

Back to basics

Exposure and ISO –
And how to compensate for compromises

Barry Pearson, Digital Workshop 6 October 2009

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Theme of this session

- The aim here is to emphasise the linkage between aperture, shutter speed, and sensitivity
- Then to show how artistic considerations force compromises
- And to show that the easiest compromises tend to result in high-ISO values
- And finally to show how noise from high-ISO values can be reduced

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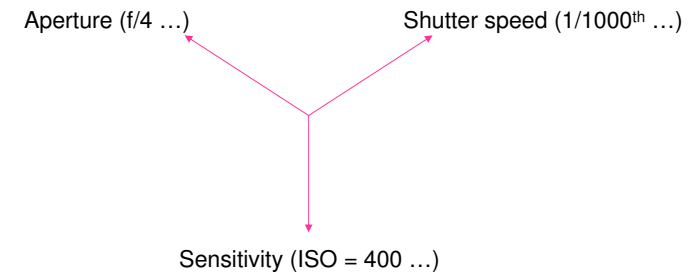
Learning points

- Know your camera – features and limitations
- Know your lenses – aberrations, etc
- Identify what your settings were for your good shots and your bad shots
- Identify the constraints that your choice of software imposes on your settings
- Contemplate “noise” – the final frontier

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It's all connected!

- Whatever you want to change, you end up changing other things as well



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Sunny f/16 rule

- Set shutter speed to (reciprocal of) ISO, and
- Bright sun: f/16
- Hazy sun: f/11
- Cloudy-bright: f/8
- Cloudy-dull: f/5.6
- Backlight: consider 2 stops more exposure
- Within 2 hours of sun-rise/set: consider 2 stops more exposure

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Varying the aperture

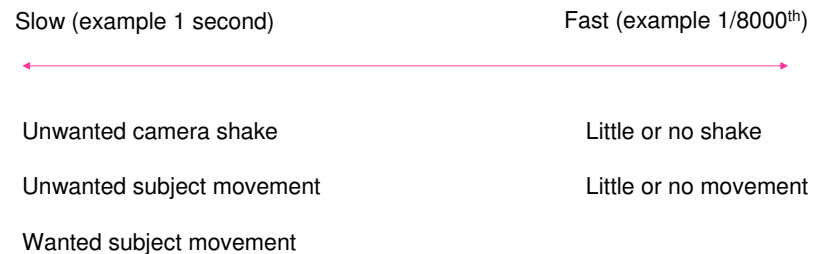
- Apertures are varied for artistic reasons
- They are constrained by technical issues



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Varying the shutter speed

- Shutter speeds vary for artistic reasons
- There are also practical constraints



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The Ideal

- If there were no bad consequences of high-ISO, we would simply set the aperture and shutter speed to the best, or the safest, values
- Often this would be small apertures and fast shutter speeds, hence high-ISO
- But there is a consequence – noise
- So if we can reduce noise, it gives us more artistic and/or safer options for apertures & shutter speeds

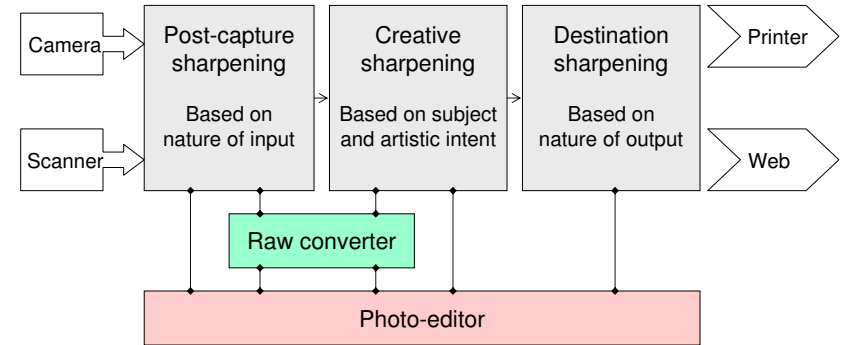
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Noise

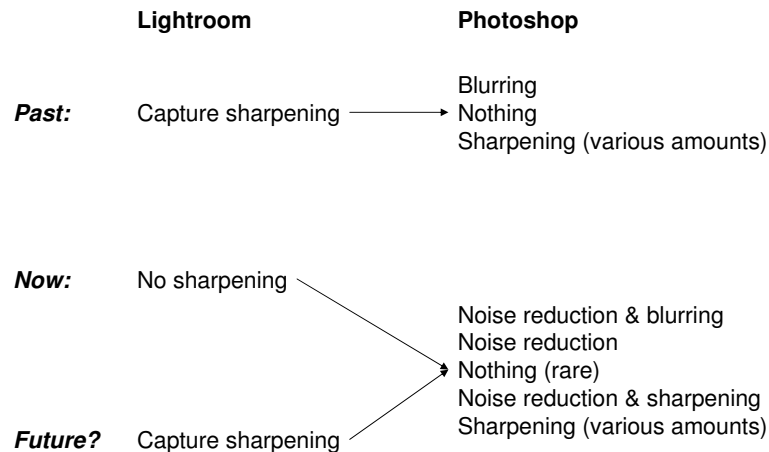
- Noise is the digital equivalent of film grain!
- *It varies from camera to camera*
- It is least visible (often invisible in practice) at low ISO values (example ISO 100)
- It typically becomes visible at (or before) high ISO values (example ISO 6400)
- It can be tackled to a significant extent by specialised software

Stages of sharpening

(From my Digital Forum of 3 January 2006)



Noise reduction & sharpening



End