Balancing Foreground & Background Tungsten Lights

by **John Siskin**

In the studio, we have the ability to exercise control over three aspects of light. The first of these is color. We may want to have a warm glowing effect or make a photograph that is cool and stark, but we will want to be able to create what we imagine.

The second aspect of light is its quality. Look at something on a sunny day; it has hard bright reflections. An object will throw hard structured shadows; as a result it will show texture. If we were to look at the same object on an overcast day, we could see into more of the surface. In overcast light, our object will seem more open; it will seem to exist independently of light. Light direction is an important aspect of a small light source, such as the sun. Direction will affect the size and angle of a shadow. A very large light source, such as an overcast sky, does not seem to have a direction at all.

The third aspect of light we can control is quantity. Do we have enough light to expose the film? How much exposure do we want the film to have? If we know how we want to represent the object, creating the image is much easier.

I made this photograph of an iris as a demonstration for my studio lighting class at Learning Tree University in Chatsworth, California. The tools used—timers and dimmer switches—offer flexible control of tungsten lights that helped us get the color, light quality and balance that we wanted.

As I envisioned the image, the flower would be in focus, while the surrounding area would be softer. I also wanted most of the image to be very cool in tone, except for the flower. These effects would help to frame the flower and capture the viewer's eye. The quartz lights I used are balanced for tungsten film. I generally use quartz lights with my class for several reasons: they are less expensive, and these lights can be controlled very precisely; with quartz lights we are photographing the actual light we are seeing. This makes accurate placement of the lights easier than it is with strobes, even if the strobes have modeling lights. That control was critical for this photograph.

Image name. *I have no caption for this....*

This image mixes two light sources, each with different qualities, colors and intensities. To demonstrate the effect of each light, I used my Canon 10D to digitally capture each light. The exact color temperature recorded by this camera can be set to simulate tungsten film. The final image was made with a Toyo View C. A monorail view camera, such as the Toyo, enables you to isolate the flower by controlling the plane of focus. A film camera also allows you to blend different light sources more effectively. I used Fuji 64T film, which is balanced for tungsten lights.

The Set Up

I used a 20×24-inch hard rubber darkroom tray to begin setting up for this photo. This thing has been around my studio for at least 15 years, and it's been the base for a lot of shots. I poured in about a half inch of water and a capful of Kodak Photoflo. Photoflo acts as a wetting agent, keeping dust and dirt from floating on the water—much the same

thing it does in the darkroom. Photoflo also changes the way water touches a surface: the water creeps up the side of a surface, rather than being repelled by it. Next I arranged some beach pebbles in the water. The pebbles must be placed carefully and moved in response to the lighting.

My first goal was to define the relationship between the flower and the Toyo camera. I picked a lens with a focal length slightly more than normal 210mm, similar to a 70mm lens on 35mm film. Then I started moving the objects around. I wanted the flower to be out of the water, so I placed it on some extra pebbles. I decided to move the stems to the right side of the frame and show the side of the flower. I also isolated the focus on the flower by tilting the front lensboard on the Toyo toward the vertical, reducing the focus on the stones. I also used some shift movement to help place the flower in the frame.

Then I began to build the lighting. To avoid color shifts when shooting with quartz lights, all the other lights in the room must be off and the windows dark. I used a 600-watt Smith-Victor 770 broad light as the overall light source (figure 1), placing it on a boom to provide maximum flexibility in light placement. Then I put a couple of colored soda water bottles in the back of the tray (figure 2). These created a series of small light sources by refracting the light source placed behind them. Each bottle acts as a cylindrical lens focusing the light from behind it onto a different location.

As I worked out the placement of the bottles, I realized that I would be able to use the different densities of the bottles to control the brightness of different areas of the image. I began by using a light blue bottle to illuminate the flower, but this was too bright. After changing the light blue for a darker blue, I added a blue vase.

In addition to adjusting the bottles, I needed to move the light source, which changed the direction of the light and the placement of the highlights. When I was finally satisfied, I had created a light that was brighter in the back and very blue/green. The color was no surprise because that was the color of the bottles. With a blue iris as my subject, the background worked very well.

Unfortunately, the flower itself wasn't working.

The overall color of the shot left the flower much too blue. This is visible in figure 3, taken with my Canon 10D set on 3200°K. This image also shows that the front of the image is much too dark. I placed a reflector in the front of the set, just before the final shot to fill in the front (figure 4). I also sprayed the flower with water just before I shot the film. The particular qualities of this light source include a blue/green color and a sense of multiple small lights.

The next light source was designed to spotlight the flower and warm its color. I picked a very small Fresnel light made by Altman (figure 5). This light uses a Fresnel lens to focus the light, and has a movable bulb to control this effect. This

Figure 1. *Smith-Victor 770 broadlight with barn doors. This light illuminates the entire set.*

Figure 2. *These bottles filter and refract the light into the set. They can be moved to change adjust density and color in different parts of the image.*

Figure 3. *This image shows the effect of just broadlight through the bottles. Image taken with a digital camera set on 3200°K.*

Figure 4. *This reflector was placed into the set to open up the front the image.*

Figure 5. *Altman small fresnel light with snoot. This light is focused on just the flower.*

Figure 6. *Image of the set with just the fresnel light. Image taken with a digital cameras set on 3200°K.*

Figure 7. *Digital image of both lights at the same power. Note how much this image looks like Figure 3. The fresnel light has very little effect here.*

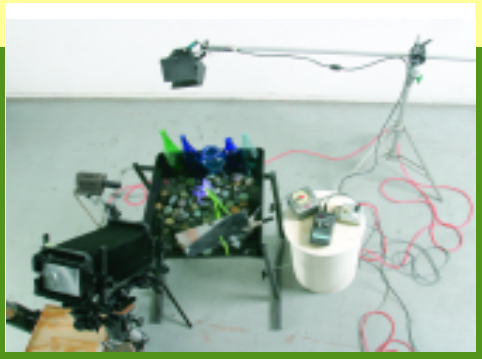

Figure 8. *This image shows the entire set from above. The relationships of all the lights are shown in this shot.*

is only a 100-watt fixture, so it's not very powerful. I also used a snoot to further restrict the size of the spot. I placed this light to the side of the set and adjusted it to light the flower (figure 6). This image illustrates the way the light spread onto the subject.

The other aspect of this light is its warm color. The first light is cooler than normal, so this light needs to be very warm. I created this warmth by using a dimmer or rheostat switch. As the dimmer reduces the power of the light, the light's color balance shifts from blue to red. One of the advantages of a dimmer is continuous control of the color. The difficulties include a reduction in the output of the light and a lack of information about its exact color. If you used filters you would still lose light, but you would know the color temperature. Of course, you need the correct filter.

Now we have a problem: two lights that do what we want, but at very different brightness levels. The way that I control lights in these situations is with enlarger timers. My goal is to determine how much longer to shine the Altman than the Smith-Victor. We can see how important this will be in figure 7, another digital capture with my Canon 10D. It demonstrates what happens when both lights are photographed at the same power. If you compare it with figure 3, you'll notice that the spotlight doesn't have enough effect on the image. I metered each light with a spot meter. The spot meter reads out in EV units (exposure value). (Exposure Values are like counting stops: adding 1 EV unit is adding one stop of light, subtract 2 EV units and remove two stops of light.)

In the spotlight image, I concentrated on the petals of the flower, which had an EV value of about 5. When I metered the other light, I concentrated on the lighter rocks and the flower, as both were important. The petals had values of about 7 EV, while the stones were at 8 EV. To match the spotlight to the Smith-Victor, the spot needed to shine four times longer (two stops).

Putting it Together

Now, to put the information together. I chose to work at an aperture of *f*/8 to isolate the focus on the flower. Because I was so close to the subject, I needed to compensate for bellows extension (light reduction because actual lens to film distance is much longer than the lens focal length). This light loss amounted to 1.5 stops making my desired aperture effectively *f*/14. With an EV of 7 on the Smith-Victor my time should be about 3 seconds. That meant that the spotlight should be 12 seconds. I used a Master Time-O-Light on the Altman Fresnel spotlight, and a GraLab 450 on the Smith-Victor because it's much better at short exposures. The final exposure was shot on Fuji 64T film rated at ISO 64. No pushing or pulling were needed when I processed the transparency. It shows very good surface detail in the flower because of the hard light sources. The color is pleasing and the transition between cool and warm is very subtle. The water droplets are particularly nice. The small light sources in this image are actually focused by the droplets, creating additional highlights. Figure 8 shows an overhead view of the complete set-up.

Enlarging timers help make this level of control possible. Each light can be controlled from one second upward. Each light can be changed individually. Different types of light can be matched in power. Most importantly, the exposure is repeatable. I use this repeatability to enable me to control exposure. If I'm working with 4×5, I process one sheet, then push or pull the second sheet as needed to achieve perfect exposure. When I work with 120 film, I can bracket, usually with the aperture (that way I don't have to change a bunch of timers). One tip: Use extension cords to bring all the timers to one place, which makes checking the relationships between lights more convenient. If I were counting seconds for each light in my head and bumbling about in the dark, I would never get it right.

The timers do have some drawbacks, however. They are useless for exposures below one second—lights don't work reliably in such a short time. More importantly, they don't handle lights over 600 watts, which may short out the timer, rendering it useless. I should mention that the 600-watt lamps last a lot longer than the 1,000-watt units, a nice benefit.

Dimmer switches serve two purposes. First, they can be used as in this shot: to adjust color. They can also be used to help us adjust the power of two or more lights. Put a dimmer on the light that will need less power. Turn down the power on this light until it looks right. Turn off the undimmed light sources. Meter the light with the dimmer at the adjusted level. Turn the light to full and meter the light again. The difference between the two is the change in power you will need. You can use the timer to achieve this. Of course, you could adjust the power with the dimmer, but that also changes the color of the light.

That's what skilled lighting is all about—knowing when to use which tools. I hope I've given you some insights into how to use two of those tools—timers and dimmer switches—to balance tungsten lights in the studio. ■

John Siskin is a commercial and fine-art photographer who specializes in product images as well as portraiture and macro and architectural photographs. He has taught photography for more than 20 years. He is currently teaching studio lighting at Learning Tree University in Chatsworth, California, and black-and-white photography at Los Angeles Mission College. His studio is in Reseda, California, and his web site is www.siskinphoto.com.