Newsletter for week ending 28th July 2018

Landscapes at f2.8 – you bet!

an image shot at f2.8 with the FZ300/330 with 2 metres to infinity sharpness!

Every so often I will get a question from subscribers which goes along the lines of:
Graham, I've just joined a photography class and my instructor tells me that I must shoot landscapes at f11 or f16 to get sufficient depth of field! How do I do this with my FZ300/330 please?

When I get this question my blood boils and my "rant" mode kicks in!
Firstly, it assumes that everyone is using a camera with either a full frame or cropped APS-C sensor (DSLR snobbery?) and secondly it shows that the instructor probably knows less about photography than the students in his/her class!

Well absolutely correct - if you are using a full frame camera or APS-C with a 1.5 or 1.6x crop factor then yes you need to shoot at an aperture of f11 to f16 to get large enough depth of field to cover foreground to background sharpness in your image.
Additionally, focussing 1/3 of the way into the picture will approximate shooting at the "hyper focal distance" which will also improve the range of focus depth.

However, when you shoot with a smaller sensor camera you need to consider the "crop factor"/ aperture equivalence.
Without going into any technical explanation of the optics, a smaller sensor camera produces the same depth of field as a full frame camera whose aperture is set to the aperture equivalence on the smaller sensor camera. For example, on the FZ300/330 the crop factor/aperture equivalence is 5.4 so with the FZ300/330 set at f2.8 the full frame camera would need setting to f16 to get the same DOF when the lens is set to give the same field of view.

the same image taken with a full frame camera set to f16 at 50mm focal length

If we look at the full frame image with the camera lens set to f2.8 you would see a very shallow depth of field.

in each image the focus was set manually at the point shown

This narrow depth of field is argued as a “differentiator” between professional and amateur cameras/lenses!

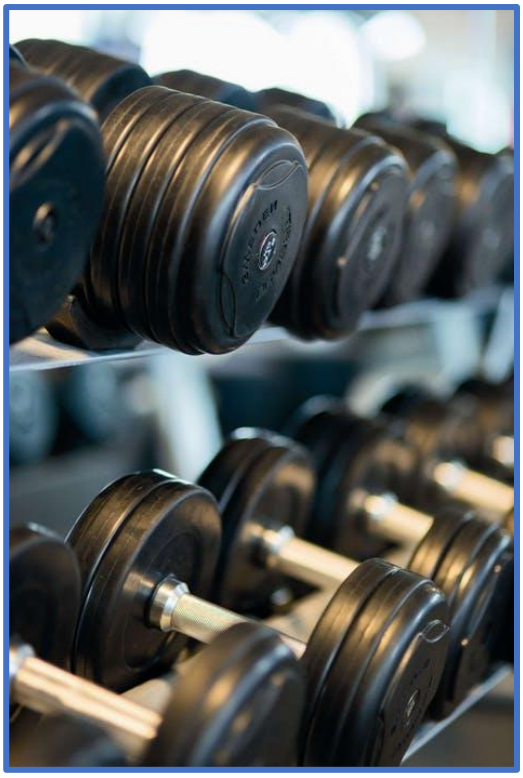
Well in many instances it's not the shallow depth of field that you want, it's just the opposite!
With the inherent larger depth of field relating to the crop factor/aperture equivalence of the smaller sensor camera it is sometimes a distinct advantage to shoot with these cameras. Group shots at weddings, close-up and macro shots spring to mind here. With the FZ300/330 (or the FZ200 as well) the bright f2.8 lens will give superb depth of field when set to the wide angle – short telephoto (60mm EFL) settings.

There is only one caveat that I will throw in here in defence of the larger format sensor and that is image noise – especially in low light situations.
We have seen how aperture equivalence works by the value of the crop factor. In the same way, the ISO equivalence works as the square of the crop factor. So, the ISO equivalence of the FZ300/330 is about 30 times. So, ISO 100 on the FZ300/330 gives the same amount of image noise as ISO 3200 on a full frame camera (assuming same generation sensor technology). If you look at this the other way, the full frame camera is 30 times less noisy than the FZ300/330 for any ISO equivalence!

Regular viewers will know that I always recommend using f4 with the FZ200/300/FZ330 as the lens "sweet-spot" happens at this value. At f2.8 there is a little un-sharpness at the corners of the image.
Both images above are shot using the lens sweet spots for each lens and both cameras set at ISO 100.

The FZ300/330 image (left) and full frame (right) enlarged from the above images showing details at 150%

Call the medics, I need my head examining – I've joined a Gym!



I never thought that this would happen but I've come to the point of realisation that without a focus point I will never be able to achieve my goal of losing weight, improving fitness and mobility. When an offer came through the letter box promoting subsidised membership to a local gymnasium I took this as the sign to commit to a change of lifestyle.
OK some very clever marketing by the gym in promoting what appears to be a very subsidised membership doesn't bear fruit when you factor in that the membership was restricted to off-peak and Monday to Friday and excluded some activities. It is still cheaper than normal rates but locks you into a three-year subscription to get the full subsidy.
To me I would have to be there at 6.30 am and do about an hour followed by a swim and be back home for about 8.15 so that it has minimum impact on my day.
I had my induction and did my first session the following day. My plan is to go Monday, Wednesday and Friday initially to get some benefit before next month's medical check-up.
Is it the right way? I'll let you know.

Nikon's 2300mm (x125) EFL Bridge camera the P1000

Nikon announced the successor to the x83 P900 in the form of the 1-2/3-inch sensor Coolpix P1000.

The P1000 is obviously designed for extreme zoom scenarios like nature and space photography, and to that end it has dedicated bird-watching and moon-shooting settings on its mode dial.
The camera can shoot 4K video at 30 frames per second, has an OLED electronic viewfinder, supports RAW image capture. It weighs 3.1 pounds / 1.4 kilograms, so it's probably not something you'll casually sling around your neck!
Covering 24mm-3000mm EFL from f2.8 to f8 and has 16M pixels.

Now there are some terrible videos already on YouTube of this camera in operation and do nothing to promote the image quality (or lack of) of this super-super zoom.

With a maximum aperture of F8 at the long telephoto you are going to need some good light to use this camera, IMHO.
In addition, it would be best used on cold days with little atmospheric pollution or heat haze as this clearly degrades the images/video from this camera as is very much evident in all the test clips that I have seen.
It's massive and no way a stealth camera! It will have a very specific market I feel and one that will probably not be enjoyed by people following this blog/newsletter.

Now these super-super zooms are an area that I have stayed away from since I first tested the FZ70 four years ago and returned it the very same day as I could not get an image that I thought was acceptably sharp no matter what I tried. Plus, it had no self-timer or remote as far as I recall and for video it had no external mic support.

Now Panasonic have introduced the FZ82 with the option to shoot 4K video, post focus ability and 4K photo mode there has been an increasing number of emails in my inbox asking would I do some tutorials for this camera. There is obviously a need out there so I've purchased one to do a review and short series of tutorials for those who would find this camera suited to their needs.

Panasonic Lumix FZ82 First Impressions

The FZ82 reminds me of the FZ200 with the EVF but a hybridised version of the FZ300/330

I must state that my expectations for this camera were not that great as I had purchased the predecessor FZ72 and returned it the same day as I could not get sharp images no matter how I tried.

The FZ82 has seen a lot of improvements in the form of a touch screen, higher resolution LCD and EVF plus 18 Megapixel sensor with a starting ISO of 80. The lens now covers 20mm to 1200mm EFL optically and 1200 to 2400 using the i.Zoom feature.
It records 4K photo and UHD video including focus stacking, post focus and 4K photo mode.
It also has time lapse and stop motion animation options.
The lens starts at f2.8 at the widest zoom setting of 20mm but quickly drops to f3.0 around 28mm and finally f5.9 at the 1200mm EFL setting.
It is a 1-2/3 inch sensor thus giving a 5.4 crop factor.
Interestingly the ISO for this model again starts at ISO 80 and as I found during my tests this is, like ISO 100 is for the FZ300/330, the best setting to use if the shutter speed for correct exposure is sufficiently short enough to prevent subject motion blur.

It is charged via USB, no external battery charger is provided and again a non-standard battery to add to the many different batteries used by Panasonic.
The camera has a 55mm filter thread compared to the 52mm thread size of the FZ300/330. No lens hood is supplied – just the lens cap. You can use the LA8 extension tube and LT55E tele-lens and the LC55 close-up lens if you already have these.

There are no lens barrel switches – everything is done via the LCD touch screen for setting AF Macro mode/manual focus/Focus mode etc.

IMAGE QUALITY

Surprisingly the image quality isn't all that bad. You have the option to shoot RAW files if you want to squeeze out the last drop of image quality but the JPEG files aren't too bad. I used the -2 sharpening and -5 noise reduction settings in the standard Photostyle to eliminate JPEG sharpening artefacts. I then added post process sharpening and noise reduction as part of my usual workflow.

I used Luminar 2018 for all the RAW processing of the test images and it coped very well with the lens distortion and chromatic aberration that were visible in the RAW image.

a backlight subject using 750mm EFL (you can see the spiders web very clearly)

One of the concerns I had was that of long focal lengths tend to exaggerate any atmospheric conditions. These often render the image file useless.
Heat haze is the worst offender giving very blocky images and very low apparent resolution.

I tested this lens out on a local television transmitter mast which is about 2 miles from the capture point. The image was taken at around 7pm after another 24 degree C day in the north of England.

One week ago this shot would not have been possible because of the moorland fires and the plumes of dense smoke that the burning peat was throwing into the air.

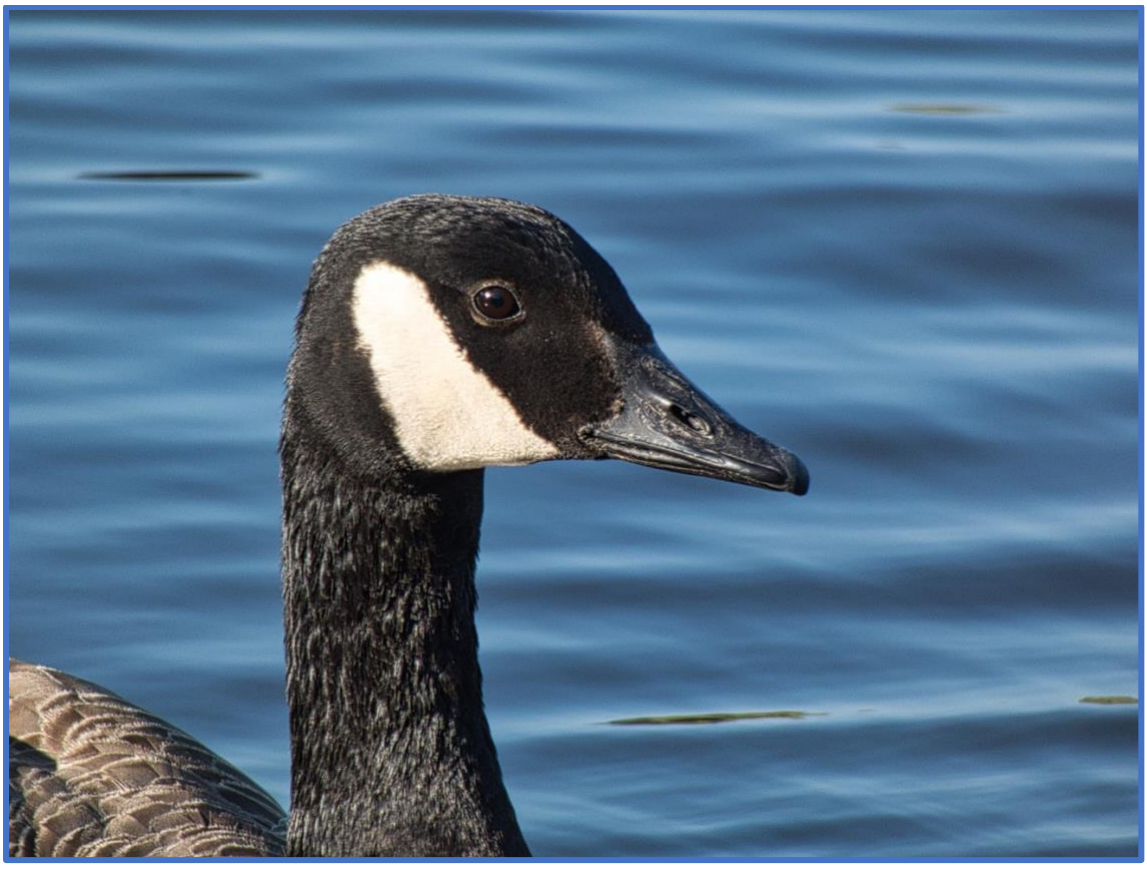
The first image is the one at 20mm EFL to show the location of the mast, high up on winter hill moors. The second shot is at 1200mm EFL (x60 optical zoom) and the final image is using i.Zoom to extend the effective focal length to 2400mm (x2 i.Zoom)

The TV mast is just right of centre

1200mm EFL shot

shot using 1200mm EFL Optical plus x2 i.Zoom = 2400mm EFL

All the images were taken with the ISO set to 80 and the RAW file processed with Luminar 2018
Considering the distance to the mast I think the resulting image is more than acceptable for most users of this type of super-zoom camera.



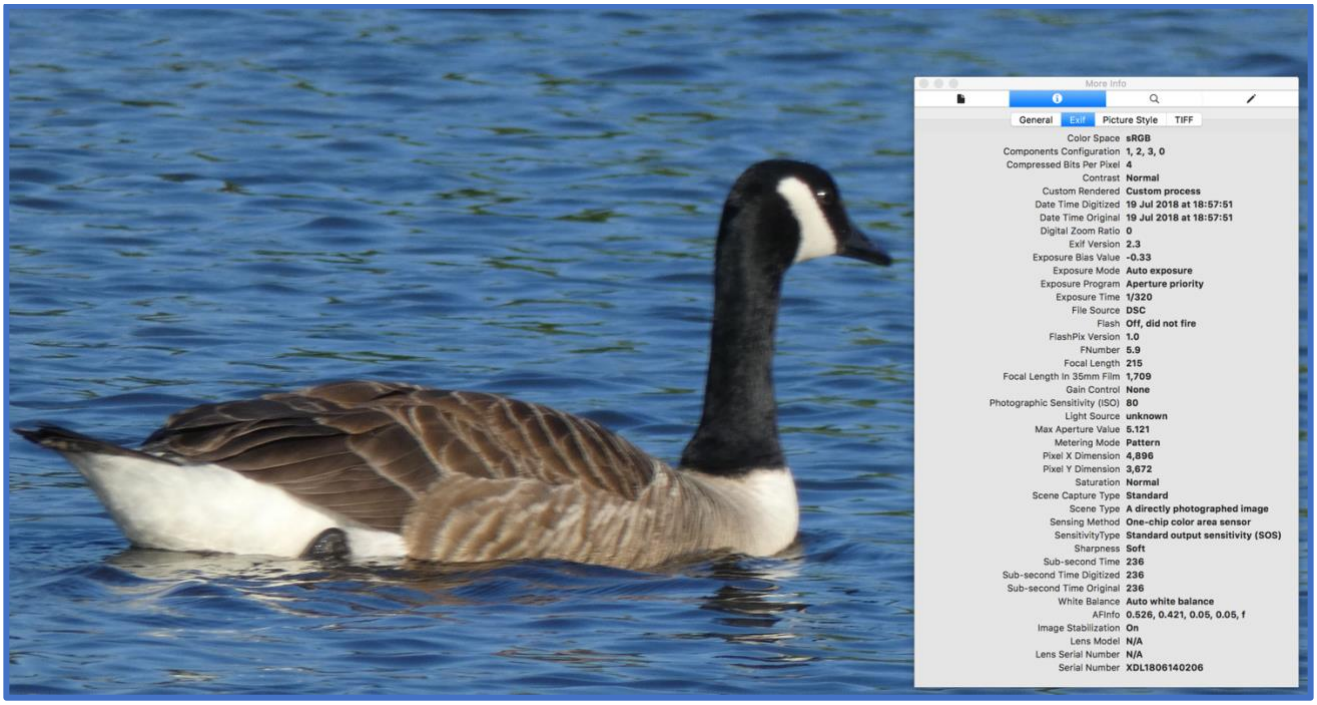
1200mm EFL optical zoom ISO 80 F5.9

both these images are 1200mm EFL ISO 80 f5.9

with a 1 cm, closest working distance at 20mm EFL close-up images are easily captured

One of the biggest problems that will face users of these super-super zooms is loss of image sharpness due to subject movement during the exposure. The OIS will do a great job of smoothing out any handshake but does nothing for any image movement. As a rule of thumb, it is suggested that a shutter speed equal to or faster than the reciprocal of the focal length (1/focal length) is used.

Therefore, if you are using this camera at full optical zoom equivalent to 1200mm the minimum shutter speed should be 1/1200 second. In the image below (with 1.5 x i.Zoom applied as well) you can see that the subject is not sharp since it is moving and my shutter speed is only 1/320 sec.



In some lighting situations, it will be necessary to use a higher ISO than my recommended base ISO of 80. This will introduce an element of noise into your images.
This noise will be dependent upon lighting contrast, the amount of the image in the shadow portion and the value of the ISO set. However even in areas of good lighting contrast there will be evidence of noise. Look at the 200% crop enlargements of the images below. ISO 80, ISO 200 and ISO 400.

in practice ISO 200 would be my limit! But others may be happy with ISO 400

In a test, today in dull and overcast lighting the average exposure time was 1/80 sec, f5.6 at ISO 80 when the camera was set to a focal length of 900mm EFL.
The net result was that a lot of images shot were ruined by motion blur both camera shake and subject motion where the lens was set to anything over 100mm EFL.

image softness due to camera shake and subject movement

a touch of pop up flash to arrest camera shake

Using a Raynox 150 close-up lens and pop up flash

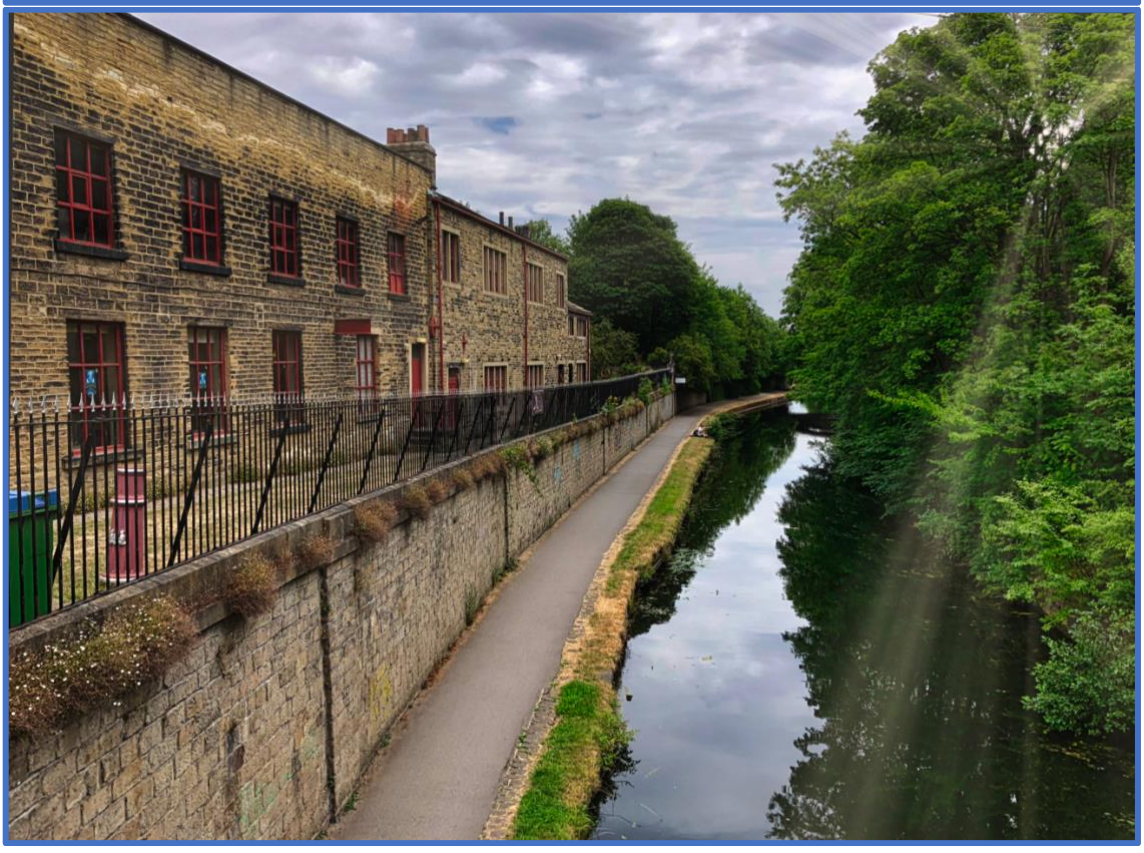
You will be able to see my full review with more sample images in the review page of my photoblog and a Youtube video.

Luminar 2018 Progress

You may recall that I said that Skylum had contacted me to review the Luminar 2018 photo editing software.

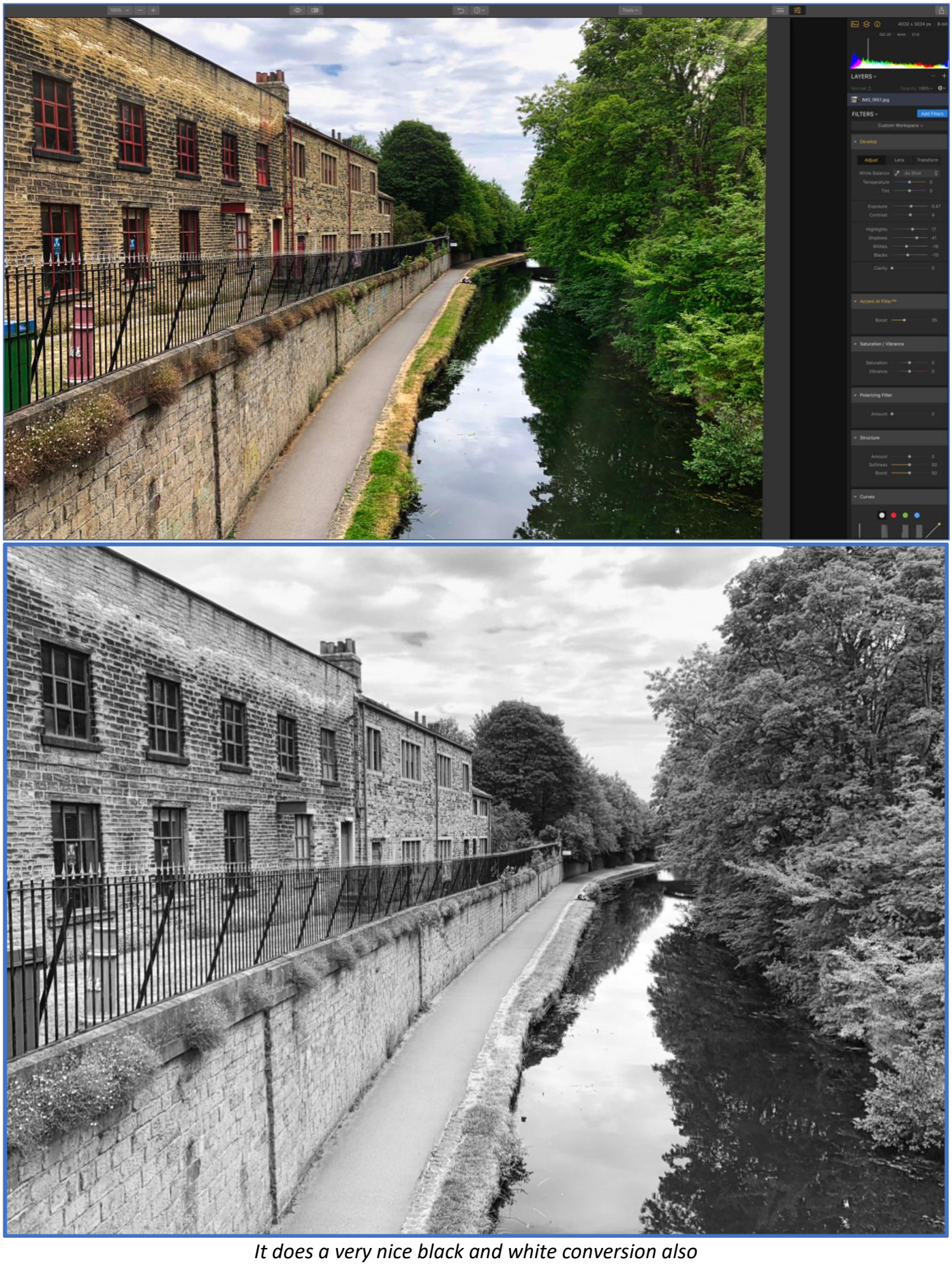
Well I've downloaded the program and began to use it to edit everything from my smartphone to G9 and Olympus EM1 mk2 cameras just to see how easy it is to make both simple and complex adjustments compared to using Photoshop, Lightroom and Affinity.

I've also started to add RAW + JPEG to my workflow so that I can see how easy it is to edit RAW compared to JPEG only that I normally prefer.



Here’s an image of Armley mills in Leeds. The upper one is an iPhone X image straight from the camera And the one below is the image processed with Luminar 2018 to deepen the sky, add the sun rays and enhance the foliage on the trees. It literally took just a few minutes to turn the dull image into one with more dramatic look.
Anyone can do this it is so intuitive to use and you can select the style of edit most suited to your own skill level.

I’ve only just began to scratch the surface of what is capable however I can say that it is so transparent and easy to use that even editing RAW files is as simple as JPEG processing as all the adjustments are on the same page rather than having separate develop modules etc.



It does a very nice black and white conversion also

Evaluating travel zoom cameras

I had previously used, and recommended, Panasonic travel zoom cameras but increasingly became annoyed at the lack of dust proofing to the lenses in those cameras.

As the cost of the latest travel zooms approached the price of a mid-range compact system camera I was no longer prepared to accept the fact that these lenses sucked in dust and pollen like a portable vacuum cleaner. Panasonic just don't seem to have addressed the issue so I decided to stop buying that range of cameras.

Even the latest model I have the TZ70 (ZS50) became so dusty that I could no longer shoot images with any hint of the light source being in the image. I was shown a technique by a subscriber to this blog by which the front element of the lens can be removed. It's a very risky operation and in fact I manged to break part of the plastic lens frame of my camera in attempting this.

I did manage to get the lens clean and back into operation after I had done some micro gluing of the broken component. With the earlier cameras, like the TZ7, I was happy to split the lens to clean but the later lenses are too complicated and the risk of not being able to get the lens back together is a real possibility.

In evaluating the need for such a camera, the choice becomes quite limited if you want to also shoot 4K video. Sony and Panasonic are the only options and Sony are just too expensive!

I find that 1080p is just too poor now. When you view 4k material on a 1080p screen you see that there is so much more sharpness and clarity in the video.

If I want to shoot just stills, then one of the Canon Powershot SX series is a great choice as I got super images with the SX700. The SX720 HS is tempting as there are good deals on it now – 20M sensor and x40 (f3.3 to f5.9) zoom will limit its use to daylight but still a good choice I think. 4k is available on my iPhone anyway if I need the general shots with the 28 and 57mm EFL lenses.

a powershot SX720 image

Lens Testing Super Zoom Cameras

Disclaimer: I test and review cameras which I buy retail and use for my own photographic projects. Nobody lends or gives me cameras and I have no connection with any person or entity which makes or sells photographic equipment. The opinions expressed are my own and as impartial as I can possibly be.

With buying and testing the FZ80/82 with its enormous 1200mm EFL f5.9 lens I had to work out a strategy for evaluating test images from the camera.

I did this because I found the proportion of keepers fell steadily as the focal length increased above about 600mm (equivalent).
There are several possible reasons for this.

+ Resolution and contrast decline towards the long end of the zoom. This characteristic is present in every zoom lens that I have tested.

+ Focus speed and accuracy are not as good at the long end of the zoom as at shorter focal lengths and very small changes of focus can have a big effect on image sharpness.

+ The effects of camera shake are greatly magnified at the long end. The OIS works very well but we are talking about hand holding a 1200mm lens here, something that would never have been considered possible a few years ago. Subject motion blur also can catch you out here. With longer focal length the slightest movement in the subject is greatly magnified in the image.

+ Atmospheric interference is greatly magnified by distance from the camera. Haze, smog and distortion due to air turbulence wreak havoc with image definition regardless of the lens or camera used.

Strategies for good results when using long telephoto focal lengths

+ Pick your subject. A clear, simple subject like a bird or animal is best. Long distance landscapes with lots of complex detail do not usually come out well in my experience.

+ Pick your light. Bright sunlight is good, preferably shining across the subject for maximum rendition of shape and detail through creation of shadows.
Avoid overhead flat midday light if possible.

+ Get as close as possible. Closer is better and filling the frame with your subject.
Closer may allow you to use a shorter focal length and puts less air between the camera and subject which will reduce any possibility of atmospheric haze affecting image quality.

+ Pick your season and time of day. Every location has a season when haze, smog and the like are least prevalent. Some wind directions bring clearer air than others.
Atmospheric distortion is usually least in the early morning before the earth starts to heat up by the suns energy.

+ Use the fastest shutter speed possible in the light available. For hand held work Use S Priority on the Mode Dial.
Adjust the shutter speed so the aperture is the widest possible (smallest f number) and the ISO setting is as low as possible.
Do some self-testing to find out how slow a shutter speed you can use and still get decent results at the long end.

+ Practice camera work: holding the camera steadily without tremor, viewing through the EVF with the camera firmly, but not forcefully, placed against the forehead, breathing control (breathe in, breathe out hold your breath and then release the shutter) and shutter release control (slow steady release not stabbing at the button).

If possible sit down and rest your elbows on your knees, turning your limbs into a type of tripod.

+ Use burst mode exposures, pick the best later. There are three ways to do this.

1. Re focus on each exposure separately pressing the shutter for each shot.
   The benefit of this is that focus at the long end can be a touch off sometimes so refocussing for each shot increases the chances for one frame or more with perfect focus.

2. Set AF Single and Burst M. When you press, and hold the shutter the camera will focus once then fire away at about 6 frames per second.
The advantage of this is that camera shake from repeated shutter pressing is reduced. The disadvantage is that if the focus was slightly off then it is so for every shot.

3. For moving subjects use AF-Continuous (or AFF for unpredictable movements) and Burst M with live view on every frame. The camera will follow focus on the subject refocussing for each frame.

+ On a tripod: Set the lowest camera native ISO, cancel the stabiliser, fire the shutter with timer delay (2sec is fine) or using a smart phone app, select the AF point carefully and wait until there is no wind.

I have found that even when using a very sturdy tripod the slightest gust of wind will unsettle the camera enough to adversely affect the image.

An image from the FZ80/82 hand held at 800mm EFL. The houses are about 1 mile away across the valley and taken at dusk (JPEG)

Interestingly this RAW image processed in Luminar 2018 shows a great amount of detail despite the flat light and high ISO

To Polarise or Not?

a circular polarising filter by Hoya

There is much discussed about the effects of using a polarising filter to reduce reflections from water and glass, deepen skies and to reduce sheen of foliage.
A decent circular polarising filter will be quite expensive as it is constructed from two glass filters which must be optically flat and completely neutral in colour. The rotating filter ring must be smooth and not too thick as to cause vignette.

Now there is a counter argument to the use of the filter in the form of suggesting that the filter is unnecessary as it modifies the light in such a way as to make the resulting image look unnatural.
Our eyes do not have a polarising filter; we see the scene in front of us exactly as it is.

If we place a circular polarising filter in front of the lens and it is at roughly 90 degrees to the direction of the source of the light (natural light from the sun) then its ability to reduce the reflections is at its peak. The sky will darken and any reflections will be reduced or eliminated so the scene will be recorded like this but it is not how we saw it!

Maybe it's the look that you want. Certainly, deepening sky is an easy adjustment to make in post processing to simulate the polarising effect but there is no PP software that can accurately remove the reflection on water so that you can see beneath the surface. Reflections add depth to some images and necessary, eliminating them from the image may not be a desirable effect. However, as we know there are no hard and fast rules in photography – if it's right for you then keep the effect.

High ISO Noise Reduction Using Stacking and Median Operation

image created using 6 images stacked and median average applied

single image from stack

processed image

The 200% enlargement show the degree of noise reduction that is achieved using this method.

I have described this method previously in the Photoblog but recently revisited this process for use with still life shots such as in dark interiors of building such as churches etc.
It does need a tripod for best effects although some degree of success can be had using hand held exposures. The exposure must be sufficiently short to prevent camera shake. Using photoshop the “align images” does a great job in combining the hand-held shots.

There is an approximate calculation which gives the effective ISO after combining the images and this is given by the starting ISO / number of stacked images.
So, in my example above the 6 original images were at ISO 400 so giving a 400/6 or 66 ISO approximately.

Summary of method

1. Load the images into Photoshop,

2. Then use File, Scripts, load images into stack – choose add open images and align images and create smart object should be ticked

Once the output panorama has been created as untitled1.jpg

3. Then select Layer, Smart Objects, Stacking Mode – Median.

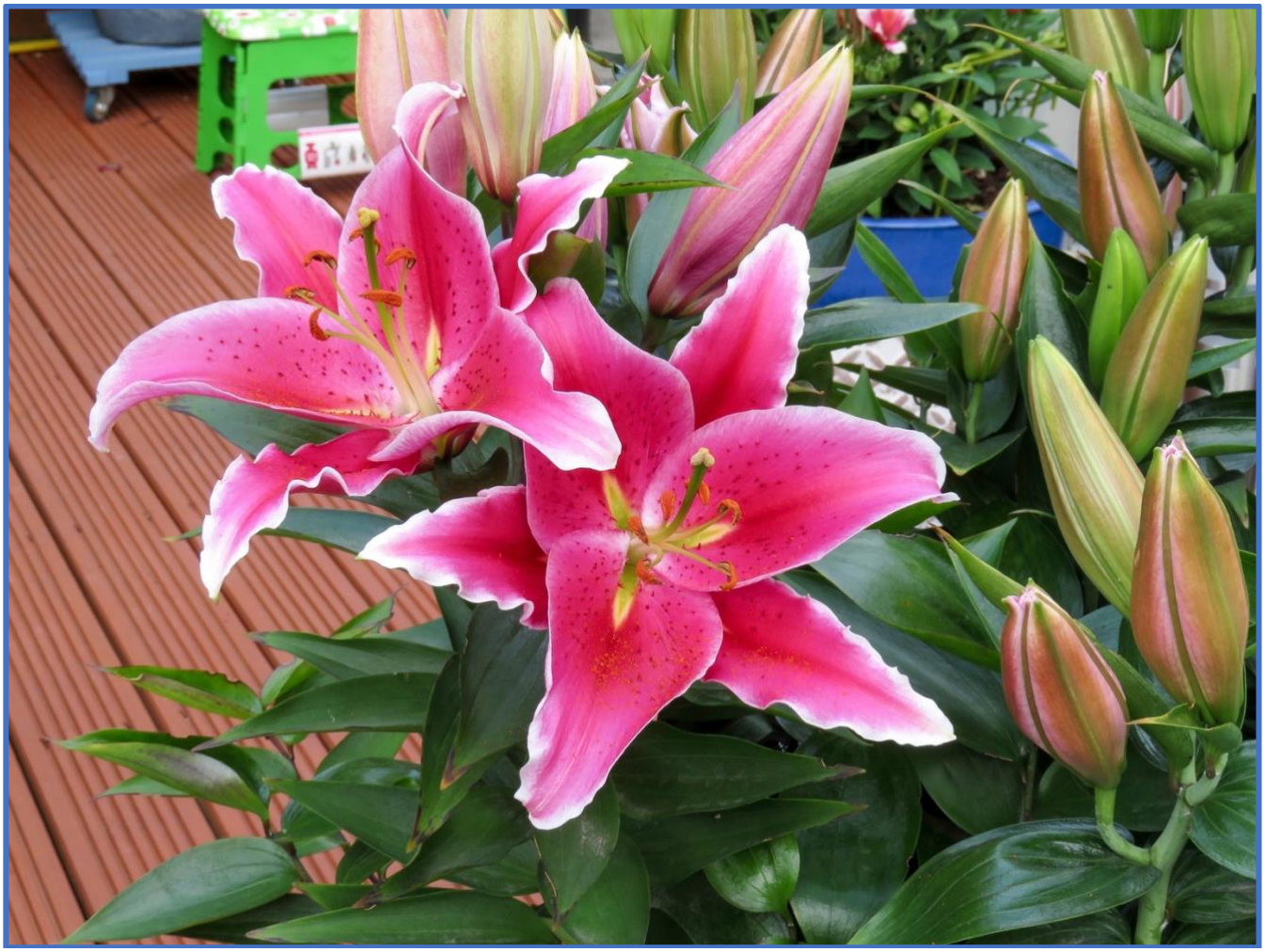
The images are then combined and the new image created with much reduced noise.
For a full explanation and visual step by step guide see here

Canon SX720 HS Bargain Price in UK

Fancy picking up Canon's brilliant point-and-shoot compact on the cheap? Over at Currys the Powershot SX720 HS camera has dropped to £200 in their Mega Sale. Down from £350, you'll be saving £150 and will get a free travel kit thrown in, too.

I’ll be doing a full review of this camera for the next edition of the newsletter giving you some idea of how it compares to something like the Panasonic TZ70.
Whilst this camera doesn’t have a touch screen or even an EVF or even the ability to capture in RAW, I still like the output from this. Of course, it has its limitations and it does require some taming to get pictures outside the normal bright sunlight that are to be considered acceptable.

Here are a few sample images from the camera set to Aperture priority mode



Canon SX270 HS 1/40 Sec F6.3 @ISO 80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