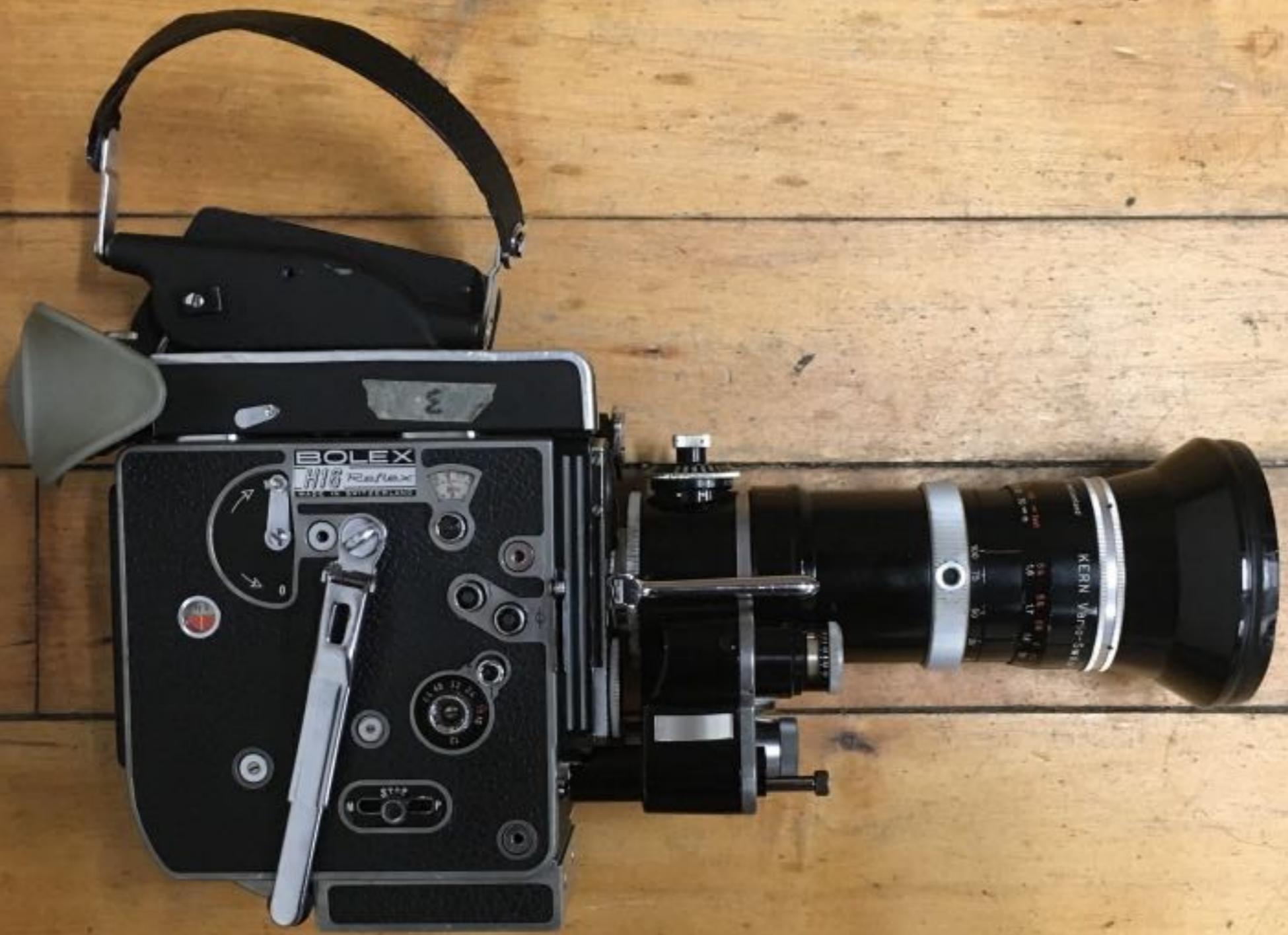


digital cameras are
design after film
cameras



Nikon FM 10
35 mm film camera





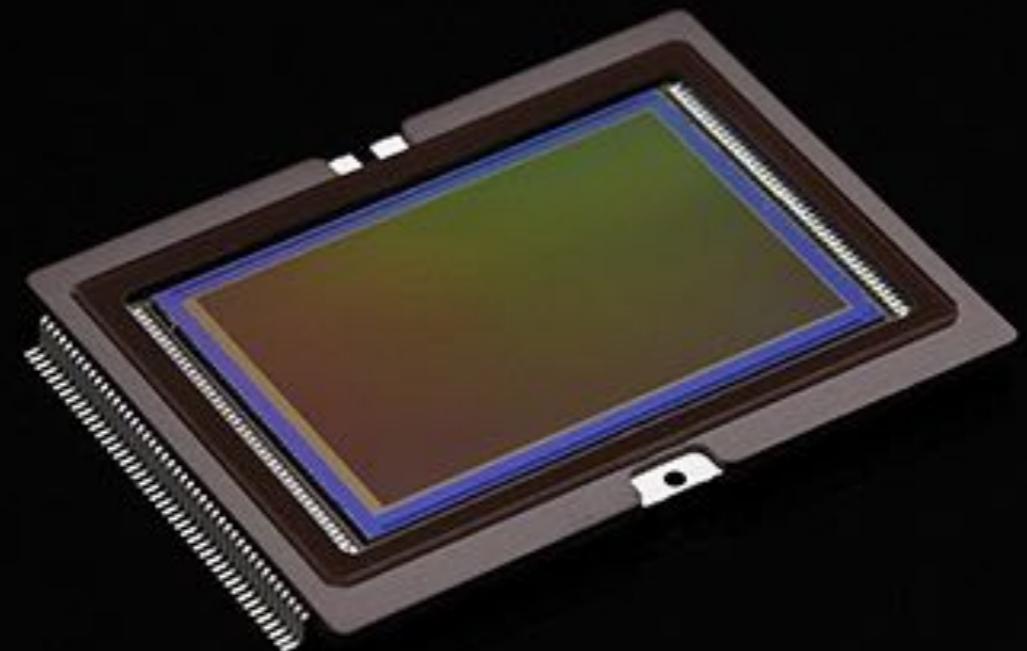
Bolex H16

16 mm film camera

ϕ

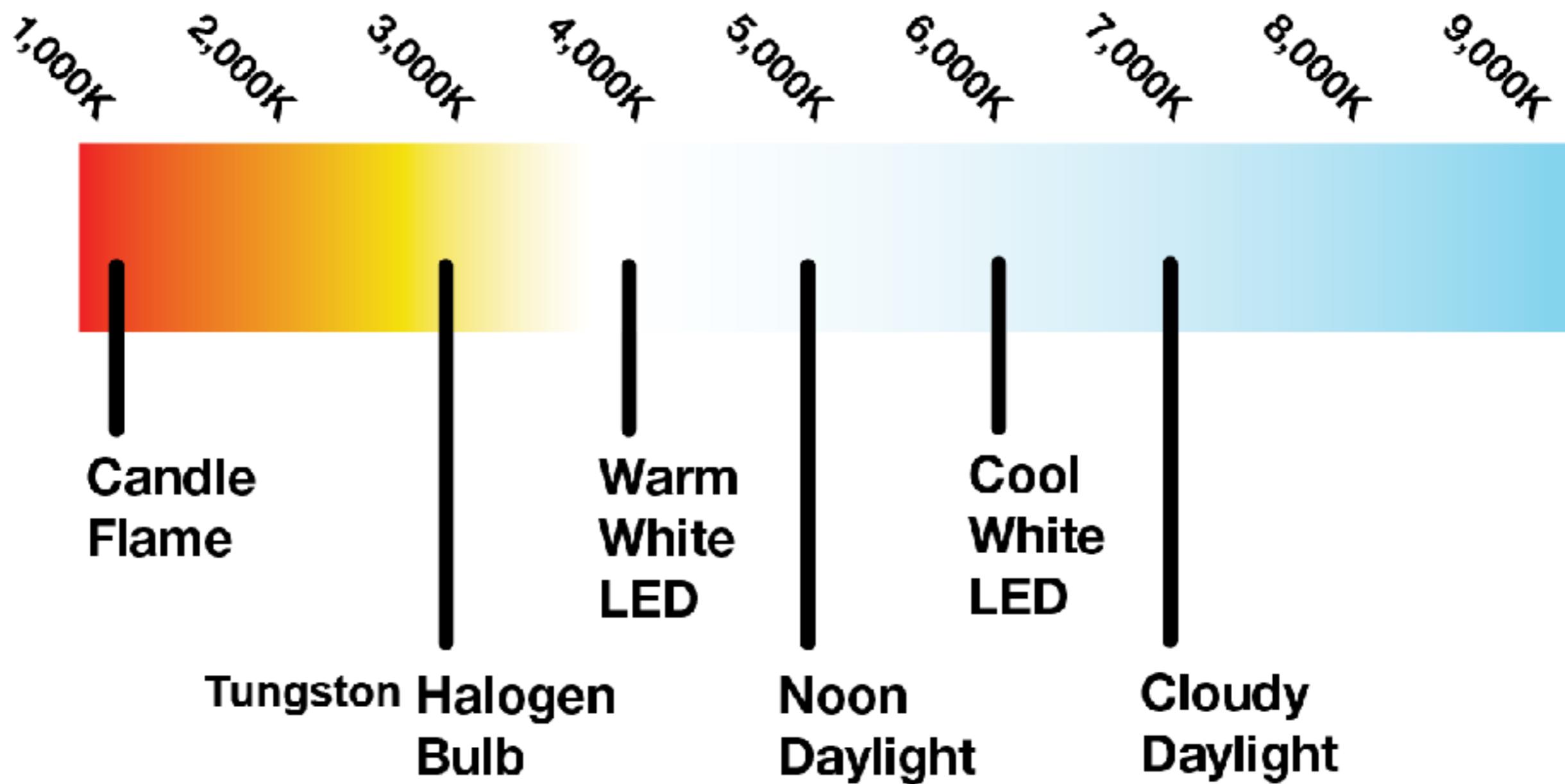
= the sensor plane

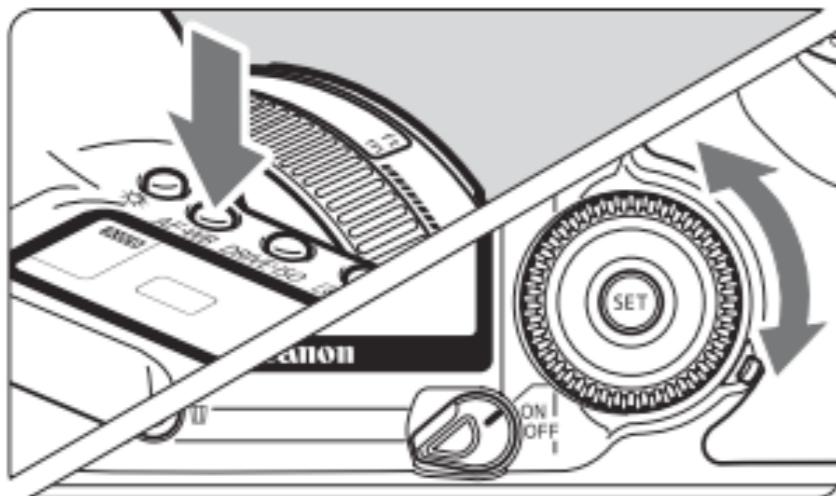
where light becomes an image, data



CCD Sensor

Color Temperature Scale (°K)

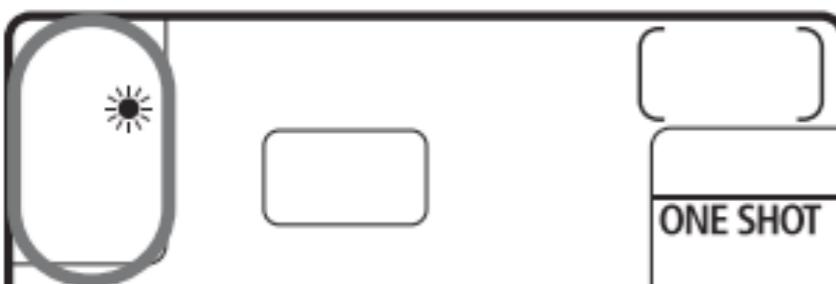




1 Press the <AF-WB> button. (p.6)

2 Select the white balance setting.

- While looking at the top LCD panel, turn the <○> dial.



| Display | Mode | Color temperature (Approx. K) |
|---------|--------------------------|-------------------------------|
| AWB | Auto | 3000 - 7000 |
| ☀ | Daylight | 5200 |
| 🏡 | Shade | 7000 |
| ☁ | Cloudy, twilight, sunset | 6000 |
| ☀ | Tungsten | 3200 |
| 蛍 | White fluorescent light | 4000 |
| ⚡ | Flash | 6000 |
| ◀▶ | Custom* | 2000 - 10000 |
| K | Color temperature | 2800 - 10000 |

* Set the optimum white balance manually to suit the lighting. (p.62)

p. 61-65

ISO // ASA == sensor's sensitivity to light

100 | 200 | 400 | 800 | 1000

NOISE

100 | 200 | 400 | 800 | 1000

iso controls the amount of noise.

80

100

125

160

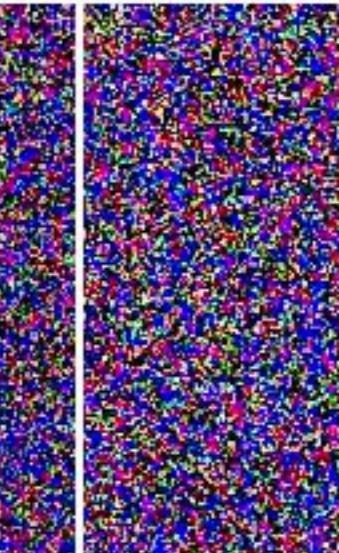
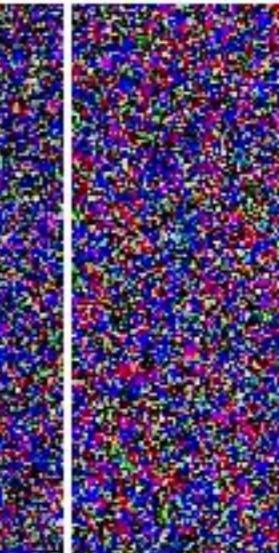
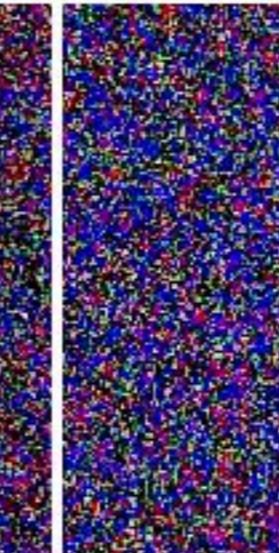
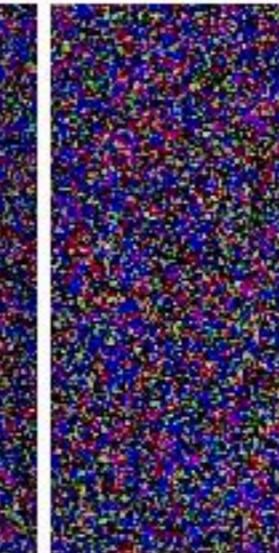
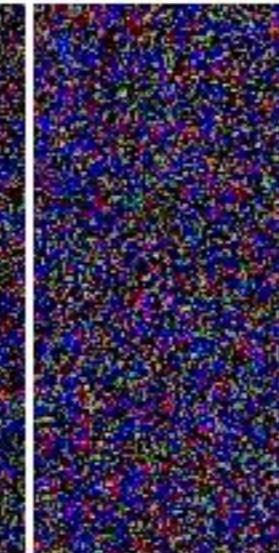
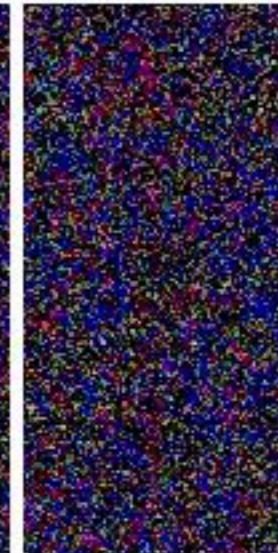
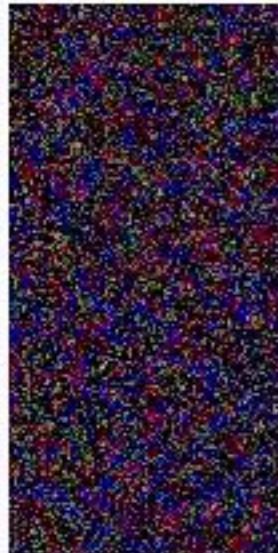
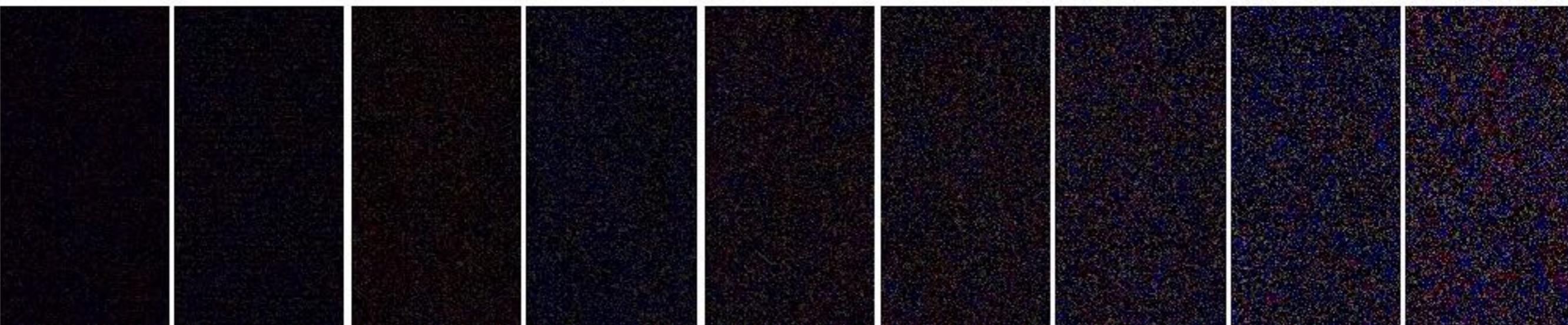
200

250

320

400

500



640

800

1000

1250

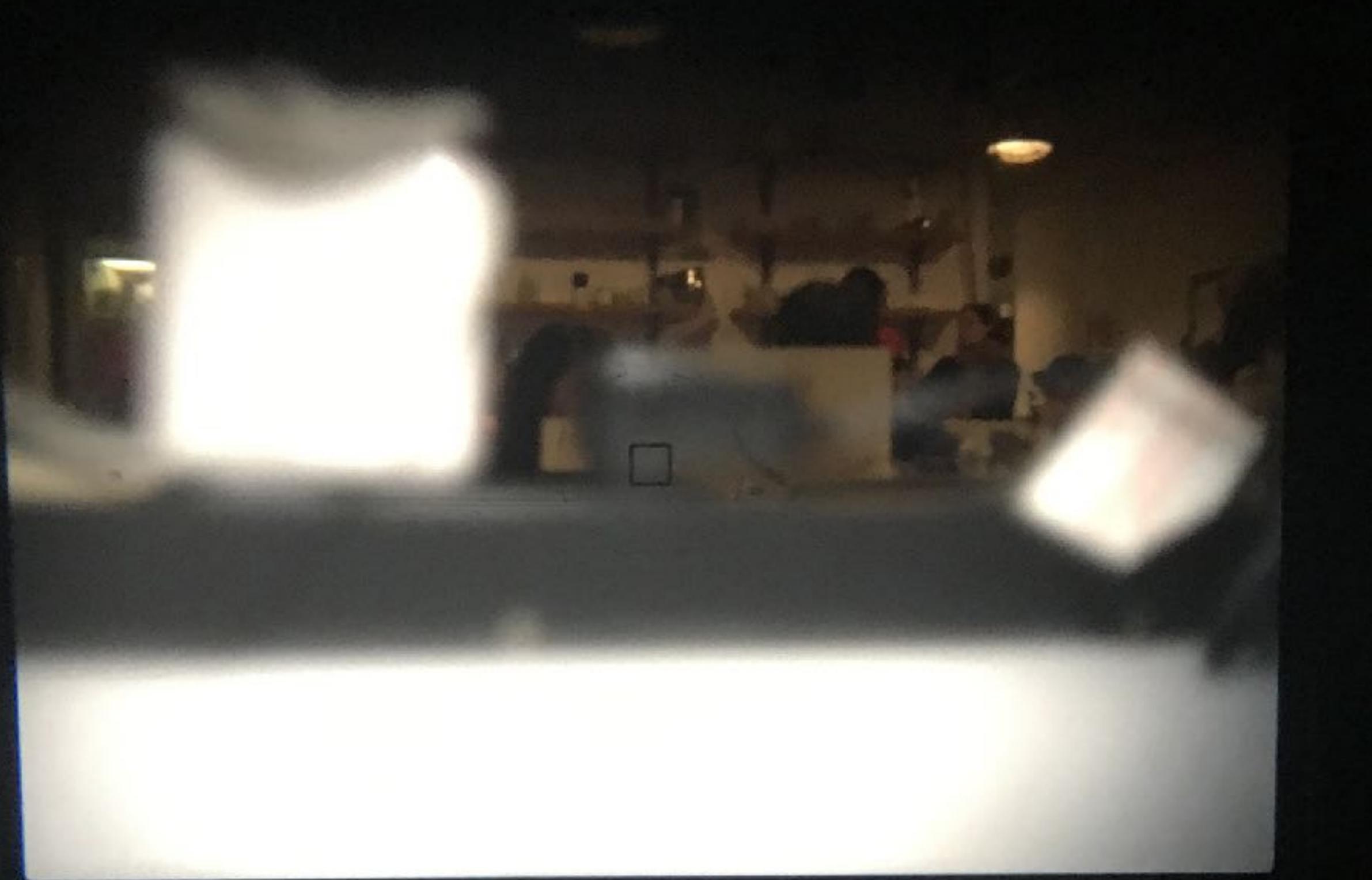
1600

2000

2500

3200

light meter



25 2.0 3.2 1.0 1.2 13 150 400 (58)

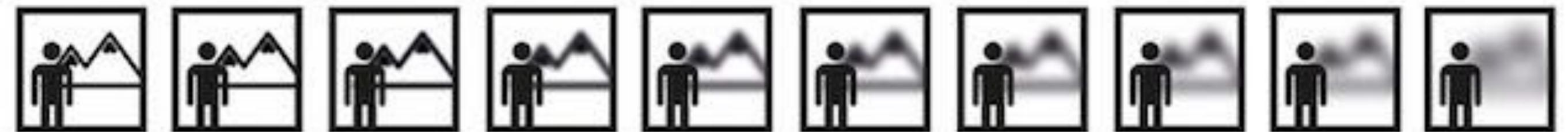
through the viewfinder

this is yr light meter



this is ALSO yr light meter

Aperture
aka f stop



F32 F22 F16 F11 F8 F5,6 F4 F2,8 F2 F1,4



1/1000 1/500 1/250 1/125 1/60 1/30 1/15 1/8 1/4 1/2



ISO 50 ISO 100 ISO 200 ISO 400 ISO 800 ISO 1600 ISO 3200 ISO 6400 ISO 12800 ISO 25600

- depth of field - how much is in focus
- motion

[depth of field]

aperture priority



f/1.8

f/2.8

f/4.0

f/5.6



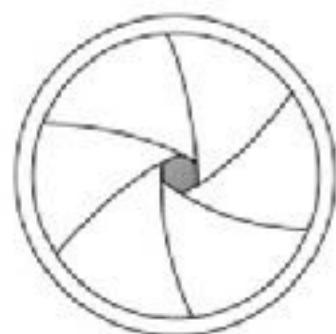
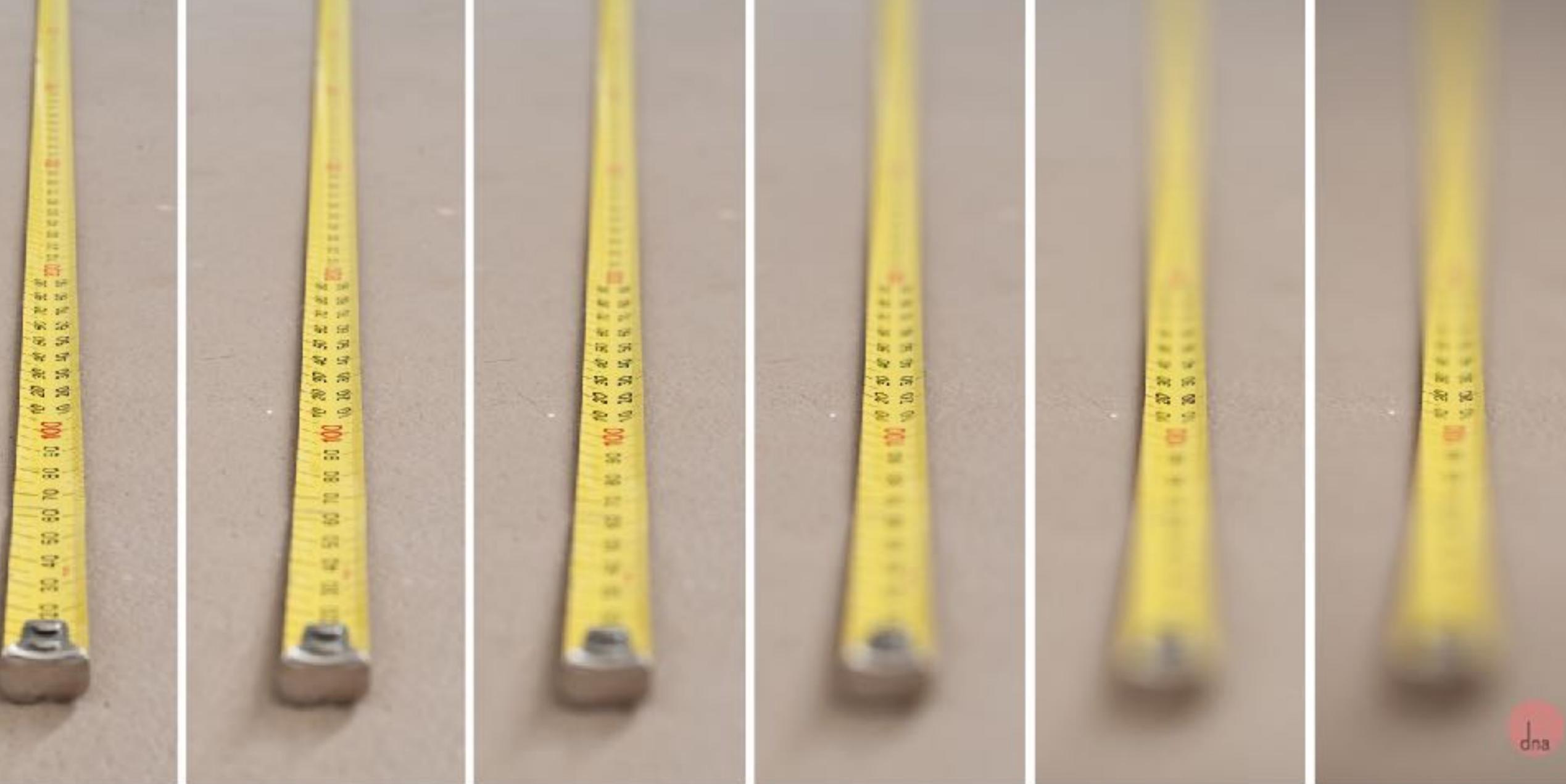
f/8

f/11

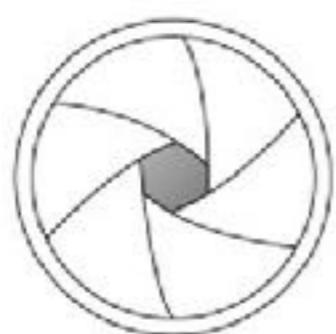
f/16

f/22

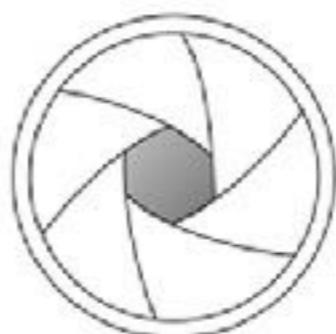
the smaller the FStop # - the less light let into the lens



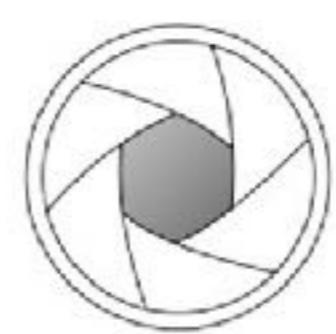
F16



F10



F6.3



F3.5



F2



F1.4

the smaller the FStop - the more information is in focus

Shutter Speed

how long the sensor

is exposed to the

certain amount of

light thru the aperture

Shutter speed



| | | | | | | | | | | | | | |
|--------|-------|-------|-------|------|------|------|-----|-----|-----|---|---|---|---|
| 1/1000 | 1/500 | 1/250 | 1/125 | 1/60 | 1/30 | 1/15 | 1/8 | 1/4 | 1/2 | 1 | 2 | 4 | 8 |
|--------|-------|-------|-------|------|------|------|-----|-----|-----|---|---|---|---|

Freeze action

Hand hold

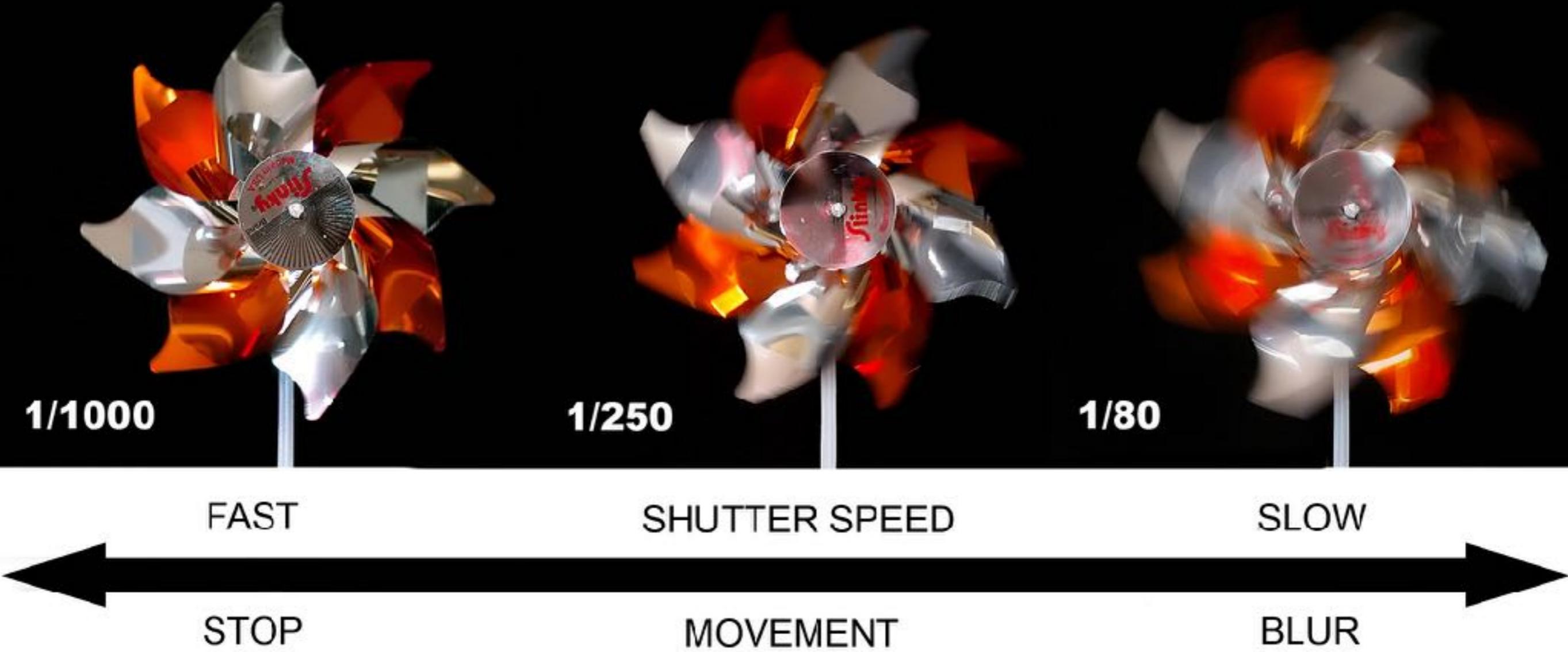
Movement blurr - tripod needed

the higher the shutter speed #, the faster the exposure
either STOPing the motion or creating blur

[Gordon Parks]

Ali Training in Miami, 1965





shutter controls movement

making video w/ a DSLR

**Frame Rate
is not
Shutter Speed !**

[let's watch](#)

Frame Rate = Images per second

Shutter Speed = Exposure of each frame

Frame Rate x 2 = Shutter Speed

30p

1/60

[vimeo tutorial](#)



lens set at 35mm

only ambient light:
3200 ISO
1/30 @ f5



lens set at 35mm

w/ 120 V Direct:
800 ISO
1/60 @ f 7.1

18 mm



55 mm



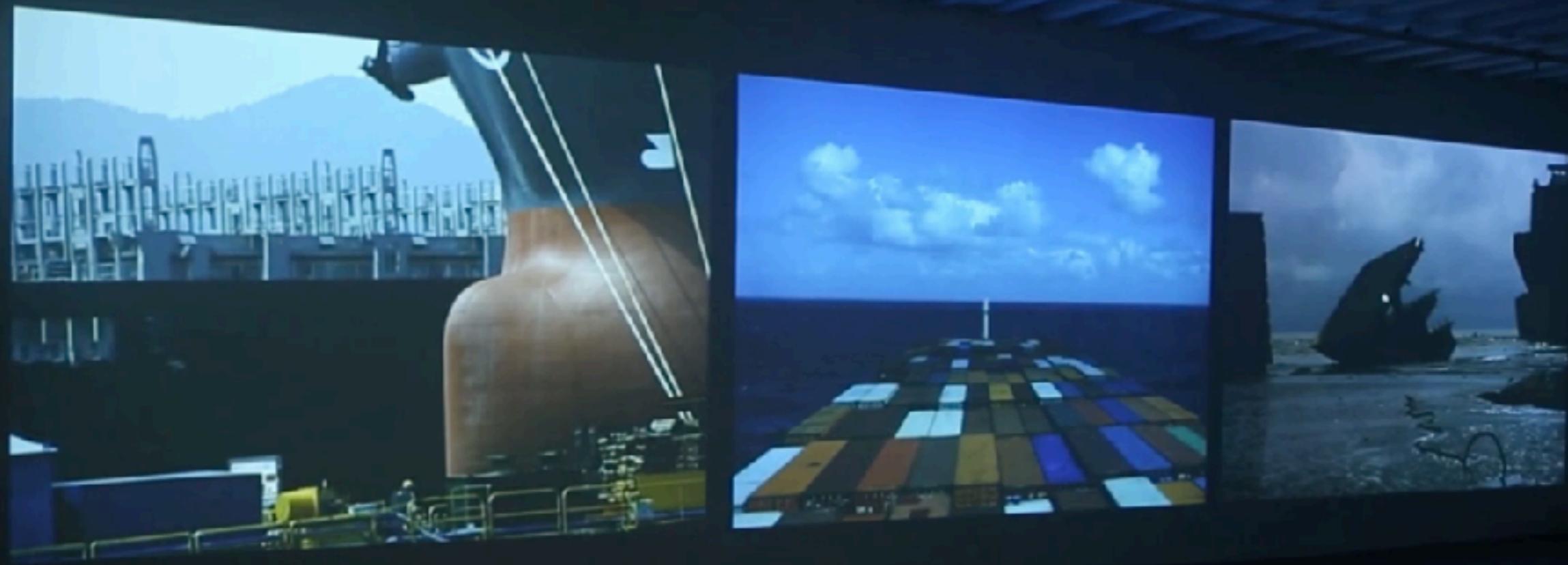
1920 x 1080 px



New York Portrait II, 1981

Peter Hutton

16mm Film



Nature is a Discipline, Installation 2015
James Benning + Peter Hutton