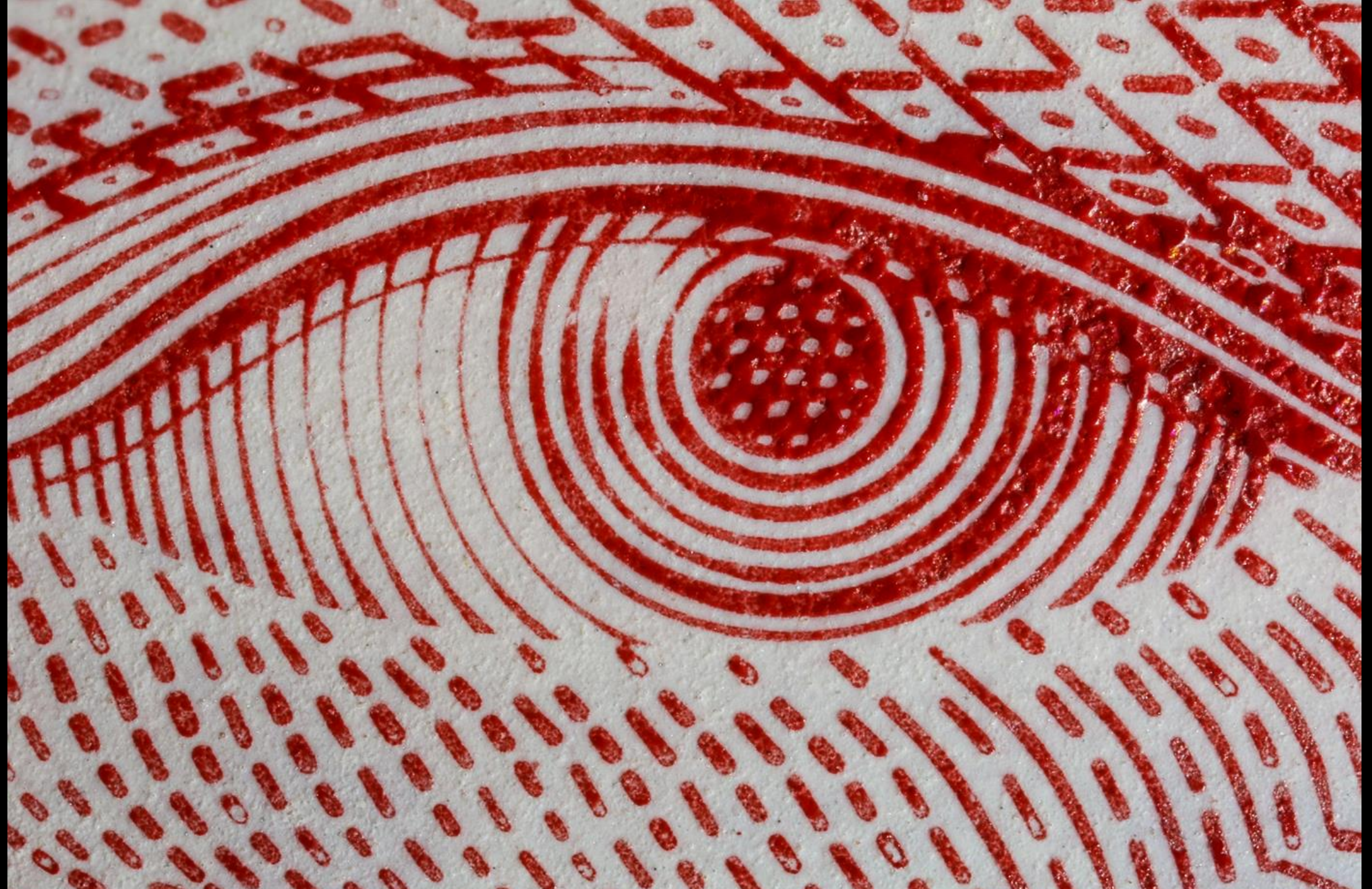
Marvellous Macro

Presentation and photos by Ed Luinstra

Macro photography

is photography of small things.

See what others don’t see!

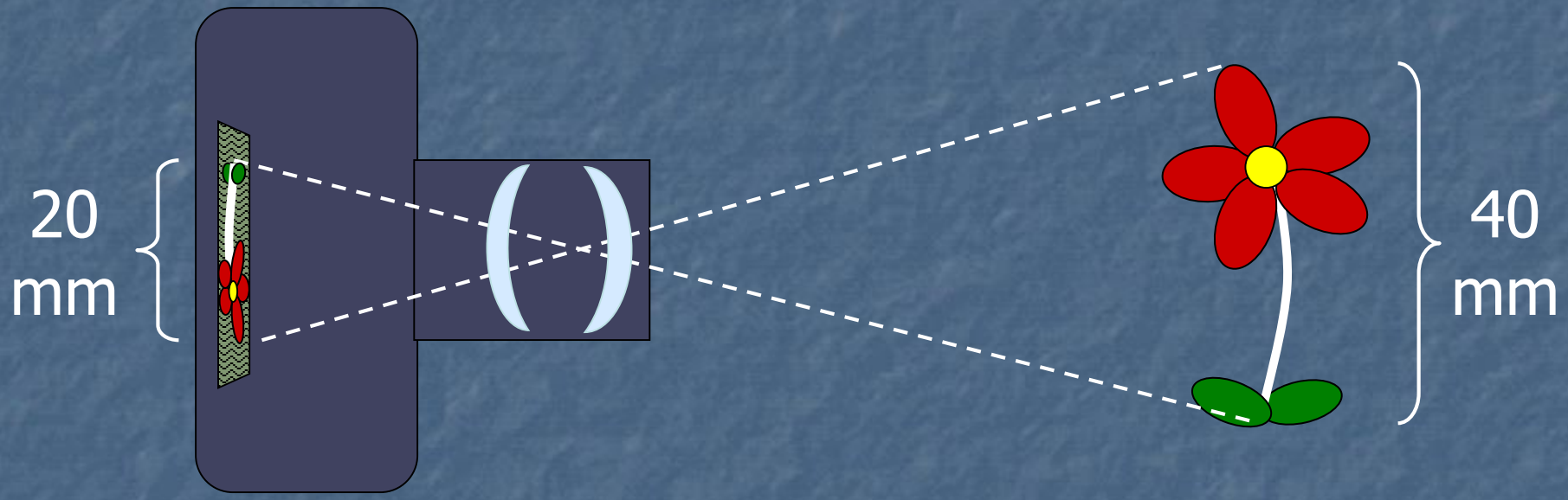


Many ways to do macro

What I look for:

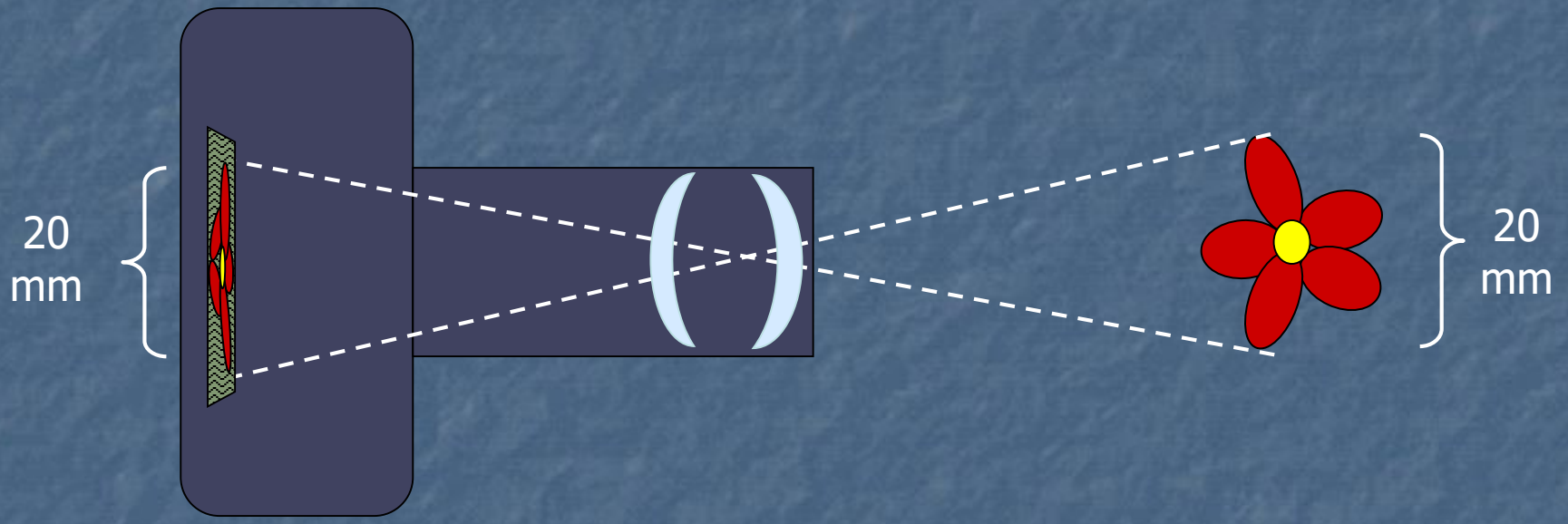
- Accurate representation
- Sharpness
- Good lighting

Magnification



Half size
m = 0.5x

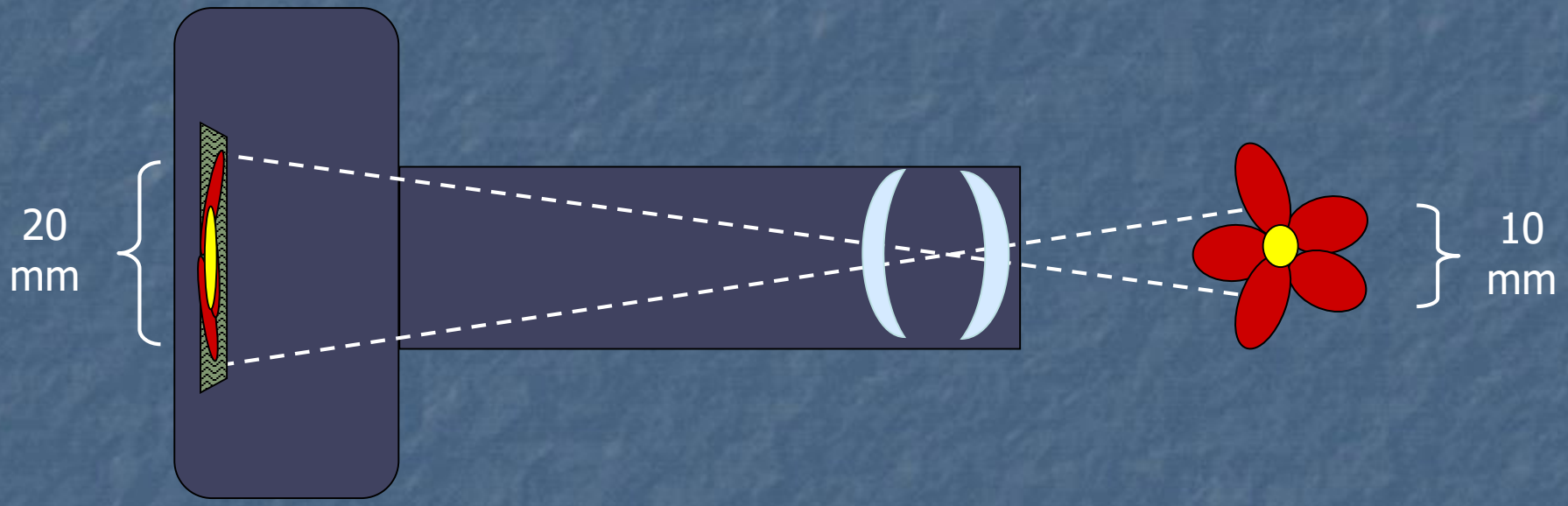
Magnification



Life Size

m = 1x

Magnification



$m = 2x$

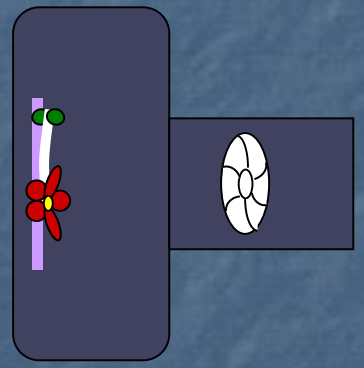

m =
0.5x

m =
1x

m =
2x

Depth of field

The zone from front to back that is in *acceptable focus*.



Depth of field

Very shallow at high magnification.

Affected by

- Sensor size
- Magnification (framing)
- Focal length
- Distance
- Aperture


f/2.8


f/5.6


f/11


f/16

Diffraction Softening

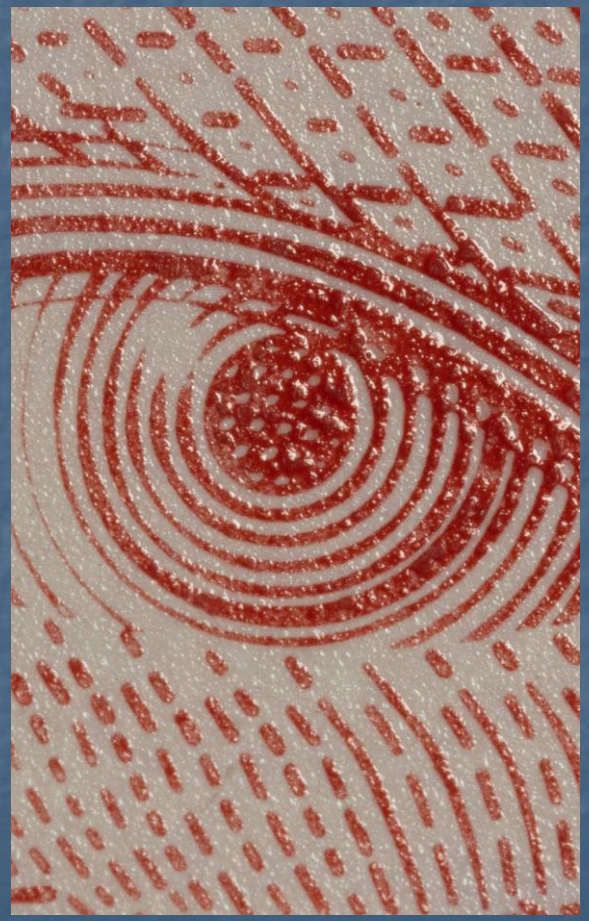
Can’t keep stopping down to improve DOF.

The image loses sharpness.

Diffraction → wave nature of light

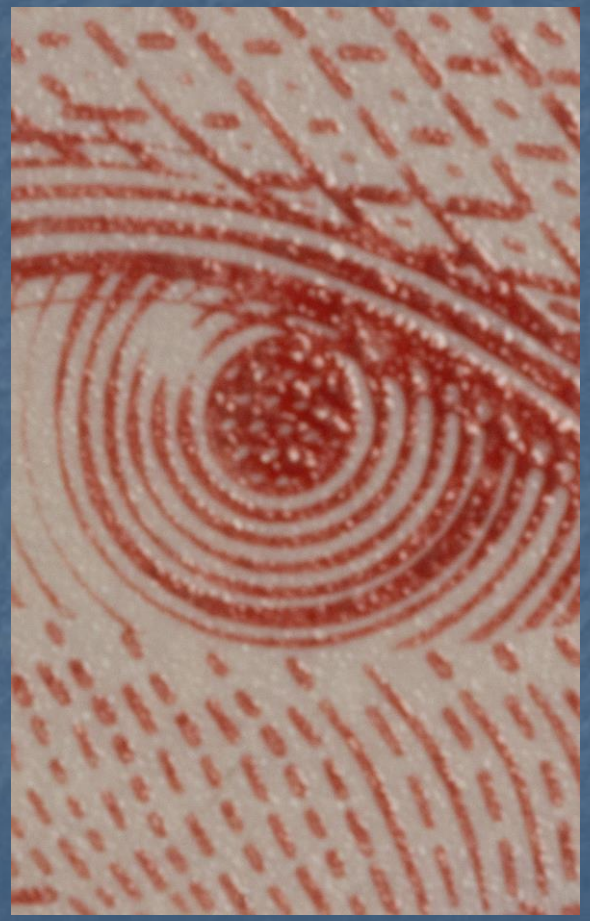
Diffraction Effects

$50 bill shot at 1.3x



f/8

f /16



f /32

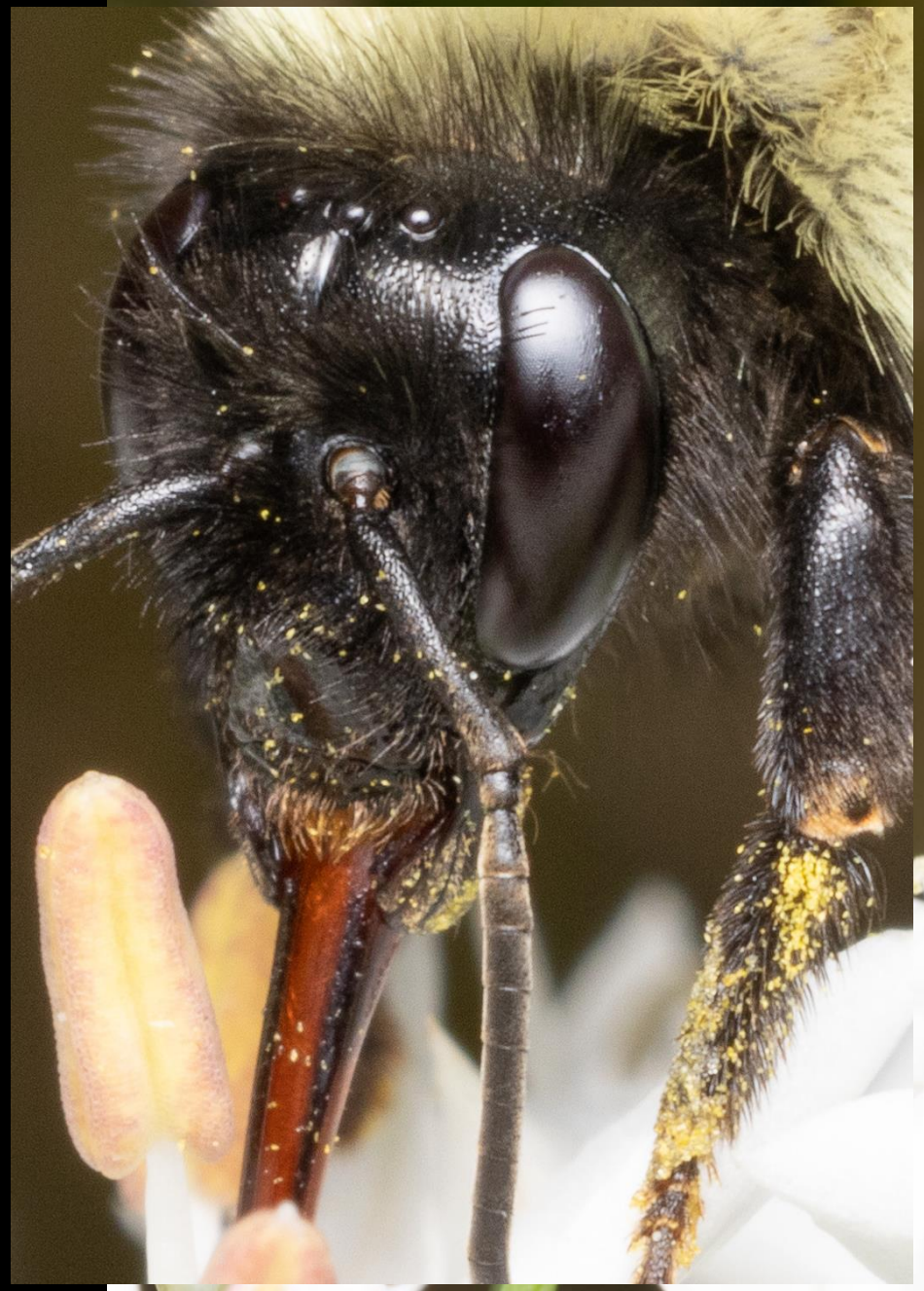
Depth of field

Diffraction

Controlled by *aperture*

f /11 to 13 give good results (APS-C).


f/11



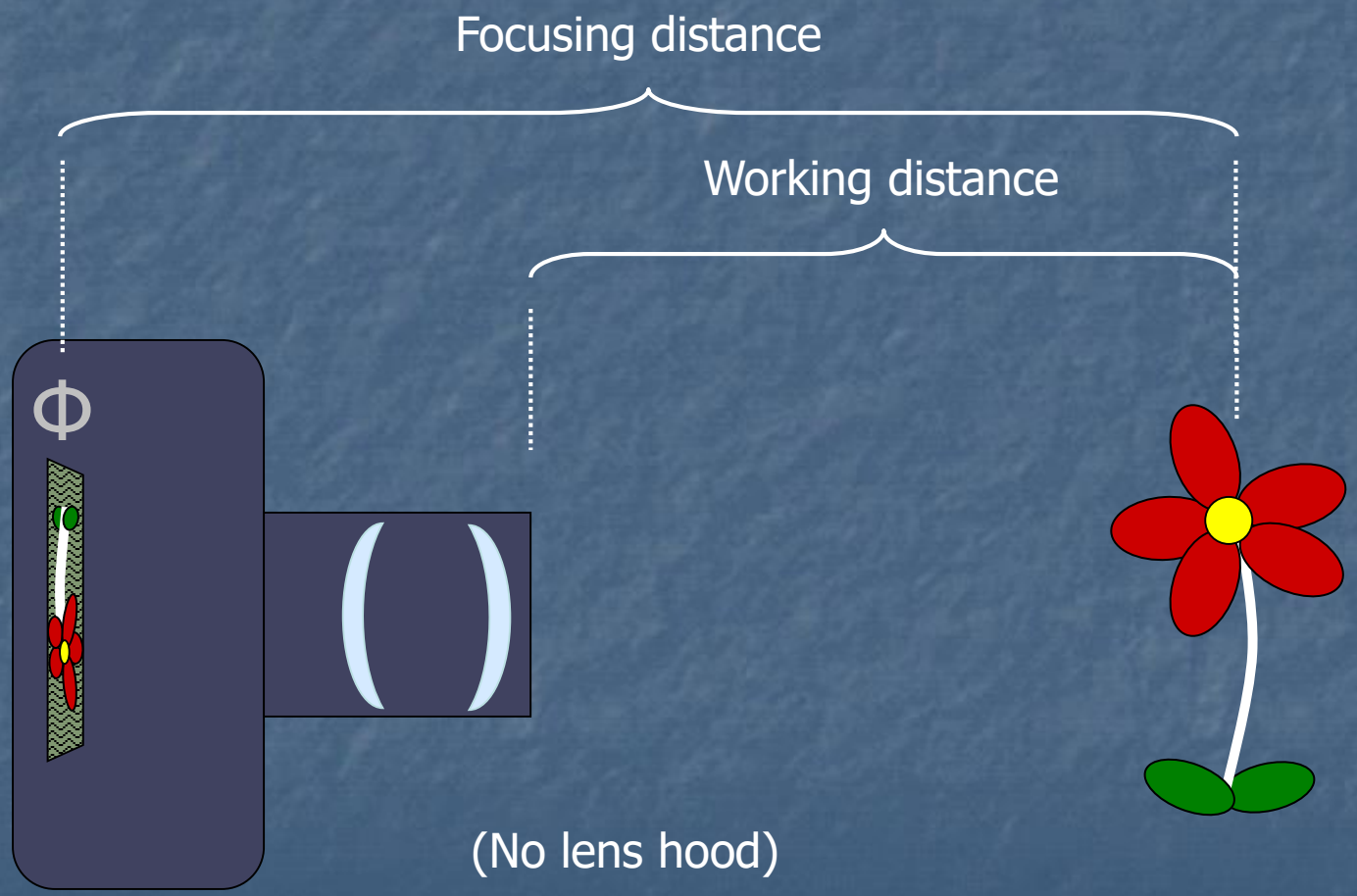
f/13


f:16


f/16


f/13

Working distance



Working distance

Longer working distance

- Avoids scaring bugs
- More room for lighting

But

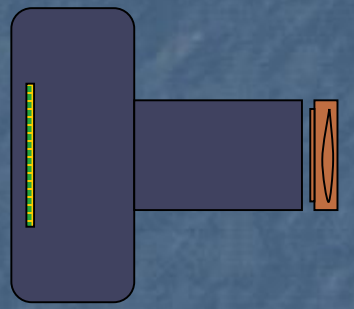
- Long lenses cost more, are heavier
- On-camera lighting is harsher

100 mm is a good compromise

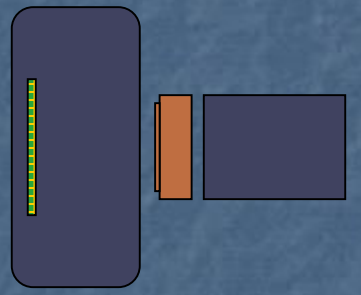
Gear options

Gear for getting closer

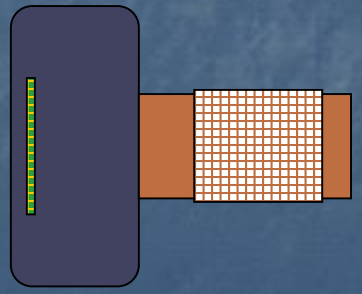
Closeup lens $



Extension tubes $



Macro lens $$$



Closeup lens

Attach to front of lens like a filter

Best for long lenses

Small

Double element, achromatic

$30-250

f/11


f/11


f/8


f/11


f/11

Extension tubes

Empty tubes

Increase lens extension

Best with shorter lenses

$20-160

Macro lenses

Optimized for closeup

Infinity to 1:1 (usually)

Different focal lengths & working distances

$300-2000+


f/11


f/11

f/11

f/11

f/13

Cropping

Just cropping can be effective too!

Zoom
lens
500mm
f/11

Zoom
lens
500mm
f/11

Lighting

Quantity and

Quality of light

Lighting is just as important as the lens.

Light is scarce with macro

Natural light is okay with bigger subjects

Light is reduced at closer distances

Life size magnification → loses 2 stops of light

Narrow aperture for DOF reduces the light

Tripod is inconvenient

So use *flash*.

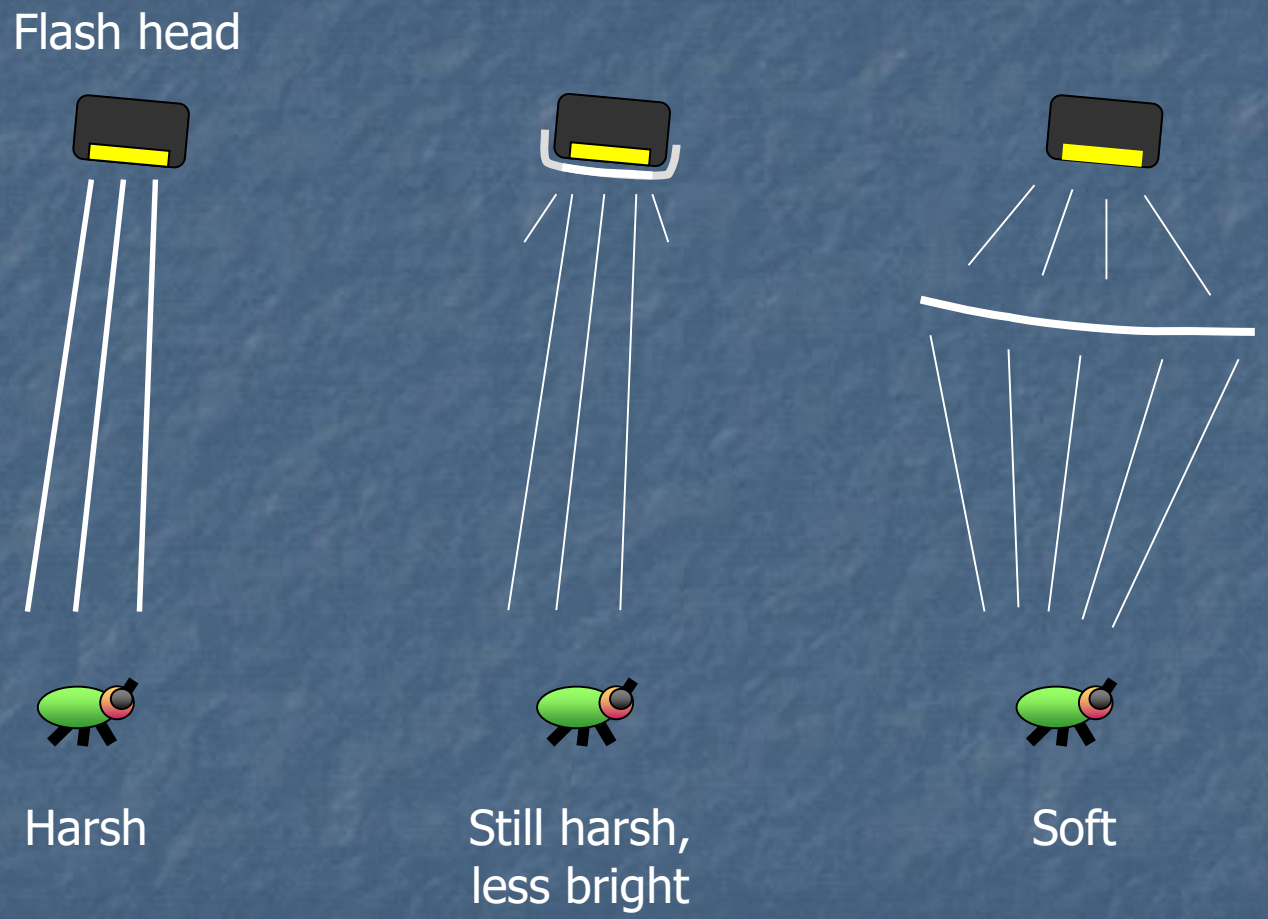
Diffused flash

Flash advantages

- Adds a lot of light of the right color
- Duration is brief, stops motion

But flash can be harsh

Flash diffusion



Big surface - Close to the subject

Canon
Canon
MACRO 100mm
IMAGE STABILIZER
ULTRASONIC
SPEEDLITE
580EX


Canon
EOS
7D
Mark II
Canon


Canon
EOS
7D
Mark II
0.5m–∞
FULL
0.3m–
0.5m
AF
MF
STABILIZER
ON
OFF
CANON MACRO LENS
ø57mm


1:2.8 IS USM
IMAGE STABILIZER
ULTRASONIC
Canon
Canon
SPEEDLITE 580EX
StackShot
DAC-60


100mm, f/13


100mm, f/11

100mm
f/14
(FF)

100mm
f/11

100mm, f/11

100mm
f/14
(FF)

Natural light

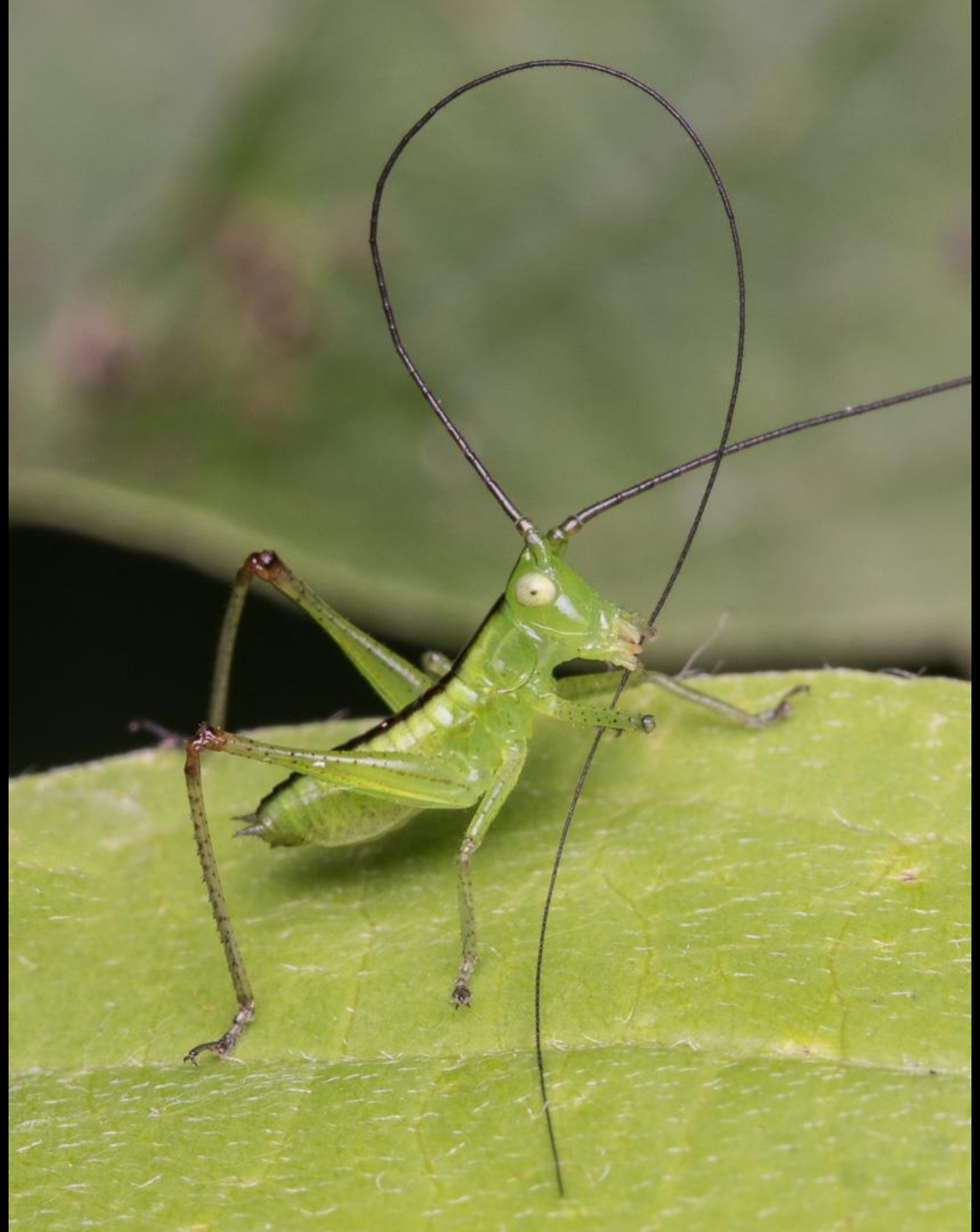
Natural light can be attractive

Color and Design


100mm
f/13

Action Shots

100mm
f/11

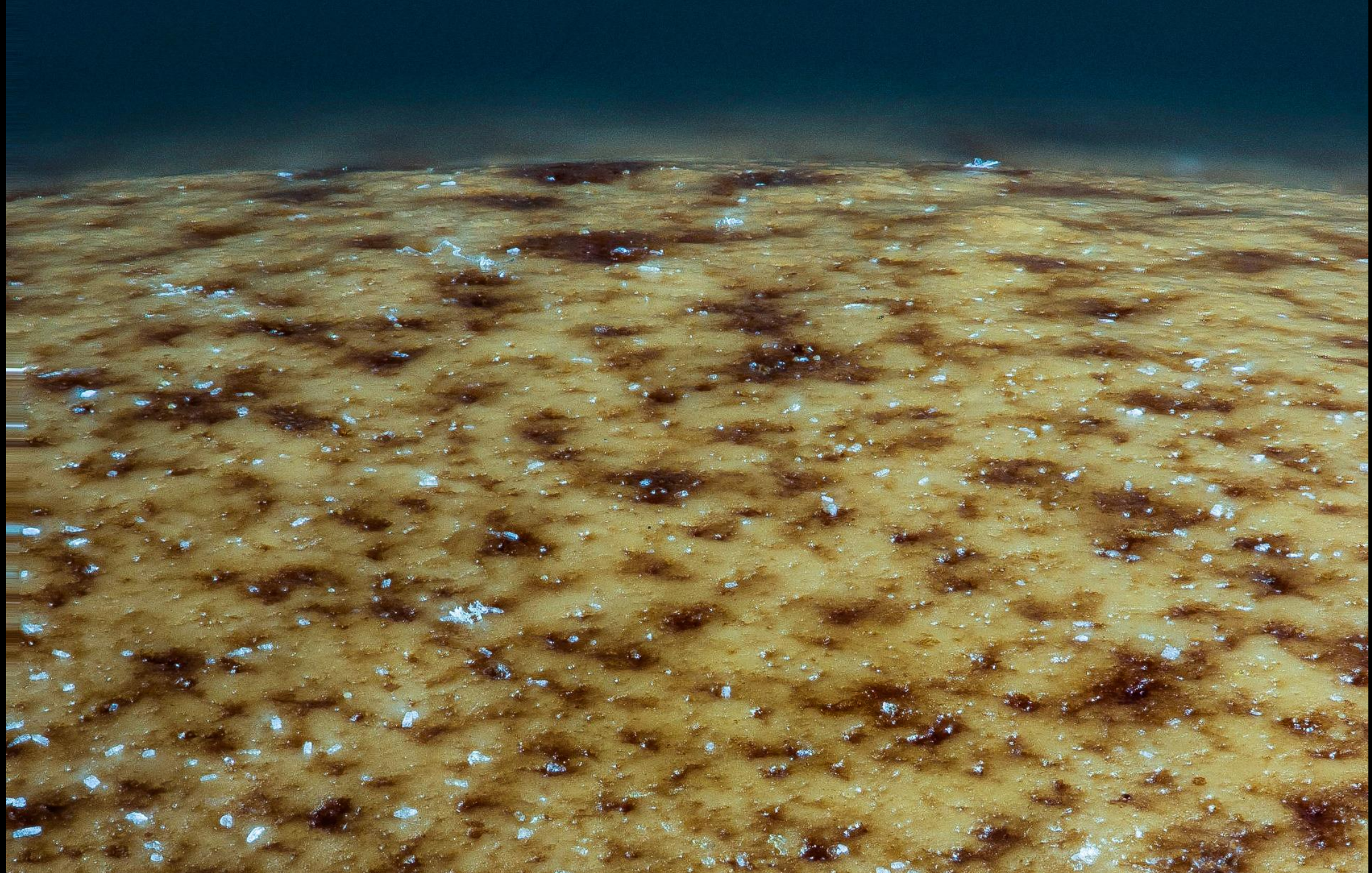


Focus stacking

Solves the shallow DOF problem

Take several pictures of a subject varying the focus

Combine in software
(Photoshop, Zerene Stacker, Helicon Focus)



Go out and shoot!

Bugs and flowers in fields

Kitchen

Workshop

Ed Luinstra
Kanata, Ontario

ed.luinstra@gmail.com
613-714-9557

Thank you