APhotos

Close-Up Photography

As a rule, to focus closer the lens has to move further away from the film or sensor.

You might see your lens move when you focus on a nearby object.

There is a limit on how close your camera can go, although some bridge and compact cameras can get very close, down to a few mm.

Taken on a compact camera

Handheld on a bridge camera

With a DSLR you can remove the lens and put spacers, called tubes , between the lens and camera.

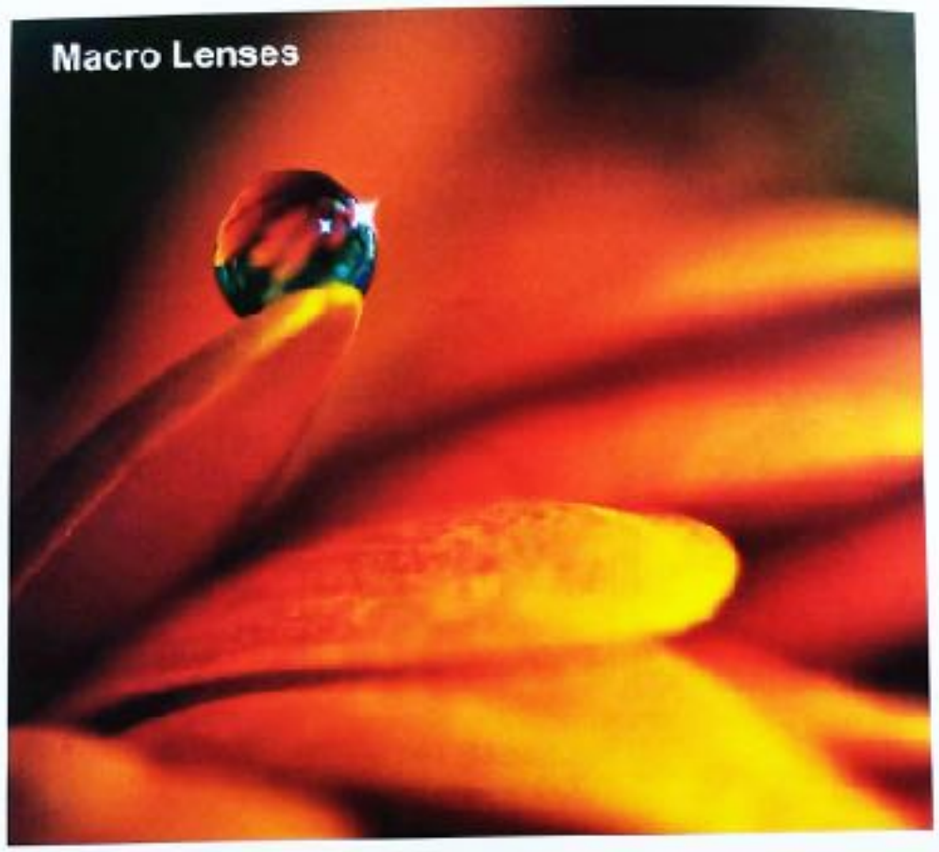
A tube allows the camera to focus on much closer objects.

You can put two or more tubes on together to get even closer.

Image quality is quite good but most lenses are computed to give the best at farther distances so can be a little soft when really close up.

With the cheapest ones there are no connections for the camera to adjust the aperture so you have to do that manually.

But the more expensive ones have those connections built in.



SRB Close Up Lens Set

This set is made up of 4 close up filters, +1, +2, +4 and 10x. It will give you the complete range of magnifications you are ever likely to need.

Filter Thread (mm)

52, 55, 58 ..... £19.95 set

62, 67 ..... £19.95 set

72, 77 ..... £19.95 set

10X Close Up Lens

This is a 2-element, close up lens with a power of +10 Dioptres. This gives a maximum focus position of 10cm from the front of the lens with the focus scale set to infinity. The lens should be stopped down as much as possible to get maximum depth of field.

Use the SRB stepping rings to step up or down to any lens size

SRB 58mm 10 X £29.95

Extension Tubes

Extension tubes fit between the lens and the camera body. They are supplied in sets of 3 tubes of different lengths. The longer the extension, the greater the magnification. Calculate the magnification by dividing the focal length of the lens into the total extension being used. ES 100mm of extension with a 50mm lens will give 2:1. 50mm of extension on a 100mm lens will give 1:2. Wide angle lenses give greater magnification but with shorter working distances.

Manual Extension Tubes

These tubes consist of front and rear bayonets which screw together, plus 3 threaded insert tubes of different lengths. The set allows manual use only. Lenses with no aperture ring can only be used at full aperture.

Camera body

Canon EOS £17.50
Nikon £17.50
Micro 4/3 ..... £17.50
Olympus 4/3 ..... £17.50
Pentax £17.50
Sony Alpha £17.50

Auto Extension Tubes

Supplied in sets of three tubes of different lengths. 13mm, 21mm and 31mm. These give a total of seven different extensions. The longer the extension, the greater the magnification.

Camera body

Canon EOS £39.95
Nikon £89.95

A bellows unit may be more convenient


Nikon
D300

T-Mount extension Tubes

These are mainly used to increase magnification when using a DSLR on microscopes or telescopes. Used with the appropriate T-Mount and T2 Reversing Ring Insert, or lens adaptor. Supplied in sets or individualy (5, 10, 20 & 40mm).

T-Mount Tubes

5mm	£14.25
10mm	£14.25
20mm	£14.25
40mm	£14.25
Set of 4	£49.95

C-Mount extension Tubes

These are available in four lengths (5, 10, 20 and 40mm) either singularly or in sets of four. The 5mm tube is also used as an adaptor to enable C-Mount lenses to be used on CS Mount Cameras.

C-Mount Tubes

5mm	£14.25
10mm	£14.25
20mm	£14.25
40mm	£14.25
Set of 4	£49.95

Bellows

The bellows function is an adjustable extension tube. By moving the lens further away from the body it reduces the focal distance and increases magnification. These bellows are a manual connection only meaning that focusing and exposure need to be adjusted manually

Bellows

Nikon Fit	£39.95
Canon Fit	£39.95
Olympus OM	£39.95
Pentax K	£39.95
Micro 4/3	£39.95

Manual Bellows Conversion

Bellows can best be likened to an extension tube set with variable extension. We supply, either from stock or to order, adaptors to convert existing bellows units to take other cameras and lenses. We will need you to send us the bellows for examination if conversion is preferred so that we can give you a quotation. Some bellows (such as BPM or Helios), have interchangeable mounts and we have a range of body and lens mounts available.

Mounts for BPM Bellows

T2 (Allows camera to be fitted via T2 mount)	£19.25
M39 Leica enlarging lens adapter	£19.25

Coupling Rings

Fit a telephoto lens to the camera and reverse mount a shorter focal length lens to the front via the filter threads. This produces a multi element macro lens giving a magnification equal to the ratio of their focal lengths. EG reverse mount a 50mm lens onto a 200mm lens to produce a magnification of 4:1.

Filter Thread (mm)

46-46	62-62	
49-49	67-62	
52-52	67-67	
55-55	72-72	
58-58	77-77	..... £12.95 each

Choose the filter thread sizes of your lenses.if the sizes are no: the same use a stepping ring to bridge the gap

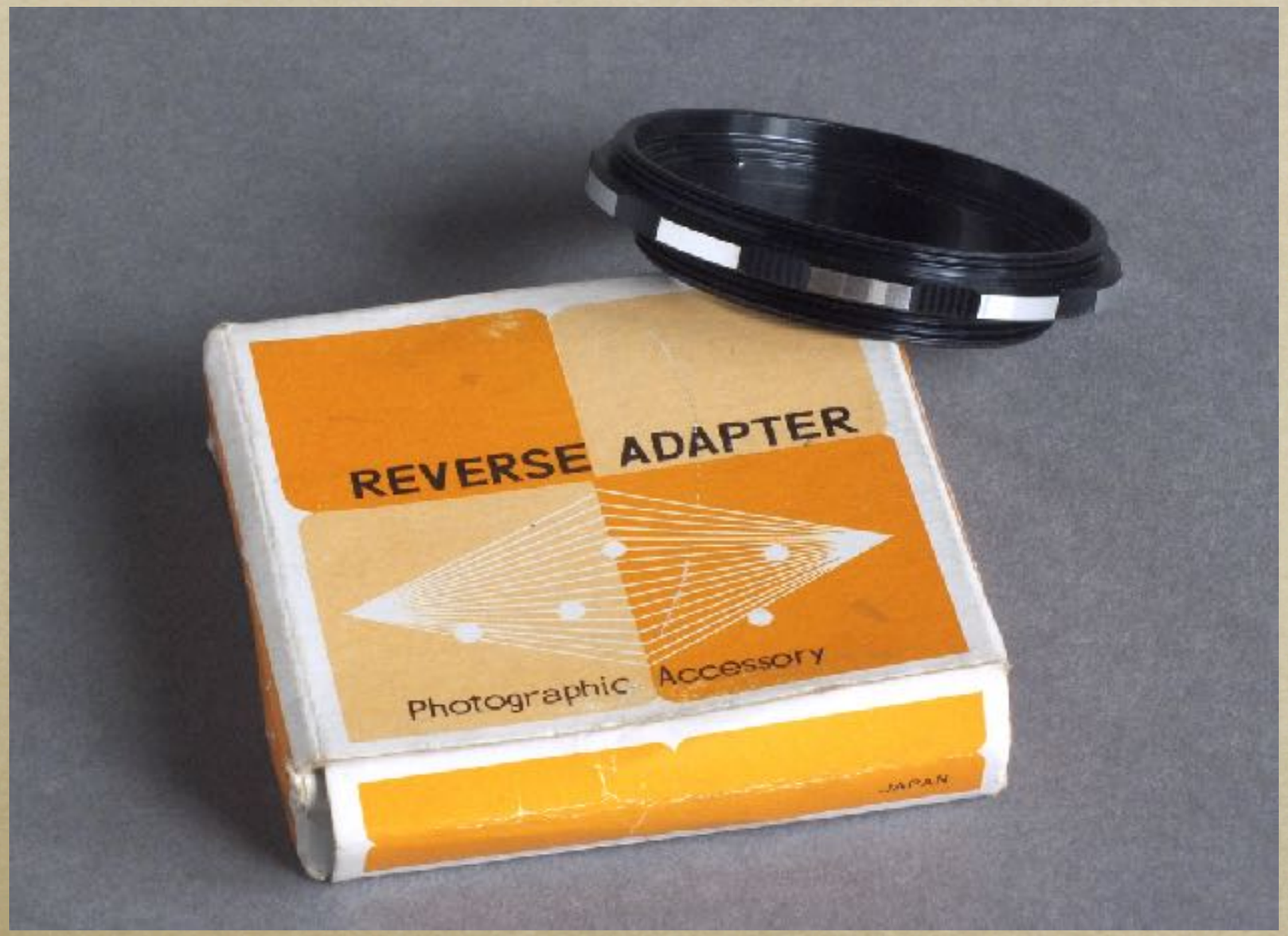
LED Ring Light

Achieve better image quality in close up and macro photography with the use of our LED Ring lights. LED Ring lights illuminate around the lens to eliminate shadow, the main advantage is that you can pre-compose your shot with the LED Ring light.

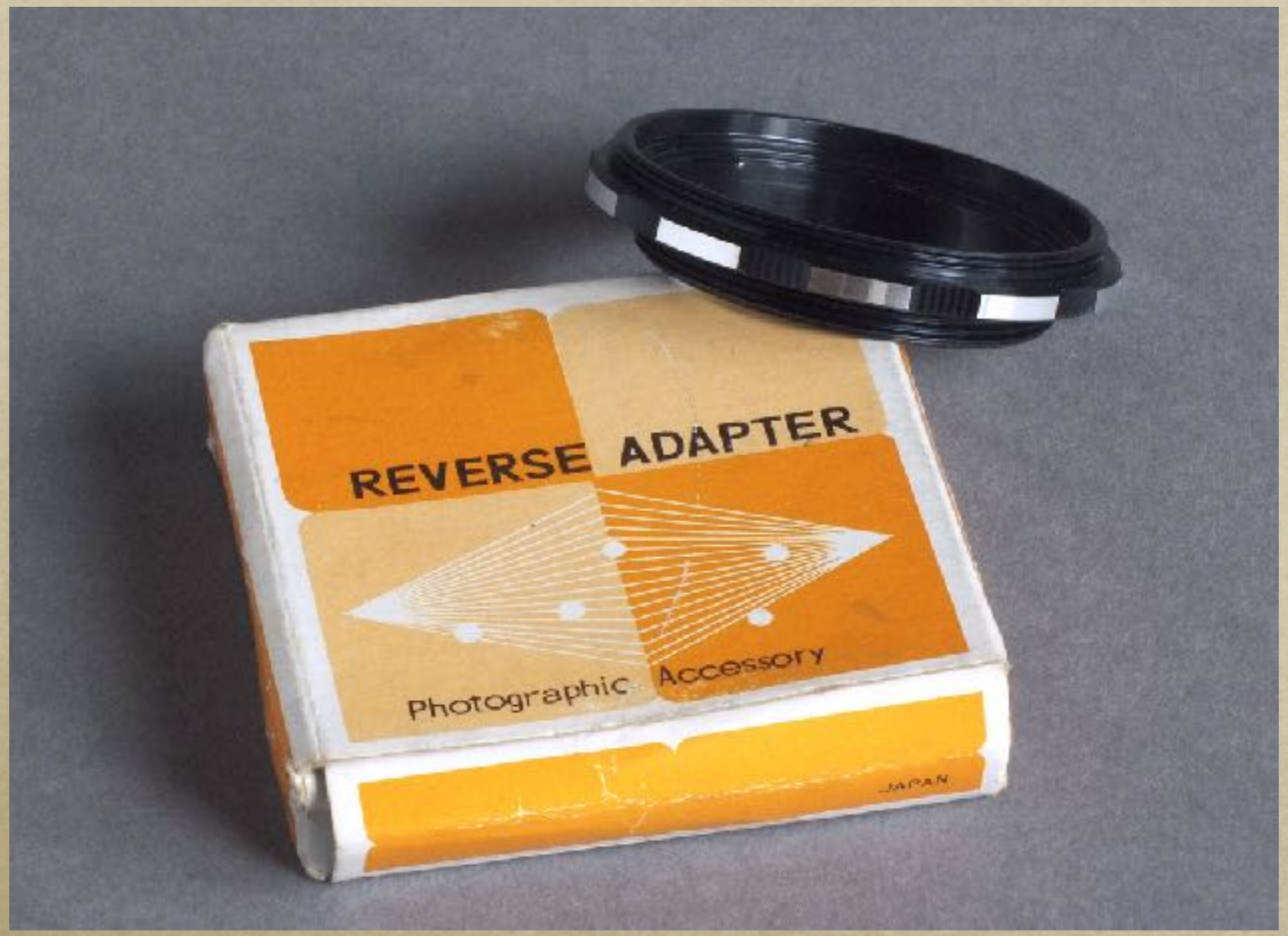
LED-60 Macro Ring Light

- ***Heat free LED technology.***
- ***Fills in shadows.***
- ***Produces bright, HD-friendly soft light.***
- ***Runs 3.5 hours on 4 x AA batteries.***
- ***No external cables.***
- ***Lightweight and compact.***

LED-60 Ring Light..... £29.95



With this, take off the lens, attach the adapter to the camera and then the lens, backwards onto the adapter.



The image quality is very good ! However, the enlargement is high and not very adjustable.

Reversing Rings

Reversing rings fit to the camera body, between the camera and lens, leaving a screw thread to enable the reverse mounting of a lens.
Can be used with extension tubes or bellows to improve quality at magnifications of 1:1 or above.
Great for photographing insects, flowers, coins etc.
Wide angle lenses give larger magnification but shorter working distances than standard or telephoto lenses.

Camera Body and lens (mm)

Canon EOS ..... £12.95 each
52, 55, 58, 62
67, 72, 77

Nikon ..... £12.95 each
52, 55, 58, 62
67, 72, 77

M42 ..... £12.95 each
49, 52, 55

Sony Alpha ..... £12.95 each
52, 55, 58, 62,
67, 72, 77

Micro 4/3 ..... £12.95 each
52, 32

Contax/Yashica ..... £12.95 each
55

Minolta MD ..... £12.95 each
49, 55

Olympus 4/3 ..... £12.95 each
52, 55, 58, 62,
67, 72, 77

Pentax ..... £12.95 each
52, 55, 58, 62
67, 72, 77

T2 Insert ..... £16.50 each
46, 49, 52

T2 Insert ..... £16.50 each
55, 58, 62

Lenses without aperture rings will be at full aperture only
Best results are achieved with lenses with a manual aperture ring.

Electronically Coupled Reversing Ring

Electronically coupled Reversing Ring

For owners of Canon EOS wide-angle or zoom lenses, the EOS-RETRO opens up the word of extreme close-up photography with outstanding quality. The EOS-RETRO lets you mount the lens in reverse position on the camera. The ring transfers all control functions. Example: With a Canon EOS 28-105mm zoom lens in reverse position, you get an image ratio of 1:7 with a focal length of 105mm from 1:7 to 2.8:1 at 28mm.

..... ***£249.95***

Novoflex Castle Cross Focusing Rack

The CASTEL-CROSS focusing rack allows highly sensitive and smooth adjustment of the camera in the X and Y directions without loss of stability and accuracy.

Castel Cross ***£299.00***

Novoflex Castle Q

Novoflex focusing racks are indispensable accessories for macro and stereo photography. They can be mounted on any tripod with either a 1/4" or 3/8" thread.

Castel Q ***£155.00***

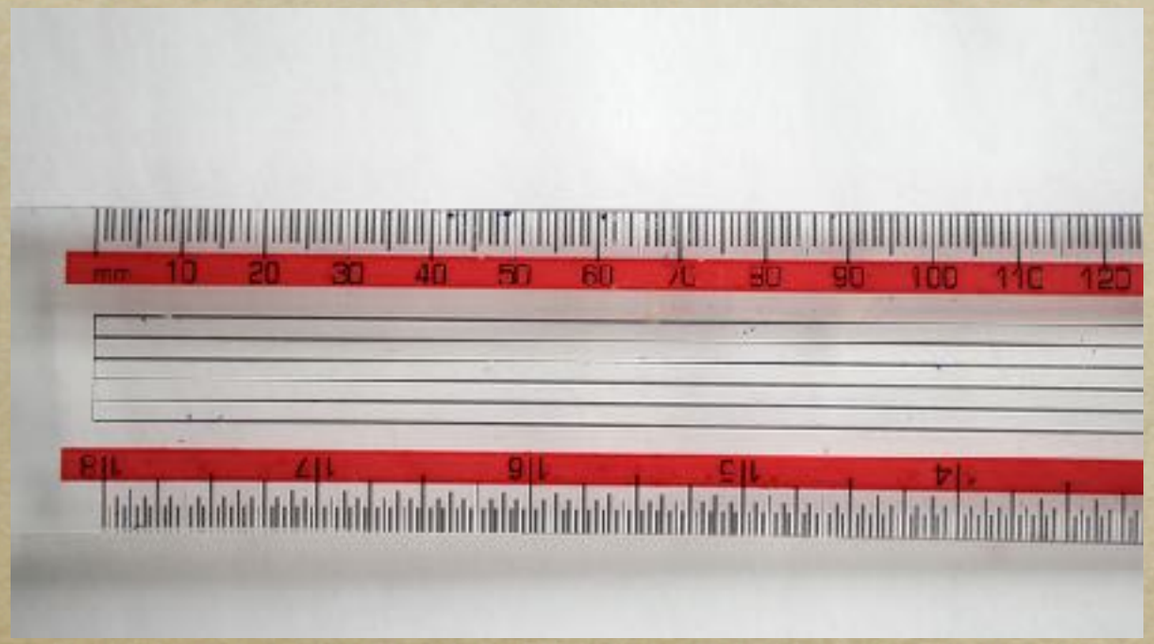
Novoflex Castle L

The CASTEL-L has an integral camera quick-release connector that allows quick mounting and dismantling of the camera equipment. The focusing rack can be mounted either on a tripod head, or on a C=BASE or Q=MOUNT quick-release connection.

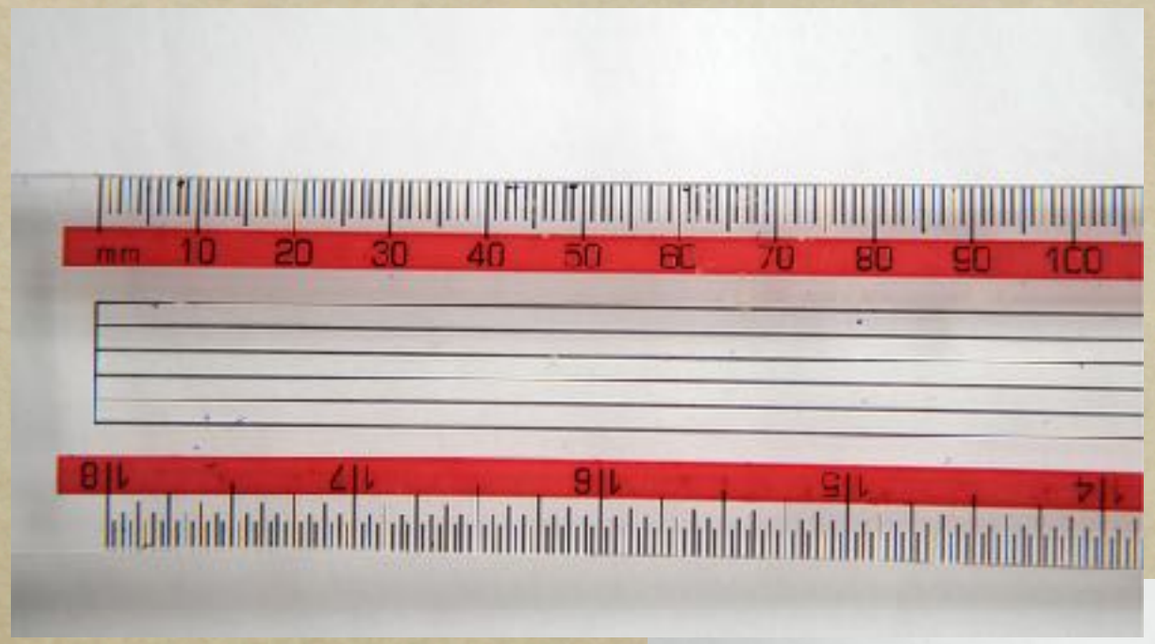
Castel L ***£155.00***

Close-up lenses are cheap and easy to use. They have different strengths, usually +1, +2 and +4, and even +10.

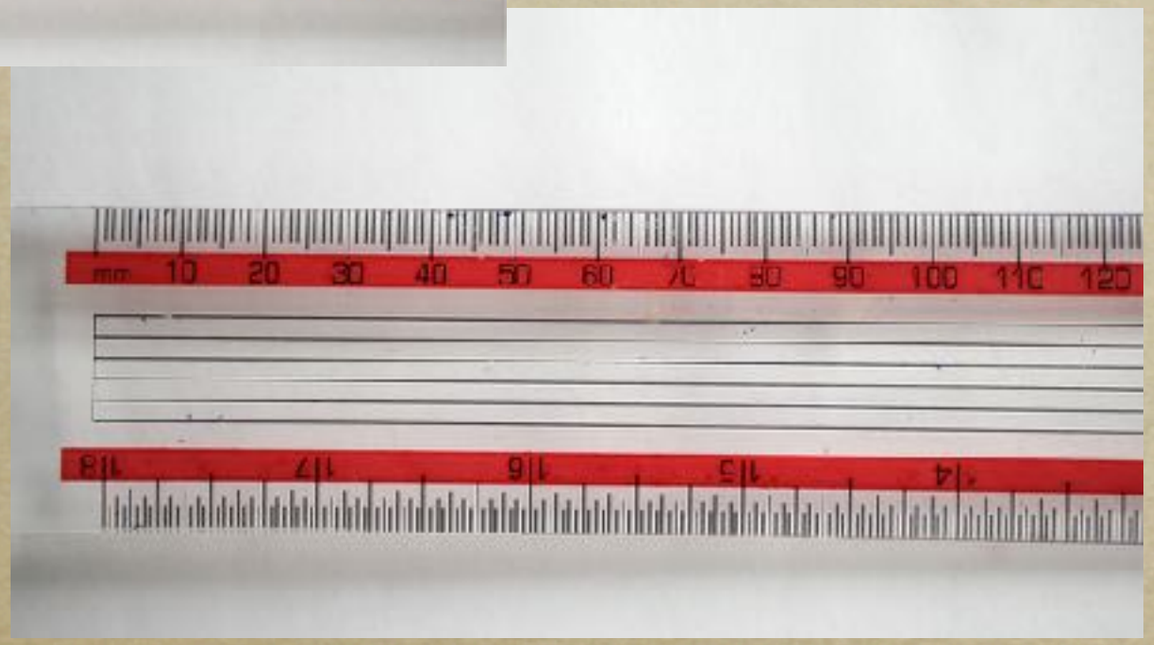
They screw onto the front of your lens. Ideally you should take off any filter first.



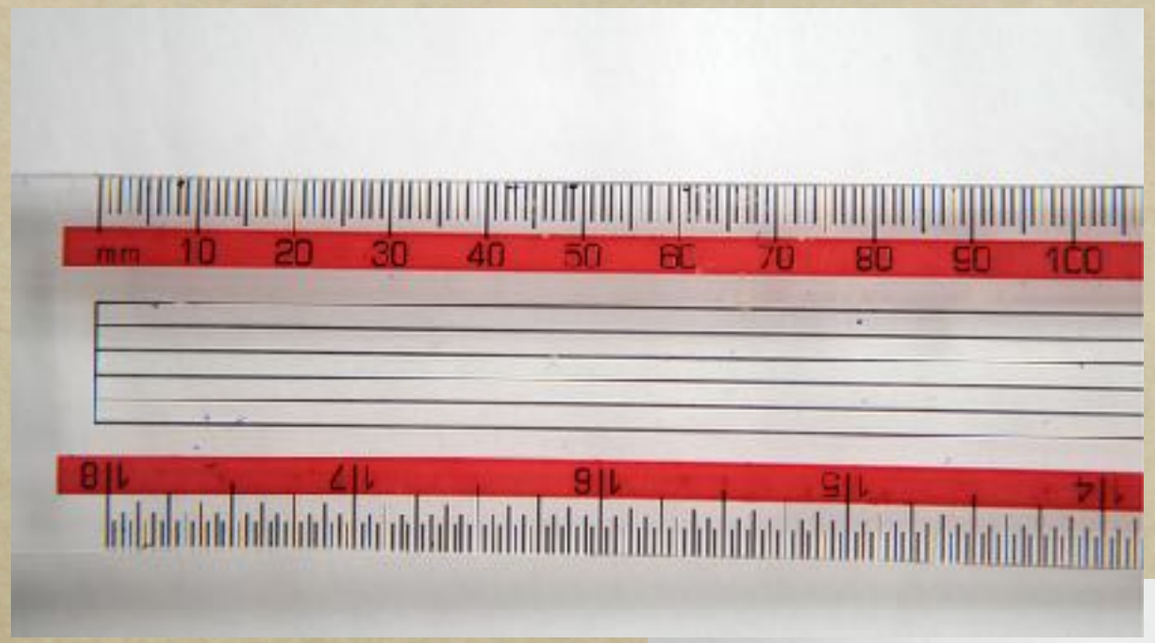
Closest with my standard lens



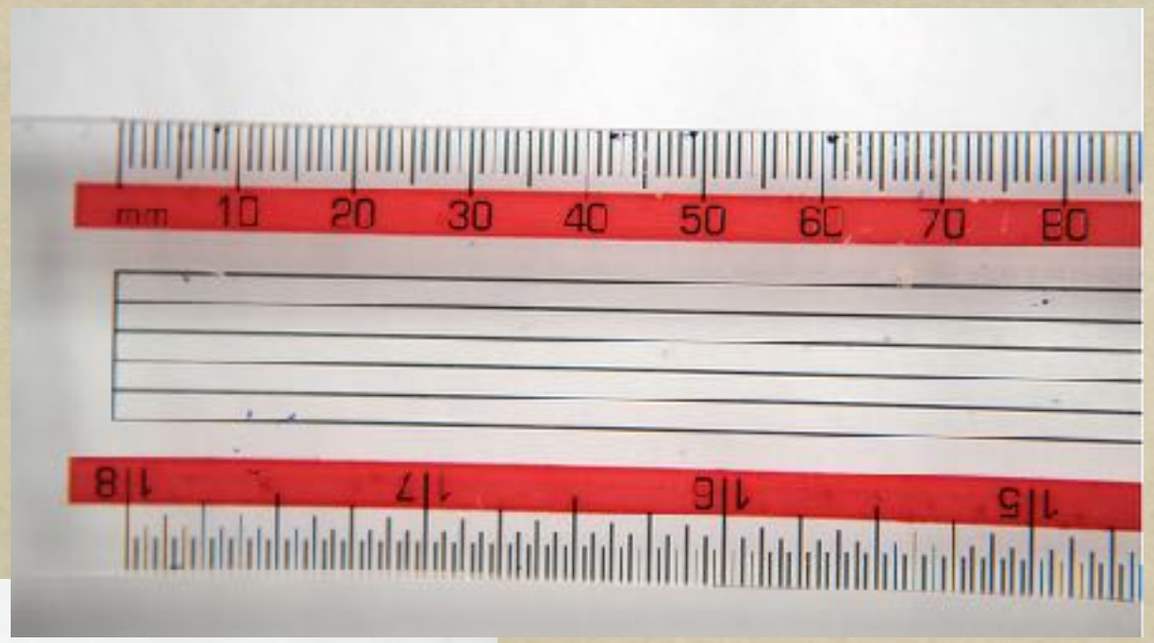
With +1 lens



Closest with my standard lens

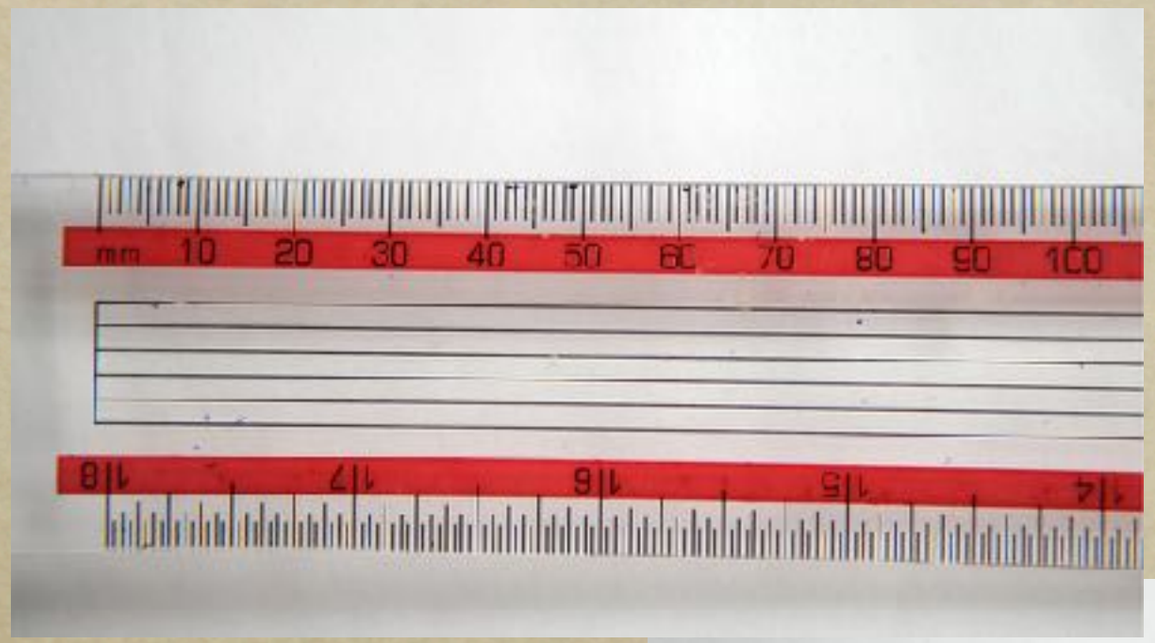


With +1 lens

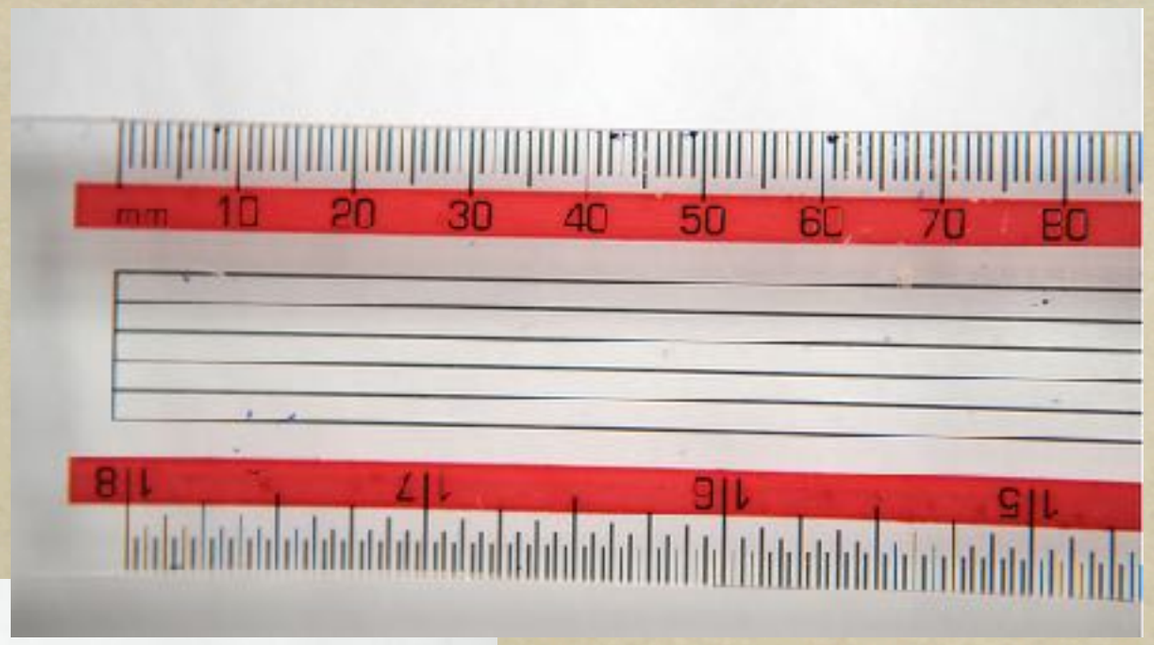


With +2 lens

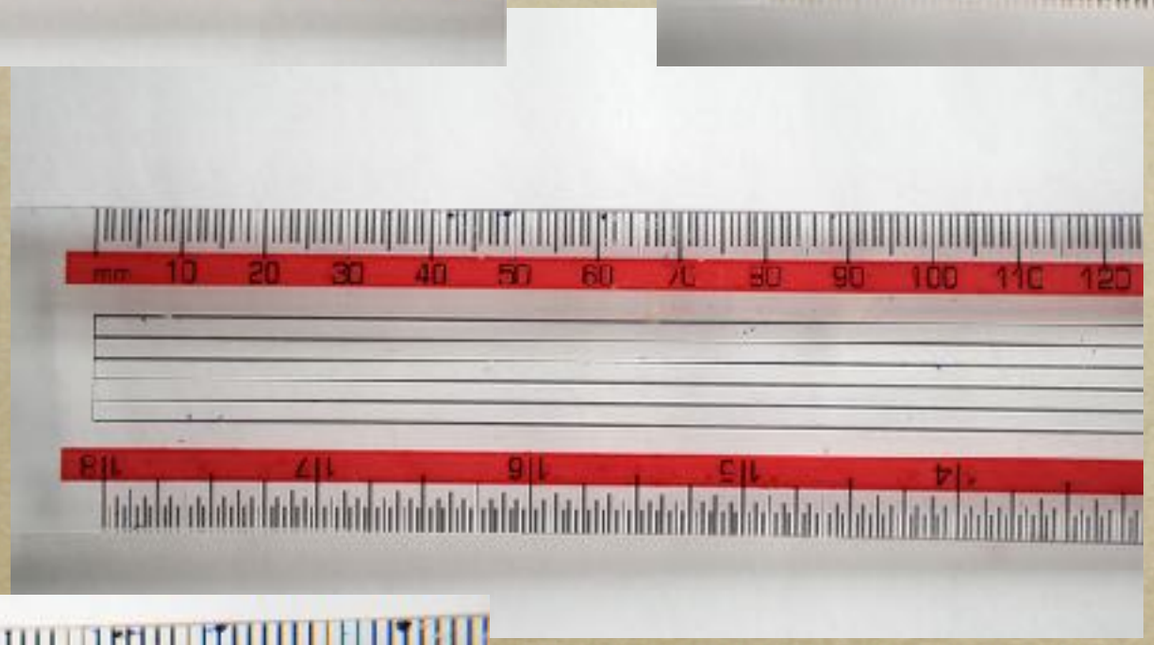
Closest with my standard lens



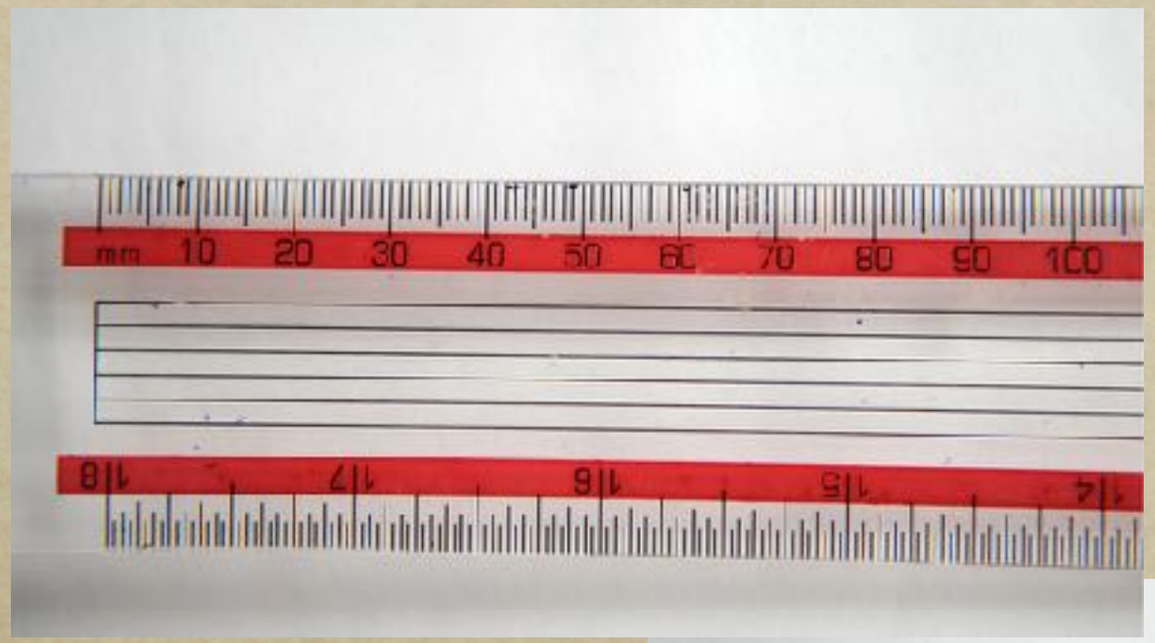
With +1 lens



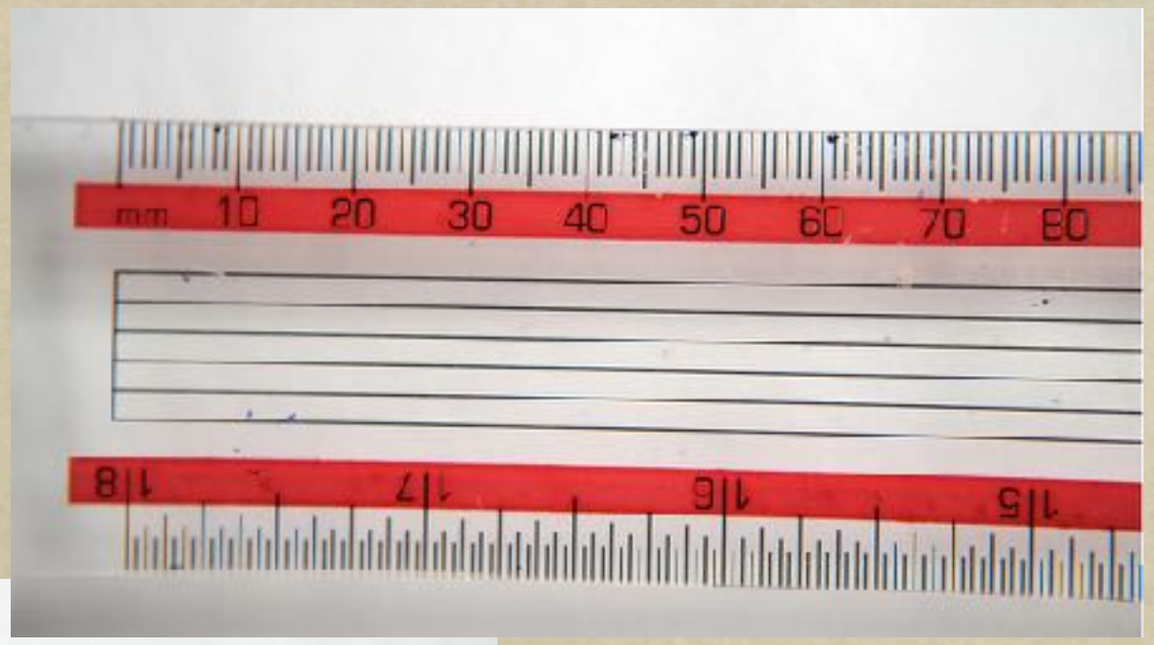
With +2 lens



With +4 lens



With +1 lens



With +2 lens

With +4 lens

With +10 lens

You may have noticed that the sharpness and distortion deteriorate as you use stronger lenses !

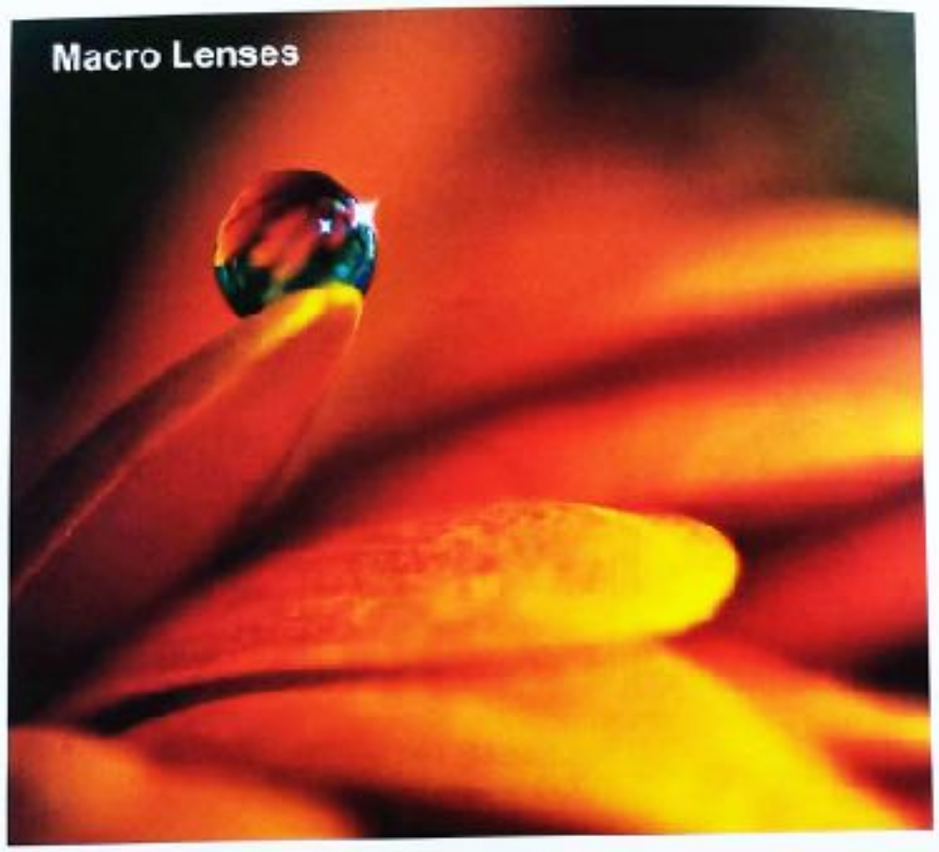
But in practice these lenses are worth a try. At about £20 on eBay they are an excellent way into close-up photography.

Just remember, quality is poor at large apertures so stop down a lot.

This is my kitchen window sill

and this is the closest I can get with my standard lens

With a No. 2
Close Up lens



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Nikon £89.95

If you want to get seriously close, with images several times larger than life size, you can use the bellows or a Raynox close-up lens.

Different models cost £30-150 and image quality is far superior to the use of cheap close-up lenses.

But the finest quality is given by macro or micro lenses.

They are computed to deliver sharp images up to life-size on the film or sensor. 1:1 magnification.

Canon and Nikon lenses are pricey. The Sigma and Tamron equivalents are as good but much less expensive.

So which is the best focal length ?

The most common for APS-C cameras is about 40mm. This is the equivalent of 60mm on a full-frame camera.

I find with this length that you need to get in really close to your subject. This can scare timid creatures and also block the light!

I suggest you look at longer lenses.

Popular lengths for full-frame cameras are

60mm

90mm

105mm

and 200mm

These let you stand back a bit more from your subject.

And they work just as well on APS-C cameras.

As well as being perfect for close-ups macro lenses are good as short telephotos, say for portraits. The image quality is excellent and the perspective can be nice for faces.

Also, the maximum aperture is usually about f/2.8 so can give nice out-of-focus backgrounds.

Some macro lenses have image stabilisation built in, which is handy when you’re using it as a telephoto, but do be aware that it doesn't work at very close distances.

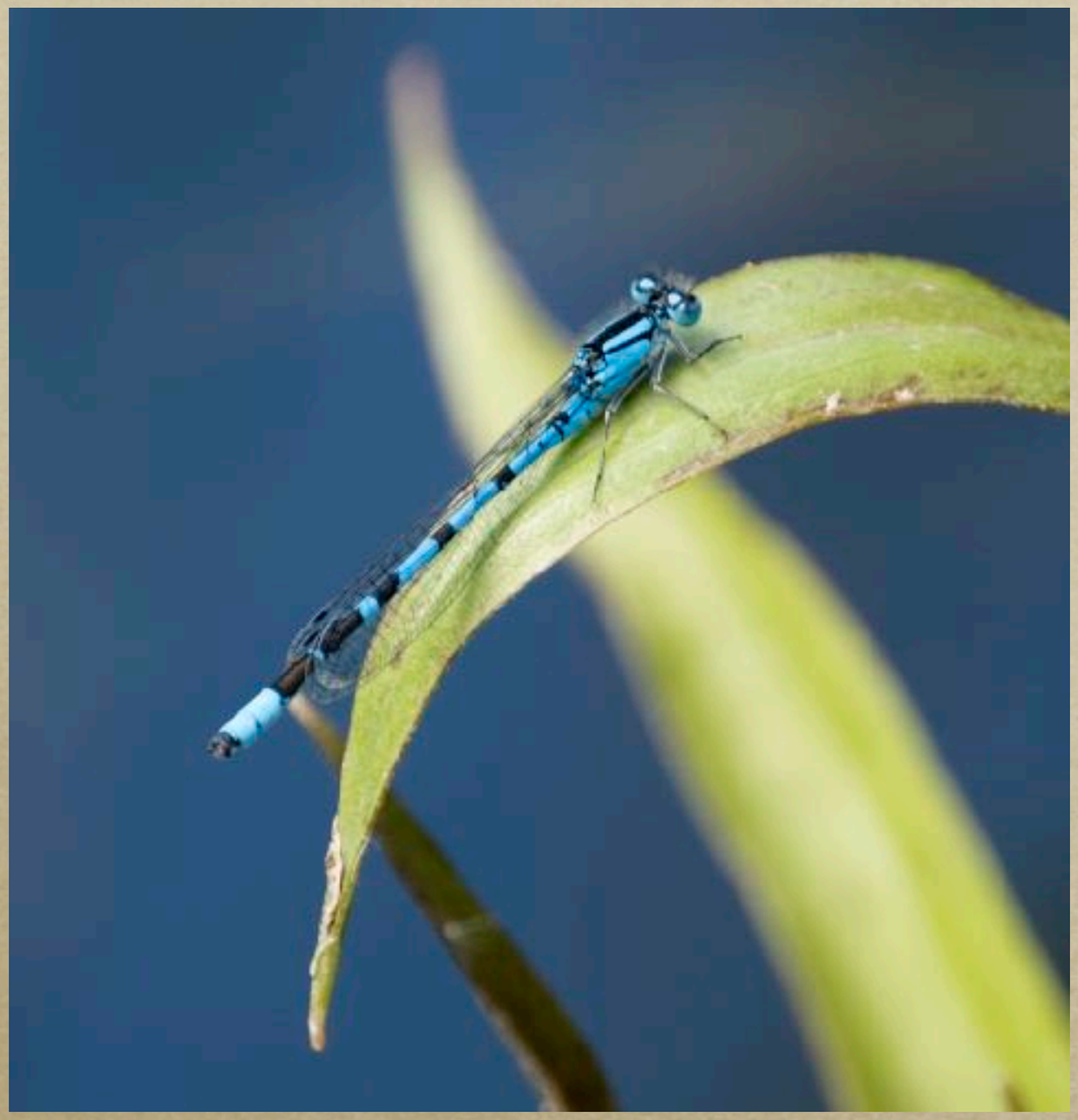
If you want to photograph small creatures such as butterflies you may find it more convenient to shoot with a telephoto lens, anything from 200-500mm on a full-frame camera.

On an APS-C or Micro 4/3 camera the effect is even better.

Many modern ones focus quite near and the magnification with a long lens is very good.

You can get a big image by adding a telephoto converter, anything from 1.4X to 2X. This increases the telephoto effect yet allows you to get as close so the magnification is greater.

Do beware though that the converter must match to your lens or both lenses may be damaged. Only certain lenses are suitable.

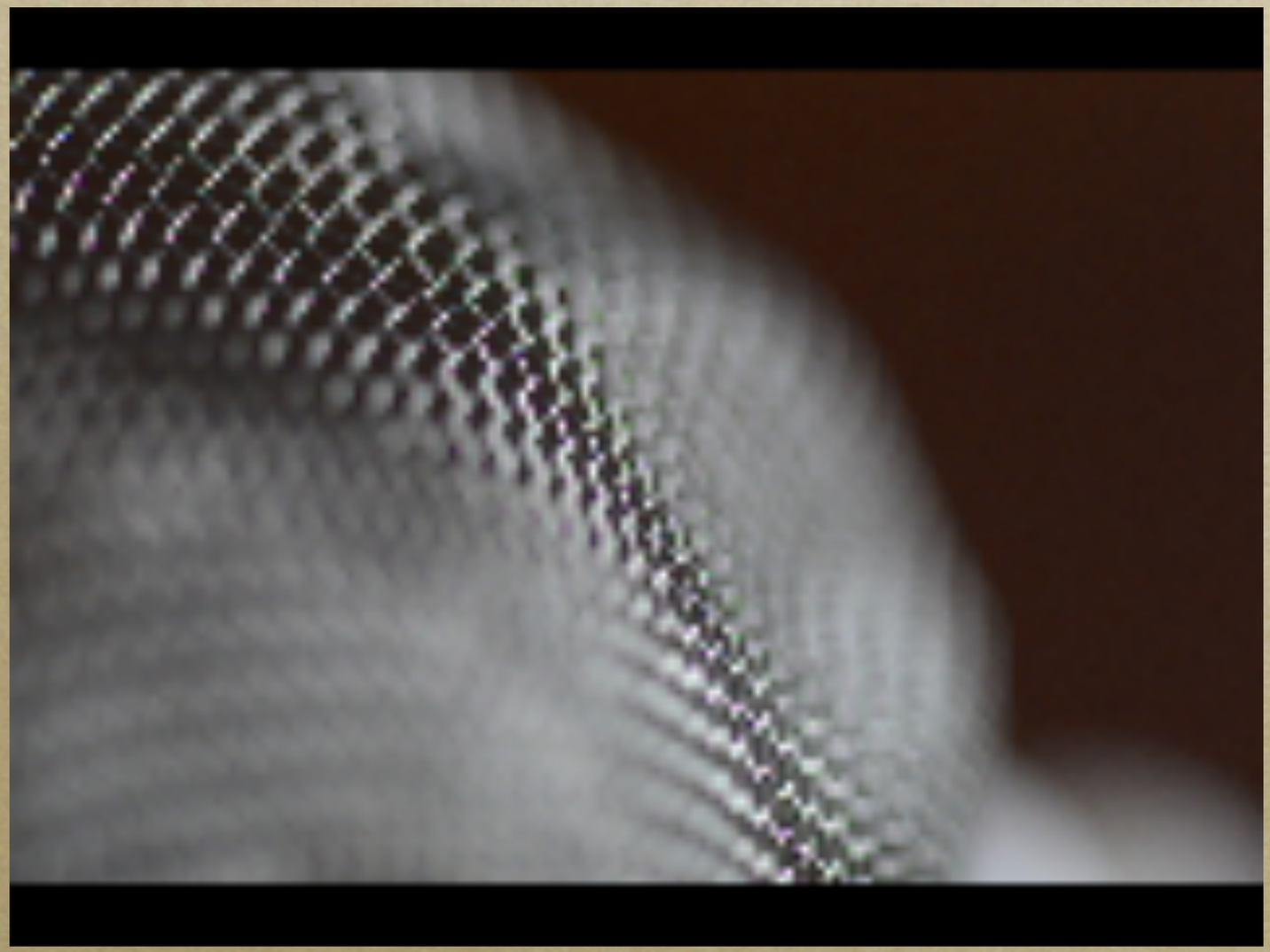


Taken with a 400mm lens plus a 1.4X converter, effectively 560mm.

The 1.4X converter does though reduce the effective aperture by one stop.

A 2X converter doubles the focal length but loses two stops of light.

Whichever method you choose to get close you'll find depth-of-field is extremely limited !

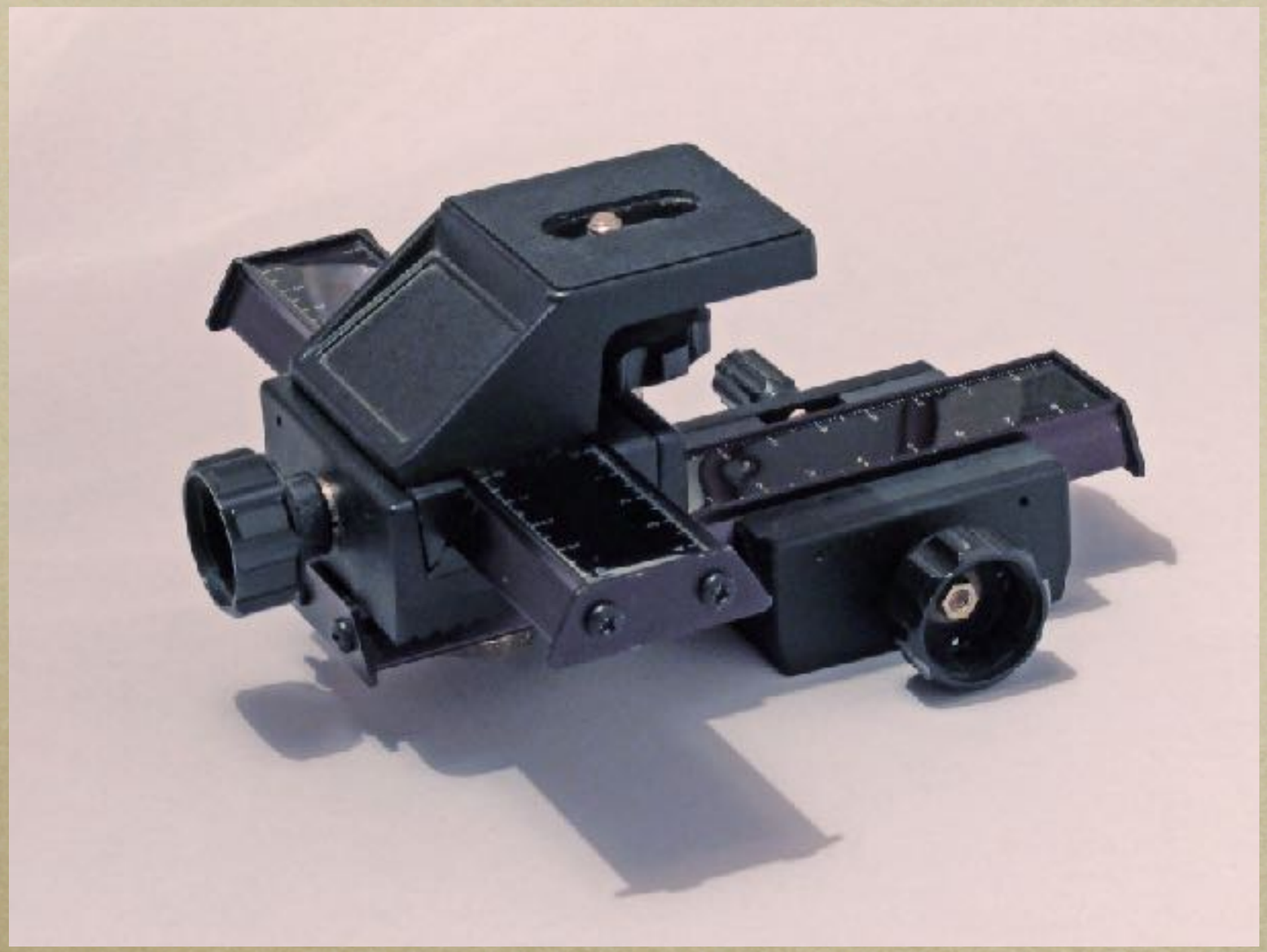


So, a major issue with macro photography is getting the picture sharp where you want it to be because depth of field is so shallow.

Also, any camera shake at these high magnifications is also magnified so holding the camera still is a problem. Image stabilisation doesn’t work close up, even if the lens or camera has it.

Keeping Still

A tripod is very useful because even the tiniest camera movement will affect sharpness, either through camera shake or poor focus.



Adjusting the tripod is awkward and a camera slide can be helpful.

It fits between tripod and camera.

It fits between tripod and camera.

Turning a knob gives fine control over the position of the camera.

It fits between tripod and camera.

This one can move back and forth or sideways.

Some tripods have columns which can be turned sideways, with the camera on the end.

Getting the camera down low can be tricky. Some tripods have a centre column that you can reverse and suspend the camera below it.

Another method of supporting your camera at ground level is a bean bag.

Ground can be messy so a bin liner is useful to keep yourself clean and dry !

Viewfinding

Composing and focusing can be more difficult then usual.

A right angle finder lets you peer down from the top.

This model has two magnifications, 1x and 2x.

The 2x makes it easier to focus but you only see the centre of the image.

You can also swivel it to look from the side.

Additional camera filter thread adaptors can be purchased for different filter threads from our T2 stepping rings (see below).

Right Angled View Finder

The Right Angled View Finder is ideal for close up work, copying, low and high angle work. It is also great for photo microscopy and Digiscoping, fits most DSLR cameras using adaptors supplied.

- Adjustable magnification 1.25x and 2.5x
- Dioptre eyepiece adjustment
- Dimensions: 56x40x93mm
- Net weight 105gms
- Supplies in protective case
- **Supplied with adaptors for:**
  - Canon EOS, Pentax, Leica, Nikon, Sony Alpha

.....£39.95

D, C, and RMS Mounts

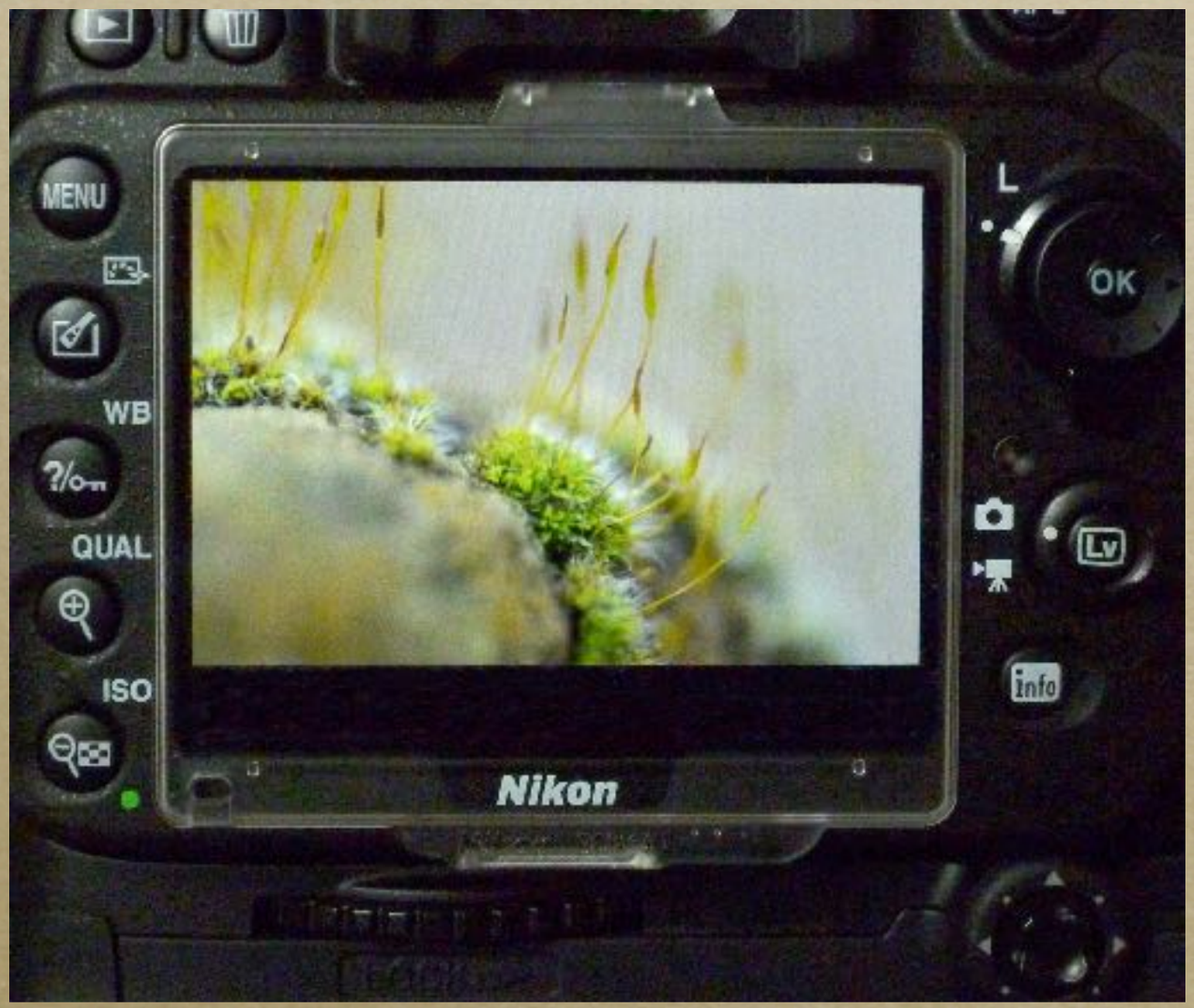
The D, C and RMS mounts give large amounts of magnification because of their short focal lengths. These lenses make

Mount

D, C, or RMS to M42.....£19.95

A titling screen on the back of a camera makes life more comfortable for viewing at odd angles, especially when you’re shooting low down.

If your DSLR has live view this can be a big bonus for focusing as you can magnify the image.



As a rule you can move the auto focus point to anywhere in the frame but often it's easier to use manual focus.
This is worth practising.

If you have to handhold, a useful technique is to focus manually then rock back and forth slightly until the subject is sharp before taking the picture.

Lighting

The principles of lighting are the same for close-up photography as for any other kind of picture-taking.

It depends on the subject and the effect you're after. Everything is just smaller and closer.

The only thing that has been changed here is the lighting

backlit for shape

sidelit for form

crosslit for texture

flat for colour

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backlit for shape

sidelit for form

crosslit for texture

flat for colour

All were lit by an ordinary flashgun.

Some photographers like to use a ring flash for close-up work.

It fits around the lens.

This cheap model has LEDs rather than a bright flash tube.

When the shutter opens the LEDs flash, if rather dimly, but it’s bright enough if you’re close in.

You can have it illuminate just one side if you wish.

The brightness is controllable as well and it runs on four batteries.

I find the light rather flat and uninteresting but it’s good for filling in shadows.

ringflash

Apertures

The aperture of a lens is calculated as the focal length divided by the effective diameter of the hole.

It is measured when the lens is focused at infinity. As you focus on closer objects the effective aperture becomes smaller and as a rule the difference is negligible.

But at high magnifications the difference becomes noticeable. Your automatic camera will allow for this but you may notice that the f/number may show as, say, f/3.5 instead of f/2.8 as marked on the lens.

Focus Stacking

A common way to get great depth of field is to focus about one-third into the picture and stop down a lot.

f/ 4

focus ▶

f/ 8

focus ▶

f/ 16

focus ▶

f/ 32

focus ▶

We know, though, that small apertures need longer exposure times and that apertures smaller than f/16 will lose sharpness.

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Focus stacking lets you take a series of shots, each focused at a different distance and combine them to show the sharpest bit of each.

Take a series of exposures, each one focused on a different point.

Take a series of exposures, each one focused on a different point.

Adjust the focus by moving the autofocus point or focus manually.

If it’s very close you can set the focus and move the camera back and forth.

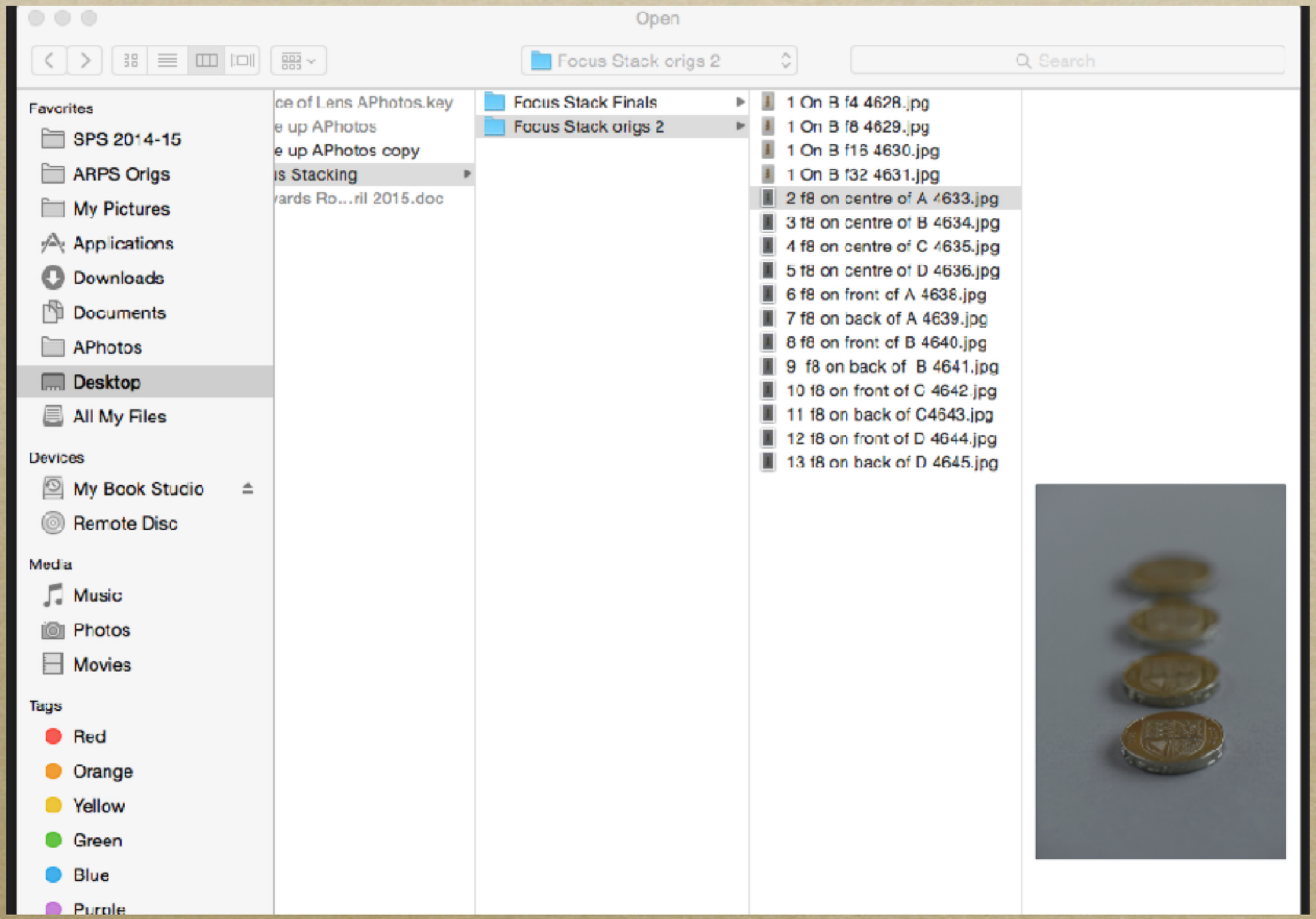
Take a series of exposures, each one focused on a different point.

Adjust the focus by moving the autofocus point or focus manually. If it's very close you can set the focus and move the camera back and forth.

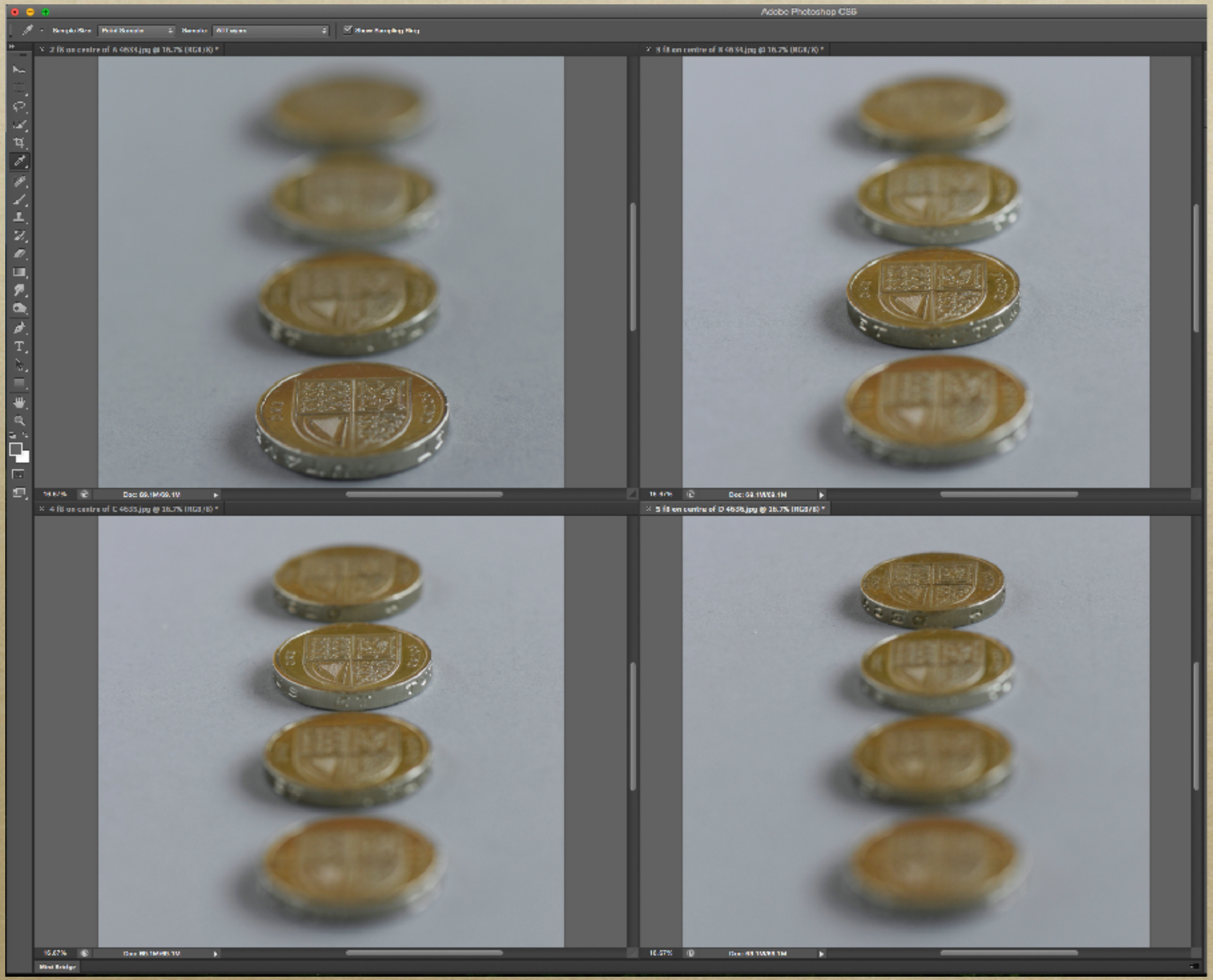
However you do it, the size of the images will alter, so the first job is to align and resize the images as a set.

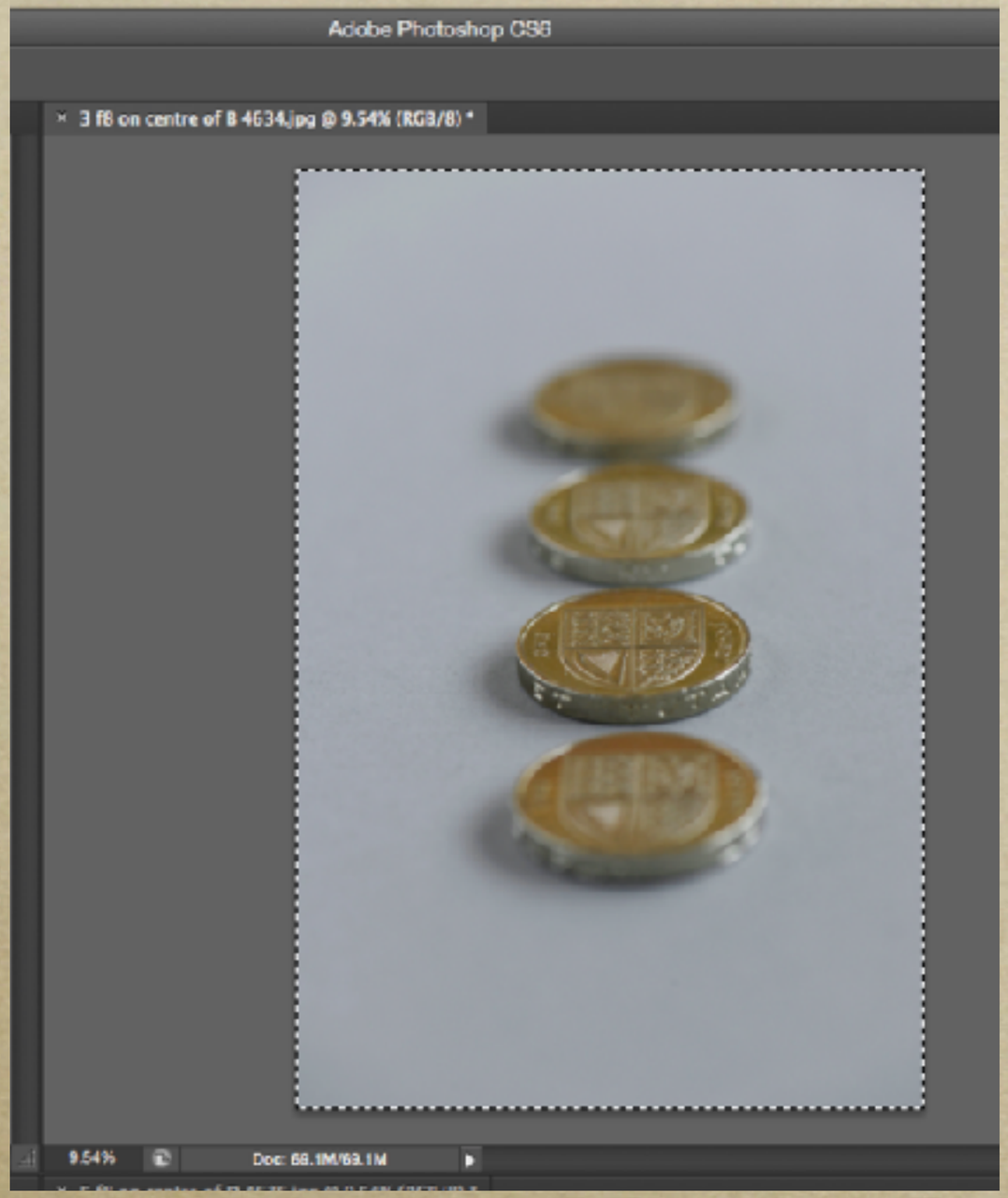
You can do this most easily in full Photoshop but it is possible in Elements 11 and later.

For my first test I took four pictures, each focused at the centre of a coin ….

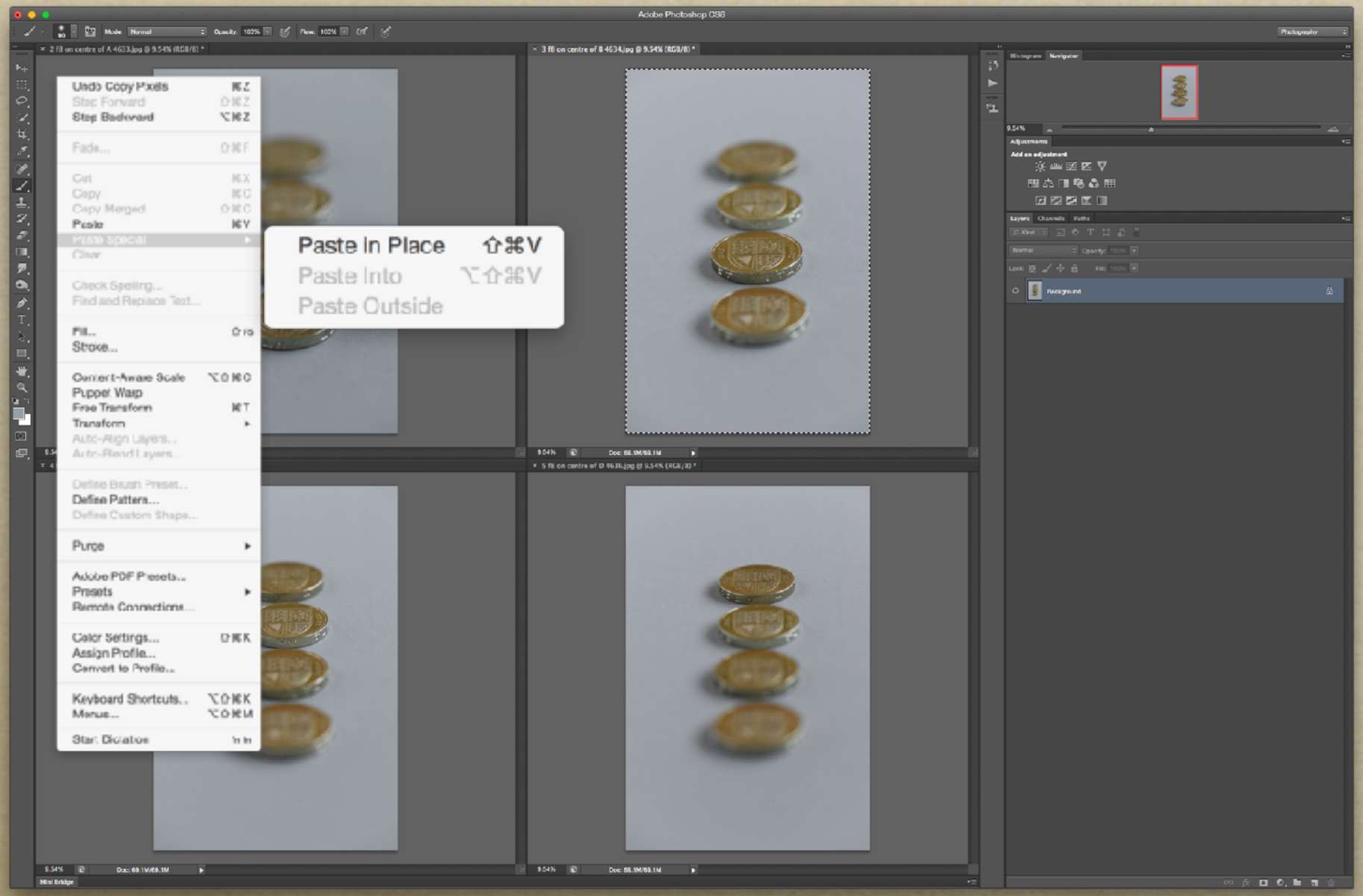


Open all four shots

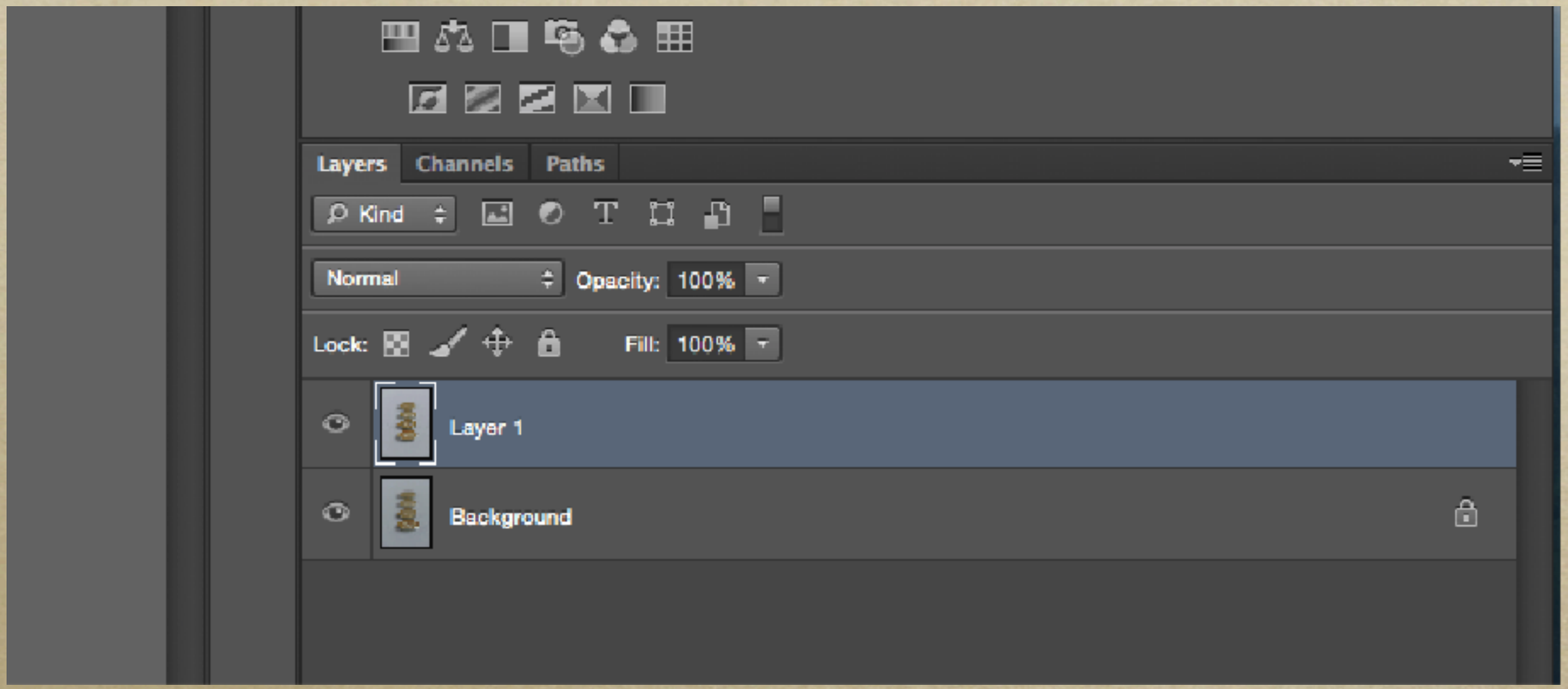

Adobe Photoshop CS6



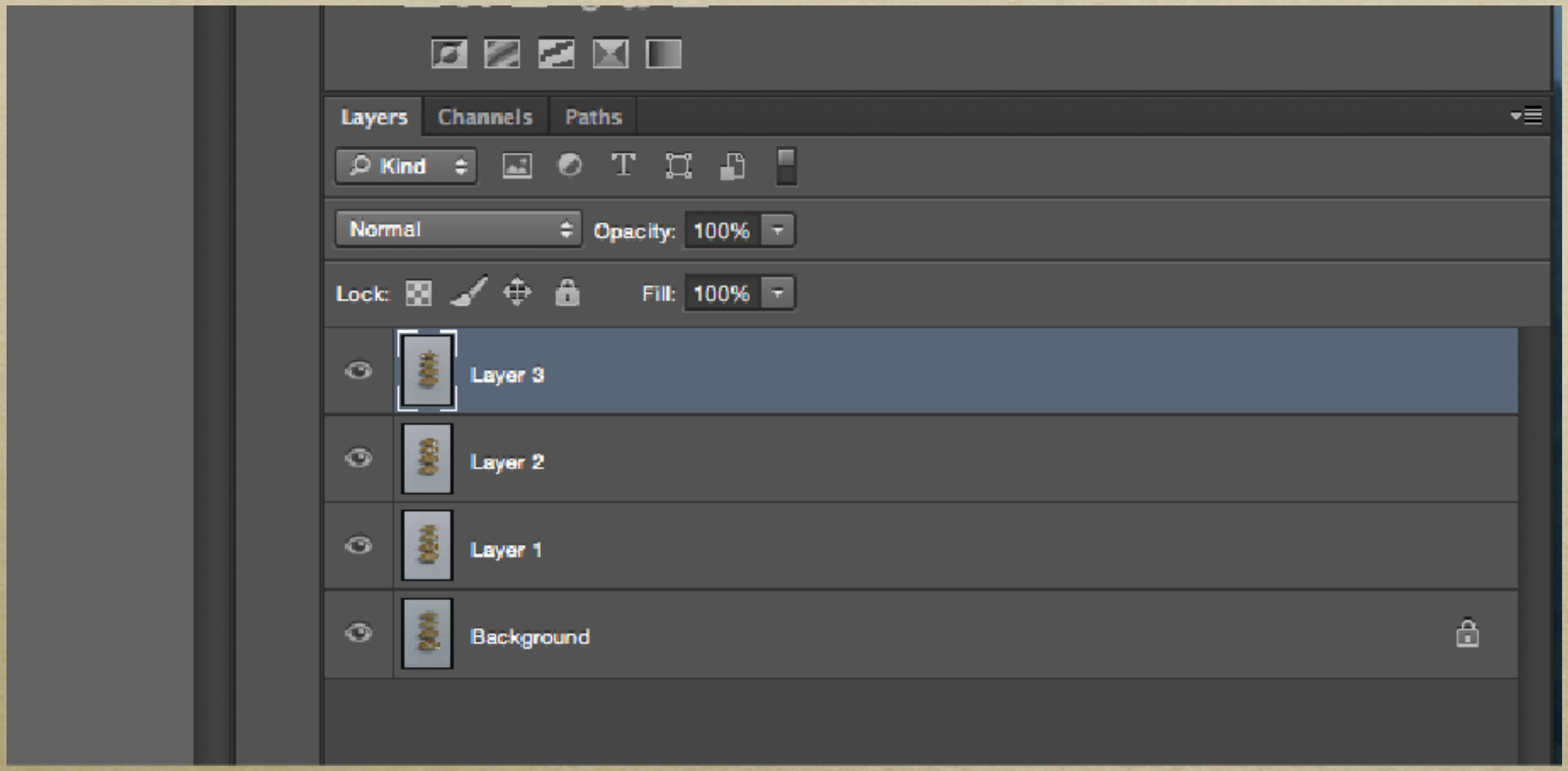
Choose the second one of the series, select the whole image (ctl A) and copy it (ctl C).



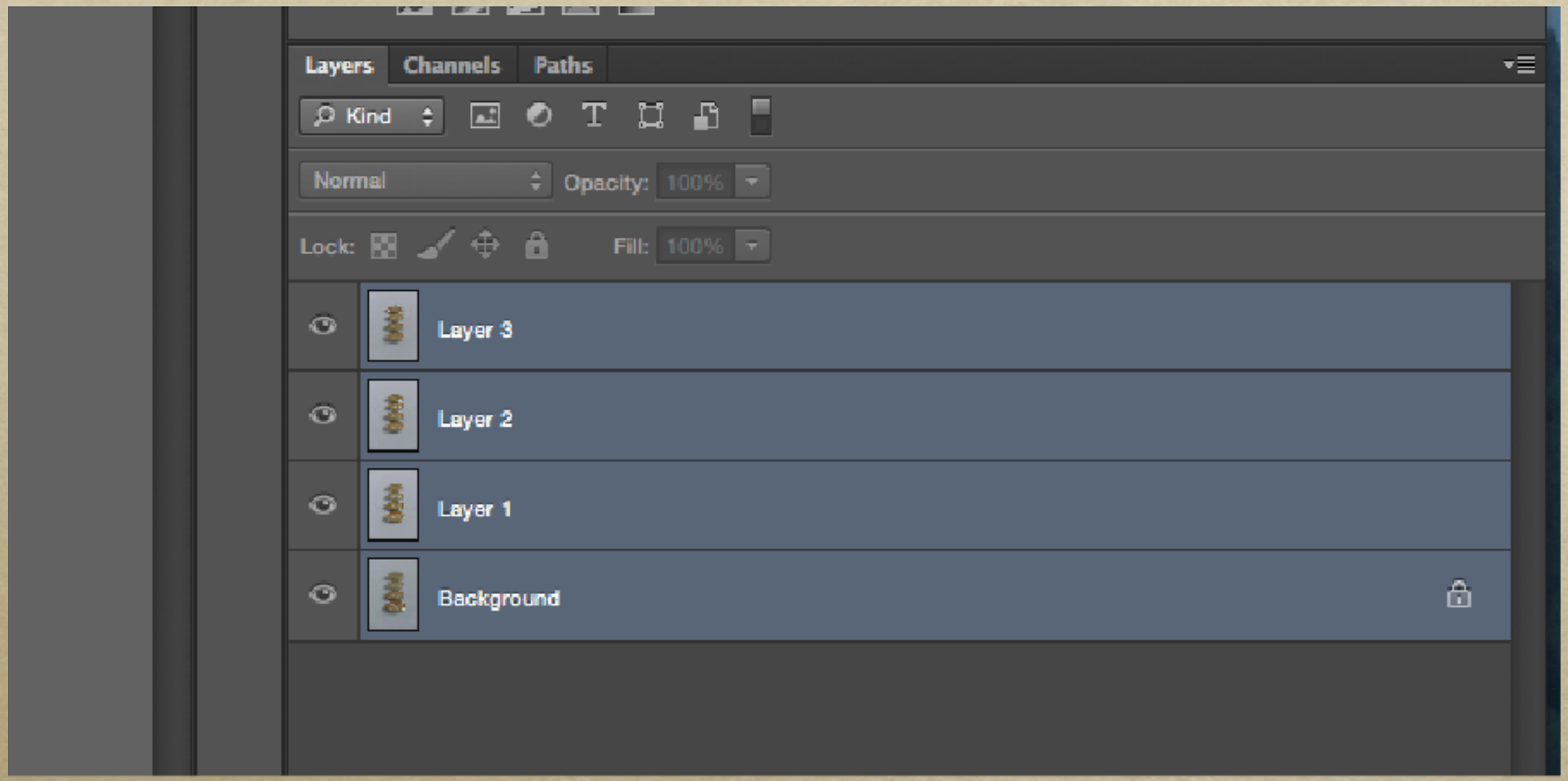
Now choose the first one of the series and “Edit - Paste Special - Paste in Place” onto it.



You'll see the copied image appear as a new layer above the first one.

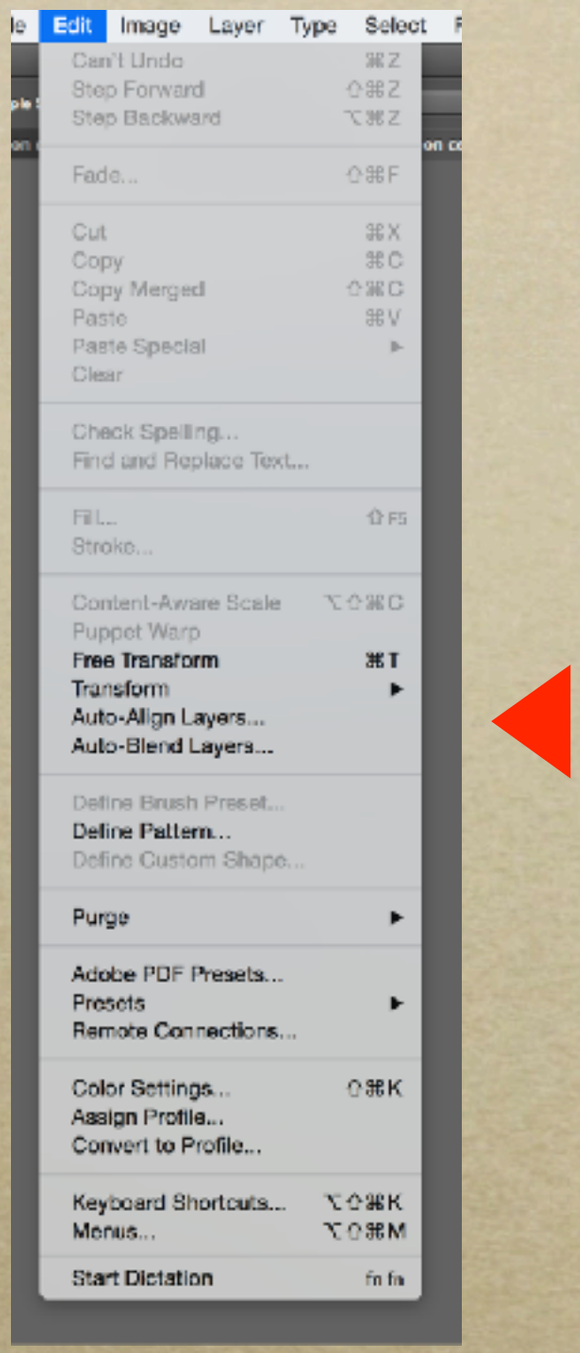


Now select, copy and paste the other images as well. You have four layers.

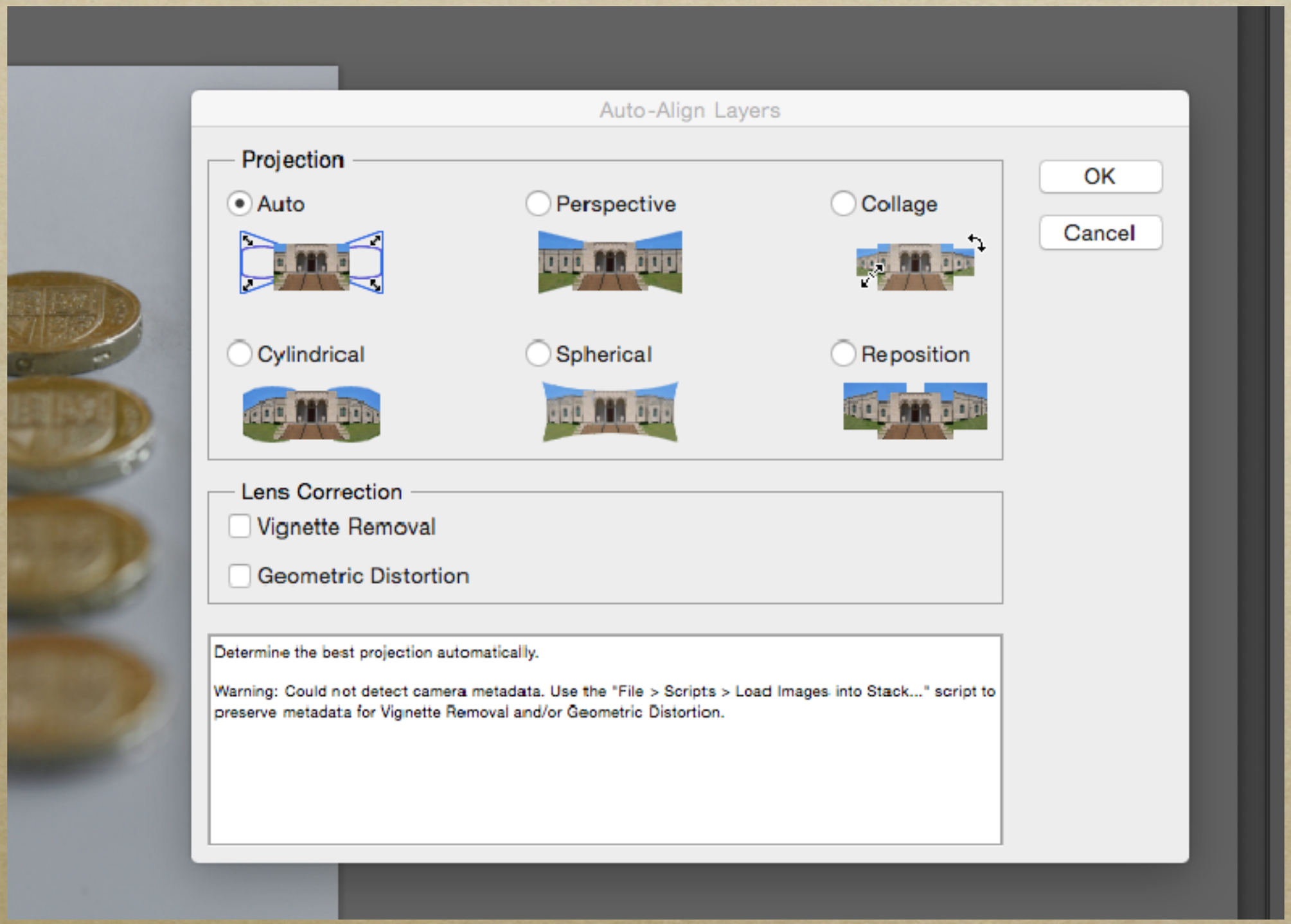


Now select, copy and paste the other *images as well. You have four layers.*

Select them all.



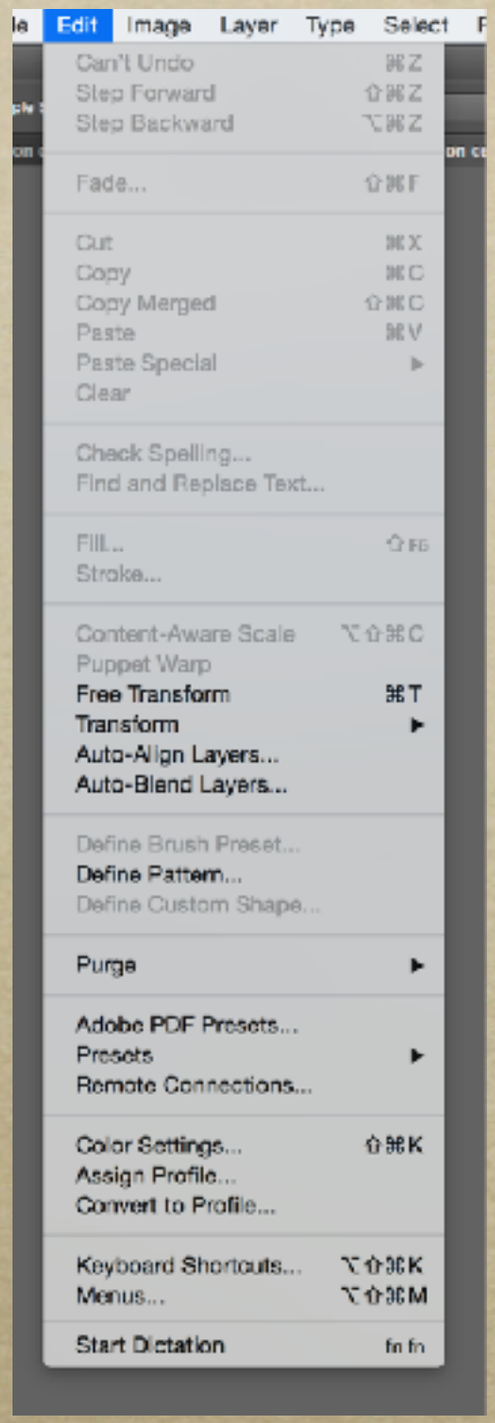
Go to “Edit - Auto-Align Layers” and click on that.



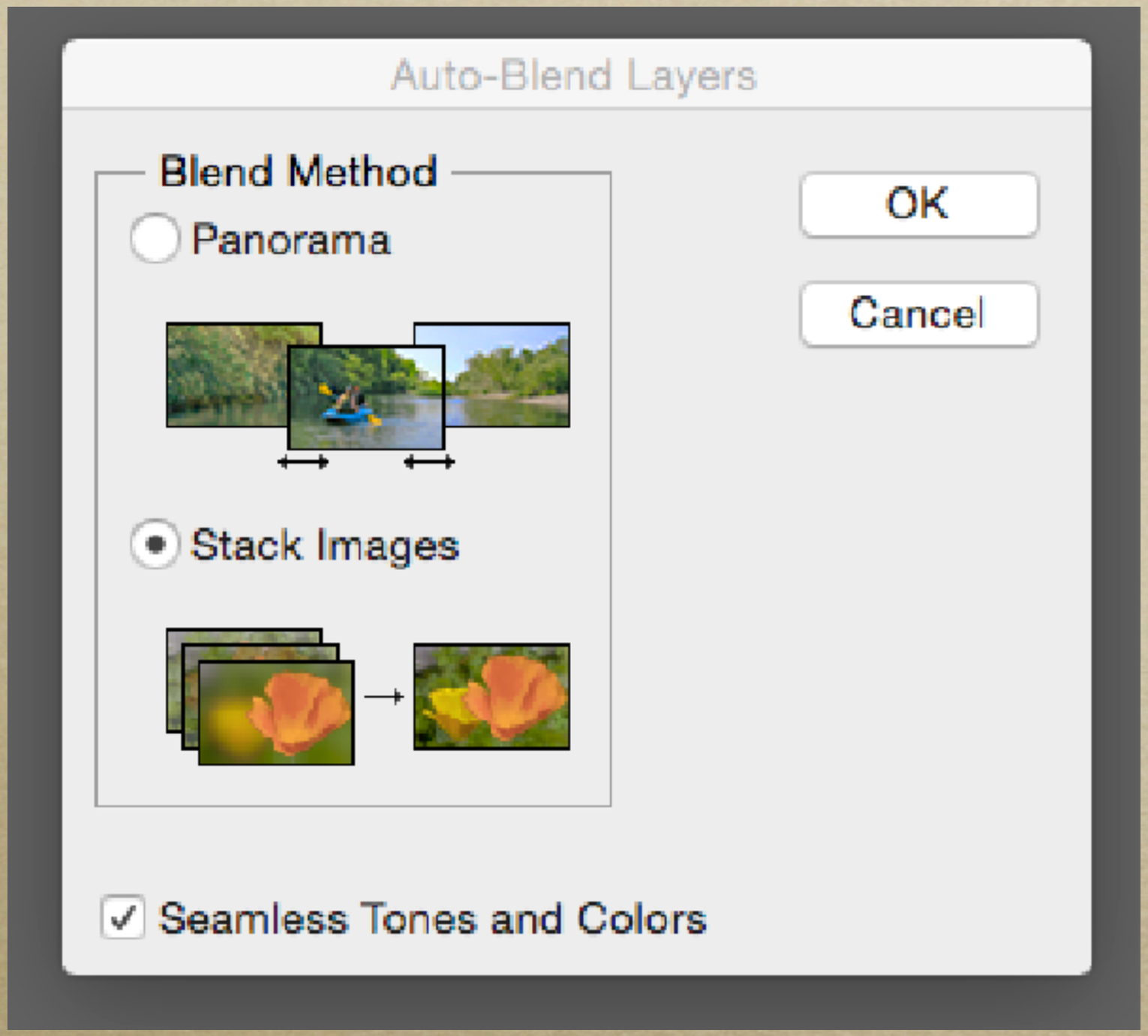
Check “Auto” and click OK

It will churn away and line up the images to show this.

Now to combine the layers
and show just the sharp bits …

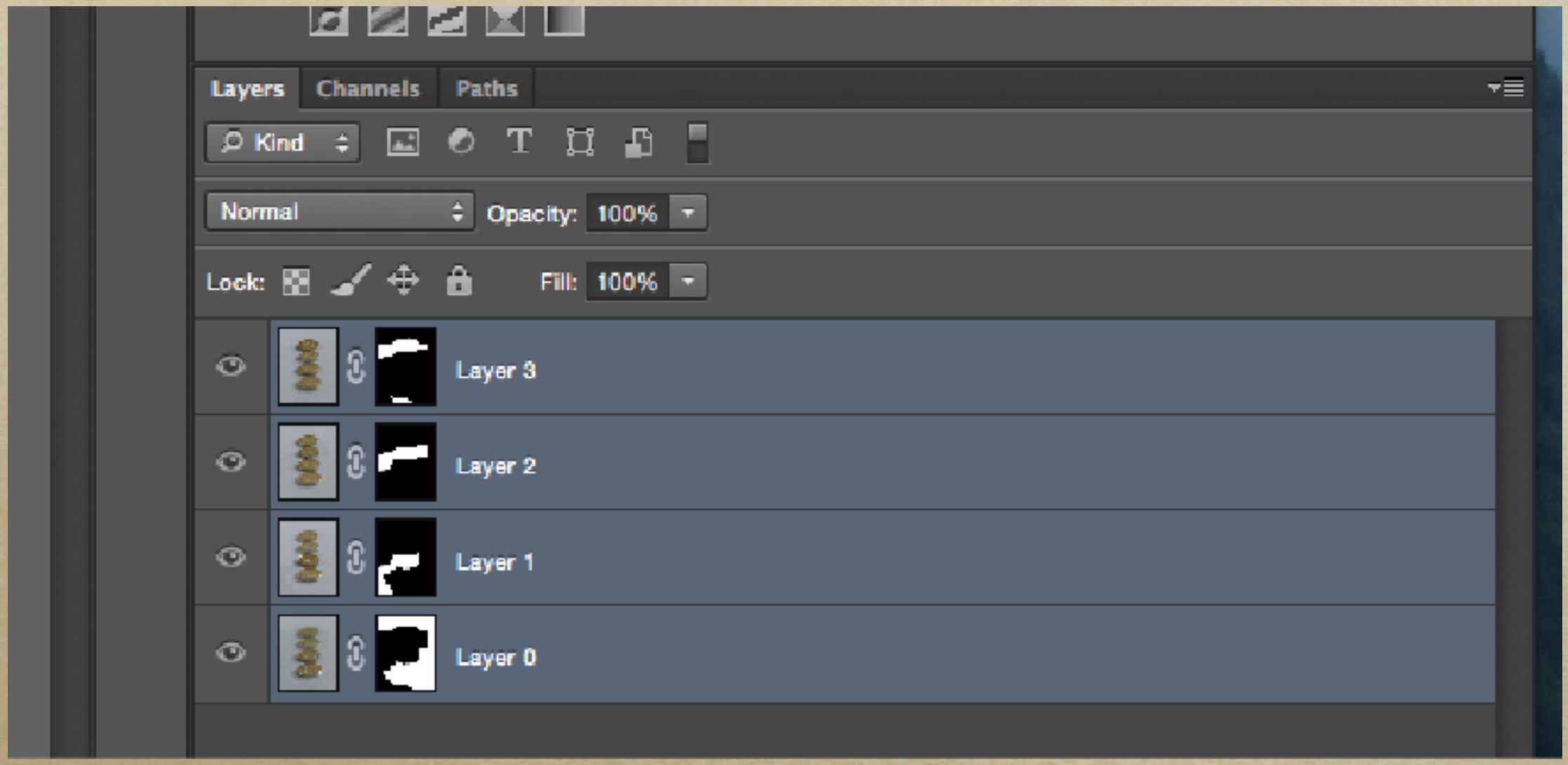


go to “Edit - Auto-Blend Layers” and click OK



Check “Stack Images” and click OK

and this is what you get !



You can see on the layer masks which bits of each image were used.

f/32 straight
better at the front

f/8 four stacked
better at the back

I noticed that the middle of each coin was sharp but the front and back edges were not, so I did the process again but this time with eight separate images.

f/8 eight stacked

f/8 four stacked

better everywhere

f/8 eight stacked

f/32 straight

better everywhere

Focus Stacking in PSE 11/12

These are not my comments ..

You can do it in Elements (at least in PSE 11) using Auto Blend Layers.

One use of Auto Blend Layer is for focus stacking, where you create huge depth of field by blending images taken at different focus points.

You need two actions. One to align the layers (different focus points changes the field of view enough to require scaling and alignment) and a second action to blend the images so that only the bits in focus from each image shows.

I had a set of six images of a rose taken at different focus points. They need to be put into a single file as layers (I shot them raw and from Lightroom brought them into PSE11 using the Elemental plug-in which has an option to import as layers). I then selected all the layers and ran the Auto Align Layers action. With them all still selected I then ran the Auto Blend Stack action and, like magic, layer masks were automatically added so that only the bits in focus show in the final image. I then cropped and tidied up the merged image.

PS Because Elements is a 32 bit program and these actions need to run in RAM memory you will run into "Not enough Memory" errors if you have a lot of layers and big files. If that happens you need to reduce the pixel dimensions of the image.

f/ 5.6

I tried a much closer subject, using a macro lens plus a 1.7x converter. This moss is only about 1cm high.

f/ 11

f/ 5.6

f/ 22

f/ 5.6

f/ 45

f/ 5.6

f/ 64

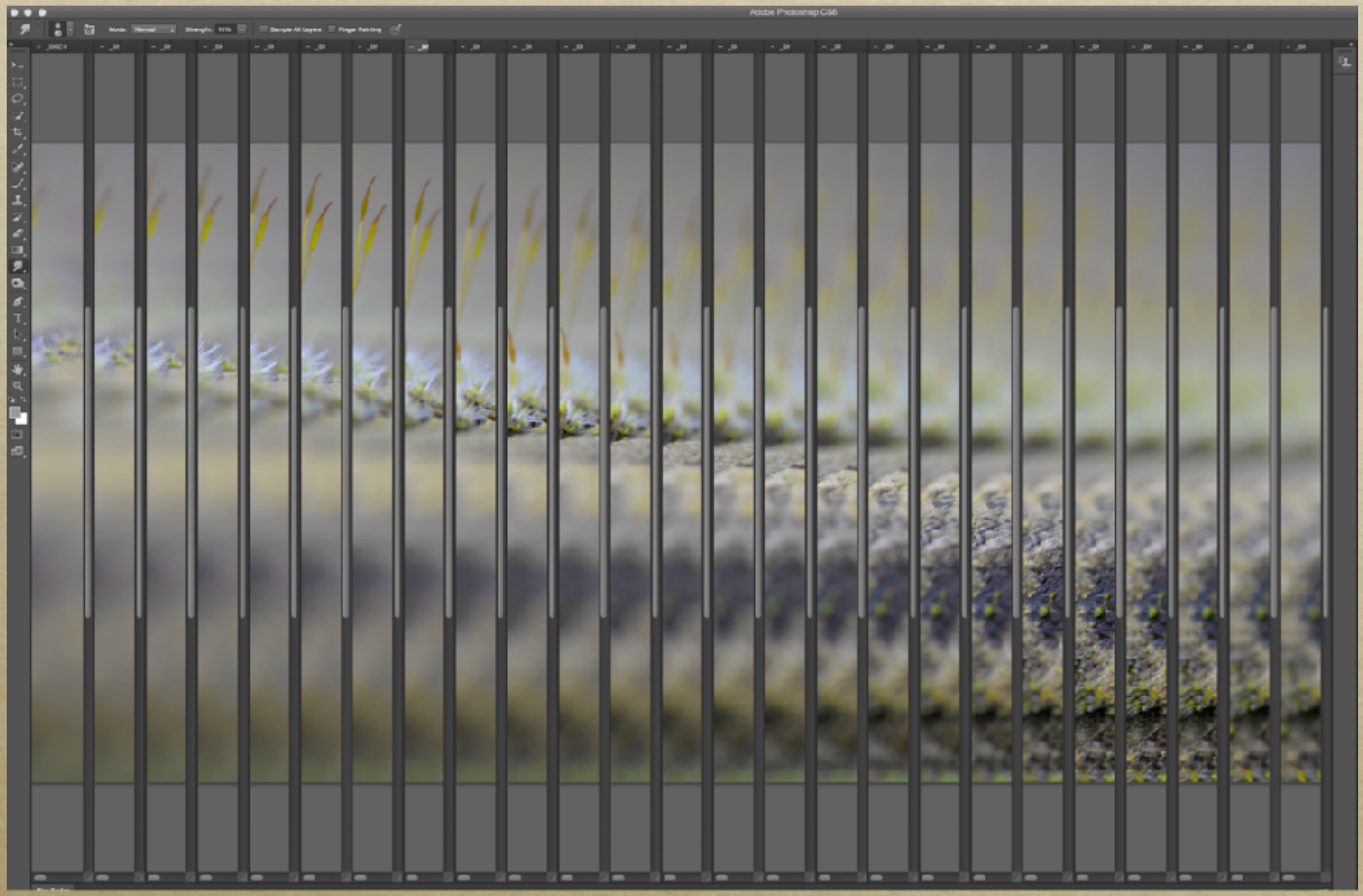
f/ 5.6

Then I took 25 images using the camera slide and stacked them.

The nearest

The nearest

The furthest



The set of 25 images, showing that the focus point is changing.

The final stacked image

You'll notice some artefacts around the edges to be trimmed off.

You might use the shallow depth of field to some effect. For these three shots I changed only the focus point ..

You might use the shallow depth of field to some effect. For these three shots I changed only the focus point ..

You might use the shallow depth of field to some effect. For these three shots I changed only the focus point ..

You might use the shallow depth of field to some effect. For these three shots I changed only the focus point ..

The aperture was f/1.4 to get the depth of field as shallow as possible.

Out of interest, I focus stacked them but it really needs twenty or more separate shots to work properly.

Middle focus, f/1.4

Three stacked

Summary

- Some special equipment is needed but not necessarily expensive stuff
- Depth of field is VERY shallow
- You can’t hold the camera steady at high magnifications.
  Use a support
- Lighting and composition are the same close up as in any other type of photography