The Path to Better Images

Ken Rathjen

Better Images

- First & Foremost:
  Better Camera Exposures – Choosing the Best Settings to capture the image – *getting it right the first time*

- Secondarily:
  Fixing & Enhancing with Software – *improving the incorrectly exposed image*

Camera Raw

- If your camera has the capability to shoot in RAW format – use it for important images
- Best quality – no processing by camera to produce JPEG image – lossless
- You have control over:
  - White balance
  - Exposure
  - And lots more

Correct Exposure

- Major Factors:
- Aperture
- Shutter Speed
- ISO

} **Interrelated**

- White Balance – affects image color

“Correct” Exposure Settings

f/no.	Speed
4	600
5.6	320
8	160
11	80
16	40
22	20

ISO = 100

f/no.	Speed
4	1200
5.6	640
8	320
11	160
16	80
22	40

ISO= 200

So What Setting Should You Chose?

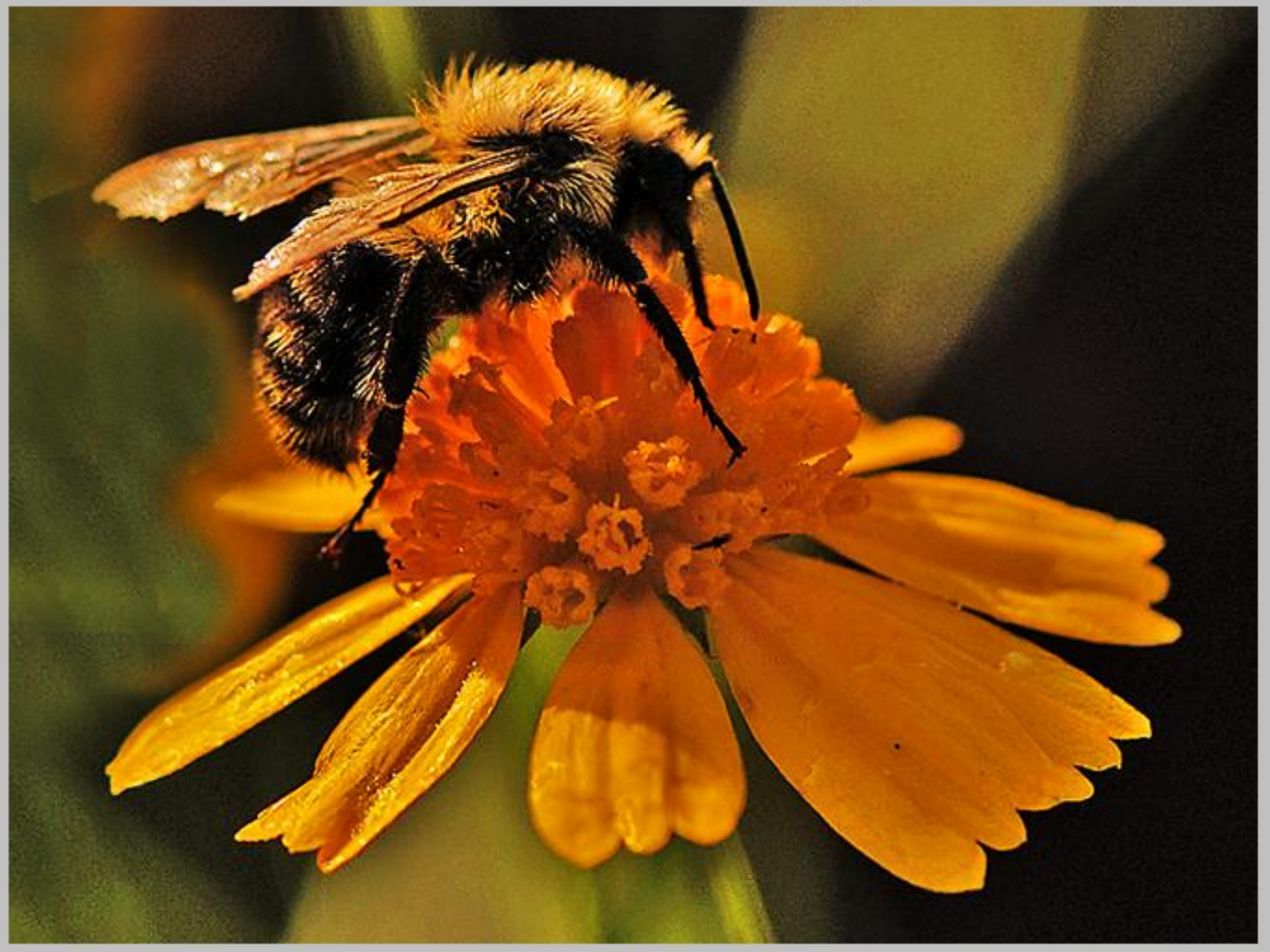
Assuming Shutter Speed isn't Important

- Choose: **Aperture Priority** (Camera selects Shutter Speed)

What are you Shooting:

- Isolated Subject – Small f/no. (Small DoF)
- Big Story – Large f/no. (Large DoF)
- DoF unimportant – Chose f/8 or f/11

Isolated Subject



f/4 Small Depth of Field – Isolates Subject from Background
Use telephoto lens

Tell Story – Big Scene

f/16 – Large f/no. Large depth of Field – Everything in Focus
90% of Story Telling Should be Shot on Your Knees
Use WFOV lens (20 -25mm)

Taking the Big Picture

- Get down low
- Use wide-angle lens
- Use Aperture Priority
- Set Aperture to f/16 – f/22
- Use tripod
- **Manually** focus 3-5' in front of camera (depends on lens)
- Preview picture – check focus in front & behind focus point – must press preview button

Bryan Peterson – Understanding Exposure

Depth of Field Unimportant

- f/8 – Everything is at same distance from Camera
- Depth of Field irrelevant
- f/8 is good for subjects at infinity
- Use f/8 to utilize sweet spot of lens:
  - Color Content & Sharpness best

Shutter Speed Priority

Scenarios:

- Freeze Action
- Special Situations:
  - Lightening, Fireworks, Moon, Rain
- Flash
- Panning
- Implying Motion
- Dusk & Low Light

Excellent Ref: Bryan Peterson Understanding Shutter Speed

Guidelines for Shutter Speeds

- To Freeze Action
- For Motion towards you or away from you
  Select = >1/250 sec.
- For Fast Motion moving side to side or up and down
  Select =>1/1000 sec

Bryan Peterson –Understanding Shutter Speed

Dilemma

- Fast moving subject that requires a good depth of field to ensure sharp focus (e.g., 1/1000 sec and f/8 or greater.
- With the existing light the image will be underexposed.
- Choice A – Increase ISO
- Choice B – Shoot in RAW, underexpose image and correct exposure in Photoshop

Special Conditions

- Lightening – f/8, 15 sec, 3 stop NDF, tripod
- Full Moon – f/8, 1/60 sec.
- Waterfalls for cotton candy look – ¼ sec, tripod
- Fireworks – f/8, 2 sec. or B, tripod

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Rain

- To see long streaks – 1/60 sec.
- For shorter streaks - use 1/125 sec.

Bryan Peterson – Understanding Shutter Speed

Determining Exposure

Most exposures determined by today's SLR camera are excellent 95% or more of the time.

Metering Choices:

- Evaluative
- Center Weighted
- Spot

What are the Other 5%?

- Snow or White Sand Scenes
  - Solution: Increase EV +1.5 to 2.0 or meter off grey object or blue sky
- Scenes Dominated with Black
  - Solution: Decrease EV – 1.0 to 2.0 or meter off grey card or blue sky
- Sunsets
  - Solution: Set exposure to the right or left of setting sun – do not include sun in measurement
- Incorrect White Balance
  - Correct in RAW processing

Exposure Compensation

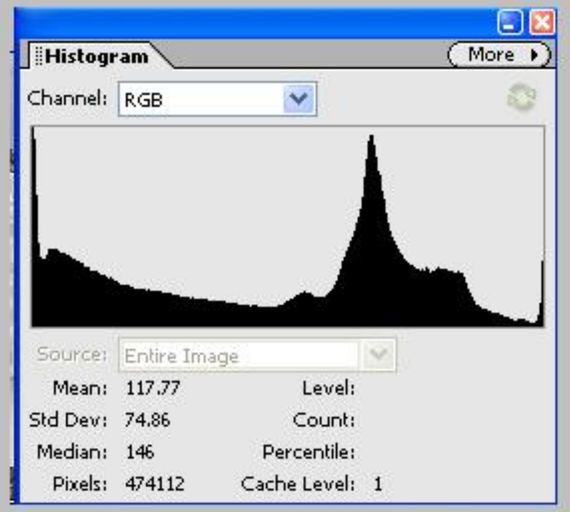
- Exposure compensation is used to alter exposure suggested by camera to make the picture brighter or darker.
- Best used with spot metering.
- Available in P,S, and A Modes
- Increasing EV brightens picture (+1,+2,+3)
- Decreasing EV darkens picture (-1, -2, -3)


EV -1


EV 0


EV +1


EV + 2



Use Histogram & Blinkie As Aid for Achieving Good Exposure

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Exposure Problems

- Burned Out Highlights – going, going, gone! Important highlights in your subject must contain detail.
- Underexposed Dark Areas – Opposite problem to above. Dark areas can be brightened in computer but generally lead to two problems: noise & poor color.
- Underexposure – Entire image is underexposed. Often occurs when meter is fooled (e.g., a really bright area dominates the meter). Software can correct to a degree but there will be residual color, tone and noise issues in the print.
- Noise – Underexposure dramatically increases noise as you brighten underexposed areas and will be revealed in the print.

Bottom-line: Expose the photo as close to perfect as possible. Check the histogram and look for blinkies.

White Balance

White balance ensures that colors are unaffected by the color of the light source.

Choices:

Auto – Camera determines setting

Incandescent

Fluorescent

Direct sunlight

Flash

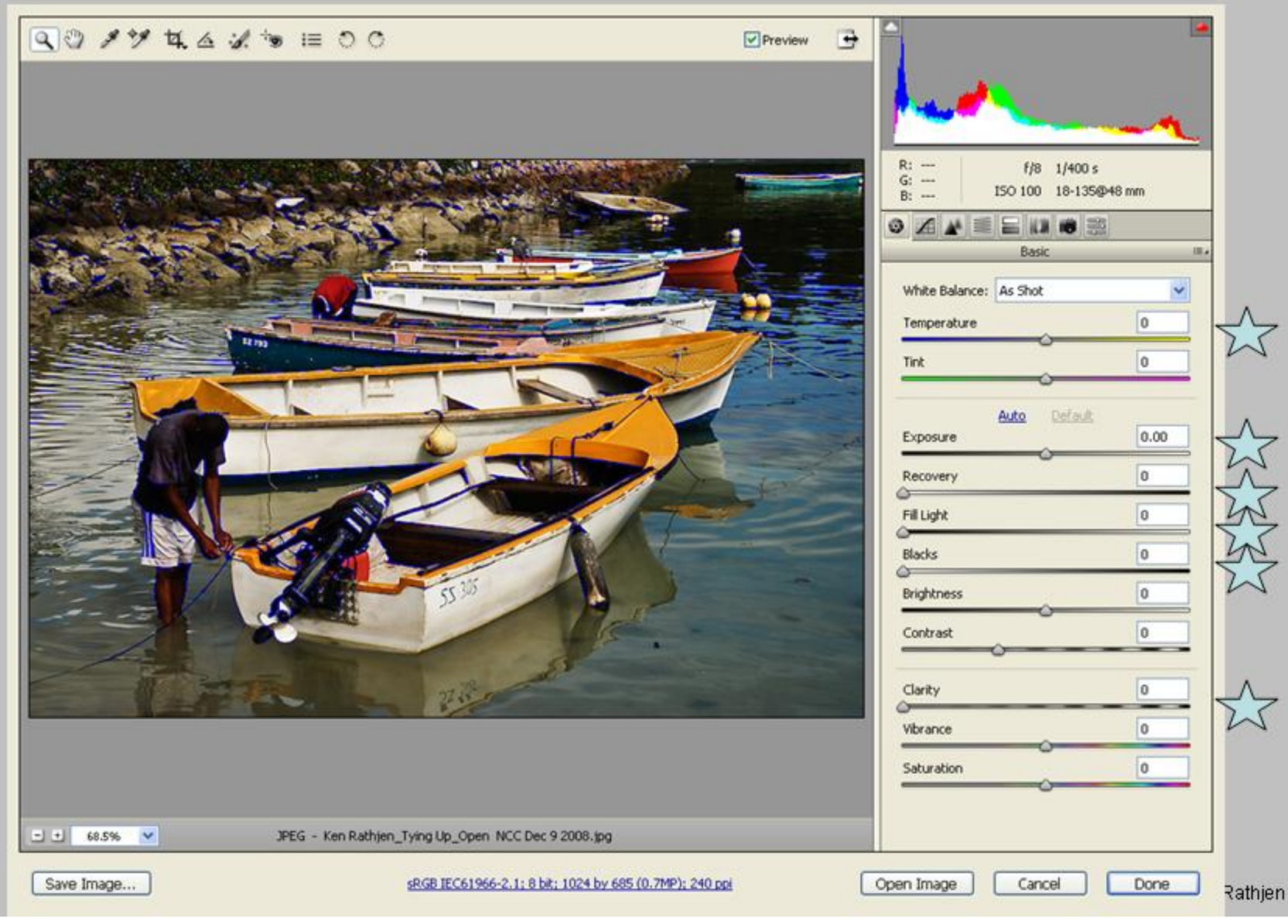
Cloudy

Shade

White balance preset – use calibrated white or grey card

Use Temperature Slider in Computer RAW

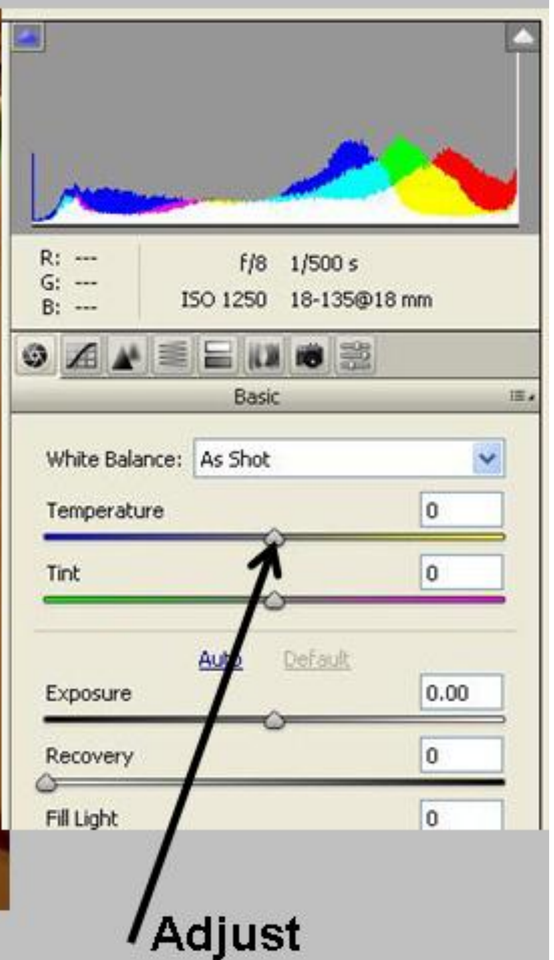
RAW Processing



White Balance Correction

Before

After



Another Example – WB Correction

Before

After

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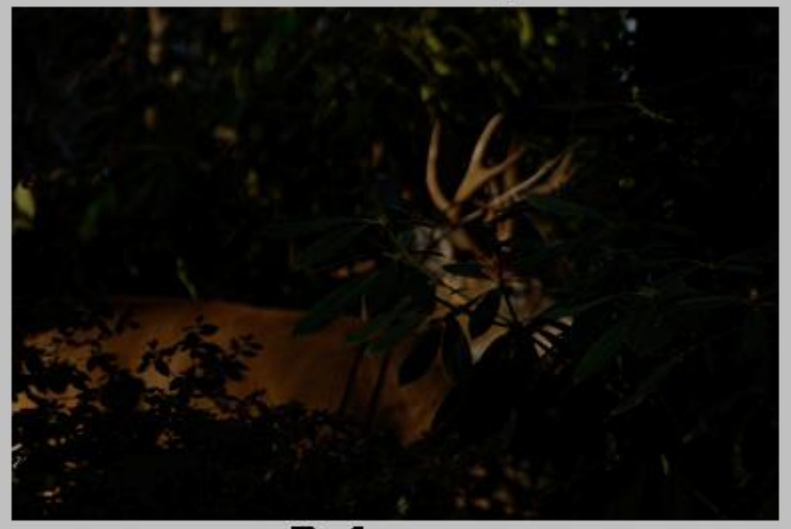
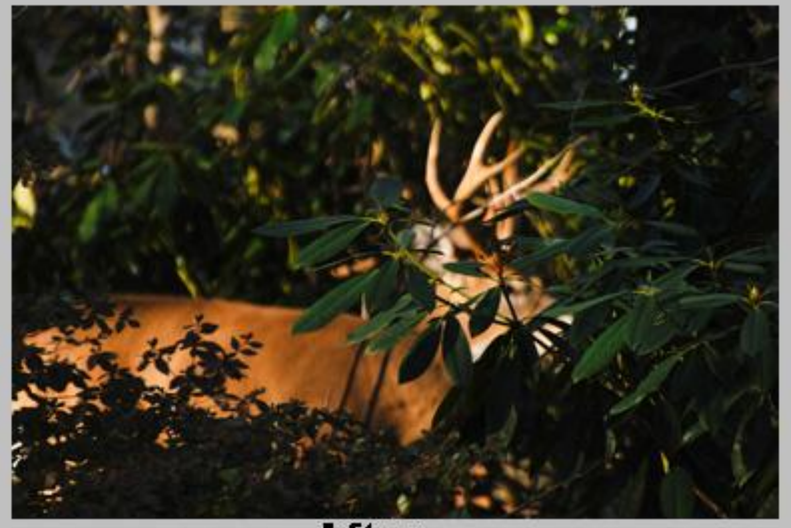
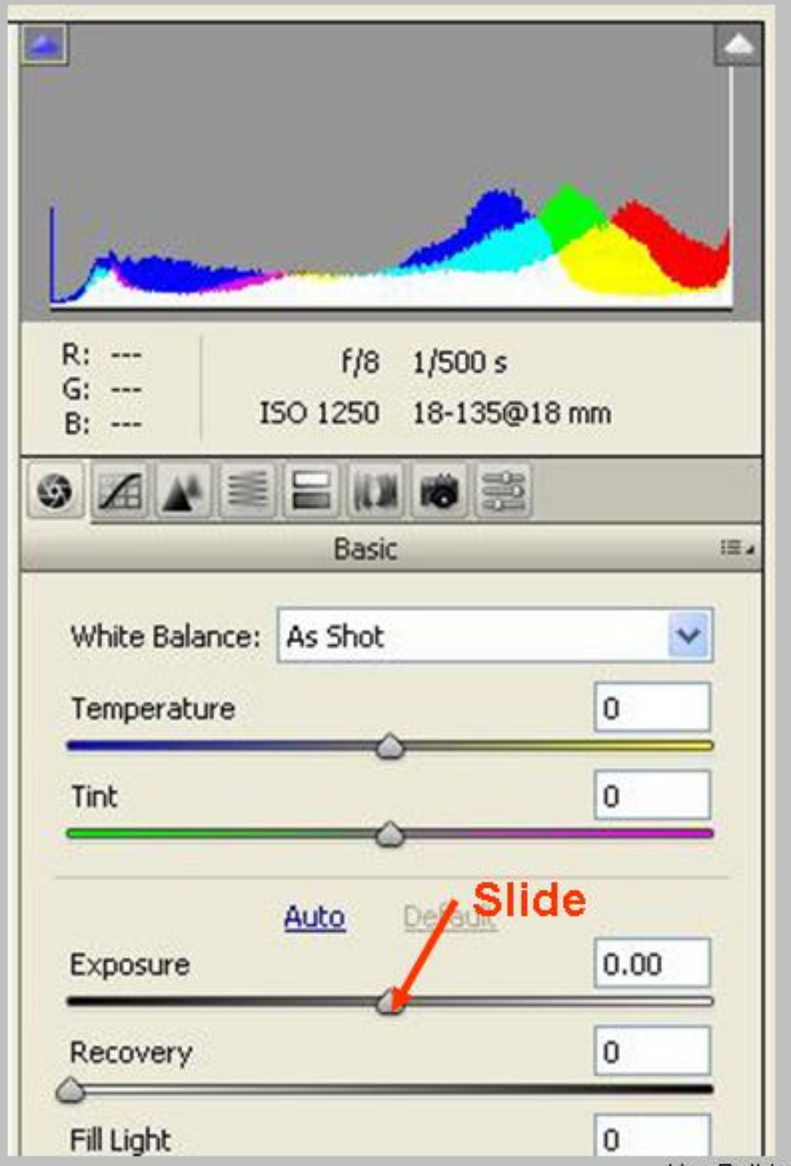
Exposure Correction



Before



After

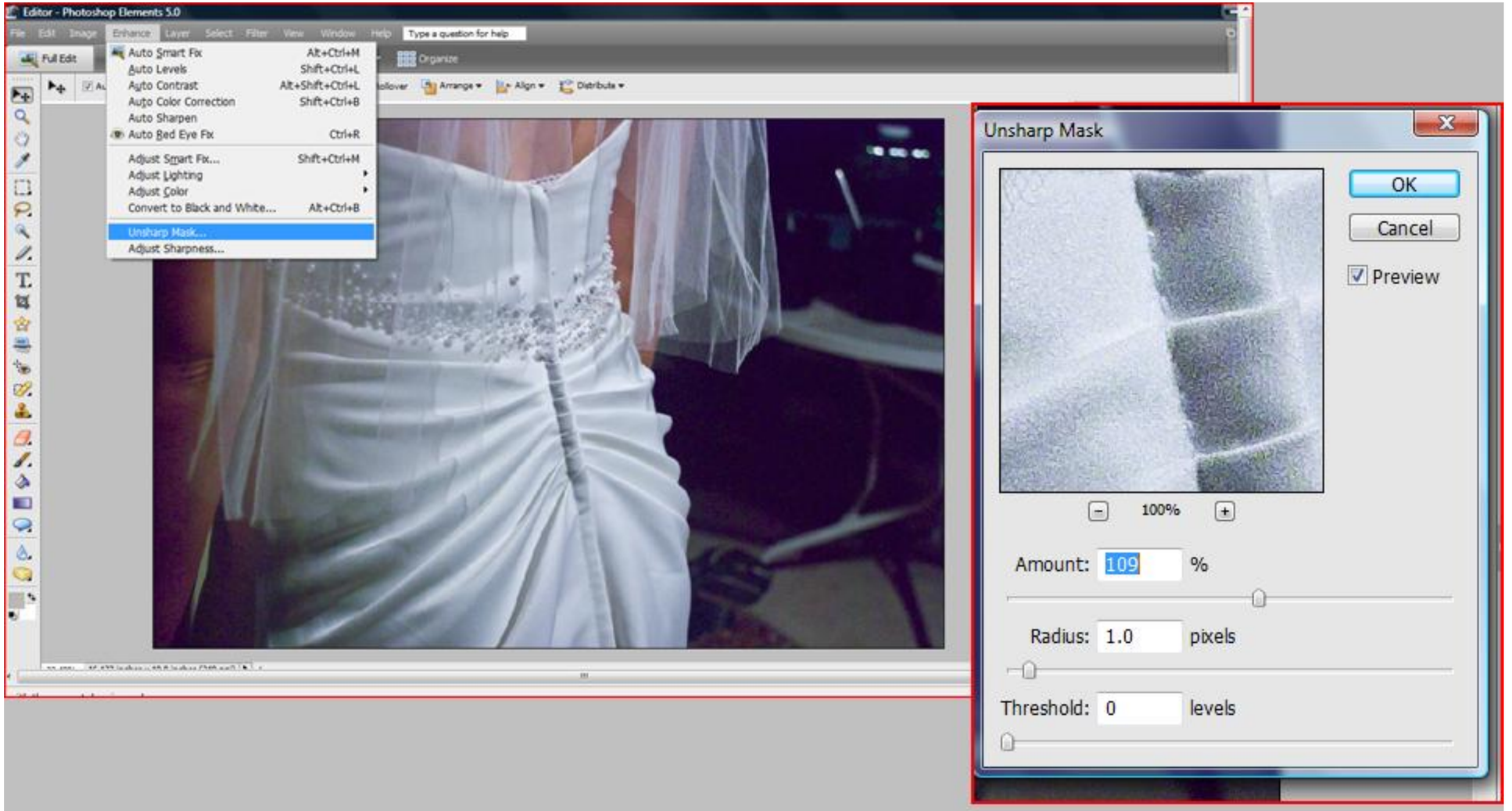


Sharpening

- All digital images benefit from sharpening
- Sharpening is an editing algorithm that will make your images look more clearly focused
- It works by deepening the contrast where colors meet, giving the impression of a crisper focus
- Two main Sharpening tools: Unsharp Mask & Adjust Sharpness

Unsharp Mask

- Long-time favorite
- Not very effective when blur was caused by motion
- Go to Enhance>Unsharp Mask
- Adjust the three settings to improve image
  - **Amount**: Higher % produces more sharpening
  - **Radius**: How far from an edge to increase contrast
  - **Threshold**: How different a pixel needs to be from the surrounding pixels to consider it an edge. A zero setting results in all pixels being sharpened



Some suggestions:

View your image at 100%

Select settings appropriate for the type of image

For Projections what you see on monitor is accurate

For Prints you may want to over sharpen what you see on monitor

Some Suggested Settings

ref.: The Adobe Photoshop CS3 Book by Scott Kelby –pp 384-87

Subject	Amount	Radius	Threshold
Soft Subject e.g., Flowers	150%	1	10
Portraits eyes & hair sharp	75%	2	3
Moderate Animals, products	120%	1	3

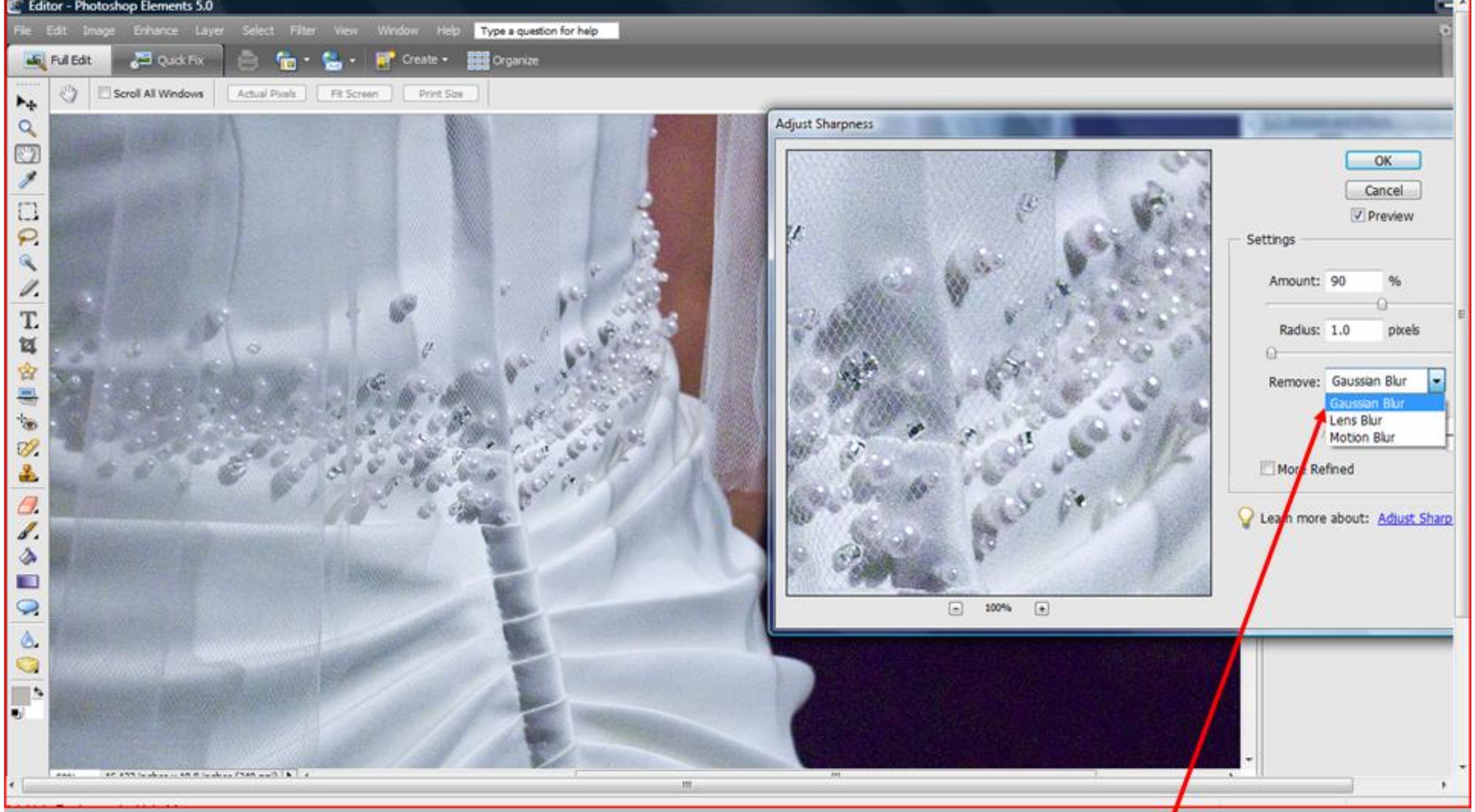
Some Suggested Settings (con't)

ref.: The Adobe Photoshop CS3 Book by Scott Kelby –pp 384-87

Maximum for 1) Images out of focus 2) Images with well defined edges e.g., rocks, buildings, cars, etc	65%	4	3
All Purpose Scott's favorite – subtle – can be done twice (not usually recommended)	85%	1	4
Web	200%	0.3	0
Out-of-Focus	400%	0.3	0

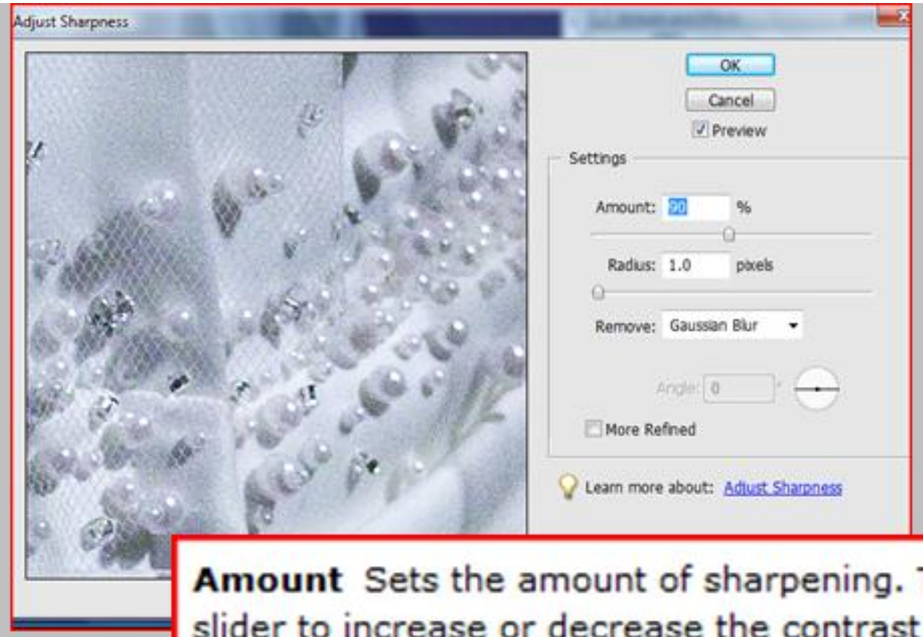
Adjust Sharpen Tool

- Latest Sharpening Tool
- Adjustments for the three causes of blur
  - Gaussian caused by lens
  - Lens blur - focus not correct for subject
  - Motion blur – relative motion between camera and subject
- Make sure the layer you want to sharpen is the active layer, Go to Enhance> Adjust Sharpness



Note the three types of Blur that you can correct

Adjust Sharpness Tool



Experiment!

Amount Sets the amount of sharpening. Type a number in the box or drag the slider to increase or decrease the contrast between edge pixels, giving the appearance of greater sharpness.

Radius Determines the number of pixels surrounding the edge pixels affected by the sharpening. Type a number in the box or drag the slider to change the radius value. As you increase the radius, sharpening becomes more obvious.

Remove Sets the sharpening algorithm used to sharpen the image. Gaussian Blur is the method used by the Unsharp Mask filter. Lens Blur detects the edges and detail in an image, and provides finer sharpening of detail and reduced sharpening halos. Motion Blur attempts to reduce the effects of blur due to camera or subject movement. Select a blur option from the drop-down menu.

Angle Sets the direction of motion for the Motion Blur option of the Remove control. Type a number in the box or drag the angle dial to change the angle percentage to the left (counter-clockwise) or right (clockwise)

More Refined Processes the file more slowly for a more accurate removal of blurring.

Sharpening Work Flow

Sharpening is the very last process

- After completing all image enhancements save file as a PSD or TIF file (lossless)
- Next resize image to desired size (e.g., 11”x14”, 1024 x768 pixels, etc) and save as JPG file.
- Adjust the magnification of the image on your screen to 100%
- Sharpen Image (if output will be used for a print some over sharpening is recommended)
- Next go to Edit>Fade>Mode>Luminosity (This is to avoid sharpening the color in the image where most problems occur.)
- Save the image

Low Key Images

Tom Ang: *Digital's Photographer's Handbook*

- **White/bright areas are minimized.**
- **Creates a somber or darker mood or feeling.**
- **Low-angle, side lighting is effective.**
- **Use spot or selective area metering on light areas that contain detail.**
- **Shadows with detail will become featureless black.**
- **Underexposed digital images can introduce visual noise, so using software on a normally exposed image may be a better approach to creating low-key images.**

High Key Images

- Few, if any, dark truly black areas.
- Creates a style of light and air.
- Use spot or area metering on darkest area which will result in that area being captured as a mid-tone grey. All other tones will be lighter.
- Use lighting to eliminate shadows.

So You Didn't Expose It Correctly

Time for PhotoShop . . .

- Basic Approach:
  - Levels for Black & White Image Areas
  - Curves for Midtones
  - Levels for Color Correction
  - Saturation – cautiously
  - Sharpening
- Scott Kelby's 7-Point System for PhotoShop

Photo As Shot – Source: Scott Kelby's "7-Point System for PhotoShop

Levels, Curves, Levels (color correction), Saturation, Gradient Sky, Sharpening

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Scott Kelby's 7-Point System

- Adobe Camera Raw Processing
  - White Balance, Exposure, Recovery, Blacks Slider, Clarity
- Curves Adjustments – add contrast.
- Shadow/Highlight – switch to Lab color, Lightness channel, etc to open up the shadows.
- Painting with Light – Select areas for darkening or lightening, use Curves mask and paint in white to reveal changed lighting.
- Channels Adjustments – To make the colors really pop, switch to Lab color again, chose Soft Light, select best looking channel: Lightness, "a" or "b". Select opacity for best result.
- Layer Blend Modes & Layer Masks – To lighten subject or darken sky or a doorway, duplicate layer, select Screen mode to lighten, select Multiply mode to darken, add layer mask to achieve the desired effect.
- Sharpen - and the chose Fade Unsharp Mask immediately after and change Fade mode to Luminosity

Kelby 7-Point System Applied

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That's All Folks!
Thanks for Watching
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