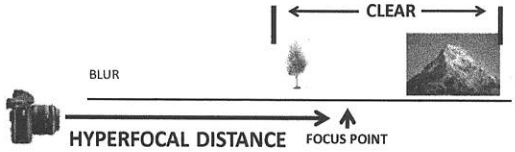


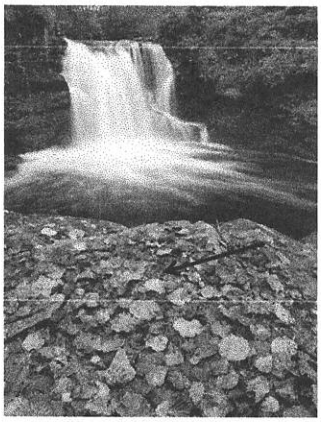
Size of clear area (DOF) depends on f/stop (aperture) and focal length (zoom)

LOCATION of clear area (DOF) depends on <u>where</u> you focus

<u>HYPERFOCAL DISTANCE</u>

The distance to a focus point that puts near and far objects inside the clear field.



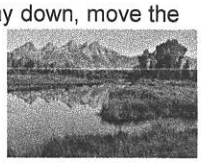


How to Use FOCUS LOCK

1. Point camera to the place of desired focus

2. Hold shutter halfway down
(this locks the focus)

3. While holding the shutter halfway down, move the camera to recompose the scene

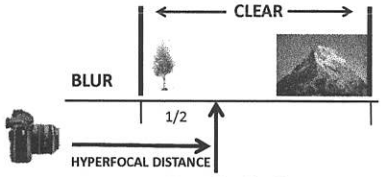


4. Finish pressing shutter

Specifically,

HYPERFOCAL DISTANCE

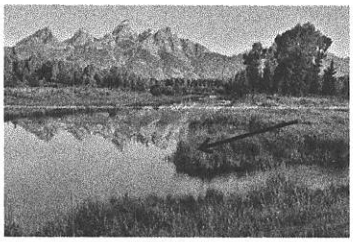
The distance to a focus point in which everything is clear from 1/2 of the distance in front of the hyperfocal point to infinity of the lens (the end of the DOF)



Hyperfocal Point

Gate in focus, but not the building

In general,
the hyperfocal point will be about 1/3rd of the way into the scene

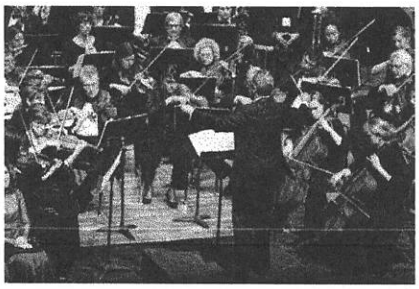


This often works well

Building in focus, but not the gate

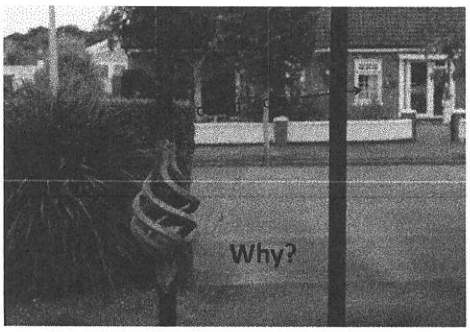
Both in focus

Not enough DOF to cover the whole scene



Low light and far away- (low f/stop and long zoom)

Both in focus (mostly)



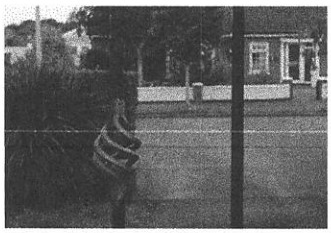
If you want to be precise:

How do we know where the hyperfocal point is

HYPERFOCAL DISTANCE
can be precisely determined using:

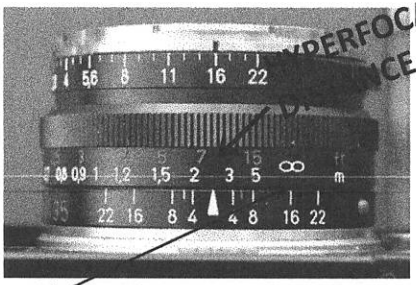
. Markings on the lens
. Charts
. Computer or cell phone apps

DOF was not quite long enough to include both gate and building



Remember, DOF is determined by Aperture and Focal Length
so, aperture and focal length affect hyperfocal distance!

MARKINGS on older lenses



1. **Place f/stop you're using under the infinity symbol**
2. **Read hyperfocal distance above the triangle**

CHARTS

APS-C cameras						
Focal Length	16 mm	20 mm	24 mm	28 mm	35 mm	50 mm
Aperture f/5.6	7.5 ft	12 ft	17 ft	23 ft	36 ft	73 ft
f/8	5.2 ft	8.2 ft	12 ft	16 ft	25 ft	51 ft
f/11	3.8 ft	6.0 ft	8.6 ft	12 ft	18 ft	37 ft
f/16	2.6 ft	4.1 ft	5.9 ft	8.0 ft	13 ft	26 ft
f/22	1.9 ft	3.0 ft	4.3 ft	5.8 ft	9.1 ft	19 ft

Full Frame cameras						
Focal Length	16 mm	20 mm	24 mm	28 mm	35 mm	50 mm
Aperture f/5.6	5.0 ft	7.8 ft	11 ft	15 ft	24 ft	48 ft
f/8	3.5 ft	5.5 ft	7.9 ft	11 ft	17 ft	34 ft
f/11	2.5 ft	4.0 ft	5.7 ft	7.8 ft	12 ft	25 ft
f/16	1.7 ft	2.7 ft	3.9 ft	5.4 ft	8.4 ft	17 ft
f/22	1.3 ft	2.0 ft	2.9 ft	3.9 ft	6.1 ft	12 ft

Rule of Thumb- no calculations

- 1/3rd technique:
  a. Use f/11 or f/16
  b. Focus on a point 1/3rd of the scene in viewfinder

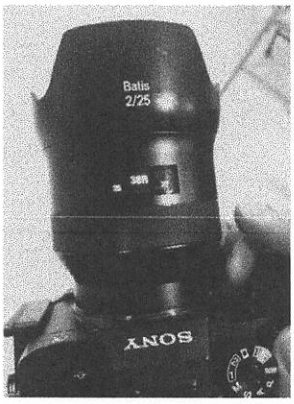
Cell Phone Apps

Photo Tools
True Dof-Pro
OptimumCS-pro
DoF Master
Many others

Just Google "hyperfocal distance"

Group photos

Focus 1/3rd of the way into the subjects



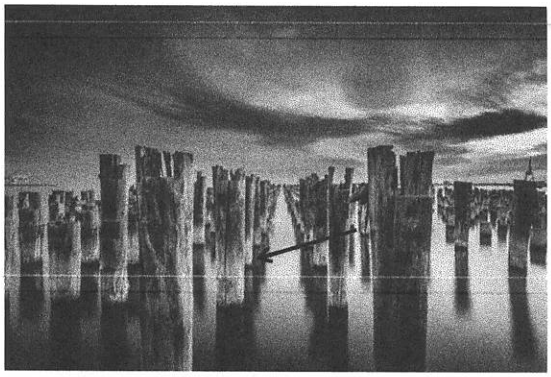
Cell Phones

Hyperfocal distance in most cell phones is 7 feet

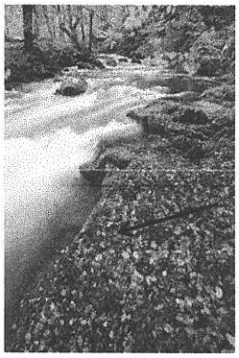
Everything from 3.5 feet to infinity will be clear

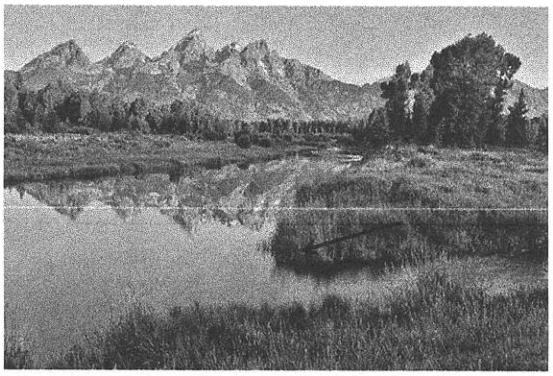
When to use Hyperfocal Distance

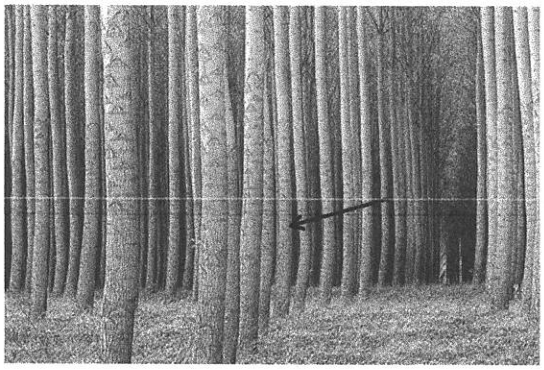
- When you want the maximum amount of scene to be in focus
- When nothing special needs to be more in focus than everything else
- For landscapes with objects in the foreground and background

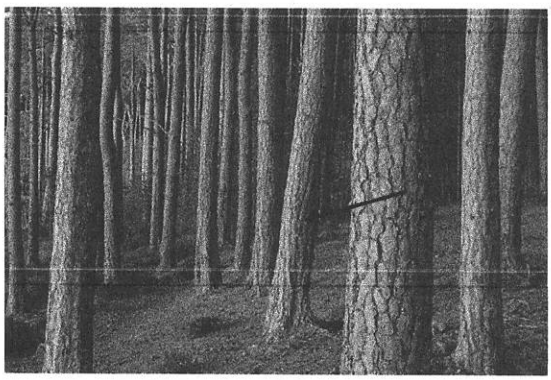


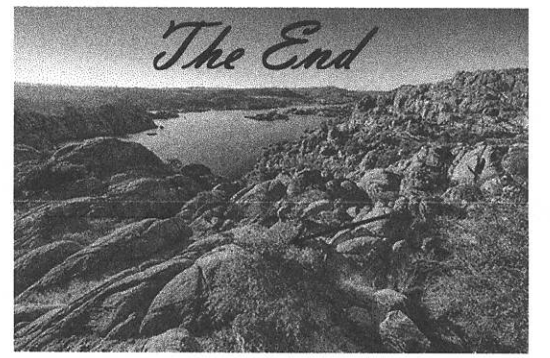
Examples










The End


JAY PATEL