



Solo i, Elemental, 2002



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P A I N T I N G W I T H L I G H T

I'd figured out the technique in advance. I had to. I had a deadline. I knew what I was up to. I wanted to make exposures of the same subject from the same angle just before sunrise, at sunrise, and after sunrise. That way, I could weave together dramatically different lighting situations and light temperatures. I simply had to find a composition that would support it.

But, light caught me by surprise — again. I went to catch the early morning light. The morning looked like it would be clear when I left my house before dawn. All was proceeding according to plan. When I arrived I found a bank of clouds on the horizon that held the sunrise back for quite some time. Pick your favorite cliché about plans; Any one would have been appropriate. By the time the sun cleared the clouds, it offered a significantly different quality of light. Then up came more clouds. I watched the light wink in and out from behind them. The change from one moment to another was dramatic. Bright sun. Shadow. And, to my surprise, there was a beautiful quality of diffuse light when the sun was struck by the edges of each cloud. Some clouds were thicker than others. Every moment was different. I started to interact with the light. I used a white sheet as a diffuser, a large piece of foam core as a cool reflector, and a warm gold reflector. I played for hours, simply enjoying the light. I intended to come back with three exposures. I came back with dozens. In the end, I used two. But my understanding of light and my experience of light had completely changed from that moment forward. And, what I thought might be an isolated image turned out to be a whole series of images. Process is important when it informs the work; it becomes a part of the final product. Process is even more important when it informs you; it becomes a part of you. Fully engaging the process and the subject changed me. That changes the image. That changes what you see. That's the chance we take as artists. We dare to be changed. It's a chance well worth taking.

Solo I is about numbers. There must be some irony in that fact that at its most basic level it has been reduced to numbers — ones and zeroes. Those numbers generate other numbers, which are translated by yet more numbers, which in turn become colors. But that's not what I mean exactly. This image is about numbers on a much more fundamental level — psychologically. It's about "one." One is a powerful number. It represents beginnings, individuality, single-mindedness, and unity. It can also represent isolation. The focus on and isolation of this one stone is completely subjective. Frame a different stone. Bathe them all in the spotlight. You could take a thousand other viewpoints. Every one would be valid. Experience is what happens to us. Our experience is what we make of what happens to us.

L I G H T M O V E S

*“There was a time when meadow, grove and stream,
The earth, and every common sight,
To me did seem/Appareled in celestial light ... “*
— William Wordsworth

“You stand in your own light. “
— John Heywood

What could be as important as light in a photograph? Time. Every photograph is not only a recording of light, it's a recording of light for a specific duration of time. Imagine the possibilities if light could be built up selectively over time in photographs. The result might no longer represent an average of light over time, it might instead represent a selective sampling of many different lights, found in many different moments in time, presented in one image.

The studio equivalent of painting with light has been with us for some time now. From flashlights to fiber optic cables, the tools continue to evolve, offering greater precision and control, but the essential technique remains the same — selectively introduce new light into a composition. Digital compositing can offer many similar possibilities and some new ones too. Both traditional and digital versions are built up in layers; the former is done during exposure(s), while the latter is done after exposures.

How is it done digitally? Make several separate exposures of a subject in varying light conditions. Then, put them together in a single digital file. Finally, selectively mask areas to hide one light and reveal another. The re-

sult is a light that can't be seen at one time, but can be witnessed over many moments, and will finally be (re)experienced in a single image.

Clearly, the greatest number of options for working with light arises when you study a subject under varying conditions. Immediately, several variations come to mind — full sunlight, full sunlight with reflection, diffused sunlight, diffused sunlight with reflection, partial shade, partial shade with reflection, full shade, full shade with reflection. For more possibilities you can consider introducing additional light sources. Any or all of these variations can be used in combination with one another. The more dramatic the variations, the more dramatic the possibilities become. Yet, even subtle applications of this technique can work wonders. At a minimum, two lighting situations at opposite ends of the scale from one another, full sunlight and full shade, can provide a great deal of drama.

Precise registration of the separate exposures will open many more possibilities. If registration is compromised, edges may require retouching and blending percentages of two or more exposures may compromise focus. To make registration of the separate shots easier,

take steps to ensure that neither the camera nor the lens moves between exposures. Mount the camera on a tripod and do not change the point of focus or alter swings and tilts. When using autofocus/autoexposure cameras switch to manual mode for all shots after the first.

While these kinds of techniques have been traditionally reserved for photographing in the studio, where light can be precisely controlled, even the nature photographer can harness this power. Weather can be your friend. Consider the passing clouds. They can provide shade or diffusion. The light becomes particularly interesting as the sun lingers at the edges of clouds. Time can be your ally. Consider the variations in temperature the ambient light will shift through over the course of a day from sunrise to sunset.

The many strategies for orchestrating light are similar to the objectives of “dodging and burning” or selectively lightening and darkening a single exposure image — create long smooth transitions between dramatically different tones or colors and/or accent small areas and downplay large areas (or vice versa). You might consider defining areas of light and dark in specific shapes — for instance bands of shadow and light — and in so



1. Full sunlight.



2. Full sunlight with reflection.



3. Full shade.



4. Full shade with reflection.

doing significantly alter a composition.

What's the difference between “dodging and burning” and “painting with light”? Dodging and burning lightens or darkens the relative tonal relationships that exist within an image, while painting with light changes the relative tonal relationships altogether. Just like dodging, painting with light can make an object appear lighter. But, it may also introduce a cast shadow; it could be the cast shadow of an object that blocks the light falling on a given area or it could be the shadow the lightened area cast on another area. A third shot under different light conditions would be necessary to eliminate these shadows. You can even use blends of both light and dark versions to create the effect of reflected light.

At its most fundamental, the difference comes down to shadows and highlights. Density, saturation, and color all render space and form, which is usually fuller when there is more light. In shade, colors are cooler, less saturated, and there is less difference in tone between shadows and highlights so space and volume appear reduced. But not always. There is a point past which too much light produces glare and starts to reduce saturation and definition. Light is a chimera; it is ever-changing. Even if you can't pin



5. Full shade is used as the base.



6. Full sunlight is layered on top.

down the effects of light to a definitive formula —0 over the centuries some of the greatest minds have tried — you can celebrate your particular experience of light, which will quite likely be unique. The more you look, the more carefully you look, the more you will be rewarded.

While there are similarities between this multiple exposure technique and “dodging and burning” or selectively lightening or darkening a single exposure image, the intensity and number of effects that can be achieved with the former far exceeds the latter. You can combine both techniques for stunning effects. Once you enter this path you will no longer think about light in the same way. You will experience light in entirely new ways.

While the ability to visualize the final solution in specific detail is extremely challenging, the technique for accomplishing it is not. Composite two or more exposures of a subject in different light into a single file and add layer masks to hide portions of one image and thereby reveal parts of another.

Compositing two images is a simple matter. Click on

the Background layer of one file, hold, and drag it into the window of another file. In this case, since care has been taken to make sure that the two exposures will register perfectly, hold the Shift key before dropping the one image onto the other.

For this technique, it’s essential that both versions are scanned at exactly the same resolution; that is, both files should have the same pixel count or be the same number of pixels high and wide. With the Shift key held, Photoshop will automatically place the new layer perfectly at the center of the background of the other image. As the two images are exactly the same resolution, they will then be precisely registered.

If something has gone amiss in the process, say you used autofocus for the subsequent exposures and the plane of focus shifted slightly or you hand held the camera and there is slight rotation, you can check the registration of the layers. Lowering the opacity of the top layer can help. You may see the edges are clearly not in register with one another, if the images are significantly



7. A layer mask is added to reveal the image in full shade below. Only three stones are visible from the image in full sunlight, dramatically driving the focus of attention to them.



8. The layer mask used for the previous image.

misaligned. The image may lose focus if they are subtly misaligned. There is another technique that is very useful for registering two images that are alike. Turn the blend mode of the top layer to Difference. If the two images are perfectly in register the image will turn black. If instead there are brightly colored contours in a dark field, move the top image until the contours disappear. You can use the Move tool or the arrow keys on the keyboard to reposition a layer; a combination of both usually works well. (Note, you can only reposition the Background layer if you rename it first — hold the Option key and double-click on its title.)

Sometimes registering images requires rotation. If this is the case, make sure you use the Rotate command (Edit: Rotate or Edit: Free Transform) only once. While making multiple rotations with the preview active does not degrade an image with each successive rotation, if you apply the transformation each time you test a new angle of rotation, the quality of the image will degrade with

each application. Every rotation that is not a multiple of 90 degrees resamples the image and will soften the image slightly. A little resampling is nothing to be overly concerned about, an application of Unsharp Mask will more than compensate for the loss in sharpness, but a lot of rotation is. For the nth degree of quality, don't rotate at all. So remember, when rotating, you can use the Escape key as many times as you like to simply exit the command, but try to hit the Return key no more than once to the command.

Typically, the Background or bottom layer in the layer stack is never masked. This only reveals the substrate, usually white, and fogs or reduces the dynamic range of an image. Layer masks should be added to the layers that rest on top of the foundation of the layer stack. It helps to put the image that contains the greatest amount of information that you intend to use at the bottom of the layer stack, and then use the overlying layers to add accents to it. This is accomplished by adding a layer mask to each



9. Full shade is used as the base.



10. Full sunlight is layered on top.

overlying layer (Layer: Add A Layer Mask). When adding the layer mask, select the Hide All option that fills the mask with black and reveals 100% of the underlying image. Remember the mantra, “Black conceals, white reveals.” Where the top image is hidden the images below will be revealed below.

Then, use a white soft-edged brush to reveal the overlying images in chosen areas. When used on a mask or the Background layer, the Eraser doesn’t remove pixels, rather it paints with the background color. If the foreground color is set to black and the background color is set to white, by varying the opacity of the two brushes, Paintbrush and Eraser, any shade of gray can quickly be mixed. If you take this route, remember, using brushes with lowered opacities can cause uneven areas of gray if successive brushstrokes overlap. If you need an area to be one shade of gray without variance, paint the area in a single stroke or use a gray brush at 100% opacity.

The Opacity slider can be used to blend a portion of one layer with another without the use of a mask.

This blends an amount of one image with another throughout the entire image. However, in general, I find I like to use different amounts of an overlying image in different areas of the composition. It’s true, you could reduce the opacity of a layer to the maximum opacity needed and then add a layer mask, but I prefer to control opacity with a layer mask. If you keep the layer’s opacity at 100%, you can reduce its opacity with shades of gray in the layer mask. Shades of gray will provide the same effect as opacity. Layer masks usually start out as white (choose Reveal All) or black (choose Hide All). That white or black can be turned to gray by applying a Curve directly to the mask and lowering the white point or raising the black point. This is something you rarely want to do to an image as it will reduce the dynamic range, but when masks are concerned, this may be exactly what you wish to do as it will provide precise control over opacity. Layer masks cannot be affected by adjustment layers; corrections must be applied directly to them, and so editing them is less flexible. As layer masks are essentially



11. Full sunlight and full shade are composited in this image. This time, the central stone was dodged with a Curves adjustment layer. Light from the top layer (full sunlight) is partially revealed to provide the surrounding glow.



12. The mask used in the previous image.

grayscale images and Curves offers the most extraordinary control over the tonal scale, Curves is a superior tool to use to modify the density and/or contrast of a mask.

Just as the tone of an entire mask can be altered with Curves, so can specific areas if they are selected first. If a selection is active before a layer mask is added, when adding a layer mask, selecting Reveal Selection will turn the selected areas in the mask white and the other areas black. Selecting Hide Selection has the inverse affect. If the selection that was loaded before the addition of the layer mask was created from a gradient mask or a contrast mask, the layer mask will contain many shades of gray.

New values can be added to layer masks manually. Usually, tight masks are not necessary with this technique. They can even be undesirable. The shades of gray that soft-edged brushes provide create smooth transitions. For very long smooth transitions, use the Gradient tool.

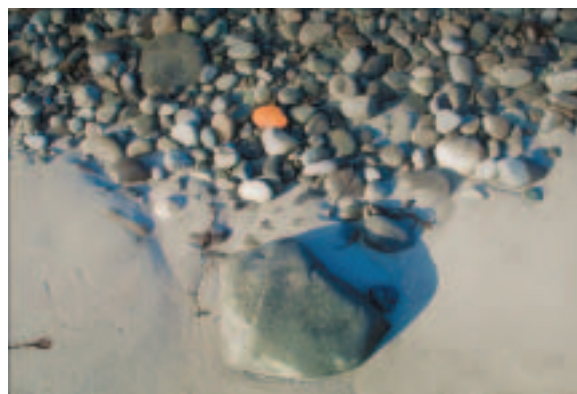
Masks can quickly become very sophisticated. So

can this technique. When working through a solution for a particular image of this type it can help to see the various image components separately as well as composited. Keeping multiple uncomposited versions, even low resolution versions, open simultaneously will greatly facilitate finding an optimal solution. With the uncomposited versions placed side by side with the composited version, you'll be better able to find your way to your final destination.

When all is said and done, it's more than likely that you will be surprised by the final effects you achieve using this technique. Unlike its traditional counterparts where all your trials and errors from a single performance are fixed on a single sheet of film, painting with light digitally offers you unparalleled flexibility. You can paint and unpaint and paint again until your heart is content. If practice makes perfect, then you can practice your way to perfection. The only danger you'll find is you might never want to stop.



13. Full shade is used as the base.



14. Full sunlight is layered on top.



15. Full sunlight and shade are composited in this image. Here, the top layer (full sunlight) is blended into the bottom layer (full shade) with a gradient mask, creating a smooth transition from one lighting environment to the other. A small percentage of the shadowed version is brushed in surrounding the central stone, which acts similarly to burning down the area with a Curves adjustment layer.



16. The mask used in the previous image.

M E T H O D

1 Make several exposures of a subject in varying light conditions. At a minimum, make exposures in full shade and full sunlight. Other conditions might include partial shade, partial shade with reflected light, and full sunlight with reflected light.

To make registration of the separate shots easier, take steps to ensure the camera does not move between exposures. Mount the camera on a tripod and do not change the point of focus. When using autofocus/autoexposure cameras, switch to manual mode.

2 Composite two or more exposures with different lighting conditions. Click, hold, and drag the background layer of one document into another. Hold the Shift key before dropping the new layer down in the new document to ensure that the two shots are pin registered.

Optionally, to check registration, change the mode of the top layer to Difference. If the two images are in register, the screen will go black. If instead there are brightly colored contours in a dark field, move the top image until the contours disappear. Sometimes this will require rotation.

3 Add a layer mask to the top layer. If a large portion of the top layer is to be used, choose Reveal All. If a small portion of the top layer is to be used, choose Hide All. Then use the Paintbrush tool on the layer mask to hide (black paint) or reveal (white paint) portions of the top image. Where the top image is hidden, the bottom image will be revealed below.

Soft-edged brushes provide smooth transitions. For very long smooth transitions, use the Gradient tool.