KNOW YOUR CAMERA

by

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Tech Talk Topics – Part 2

- Basic tips for setup and handling
- Exposure modes and light metering
- “Shooting to the right” to minimize noise

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What good is Live View?

- Many DSLRs have caught up to compacts by using the monitor as a viewfinder
- Shortcomings: washout in bright light, poor camera support, may need eyeglasses, must use it in video
- Good points: electronic magnification, external projection output
- For closeups with tripod, magnification lets you optimize manual focusing
- For awkward camera positions, can still aim

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Exposure modes

- Basic modes P, A, S, M are quick, reliable
- “Scene” modes can be puzzling, limiting
- “P” (Program) mode will expose OK but camera takes control of image: depth of field (aperture) and blur/freeze (shutter)
  - Sometimes said that “P is for disappointment”
- Get familiar with “M” (Manual) to standardize many shots with similar lighting
  - You can use the camera’s light meter for settings

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Use the camera's light meter

- Every camera today has a built-in light meter
- Used internally to set exposure commands
- Display of meter is useful to set Exposure Compensation (lighter or darker in auto modes)
- In Manual, it still works, but it's not connected
- On your status screen, you can see the results
- Set aperture, shutter or ISO to center the meter as a starting point for adjusting settings
  - Best to pre-set the ISO (not Auto) then S, A

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View the camera's light meter

- Nikon monitor, showing light meter
- In Manual exposure adjust shutter or aperture to center the bar for nominal shot

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Automatic exposure in Manual?

- Exposure has always depended on aperture, shutter and sensitivity of film or sensor: “ISO”
- Today we can reset ISO manually, shot-by-shot
- Many cameras set it automatically > ISO mode
  - Set your camera to M (manual) with your choices of shutter speed and aperture
  - Set ISO to “A” or “Auto” or “AutoISO”
  - Exposure is adjusted by light meter changing ISO
  - High ISO can introduce noise, but camera limits how high (Canon fixed, Nikon adjustable)

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Shooting modes – 2

- "A" (Aperture priority) is a favorite
  - Three aperture settings will do: wide, medium, small
  - Widest will *minimize* depth of field, blur backgrounds
  - Medium is a good walk-around: f/5.6 to f/8 as a compromise for decent shutter speed and DOF
  - Small will *maximize* DOF, but beware of slow shutter
- "S" (Shutter priority, "T_v" on Canons) gives control of shutter duration; set it slow or fast to:
  - minimize camera movement aboard moving platform
  - get sharp image of a moving subject – running horse
  - Intentionally blur to infer motion – waterfall

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Depth of field: DSLR vs. compact

- Four factors affect Depth of Field (the range in front of the camera where things are in focus):

  Aperture, Focal length, Distance and Sensor
- The larger the sensor (or film), shallower DOF
- Landscapes with view cameras: tiny aperture
- Compacts have inherently deeper DOF
  - Most things are in focus at normal distances
  - Makes closeups easier than with a DSLR
  - For blurred background, get closer or use telephoto

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DOF control with focal length

- Most-used DOF control is aperture
  - Deep DOF: large number; Shallow DOF, small number
- To keep the aperture the same but vary DOF:
- Set aperture to your choice and move toward/away from subject while changing focal length (zoom) to set subject size
  - Deep DOF: wide angle; Shallow DOF: telephoto

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DOF control with focal length – 2

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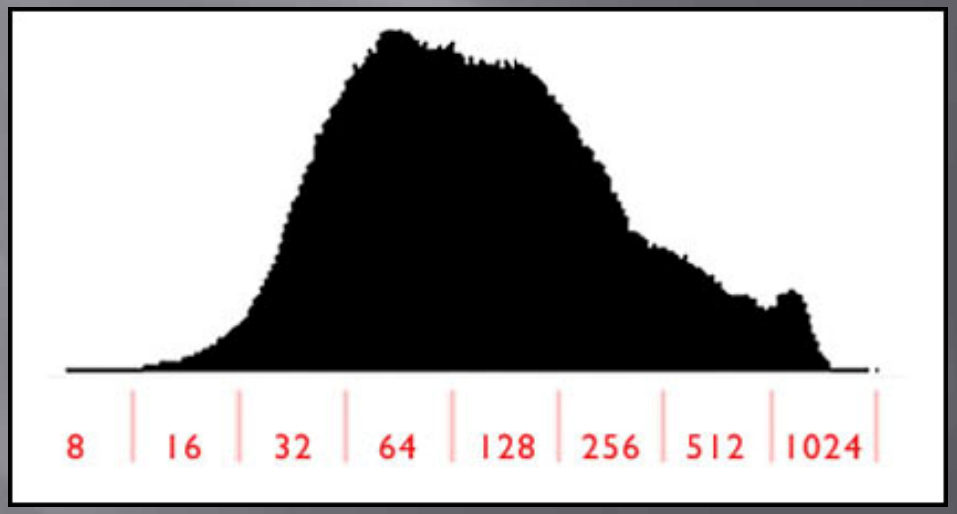
"Shooting to the right"

- As shown in your histogram, bits per f-stop are not evenly allocated from blacks to whites
- Few in shadows, many in highlights



Lacking light and raising it later leads to shadow noise

(12 bits per pixel in RAW shown here) from JPCaponigro

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"Shooting to the right"

- Need as much light in shadows as you can get
- Slight "overexposure" in camera can help
- View histogram, raise Exposure Compensation
  - Histogram is always calculated based on a JPG (limited dynamic range) even when shooting RAW
  - But RAW image has at least 1 stop more "headroom" than shown on camera's histogram, so…
  - Move the histogram to the right until just clipping
- For a JPG histogram closest to RAW, set camera's contrast to its lowest value

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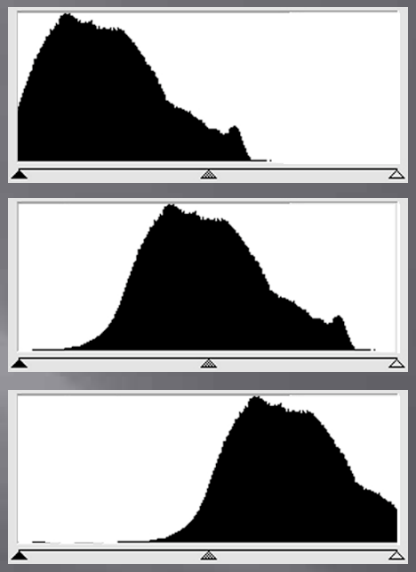
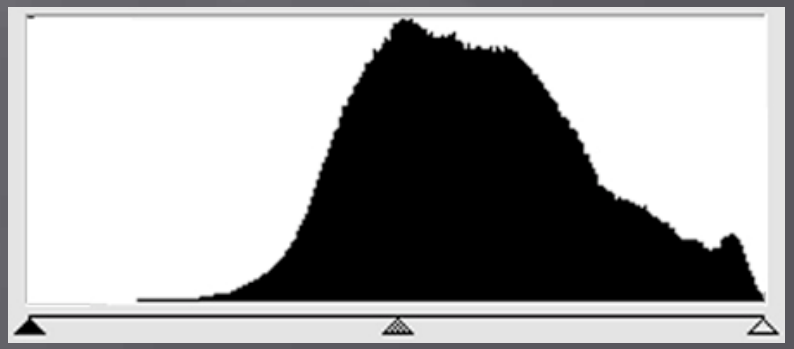
- Underexposed, clipping blacks →
- Exposed as meter sets it, no clipping →
- Overexposed, clipping whites →



- Shooting to the right, minimizes shadow noise →



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Recovering from "Shooting to the right"

- After shooting to the right, expect the image to look overexposed in your viewer/editor, but not show clipping alerts
- Reduce exposure to your preference
- Set up camera with exposure compensation slightly high, set up an import preset in Lightroom to slightly lower exposure
- Overall result: no work, lower shadow noise

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Why have a color histogram?

- The three colors Red, Green, Blue are recorded separately then combined in camera
- Called “channels,” appear in color histogram
- Red is most likely to saturate
- If image has “muddy” reds with little detail, the *luminance* (RGB) histogram has deceived you
- Beware of subjects with bright red, use color histogram to check for saturation at right

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That's it for Tech Talk!

Thanks for your attention

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