

Painting With Light

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Working nighttime crime scenes can present a number of difficulties to investigators, ranging from problems with focusing to illuminating pieces of evidence in near-complete darkness. However, with a little patience, photographers can completely and accurately document a crime scene.

Patience is probably the most important factor in photographing a nighttime crime scene. I strongly feel one of the worst errors a crime scene investigator can make when shooting an outdoor-nighttime location is to document the crime scene while hand holding your camera and illuminating the scene with a single flash burst at synch speed. Electronic flashes are a wonderful asset to photographers, but they have their limitations. First, the light coming off a flash head is unidirectional and images can appear awfully flat. Another problem in flash photography involves the "Inverse Square Law." The inverse square law states that the amount of light required increases by the square of the distance between the source and object. For example, if one piece of evidence is three times further away from the light source than another piece of evidence, it is not simply that you need three times the amount of light, but nine times the amount of light to properly expose the object furthest away. Because of the amount of light needed to reach those subjects further away, the light falling on those subjects closer to the flash are going to be overexposed. In addition, those pieces of evidence that are further away are underexposed. As you can see, flash photography can be quite limiting. However, there are several ways to avoid these problems.

If you work in an area with enough ambient light, then simple timed exposures can be an easy solution. In more urban areas, lighting provided by business lights and nearby streetlights are oftentimes more than sufficient to make a proper exposure. This is where patience plays a part. I admit that taking a 1/60th of a second flash exposure is much easier than mounting your camera on a tripod and taking a 15 or 30-second exposure. However, the image provided by a timed or "bulb" exposure has so much more impact than a synch-speed

photograph.

Unfortunately, not all of us work in an urban environment and for those of us who do, frequently there are times when light needs to be added to our scenes. Now the question is, how do we add this light? Illumination can be "painted" into your scene with just a little bit of effort. Painting with light is simply adding or placing light in those areas not illuminated by ambient light. This might be an area the size of a football field or as small as a shaded area underneath a parked car. One way to paint your crime scenes is to add light with your electronic flash. Just to make a note of it here, I prefer to shoot my scenes with ISO 100 speed film. I prefer ISO 100 speed film because it generally provides for a better enlargement, better color saturation, and it requires longer exposure times. The longer shutter speeds allow the photographer more time to add light into the image.

In order to paint your crime scene, you need to plan your shot. Look at the location you are shooting and note where the shadows are or where exactly light needs to be placed. The goal is to obtain a well-balanced image, balancing the ambient light with the light you have decided to add. Once you have decided where you need to add illumination, you need to find the brightest spot in your planned photograph. This may be underneath a street light or simply the light coming through a home's window. Meter this light and select a proper aperture and shutter speed combination that will properly expose that area of the scene. Now, recompose your photograph in the viewfinder and prepare to start your exposure. Do not feel you have to leave your aperture wide open to capture all the light at once. In fact, a smaller aperture allows you more time to illuminate your scene evenly. By keeping your aperture settings small, your shutter speeds will be longer allowing more time to work. In addition, because of "Reciprocity Failure," you do not have to worry too much about overexposing the image. As with any important photograph, do not forget to bracket your exposures.

Now that you have planned your image, metered the ambient light, and composed your picture, you are ready to trip the shutter. The easiest, but not always the most effective way to add light, is to stand behind the camera or outside the boundaries of your image and manually add light with your electronic flash. In order to begin this process, remove the flash head from the camera and set it to the manual power setting. Using your flash's power rating, which is the guide number, you are going to set off your flash during the timed exposure yourself. Remember the guide number formula: Guide Number = Subject Distance x Aperture. Please make note, the subject distance is not the subject's distance from the camera lens, but from the electronic flash. Therefore, when adding light with your flash, divide the flash's guide number by the aperture your camera is set at and this will tell you how far away the flash head needs to be from the subject in order to properly expose the image. If it is necessary to illuminate more than one spot in your scene, feel free to move around and flash your scene more than once. Do not worry about over exposing the image. The film's inherent exposure latitude and reciprocity failure makes it quite difficult to overexpose your photograph. Even if a small area gets a little too much light, it will still be much better image than a hand-held photograph would provide.

Adding light to your crime scene with more than just a single flash is often times necessary and desirable. In fact, I recommend adding light to those larger expanses with more than one large burst of light. By striking your subject from different angles you can eliminate that flat, two-dimensional image that can occur with a single flash exposure. When placing multiple flashes into your image, think about layering them over top of each other. As you sweep over your scene with your flash, layer them or feather them together so that you do not leave any underexposed gaps in your final image. Remember that light is additive on film. The final product will be the total of all the light you have added during the exposure. You can also improve your image by physically moving into the scene during the exposure and flashing your strobe light from inside its borders. This will provide even more depth to the final photograph.

There are a couple of guidelines to moving in and about your crime scene while taking a timed exposure. Realize that you do not glow in the dark, therefore you can walk right in front of the camera lens and as long as you do

not stop or remain in one place too long, you will not be seen in the final image. However, you can still create silhouettes of yourself if you are not careful. When firing your flash, be sure not to place yourself between the flash and the camera lens. If you do this, a silhouette of yourself will appear on film. In addition, watch the direction of your flash head. You want to try and avoid having starbursts on the final image that have been caused by the camera recording the firing of your strobes during the exposure. In addition, if you have a deep crime scene to photograph, you always want to fire your first flashes off on those points furthest away from the camera and work your way back to the camera. In this manner, if you did accidentally create a silhouette or two, by firing the subsequent flashes over the positions you just vacated, then the silhouettes will be removed from the image. Another way to avoid possible silhouettes or starbursts is to tuck yourself behind a tree, car, mailbox, or anything else that is present in the scene. By hiding behind some object in the scene, the camera will not see you or the position where the light from your flash originated. Another suggestion I like to give is to think about using lower power settings on the flash, moving in closer to the subjects that you are trying to illuminate, and/or adding numerous layered flashes across the area. By getting in closer and layering the flashes, a smoother and more balanced image will result.

Calculating guide numbers and deciding how to best add in your light with a strobe flash can be a bit tricky. Experience and practice will help you with your crime scene processing. Also, critically examining your own photographs and learning what works and what does not work will assist you in future scene investigations. The good news is that there is a way around painting your scene with an electronic flash. I actually prefer to paint my scenes with a flashlight or better yet a one-million candlewatt power light source. These lights have several advantages. The main advantage is that they are easily visualized. By this I mean, you can see exactly where the light is striking and where it is not. An electronic flash's light comes out so quickly, it is sometimes difficult to visualize where it hit and where the gaps might be in your image.

A powerful "Q-Beam" or searchlight can be purchased for less than \$20 and it usually comes with a battery that can be recharged in your vehicle. They are typically powerful enough that you do not actually have to walk into the photograph like you may have to do with

electronic flash, and they are much more precise in what they are illuminating. Therefore, I prefer to work with these types of lights. You plan your image and meter the available light just as you would an electronic flashed exposure, but now you add light to your scene with your searchlight or your flashlight. Use the beam of light like a broad paintbrush. Now brush your light over your scene from one end of the image to the other. I suggest going over your scene twice, just like putting a second coat of paint onto a wall. If the first coat was painted on with a horizontal motion, then add the second coat of light in a vertical or up and down motion. The amount of time it takes to paint a scene will depend on the amount of light being provided by your particular flashlight. You will need to do some test exposures before you use it on a crime scene and as always, bracket your exposures in order to ensure an acceptable image for courtroom presentation. The one area that might need a little correction is in the color of light that flashlights provide. An electronic flash is balanced for white light and a flashlight tends to be more on the

yellow side. In order to correct this, an 80A filter or possibly a deeper 80B filter can be placed over the camera's lens in order to make the image more color correct. However, outside of this one drawback, I think you will find painting with light much easier with a powerful flashlight, rather than an electronic flash.

In conclusion, painting your crime scenes with any source of light will provide you much better images than you could ever capture hand-holding your camera. Taking the effort to make a timed exposure is the first step towards better photography. It is rather a simple process, but it does take effort and patience. Simply remember that light is additive on film and it is the cumulative effect of all that light that you are providing that will make the image stand out and be noticed.

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This photo shows the limitation of program-mode or flash-synched photography. The flash just does not have the ability to illuminate the entire subject, especially in hand-held photography.



This timed exposure is a vast improvement from the program-mode photograph. Viewers are able to visualize where light falls into the scene and where the shadows are. However, if evidence is present in the shadowed areas, valuable information may be lost.



In this photograph, light was painted or added into the scene using a strobe flash. The shadows are now well illuminated and the darker portions of the image have been eliminated. Notice the hot spots of light underneath the tree in the foreground. Because of the Inverse Square Law, the strobe flash was not able to illuminate the tree from top to bottom in the same quality.



This image is another timed exposure, but light was added with the use of a flashlight. The flashlight can be thought of as a paintbrush, and the photographer just needs to apply two coats of light to the scene in order to capture an even and balance image. Notice how evenly the tree in the foreground is illuminated, in contrast to the strobe-flash painted image.