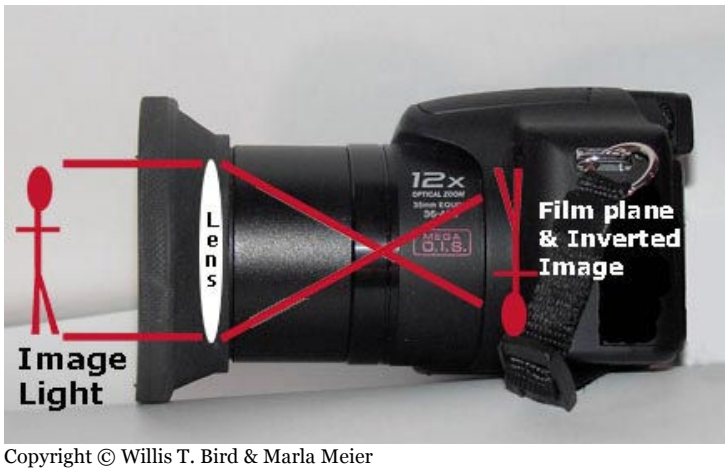
Apogee Photo Magazine

FIRST CLASS PHOTOGRAPHY: LESSON 37 - "I Shutter to Think and More"

by Willis T Bird

Printer Friendly Version



The camera shutter is the device that allows light into the camera to expose either film or a digital image sensor, depending on which type of camera you're using. This device can adjust the time during which light is allowed to enter the camera. For instance, if you're in a dark movie theater and someone opens the door to the outside, light comes in. If the light outside is very bright, it doesn't take long before you begin to see things in the darkened room. But if the light is not so bright, you must leave that door open for a while before you begin to see.

A fast shutter speed will freeze a moving object, whereas a slow shutter speed will create a blur of the moving object. That effect isn't always bad if you're looking to give expression to movement by your subject. You must know what you're trying to accomplish when you're setting a shutter speed. If you have a telephoto lens of 100mm or longer, you need a faster shutter speed to keep hand shake and movement from blurring your subject. The longer the light is coming into the camera, the better the chance for it to "smear" and give you a less-than-desired result. Use of a tripod can help allow longer shutter speeds in dark areas without the risking movement causing a problem.

So, how else does your lens help control the light to your film or sensor? We've seen how the shutter times the light. Let's go back to that door in the theater. The wider one opens the door, the more light comes into the darkness, right? Absolutely! The device on the camera that does this is the aperture setting. You've most likely seen those markings on your camera lens: f 1.2 – f 22 or some such numbers. If they're set to the larger number, the more light that comes into the camera, right? Wrong! Apparently, the camera designers didn't want operating an aperture to be too easy, so the smaller the number, the more light that comes into

the camera. Whereas a door wide open would be equivalent to an f1.2, one that was just cracked open only slightly would be an f 22.

Now, if you were out on a very bright, sunny day and saw a bird whizzing by overhead, how would you set your "door"? You'd open it just a crack and then slam it shut very quickly. Otherwise, you'd have a blur or just a white glob of light as your picture, and you'd be hard-pressed to find a bird in the photo. You want a little bit of light--because it's sunny, and you want the shot done very fast--because that bird is whizzing by. You want to freeze the photo.

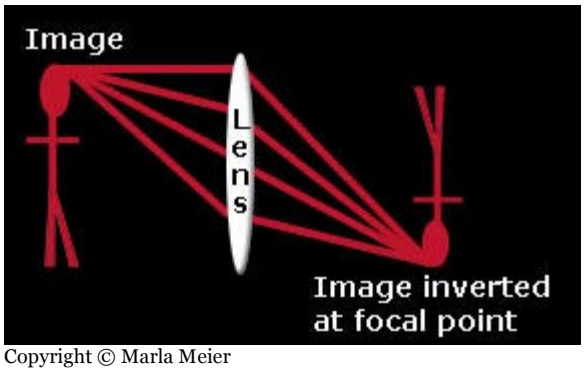
Conversely, if you're trying to get a shot of your cat sleeping in a very shady place in the yard in low light, what do you do? You open that "door" wide, letting in as much light as you can, and then leave it open as long as you need to in order to register the sleeping cat. Sleeping cats don't usually move unless you make noise, so be quiet! To catch this shot, you'll require a tripod.

How do you know where to place the camera settings during these two events? It takes some practice and maybe some luck at first. Seldom will you use the extreme numbers on your camera. Your choice will normally be somewhere in-between but toward the extremes. With a normal lens on a sunny day outside and a static subject, the normal setting will be f11 at 1/125 sec setting.

Here is one thing to watch out for in either digital or film cameras, if they're SLRs: They'll give you a view through the viewfinder at the widest aperture (f-stop) that allows you to see the scene brightly, but if you don't have the right settings, you can still get a photo that turns out nearly black or washed out. So, what you see is not always what you get. Some cameras have a preview button that will stop the lens down to whatever setting you have set up for the picture, and you can see the result through your finder. When you let up on the previewer, the view will go back to wide-open for you.

If you're looking for lenses and find two that seem alike except for the f/value, you need to know what that means. If one is f1.2 and the other is f3.0, what does that tell you? If all else is equal, the f1.2 lens will allow more light in than the f3.0 lens. You can shoot in lower light with it. This gives you more latitude in your choices of film and its ISO values. You can pick one with a higher ISO value and get the same results with your f1.2 lens as you can with a film with a lower ISO value and your 3.0 lens. This flexibility can also give you leeway in shooting moving objects with faster shutter speeds. However, the f1/2 lens usually is more costly than the f3.0 lens, so there is a trade-off of sorts.

Depth-of-field is another important factor to consider. In film cameras, light is focused and falls on a photosensitive emulsion that coats a plastic film. In digital cameras, the light falls onto a CCD receptor. If you've ever noticed a chart of how your eye works, the CCD receptor works the same way as your retina does when light is focused on it. The area in the front and behind the item you're focusing on that appears to be in focus is called depth-of-field. The size of this field increases the farther away the subject is. The aperture of the camera also determines the depth-of-field you have.



When light comes from objects at different distances, they'll have a different focal plane. If you've noticed, some pictures you take of a subject close-up will have a blurry background. Some cameras are fixed-focus, in which objects both close and far away seem to be in focus. This trick is accomplished by the manufacturer fixing their lenses close to the film plane. Other cameras have manually focused lenses in which you do your own focusing--by adjusting a ring on the lens, in most instances. You look through the lens on an SLR type camera until the object is in sharp focus. Some auto focus lenses use an infrared beam and work similarly to sonar--with a beam bouncing off the subject and back to the camera to determine the distance. Others have a passive system which is a unique electronic circuit that reads the energy of focused and out-of-focus objects. The science is beyond my ability to explain, so I won't attempt to do so here. However, the method works pretty well--as long as you focus directly on the object and not on something in front of or behind it.

This brief discussion generally gives you an idea of how lenses work. There are numerous lenses to pick from in all price ranges. Do your homework. If you have the opportunity to try two lenses that are similar in size, but far different in price, do so. See if the quality difference makes paying the price worthwhile for you. Sometimes the answer will be yes and sometimes no. I shutter to think what some pay for their lenses. But when it comes to wanting the very best, a lens is a good place to put your money.

To Apogee Photo Home Page