

Canyon Shadows - An HDR Odyssey

"Oh what a tangled web we weave,

"When first we practise to deceive!" Yes, it's Scott; *not* Shakespeare...

Sir Walter Scott and Robert Frost were not contemporaries; Scott was born in 1771 ~ Frost in 1874. But, quotes from each suggest a patient theme of inner exploration and growth.

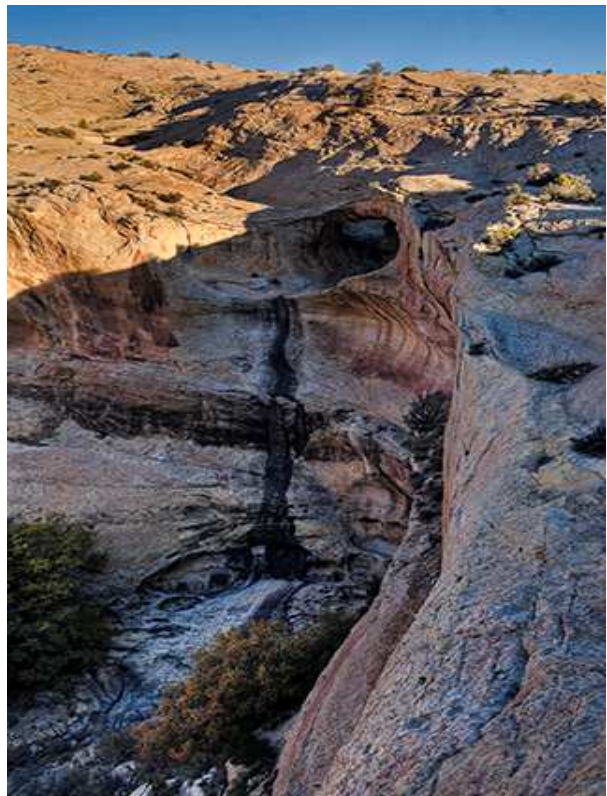
When you talk to somebody about Adobe Photoshop, it seems inevitable to discuss how many different paths one can follow to get a similar result. Advanced photographers use Photoshop to impose their visual memory and its inherent dynamic range on limitations of linear digital image capture.

Let's talk about a new way to process High Dynamic Range images (HDR) using Adobe Camera Raw (ACR)!

Real World Camera Raw with Adobe Photoshop CS3 has just hit book stands. Its predecessor, involving CS2, was skillfully crafted by Bruce Fraser. A gifted man who really understood Photoshop, Fraser's loss has been offset as Jeff Schewe completed this important Camera Raw book for *our* real world.



Before



After

After you've read *Real World* a couple of times, you'll realize a simple message: "Get familiar with ACR; it's your new digital image development lab."

What software can make that amazing transition between capture and result?

With advent of Adobe Photoshop CS3, you get both Bridge and CS3. Adobe has put lots of energy into making simpler preprocessing capabilities for ACR in Bridge. To create a 32-bit HDR image, we use Photomatix Pro with normal settings. Tertiary processing was done by adroit use of layer enhancements in CS3. As a final pass, we sharpened the image using Photokit Sharpener from Pixel Genius.

The image on the left is one of three images captured in continuous bracketed shooting for HDR. The image on the right is a final result of this workflow:

- Process all three images from Bridge in ACR to tone map our captured images and *carefully* eliminate highlight and shadow clipping.
- Using Photomatix to create a 32-bit HDR image and save it as a tiff file.
- Further fine tune tif file for with Curves, Clarity, and Vibrance.
- Provide an initial Capture Sharpen, followed by a Creative Sharpening using Depth of Field from Pixel Genius.
- Color Dodge & Burn for subtle emphasis.

Capture: It Changes Your Shooting Style

We spot metered on sky and shadow for a choice of bracketing range. Three raw file images were captured at $\pm 1\text{EV}$. Exposure Value (EV) is halving or doubling of shutter speed. A stable tripod and carefully pushed shutter button tried to eliminate error.

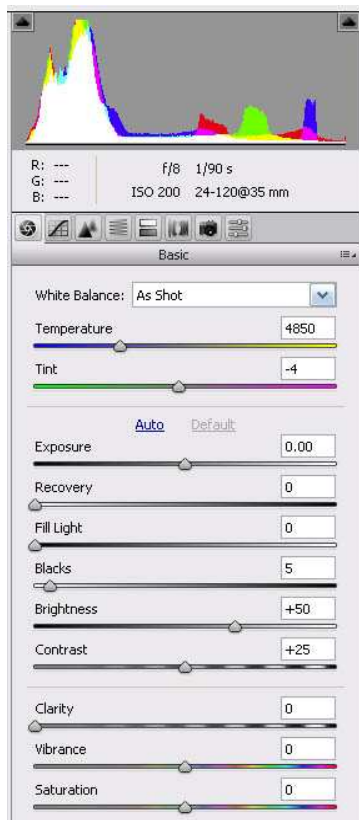
You may want to use a shutter release cable. A cable can help reduce mirror vibration. Mirror lockup might also offset later imprecise image placement.

Iterative Highlight Exposure Evaluation

When bracketing for HDR capture, one should naturally watch the LCD to neither over expose nor under expose any given image. If possible, check all three channels! Conditions may make that a tall order.

Adobe modified ACR to allow easily-controlled initial tone mapping with sliders. What an awesome advance in creating a simple, effective user interface! Between gamma corrected view and histogram, we simply tweak powerful algorithms which keep changes in a sidecar file, rather than modifying the original raw file.

Here's the workflow environment in ACR (left). There's a histogram, eight tabs which facilitate preprocessing of raw images (our tangled web), and an RGB readout with ACR 4.3.1. For purposes of this workflow we're going to use Basic and Curves tabs. Clicking successive tabs brings up windows to let you decide what's best for each slider choice and every image.



In Frost's terms, each tab is a *Road Less Traveled*.

What happens to histogram data when you wiggle a slider. Try 'em, you might like 'em... Did you help it or harm it?

Channel Clipping

Let's look at our 3 raw file histograms, examining Shadows, Mid Tones, and Highlights. In the first image, there is substantial highlight clipping or overexposure.

The sky is totally blown out. Although the histogram is small, we can see a white line climbing part way up the right-hand side. That shows all channels are blown. The red line indicates the red channel is blown.

After we click a little vertical arrow on the histogram's side, the view turns on *all* clipped values (shown in red) for all images selected. We get blown highlight reflections from a cliff near the cave. And, our sky is blown...

Underexposure is not nearly as bad. Blue (shadows) spots within the image show where underexposure occurs, deep in the canyon.

The image above was +1EV; image to the right was -1EV.

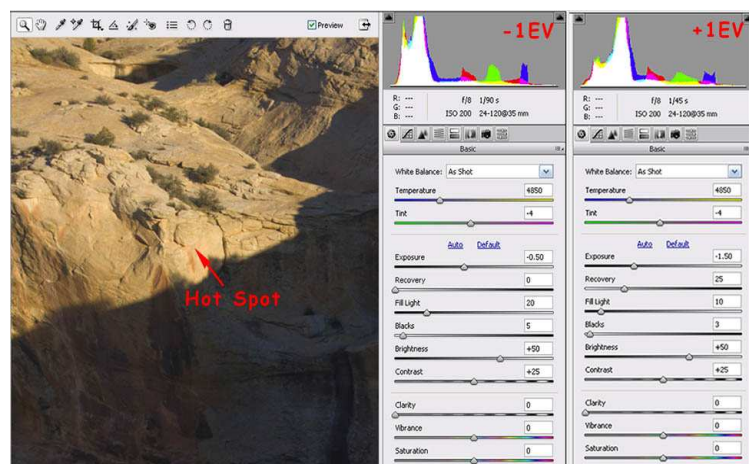
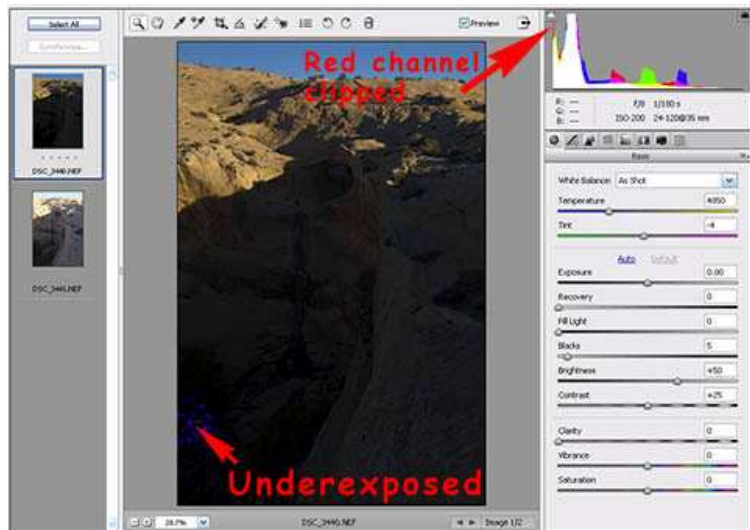


Let the Real Games Begin...

In the Western US during spring and fall, sunrise and sunset can set up bright spots on strongly reflective surfaces. The arrow in the upper raw histogram points to just such a pesky spot. Our task will be to minimize that affect during HDR processing while getting true shadows out of the dark canyon.

It took three passes for us to open the raw files in ACR from Bridge, lowering exposure values on that reflective face enough, then successively save each file as a DNG file with a different suffix. Finally, we could see few clipped pixels after HDR processing.

The successful HDR pass for bracketed shots at -1EV and +1EV are shown next with Basic slider tuning values to fix exposure problems.



The +1EV shot needed a strong exposure fix of -1.5EV for the hotspot. ACR can increase the view to 100% to see that hotspot with critical eye. The -1EV shot required a -0.5EV change.

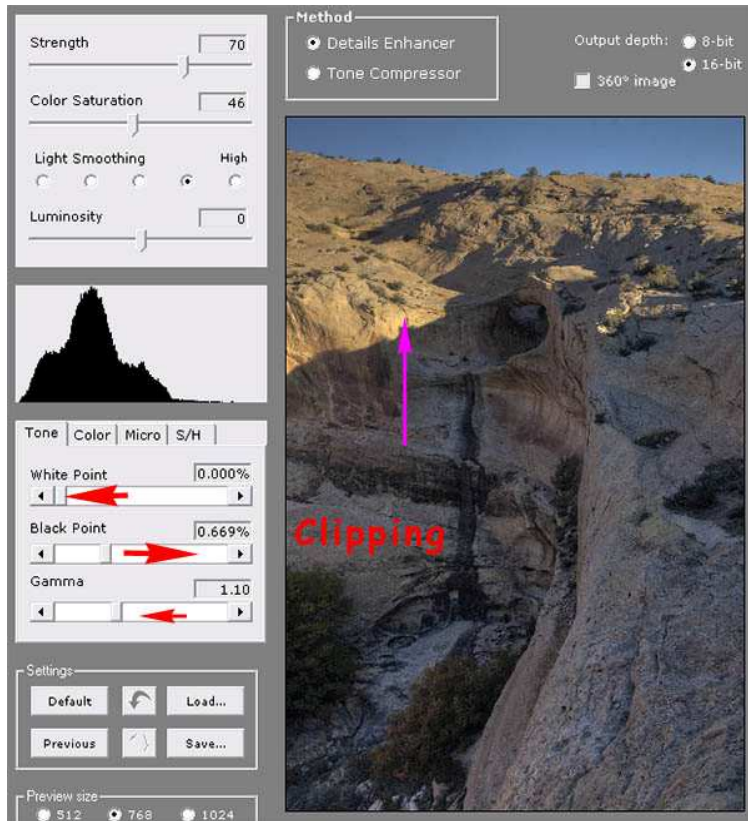
Clearly, these data suggest more care in deciding our bracketing increment range. If we succeed, less time is

later spent carefully repairing clipped ranges ~ and more time shooting.

Modifications were saved as DNG files for input to Photomatix.

Photomatix Settings

We typically use default Photomatix settings because we feel CS3 gives us more latitude for adjusting cool images. In this case, we found modifying the white point lowered our clipping. Yet, our HDR image still looks washed out.



Now, It's Finally CS3 Time - Let's Add the Hot Stuff

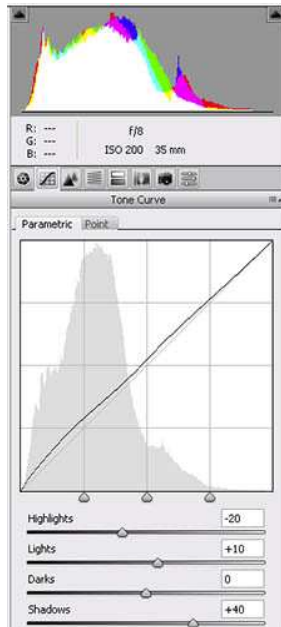
After saving our Photomatrix as a tiff file, we open it in CS3.

We note Photomatrix arbitrarily chooses to create its own tiff file size. That size is fractionally larger than your original capture size. Instead of 240 dpi, it also arbitrarily saves at 300 dpi. You have no control over this sizing. Unfortunately, if you need to redo a Photomatrix tiff, you must resize it to your shooting format, in hopes

of a later careful mask or merge.

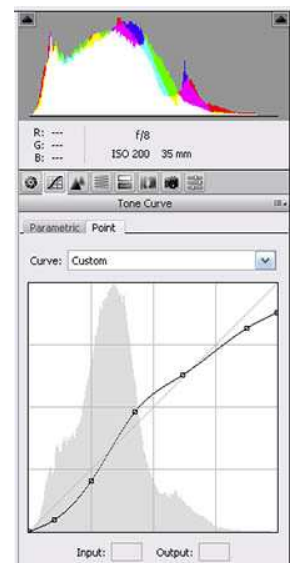
We don't like the cave's position; so we crop, then resize our image to the original capture size.

We also saved the image as a DNG file. We find Bridge and CS3 avoid some recent forum chatter about not reading tif files when we use DNG files. DNG files save all settings, so we can easily return when we write up a workflow.



Fine Tuning Tone Maps with Curves

Curves are a very important part of working with Bridge and ACR. Curves strengthen contrast. You have two paths: you can work parametrically or you can do it point for point. I like parametric breadth and really fine tuning of point-to-point functions. Yes, seeing the histogram really helps. With point-



to-point, we emphasized shadows with some darkening and mid tones with some lightening. We then reduced some of the highlights.

Visual Sequence of CS3 Final Steps



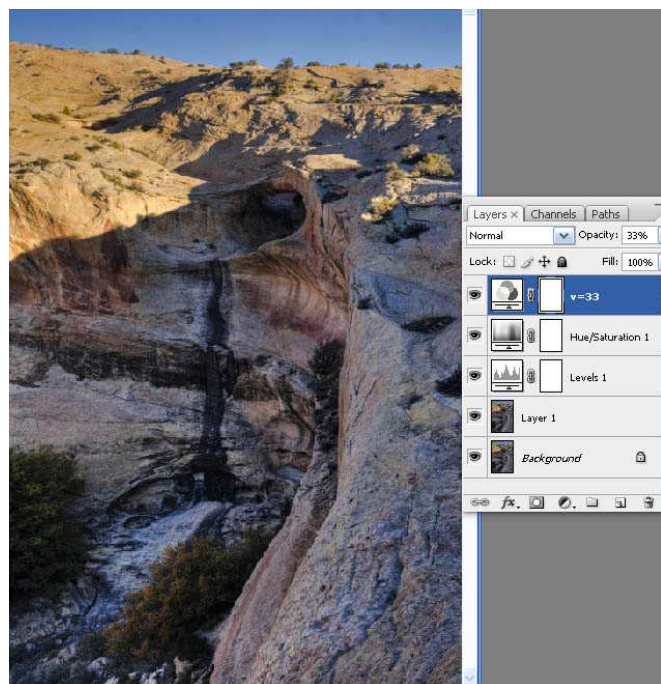
Bridge also helps us visually see what we did. I often save a file because I am trying a new twist in CS3. If I save it as DNG, I can then see ACR changes as well.

In this sequence, I performed a curves adjustment as shown above. Then sharpening began.

Here's the preliminary workflow with Levels, Hue and Saturation, and a Channel Mixer change to create a warm Velvia touch.

Sharpening with Pixel Genius

One of our last steps was to perform sharpening. Sharpening is a 2 stage process; Capture is applied to all elements in the image. Creative is only applied where your brush 'paints'. Then, we used the Depth of Field brush from Creative Sharpener to emphasize sunrise highlights, yet bring out more subtle strength of canyon walls. How much change occurs depends on your choice of opacity. We suggest you play with the amount of change you want to create.



Color Dodge & Burn

As a last step in preparing this image, I activate a new layer with 50% gray. Then, I can work with blending modes to subtly emphasize salient parts of the image in my final salute! In effect, I can paint with different foreground colors at varying capacities.

I've built the 50% gray layer as an action because it's so powerful.

Making Your Marketing Portfolio

After all this effort, you want to *Put Your Best Foot Forward*.

We do so by placing the finished image in a mat with sympathetic borders, a catchy title, and contact information. Naturally, we place our signature as a copyright mark...

"Two roads diverged in a wood, and I...

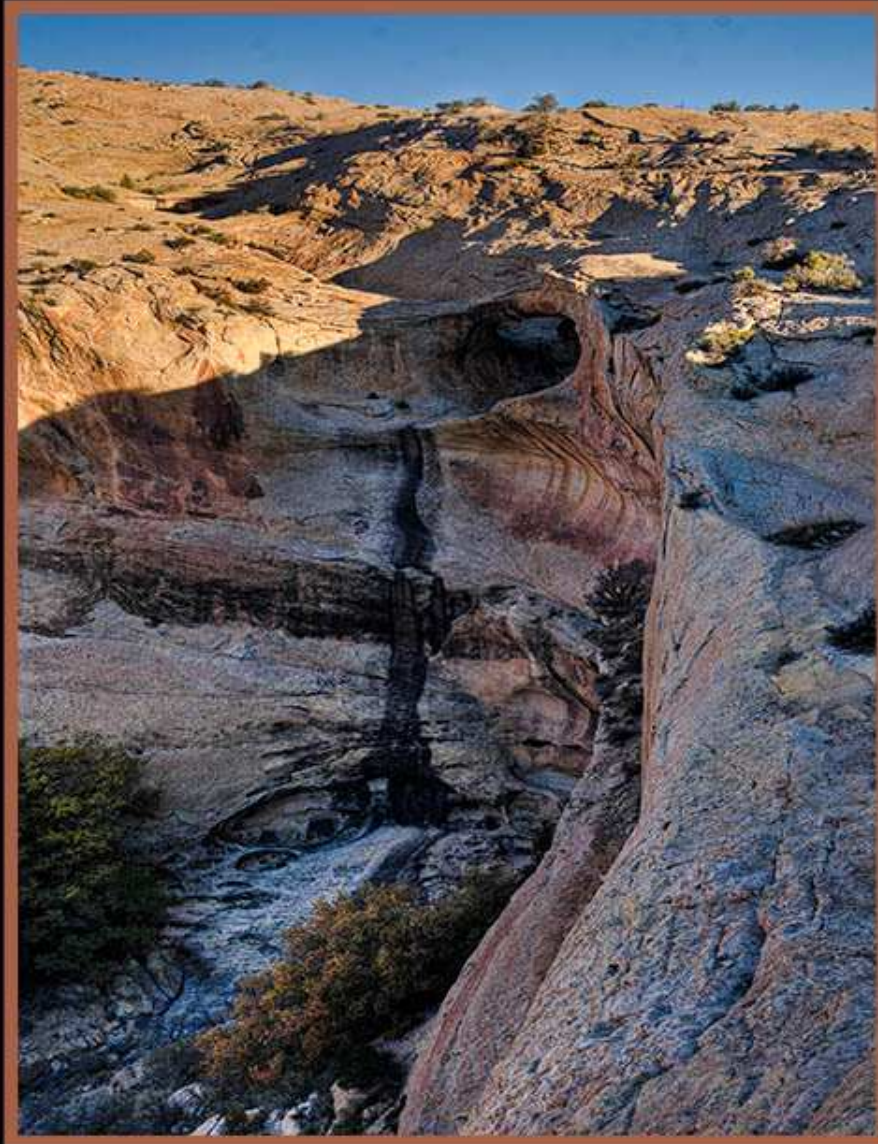
"I took the one less traveled by,

"And that, ... has made *a//* the difference!"

Robert Frost...

In subtle use of Photoshop, photographers paint deeply emotional tone poems.

Voilà...



Canyon Shadows

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