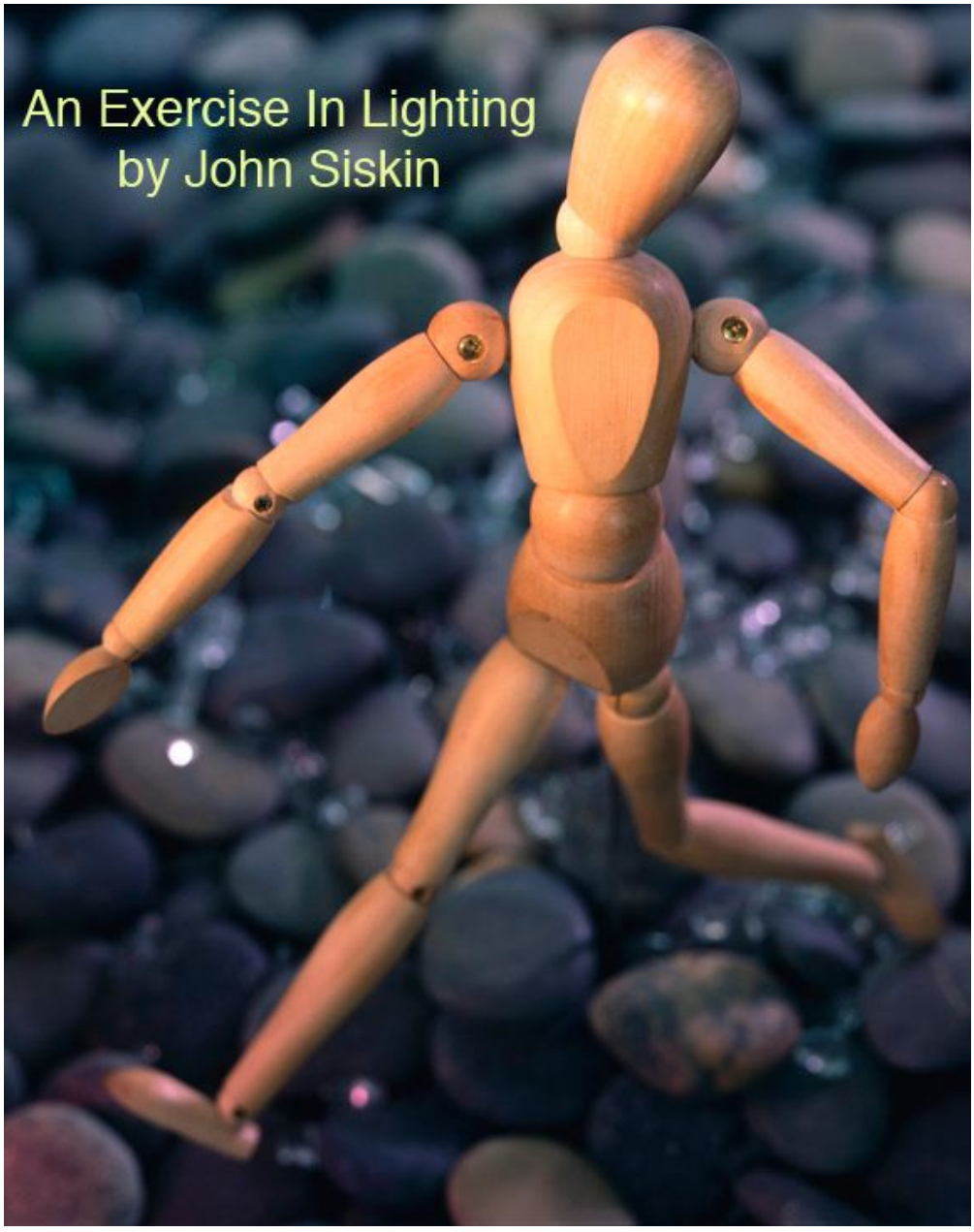


An Exercise in Lighting

by John H. Siskin

I teach a BetterPhoto.com class in studio lighting. One of the problems my students have is they haven?t got a way to practice. This project is an exercise. I?ve done it with classes, and I've done it in my own work. I allow myself only one light source, with my goal being to create an interesting light without too much contrast. Then I find a simple subject, preferably something around the studio. This helps me to concentrate on the ways to manipulate light, rather than just adding more lights.

The subject is a flexible sculpture model. These models are used as aids to artists. They are fun to shoot since they take direction well! I wanted to create a special environment for the model so the final shot would be interesting. The Mexican beach pebbles were a good choice. The pebbles came from a building materials store, you can buy them in a fifty pound sack, and I already had them. Then I sprinkled some shattered glass on top of the pebbles. I knew this would pick up the light and reflect it back to the camera, creating some bright highlights. I set up the shot in a 20X24? darkroom tray. The tray kept the glass from spreading and provided a black background behind the pebbles.

Diagram, Walking Model

When I set up a shoot I start with the relationship between the subject and the camera. This prevents putting a light where I want to place the camera. In setting this up, my first concern was to hide the wire support for the model. My second concern was to set the depth of field to create an increasing softness closer to the feet of the model; this made the model seem more human sized. Since I shot this with a Toyo 4X5 Camera and a 210mm lens a choice of f11 gives very little depth of field, perfect for this shot.

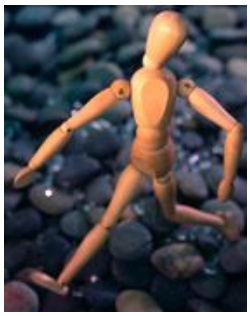
The way to make more apparent light sources from one light source is with reflectors. This shot is an exercise in reflectors; as such it has a value in measured in practice, in the same way musicians play scales. The first choice about lighting is the placement of the light source. It is important to place it where we will be able to access the light in different ways, giving us different values of light. I decided to place the light above the subject. This enabled me to use mirrors to reflect the light in from the sides.


Walking Model, Set-up Shot

Then I pointed the light into an umbrella. The umbrella has covered ribs and the interior fabric is white satin. It is also important that the umbrella has a black cover; an uncovered umbrella would spread light through out the studio. The umbrella is marked A in the diagram.

We can also change the appearance of the light by using diffusers and filters. Using these tools allows us to make light from one direction look brighter or have a different color. In this case, a diffuser with two layers of white rip-stop nylon fabric was placed between the light source and the subject. I used two layers because I wanted to reduce the light from overhead; otherwise the overhead illumination would overwhelm all the other light sources. I then place a blue Roscoe Cinegel on top of the diffuser; this further reduced the amount of light from overhead and adjusted the color.

The diffuser and the blue filter were mounted on a frame made from PVC pipe. This created an overall blue light on the set with a low level of illumination. You can see a reflection of this light on the upper trailing arm (right side of set) of the model. The light has a subtle effect in the rest of the shot, but it stands out on this one arm. The result of using two levels of white rip-stop nylon and a piece of blue Cinegel between the light source and the subject is much less volume of light on the subject than would be on the subject if just the umbrella is used. This makes it possible to reflect light into the subject that will be brighter than the light directly over the subject. The frame with the diffusers and the gel is marked B.


Walking Model

Next I placed a piece of Duvateen fabric opposite the camera. Duvateen is a very black fabric used to absorb light. I didn?t need this as part of the background; that is completely beach pebbles. This was placed to prevent light from the white wall behind the set reflecting white light back into the set. White light from the back of the shot will lighten the background and reduce contrast in the shot.

In order to control the way the image looks, we have to be able to control the light that spills onto the set. I added a large black card to the right side of the set for the same purpose: to control spill light. This card is a sheet of black matt board held up by a spring clamp.

Both the card and the Duvateen provide functions that are as important as adding light: they add shadow and create shape. Even lighting produces a flat look; shadows help produce a feeling of 3-dimensionality. These pieces of black material are called gobos or flags. They are marked C on the diagram.

Now to direct some more light onto the front of subject. What I imagined was a harsh direct light hitting the top of the model. If I used a diffused light for the front illumination I would lose the 3-dimensional effect evident in the head and chest of the model. I also wanted to add a warm color to this light to help offset the blue light from overhead. This color difference helps to make the model stand out from the pebbles in the finished piece. In order to do this, I used a Lowel Tota-flector to bounce light directly from the Smith-Victor light, before it hits the Umbrella. The Tota-flector (marked D) is part of a system that mounts both reflectors and flags onto flexible shafts.

In this case, I mounted the flexible shaft onto the boom arm that the light is mounted on. I bounced the light onto a piece of gold Plexiglas mirror (marked E) and then onto the model. Something like a two-corner-bank shot on a pool table! It's easier to get the light where you want it than to make that bank shot on a pool table; you just move the second reflector until the light goes where you want it.

Once you know where the reflector needs to be you can mount it on a light stand. Keep in mind that we are bouncing light from the quartz bulb, not the reflector, so the light is potentially much brighter than the light coming from on top of the model. Another important characteristic of the light is that it is very warm; this is because the reflector is a gold colored Plexiglas. As a consequence of the light being reflected and the color of the reflector the image now has a considerable amount of color and value contrast in the lighting.

I set up two more reflectors to further adjust the light on the sculpture model. The first is behind the set. This reflector is another Lowel Tota-flector, that is a silver reflector 8X12 inches (marked F). This reflector is bouncing light from the umbrella into the back and side of the model. This light helps to separate the subject from the background, by creating a more defined edge.

If you examine the right edge of the final shot, particularly of the lower torso, you can see what this light does. The light from this reflector is more subtle that the last one because the light is reflected from the umbrella. The umbrella absorbs more of the light and diffuses the light more. The light is filtered through a lavender cinegel (marked G). This gives me the color and smoothness I wanted in the backlight.

Another advantage of this light can be seen in the reflections in the broken glass, many of them are illuminated by this backlight. The color of the reflections in the broken glass is the tip-off to the source of the light. The angle of reflection between the backlight and the lens works this way because the backlight and the lens are at a similar angle from the set; the broken surfaces of the glass make the effect irregular.

The final reflector has some wonderful characteristics. The light goes through a simulated stained glass window! First let's pay attention to the mirror (marked H); it's about 18X24 inches, so it throws a big piece of light. A bigger reflector creates a larger light source that will have a greater tendency to wrap around the subject. I wanted a larger source to give more light to the right side of the set, to give a sense of direction to the shot. This light helps to create a sense of movement toward the right side of the image. The final image seems to walk through the frame and this light is part of that illusion. This sidelight also creates more contrast in the subject in the arm torso and head. The mirror that creates this light is further from the set that the other mirrors.

The first reason for this is that the larger distance helps to balance the brightness value with the other reflectors. The other reason is that the light needs to go under the diffusion panel. The angle of the light from the mirror can be seen as we move the mirror around the set.

As we bring the mirror closer to the light, the reflection moves away from the mirror at a more downward angle. Since there is just a limited space between the diffuser and the table the placement of the mirror is more difficult, fortunately we can see the light from the quartz light pretty easily. The Plexiglas mirror is reflecting light from the Tota-flector at the umbrella (marked ?D?) that we used before. The final trick for this light is the filter. I took a sheet of glass and mounted the color gels from a Roscoe Cinegel swatch book to the glass with spray mount adhesive (marked ?I?).

This glass acts as an irregular warming filter. It also creates some colored reflections off the broken glass depending on the angle of the broken glass.

Finally, I needed to determine the exposure for the final image. I used a spot meter to take readings on the pebbles and the torso and the head of the model. I wanted to place the most of the model above middle grey and the pebbles below middle gray. Fortunately, my lighting had achieved that level of separation. If I didn?t have enough tonal separation, I would have moved the reflectors or changed the overhead diffuser to create more separation.

One of the wonderful aspects of lighting with continuous lights is that we can see the changes in tonal value without having to set off our strobes and make either a Polaroid or a digital file, this is faster! With an ISO 64 film (Fuji film RTP) and an aperture of f11 (I picked that when I set up the shot) the exposure time had to be 30 seconds.

This method of using only one light for a shoot is rarely the most practical way of doing a shot, unless you only have one light! The practical reason for doing such a shot is to improve your skills with lighting tools. Often we overlook the possibilities of reflected light in our lighting toolbox.

This exercise also encourages us to pay more attention to using black materials as flags and gobos to control the spill from our lights. So, in reality, this method of lighting is a very practical exercise of our lighting skills.