Using Histograms

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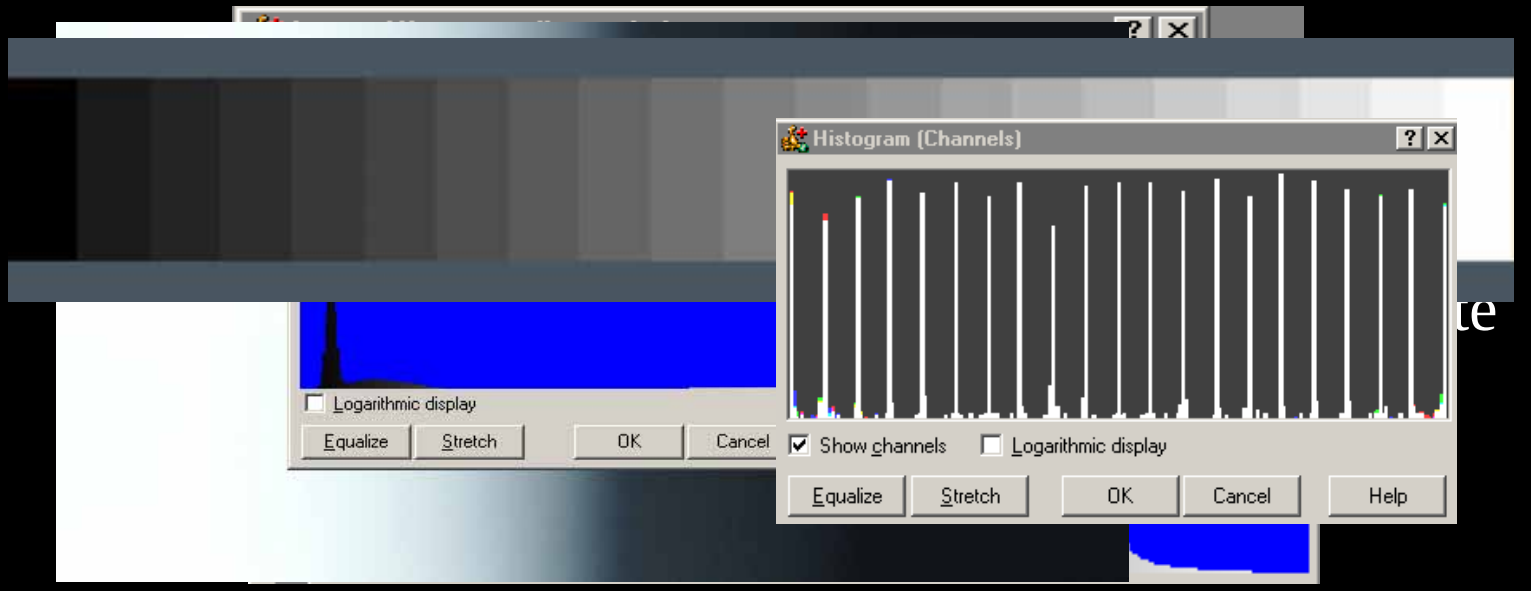
Histogram: a brightness bar graph

- A fancy name for a simple bar graph
- They are used in finance, medicine, engineering, any statistical relationship
- Baseline may show time, or "bins" etc.
- Bar height shows result of collected data

- To make a digital photograph, we collect the strength of light falling on each pixel and organize a photo based on the pixel grid
- A histogram shows how many pixels have a certain strength of collected light without respect to where the pixels were
- So: the photo shows *where* the light was, the histogram shows *how much* light at a given level of brightness

Histogram: a brightness bar graph

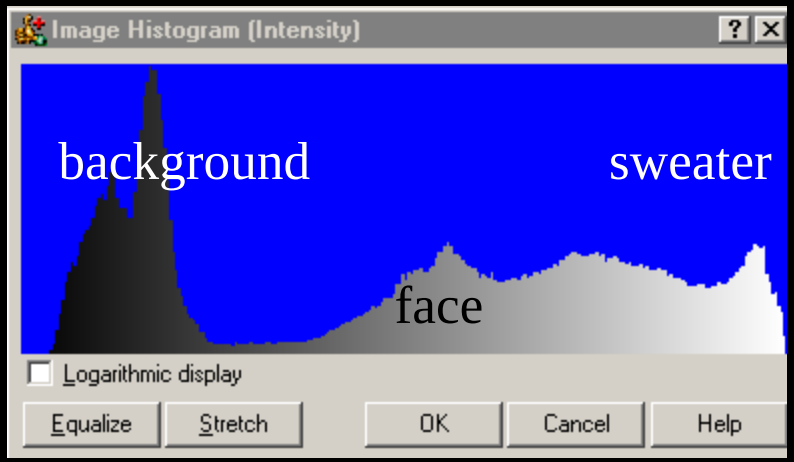
- Histograms >> a detailed light meter readout
- Bar graphs have 256 brightness levels
- Generated in many cameras and editing programs
- Concept is useful without actually seeing one



High-contrast histogram

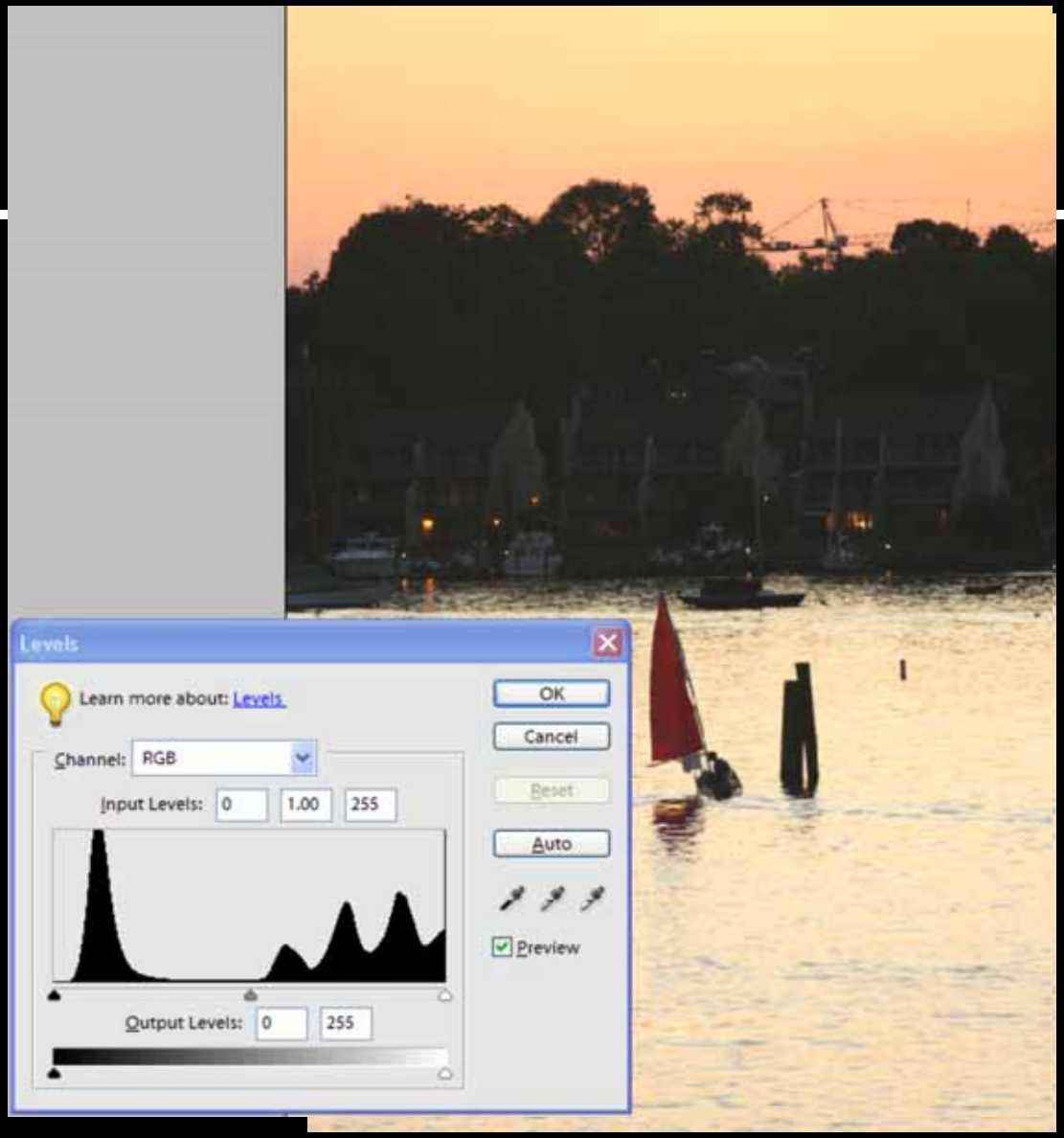
Contrast and the histogram

- Histogram shows the *relative number* of bright and dark pixels



Contrast

- High contrast can be good for impact, drama



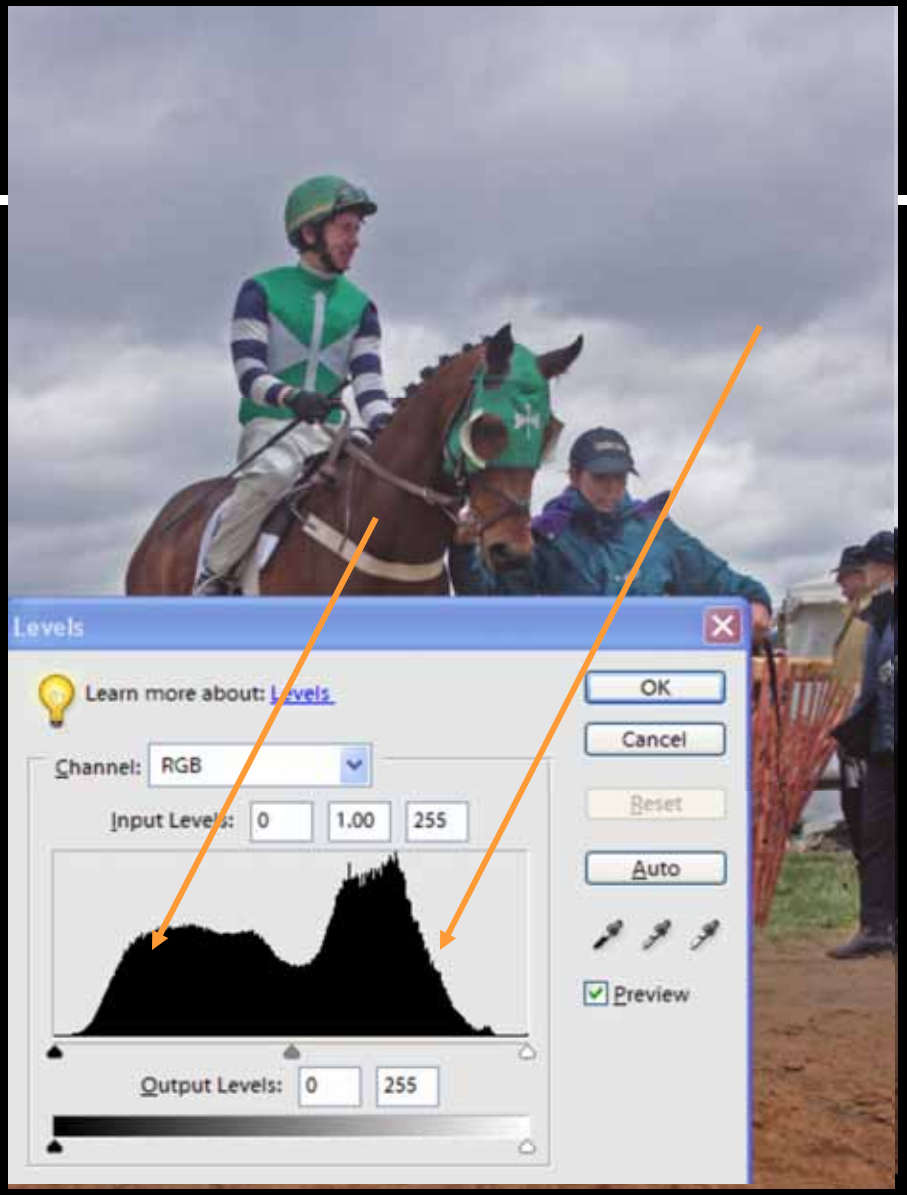
Proper contrast - essential for portraits

Using Histogram to observe exposure

- You can adjust and correct exposure observing a histogram displayed on the camera monitor
  - Compact camera – before/after image taken
  - DSLR – after image is taken (Live View DSLRs: before)
- Graphed pixels should not occur at either end
  - Too far right, part of image is overexposed
  - Too far left, part of image is underexposed
  - EV Comp, other exposure adjustments may fix this
- In low-contrast images, pixels are centered

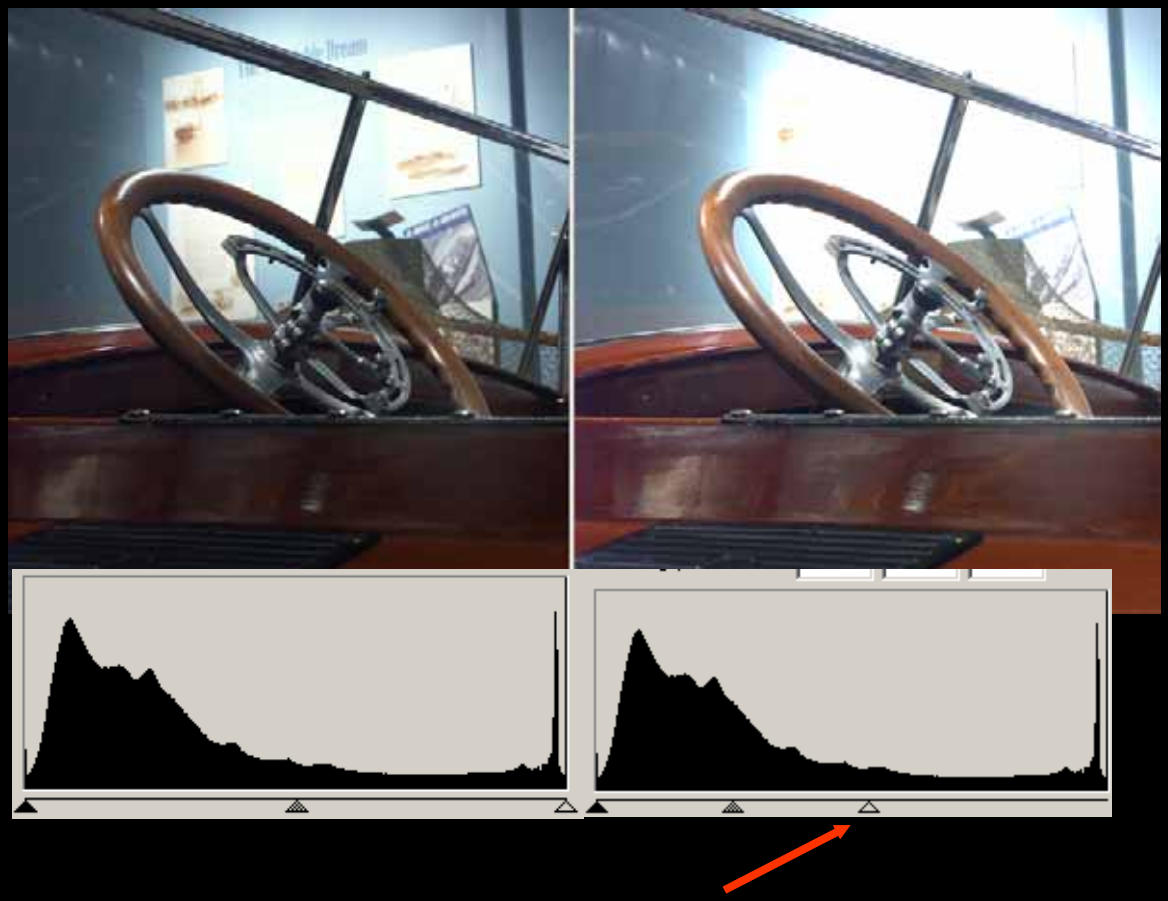
Histogram with low-contrast scene

Split histogram



Choose your own levels

- You may want to deliberately overexpose to obscure a distraction



Seeing brightness is important!

- Only you know what the subject is
- You may be able to improve on your camera's total automation of exposure
- Digital cameras have given us this instant analysis of brightness
- Preview your photo in the camera along with the histogram, then adjust exposure
- And use it in editing to optimize your photos

Adjusting exposure

- You can lighten or darken the image, shifting the histogram right or left
- In Manual exposure mode, change the aperture, shutter or ISO, or any/all of these
- In automatic exposure modes (P, A, S or T) change Exposure Compensation + or –
- Meter still works to observe and measure
- Camera combines that meter reading with your EV compensation to set exposure

Camera histograms in RAW shooting

- Camera displays histogram of a JPG that is made in the camera, not the RAW file
- JPG may indicate *untrue* overexposure
- Adjusting exposure based on the camera's JPG when shooting RAW can be deceiving
- You can "shoot (with the histogram) to the right" to some extent and get more light
- Avoids noise in the shadows – up to 1.5 stops
- Too far and the RAW file will be blown out

- - Happy histogramming! - -

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