

Get great detail
in your subjects!

Canon PowerShot G12

From Snapshots to Great Shots

Learn the best
ways to compose
your pictures!



Jeff Carlson

Canon PowerShot G12: From Snapshots to Great Shots

Jeff Carlson

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To report errors, please send a note to errata@peachpit.com
Peachpit Press is a division of Pearson Education

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ISBN-13: 978-0-321-77161-2

ISBN-10: 0-321-77161-3

9 8 7 6 5 4 3 2 1

Printed and bound in the United States of America

DEDICATION

For Kimberly, Toby, and Laurence, who encouraged my passion for photography.

ACKNOWLEDGMENTS

I'm a pretty self-contained author. I write and package my books, which generally means I hand Peachpit a completed manuscript that they can take to the printer. I'm never alone, of course—editors, copyeditors, proofers, indexers, and others contribute to the finished product.

I'm saying this not to boast, but to help you understand that there's no way I could have been a self-contained author on this book. Without the incredibly hard work of the people listed here, I'd be standing in a field somewhere hoping for golden late-afternoon sunlight and making lists of all the photos yet to be shot. My sincere thanks go out to:

Valerie Witte, for being an excellent editor and also making the process of contacting photographers and requesting permissions as smooth as possible.

Rebecca Winter, for her eagle eyes looking at the layout and making the production process a breeze.

Liz Welch, for catching the silly errors I make over and over again, and making me seem more competent than I usually feel.

Joy Dean Lee, for doing the index under a lot of time pressure.

Jeff Revell, for starting the *From Snapshots to Great Shots* series and providing the foundation on which to build this book.

Laurence Chen, for his invaluable assistance back when I first started to take photography seriously.

Glenn Fleishman, for early lunches, afternoon coffees, and reality checks as deadlines began looming.

Kim Ricketts and **Jenny Gialenes**, for sharing our little office space in Seattle.

Katie Lacey, for becoming an impromptu model when I needed to capture a few final photos.

Everyone who contributed to the Flickr groups, for trusting your outstanding images to our little experiment.

Ellie Carlson, for charming me in ways I can't describe.

Kimberly Carlson, for laughter and patience and support and love.

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Introduction

Although compact digital cameras have improved over the years, they still suffer from relatively slow shot-to-shot speeds and small imaging sensors (which often can't produce the quality of a photo shot with a DSLR). Those limitations have frustrated people who want to go the extra steps necessary to get great shots, but who don't want to spend hundreds or thousands of dollars on professional cameras. The Canon PowerShot G12 jumps into that middle area between compacts and DSLRs. Shoot everything in fully automatic mode if you want, and when you're ready to move up to more complexity, advanced features are all there. I've put together a short Q&A to help you get a better understanding of just what you can expect from this book.

Q: IS EVERY CAMERA FEATURE GOING TO BE COVERED?

A: Nope, just the ones I felt you need to know about in order to start taking great photos. The owner's manual is a great resource that covers every feature of your camera. Writing a book that just repeats this information would have been a waste of my time and your money. What I did want to write about was how to harness certain camera features to the benefit of your photography.

Q: SO IF I ALREADY OWN THE MANUAL, WHY DO I NEED THIS BOOK?

A: The manual does a pretty good job of telling you how to use a feature or turn it on in the menus, but it doesn't necessarily tell you *why* and *when* you should use it. If you really want to improve your photography, you need to know the whys and whens to put all those great camera features to use at the right time. The manual is a great resource on the camera's features, so I treat it like a companion to this book.

Q: WHAT CAN I EXPECT TO LEARN FROM THIS BOOK?

A: Hopefully, you will learn how to take great photographs. My goal, and the reason the book is laid out the way it is, is to guide you through the basics of photography as they relate to different situations and scenarios. By using the features of your camera and this book, you will learn about aperture, shutter speed, ISO, depth of field, and many other photographic concepts. You will also find plenty of large full-page photos that include captions, shooting data, and callouts so you can see how all of the photography fundamentals come together to make great images. All the while, you will be learning how your camera works and how to apply its functions and features to your photography.

Q: WHAT ARE THE ASSIGNMENTS ALL ABOUT?

A: At the end of most of the chapters, you will find shooting assignments, where I give you some suggestions as to how you can apply the lessons of the chapter to help reinforce everything you just learned.

Q: SHOULD I READ THE BOOK STRAIGHT THROUGH OR CAN I SKIP AROUND FROM CHAPTER TO CHAPTER?

A: I recommend reading the first four chapters to get the building blocks you need to know about your camera. After that, move around the book as you see fit because those chapters are written to stand on their own as guides to specific types of photography or shooting situations. Or, you can read it straight through. The choice is up to you.

Q: IS THAT IT?

A: One last thought before you dive into the first chapter. Take some time to learn the basics and then put them to use. Photography, like most things, takes time to master and requires practice. It's not the camera but the person using it who makes beautiful photographs. Have fun, make mistakes, and then learn from them. In no time, I'm sure you will transition from a person who takes snapshots to a photographer who makes great shots.

THE G12 GREAT SHOTS COMMUNITY

When I wrote the original edition of this book, which covered the G10 and G11, it was clear that I couldn't possibly populate the book entirely with my own images and still hit a tight deadline (and I couldn't convince Peachpit to fly me in luxury around the world to shoot photos). So we embarked on an experiment. We set up a group on the photo sharing site Flickr (www.flickr.com) where owners of the cameras could add their images to the pool as submissions for possible inclusion in the book. For the G12 we did the same, and solicited images from both groups. We've since changed the focus of the groups from searching for publishable candidates to anyone who has purchased, or is interested in, this book.

http://www.flickr.com/groups/canon_g10g11_from_snapshots_to_greatshots/
http://www.flickr.com/groups/canon_g12_from_snapshots_to_greatshots/

I'm humbled by the interest and awed by the quality of the photos. All the images that appear in these pages were shot either by me or by the Flickr group members listed here. When you find a picture you like, I encourage you to note the photo credit at the end of each figure caption and return to these pages for the Flickr Web address where you can see more of the photographer's work.

You can view a Flickr Gallery that contains all of the book's photos at the following URL:

<http://www.flickr.com/photos/g12greatshots/galleries/72157625507585789/>

I also want to point out that although we required each photographer to grant us permission to use the work, the copyright remains with the original owner. We're thrilled that so many people contributed a large amount of quality work.

Thomas Baake

www.flickr.com/photos/poyas52/

Jeff Carlson

www.flickr.com/photos/jeffcarlson/

Charlwood Photography

www.flickr.com/photos/charliecharlwood/

Lynette Coates

www.flickr.com/photos/42959385@N08/

Crystal Photo Memories (Robert Keiser)

www.flickr.com/photos/bobusn/

Nick Damiano

www.flickr.com/photos/nickdamiano/

Bob Eddings

www.flickr.com/photos/associatedpixels/

Dean Ducas

www.flickr.com/photos/deanspic/

Scott Edwards

www.flickr.com/photos/smeracing/

Michael Gerpe

www.flickr.com/photos/mgerpe/

Patrick Gervais

www.flickr.com/photos/patrickgervais/

Anthony Goto

www.flickr.com/photos/anthony_goto/

Paul Hunter

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Dave Jenson Photography

www.flickr.com/photos/speednutdave/

Jake Jessey

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www.flickr.com/photos/richlegg/

John Wayne Lucia III

www.flickr.com/photos/studioseiko/

Jeff Lynch

www.flickr.com/photos/jefflynchphoto/

Jan Messersmith

www.flickr.com/photos/boogieswithfish/

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Anneliese Voigt

www.flickr.com/photos/lizzies_photos/

Caroline Ward

www.flickr.com/photos/cfward/

James Williams

www.flickr.com/photos/focal-plane/

Deak Wooten

www.flickr.com/photos/dcwooten/

Nicole S. Young

www.flickr.com/photos/nicolesy/

Wan-Ting Zhao

www.flickr.com/photos/wan_ting92/



4

ISO 80
1/800 sec.
f/4.5
6.1mm



The Creative Modes

TAKING YOUR PHOTOGRAPHY TO THE NEXT LEVEL

Once upon a time, long before digital cameras and program modes, there was manual mode. In those days it wasn't called "manual mode" because there were no other modes. It was just photography. If a photographer didn't have a handle on the basics of *aperture* and *shutter speed*, she'd produce a lot of discarded film. Now, thanks to the powerful computer in your camera, many of the decisions about how to balance those two factors are computed in milliseconds—but only if you choose. The other side of the Mode dial contains the Creative shooting modes, which offer the greatest amount of control over your photography. You can let the camera figure out the values automatically but with input from you; set the aperture manually and let the camera figure out shutter speed, or vice versa; or go back to the old ways and dial in your settings manually. Whatever your choice, it's essential that you understand not only how to control these modes, but also why you are controlling them. So let's move that Mode dial to the first of our Creative modes: Program mode.

PORING OVER THE PICTURE



The camera was positioned to capture elements in the foreground and background to give a feeling of depth.

To achieve sharpness from the closest rocks to the distant trees, a relatively small aperture was used.

ISO 80
2.5 sec.
f/4.5
6.1mm



An outdoor location such as this presented lots of opportunities for photographer Hiroyuki Uchiyama to create beautiful photos—but there are plenty of potential difficulties, too. It's easy to end up with areas that are blown out or choked with black as the camera tries its best to get all the detail using its Automatic modes. Shooting in Tv, Av, or Manual mode gives you more control over the image.

A low ISO of 80 was selected to keep the image free of digital noise.

To give the water its silky appearance, the photographer mounted the camera on a tripod and enabled the neutral density filter feature to minimize glare and get a long shutter speed [2.5 seconds].

P: PROGRAM MODE



There's a reason Program mode is only one click away from the Automatic modes: With respect to aperture and shutter speed, the camera is doing most of the thinking for you. So, if that is the case, why even bother with Program mode? It doesn't give as much control over the image-making process as the other Creative modes, but there are occasions when it comes in handy, such as shooting in widely changing lighting conditions, or when you're willing to give up ultimate control of the scene in the greater service of getting the shot. Think of a picnic outdoors in a partial shade/sun environment. I want great-looking pictures, but I'm not looking for anything to hang in a museum. If that's the scenario, why choose Program over one of the Automatic modes? Because it still offers choices and control that none of those modes can deliver.

WHEN TO USE PROGRAM (P) MODE INSTEAD OF THE AUTOMATIC MODES

- When shooting in a casual environment where quick adjustments are needed
- When you want control over the ISO
- If you want to make corrections to the white balance
- If you want to shoot in RAW

Let's go back to our picnic scenario. As I said, the light is moving from deep shadow to bright sunlight, which means the camera is trying to balance three photo factors (ISO, aperture, and shutter speed) to make a good exposure. From Chapter 1, you know that Auto ISO is just not a consideration, so we're not using that setting on the ISO dial (right?).

Well, in Program mode, you can choose which ISO you would like the camera to base its exposure on. The lower the ISO number, the better the quality of the photographs, but the less light-sensitive the camera becomes. It's a balancing act with the main goal always being to keep the ISO as low as possible—too low an ISO, and you get camera shake in images from a long shutter speed; and too high an ISO means you have an unacceptable amount of digital noise. For our purposes, let's go ahead and select ISO 400 to provide enough sensitivity for those shadows while allowing the camera to use shutter speeds that are fast enough to stop motion.

Let's set up the camera for Program mode and see how we can make all this come together.

SETTING UP AND SHOOTING IN PROGRAM MODE

1. Turn your camera on and turn the Mode dial to P.
2. Select your ISO by rotating the ISO dial (see the sidebar, “Starting Points for ISO Selection”).
3. Point the camera at your subject and activate the camera meter by pressing the shutter button halfway.
4. View the exposure information at the bottom of the LCD.
5. Start clicking. As you shoot, feel free to adjust the ISO to compensate: If the photos are coming out blurry, increase the ISO to raise the shutter speed; if the image looks good, try dropping the ISO setting and see if you can keep the quality while reducing the digital noise.

■

The downside to shooting in Program mode is that you’re relying on the camera to pick what it believes are suitable exposure values using its internal meter. Sometimes it doesn’t know what it’s looking at and how you want those values applied (**Figure 4.1** and **Figure 4.2**). That’s when it’s time to start adjusting the settings by hand.

STARTING POINTS FOR ISO SELECTION

There is a lot of discussion concerning ISO in this and other chapters, but it might be helpful if you know where your starting points should be for your ISO settings. The first thing you should always try to do is use the lowest possible ISO setting. That being said, here are good starting points for your ISO settings:

- 80 or 100: Bright sunny day
- 200: Hazy or outdoor shade on a sunny day
- 400: Indoor lighting at night or cloudy conditions outside
- 800: Late-night, low-light conditions or sporting arenas at night

These are just suggestions, and your ISO selection will depend on a number of factors that will be discussed later in the book. You might have to push your ISO even higher as needed, but at least now you know where to start.

FIGURE 4.1

(left) The camera settings are affected by the flat sky as well as the color of the paint on the front of the building.

FIGURE 4.2

(right) By recomposing slightly, the light meter focused on the wall, resulting in a change of exposure. [Photos: Jeff Carlson]



TV: SHUTTER PRIORITY MODE



Tv mode is what photographers commonly refer to as Shutter Priority mode. If you dig deep in your manual, you will actually see that Tv stands for Time Value. I'm not sure who came up with this term, but I can tell you it wasn't a photographer. I don't ever recall thinking, "Hey, this would be a great situation to use the Time Value mode." However, you don't need to know why it is called Tv mode; the important thing is to know why and when to use it.

Just as with Program mode, Tv mode gives us more freedom to control certain aspects of our photography. In this case, we are talking about shutter speed, which determines how long you expose your camera's sensor to light. The longer it remains open, the more light the sensor gathers. The shutter speed also contributes greatly to how sharp your photographs are. Because a slower shutter speed means that light from your subject is hitting the sensor for a longer period of time, any movement by you (camera shake) or your subject shows up in your photos as blur.

SHUTTER SPEEDS

A *slow* shutter speed refers to leaving the shutter open for a long period of time—like 1/30 of a second or less. A *fast* shutter speed means that the shutter is open for a very short period of time—like 1/250 of a second or more.

WHEN TO USE SHUTTER PRIORITY (TV) MODE

- When you want to create that silky-looking water in a waterfall (**Figure 4.3**)
- When you want to use a long exposure to gather light over a long period of time (**Figure 4.4**); you'll learn more in Chapter 8
- When working with fast-moving subjects where you want to freeze the action (**Figure 4.5**); Chapter 5 covers this in detail
- When you want to emphasize movement in your subject with motion blur

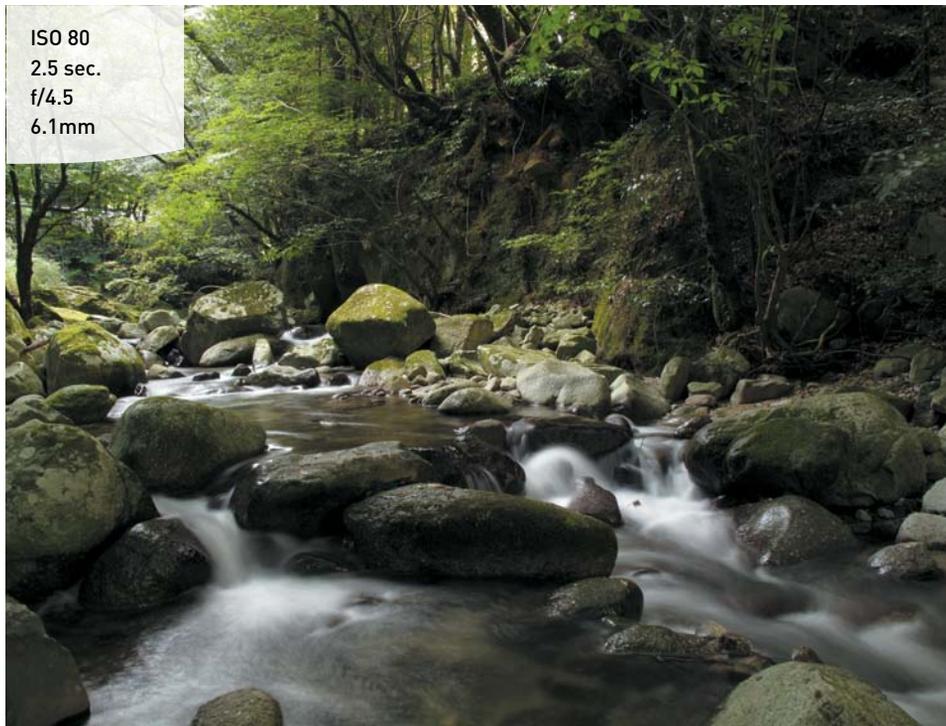


FIGURE 4.3
Increasing the length of the exposure time gives flowing water a silky look. [Photo: Hiroyuki Uchiyama]

FIGURE 4.4

A long exposure makes this amusement park ride look like a completely different structure. [Photo: Patrick Gervais]



ISO 80
1.6 sec.
f/2.8
6.1mm



ISO 80
1/800 sec.
f/4.5
6.1mm

FIGURE 4.5
Even the fastest of subjects can be frozen with the right shutter speed. [Photo: Anneliese Voigt]

As you can see, the subject of your photo usually determines whether or not you will use Tv mode. It's important that you be able to visualize the result of using a particular shutter speed. The great thing about shooting with digital cameras is that you get instant feedback by checking your shot on the LCD screen. But what if your subject won't give you a do-over? Such is often the case when shooting sporting events. It's not like you can go ask the quarterback to throw that touchdown pass again because your last shot was blurry from a slow shutter speed. This is why it's important to know what those speeds represent in terms of their capabilities to stop the action and deliver a blur-free shot.

First, let's examine just how much control you have over the shutter speeds. The G12 has a shutter speed range from 1/4000 of a second all the way down to 15 seconds. With that much latitude, you should have enough control to capture almost any subject. The other thing to think about is that Tv mode is considered a "semi-automatic" mode—you control the shutter speed and the camera chooses a corresponding aperture to achieve a well-exposed image. This is important because there will be times that you want to use a particular shutter speed, but the lens won't be able to accommodate your request.

For example, you might encounter this problem when shooting in low-light situations. Suppose you're shooting a fast-moving subject that blurs at a shutter speed slower than 1/125 of a second. The lens's largest aperture is f/2.8, which might not provide enough available light for the shot and result in an underexposed photo. In that case, that aperture display on the LCD appears orange, and the yellow light near the viewfinder blinks to warn you.

Another case in which you might run into this situation is when you are shooting moving water. To get that look of silky, flowing water, it's usually necessary to use a shutter speed of at least 1/15 of a second. If your waterfall is in full sunlight, you may get that blinking aperture display once again, because the lens you are using only closes down to f/8 at its smallest opening. In this instance, your camera is warning that you will be overexposing your image. There are workarounds for these problems, which we will discuss later (see Chapter 7), but it is important to know that there can be limitations when using Tv mode.

SETTING UP AND SHOOTING IN TV MODE

1. Turn your camera on and turn the Mode dial to Tv.
2. Select your ISO by rotating the ISO dial.
3. Rotate the Front dial to choose a shutter speed, which appears at the bottom of the LCD. Roll the dial to the right for faster shutter speeds and to the left for slower speeds.

FIGURE 4.6

Aperture priority helps keep the foreground image in focus in macro photos. [Photo: Lynette Coates]



ISO 400
1/80 sec.
f/3.5
15.7mm



ISO 80
1/160 sec.
f/3.5
12.1mm

FIGURE 4.7
A large aperture created a blurry background so all the emphasis was left on the subject. [Photo: Anneliese Voigt]

FIGURE 4.8

Using the camera's smallest available aperture provides a large depth of field. [Photo: Jeff Carlson]



F-STOPS AND APERTURE

As discussed earlier, when referring to the aperture value, you will find it described as an *f-stop*. The *f-stop* is one of those old photography terms that, technically, relates to the focal length of the lens (e.g., 200mm) divided by the effective aperture diameter. These measurements are defined as “stops” and work incrementally with your shutter speed to determine proper exposure. Older camera lenses used one-stop increments to assist in exposure adjustments, such as 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, and 22. Each stop represents about half the amount of light entering the lens iris as the larger stop before it. Today, all adjustments to this setting are performed via the camera’s electronics. The stops are also now typically divided into 1/3-stop increments to allow much finer adjustments to exposures.

So we have established that Aperture Priority (Av) mode is highly useful in controlling the depth of field in your image. But it’s also pivotal in determining the limits of available light that you can shoot in. The larger the maximum aperture, the less light you need in order to achieve an acceptably sharp image. You will recall that, when in

Tv mode, there is a limit at which you can handhold your camera without introducing movement or hand shake, which causes blurriness in the final picture. A larger aperture lets in more light at once, which means that you can use a faster shutter speed.

On the other hand, bright scenes require the use of a small aperture (such as f/8), especially if you want to use a slower shutter speed. That small opening reduces the amount of incoming light, and this reduction of light requires that the shutter stay open longer.

SETTING UP AND SHOOTING IN AV MODE

1. Turn your camera on and turn the Mode dial to Av.
2. Select your ISO by rotating the ISO dial.
3. Rotate the Front dial to choose an aperture setting, which appears at the bottom of the LCD. Roll the dial to the right for a smaller aperture (higher f-stop number) and to the left for a larger aperture (smaller f-stop number).
4. Point the camera at your subject and then activate the camera meter by pressing the shutter button halfway to preview the exposure. As with the Shutter Priority mode, the orange light by the viewfinder will blink if the image is underexposed or overexposed.
5. Release the button and adjust the Front dial to change the setting.
6. Press the shutter button fully when you're ready to shoot.



M: MANUAL MODE



Let's face it—if you want to learn the effects of aperture and shutter speed on your photography, there is no better way to learn than by dialing in these settings yourself. However, today, with the advancement of camera technology, many new photographers never give this mode a second thought. That's a shame, as not only is it an excellent way to learn your photography basics, but it's also an essential tool to have in your photographic bag of tricks.

In Manual (M) mode, the camera meter gives you a reading of the scene. It's your job to set both the f-stop (aperture) and the shutter speed to achieve a correct exposure. If you need a faster shutter speed, you will have to make the reciprocal change to your f-stop. This can be challenging at first, but after a while you will have a complete understanding of how each change affects your exposure, which will, in turn, improve the way you use the other modes.

WHEN TO USE MANUAL (M) MODE

- When learning how each exposure element interacts with the others (**Figure 4.9**)
- When shooting silhouetted subjects, which requires overriding the camera's meter readings (**Figure 4.10**)
- When your environment is fooling your light meter and you need to maintain a certain exposure setting

SETTING UP AND SHOOTING IN MANUAL MODE

1. Turn your camera on and turn the Mode dial to M.
2. Select your ISO by rotating the ISO dial.
3. Rotate the Front dial to choose a shutter speed, which appears at the bottom of the LCD. The exposure information is displayed by a scale with marks that run from -2 to +2 stops. A proper exposure (according to the camera meter) will line up with the arrow mark in the middle. As the indicator moves down, it is a sign that you will be underexposing (there is not enough light on the sensor to provide adequate exposure). If the indicator is above the middle mark, you will be providing more exposure than the camera meter calls for (overexposure).
4. Rotate the Control dial to choose an aperture value, keeping the light meter in mind as you change the f-stop.
5. Point the camera at your subject and then press the shutter button halfway to preview the exposure. As with the Tv and Av modes, the orange light by the viewfinder will blink if the image is underexposed or overexposed.
6. Release the button and adjust the Front dial or Control dial to change the setting.
7. Press the shutter button fully when you're ready to shoot.





ISO 200
1/160 sec.
f/4.5
30.5mm

FIGURE 4.9
Beaches and snow are always a challenge for light meters. Instead of fighting the light meter, switch to Manual mode and dial in a good exposure yourself. [Photo: Michael Gerpe]



ISO 800
1/160 sec.
f/4
18.1mm

FIGURE 4.10
Although the meter can do a pretty good job of exposing for the sky, you can use the Manual mode to make creative adjustments, such as pushing the skyline elements into complete black silhouette. [Photo: Dean Ducas]

HOW I SHOOT: A CLOSER LOOK AT THE CAMERA SETTINGS I USE

Whether it's isolating my subject with a large aperture or trying to maximize the overall sharpness of a sweeping landscape, I always keep an eye on my aperture setting. If I do have a need to control the action, I use Shutter Priority. If I'm trying to create a soft waterfall effect, I can depend on Tv to provide a long shutter speed. When trying to grab a shot of my toddler, I definitely need the fast shutter speeds that will freeze the action. While the other camera modes have their place, I think you will find yourself using the Av and Tv modes for 90 percent of your shooting.

The other concern I have when I'm setting up my camera is just how low I can keep my ISO. I raise the ISO only as a last resort because each increase in sensitivity is an opportunity for more digital noise to enter my image.

To make quick changes while I shoot, I often use the Exposure Compensation feature (covered in Chapter 7) so that I can make small over- and underexposure changes. This is different than changing the aperture or shutter; it is more like fooling the camera meter into thinking the scene is brighter or darker than it actually is.

One of the reasons I change my exposure is to make corrections when I see the "blinkies" while looking at my images on the LCD, which indicate that part of my image has been overexposed to the point that I no longer have any detail in the highlights. The only unfortunate thing about this feature is that it doesn't work with the full-screen preview mode. You have to set your camera display to the Histogram display mode (see Chapter 1) to see the Highlight Alert (**Figure 4.11**).

FIGURE 4.11

You can only see the Highlight Alert ("blinkies") when in the Histogram display mode.



The flashing area is alerting me that the sky is overexposed and will lose detail.

As you work your way through the coming chapters, you will see other tips and tricks I use in my daily photography, but the most important tip I can give is to understand the features of your camera so that you can leverage the technology in a knowledgeable way. This will result in better photographs.

Chapter 4 Assignments

The information covered in this chapter defines how you work with your camera from this point on. Granted, there may be times when you just want to grab some quick pictures and will take advantage of the Automatic modes, but to get serious with your photography, you should learn the Creative modes.

Starting off with Program mode

Set your camera on Program mode and start shooting. While shooting, make sure that you keep an eye on your ISO.

Learning to control time with the Tv mode

Find some moving subjects and then set your camera to Tv mode. Have someone ride their bike back and forth or even just photograph cars as they go by. Start with a slow shutter speed of around 1/30 of a second and then start shooting with faster and faster shutter speeds. Keep shooting until you can freeze the action. Now find something that isn't moving, like a flower, and work your shutter speed from something fast like 1/500 of a second down to about 1/4 of a second. The point is to see how well you can handhold your camera before you start introducing hand shake into the image.

Controlling depth of field with the Av mode

The name of the game with Av mode is depth of field. Set up three items an equal distance from you. I would use chess pieces or something similar. Now focus on the middle item and set your camera to the largest aperture of f/2.8 (remember, large aperture means a small number). Now, while still focusing on the middle subject, start shooting with ever-smaller apertures until you are at the smallest f-stop, f/8. Try doing this exercise with the lens zoomed out at the widest and then the most telephoto setting. Now move up to subjects that are farther away, like telephone poles, and shoot them in the same way. The idea is to get a feel for how each aperture setting affects your depth of field.

Giving and taking with Manual mode

Go outside on a sunny day and, using the camera in Manual mode, set your ISO to 100, your shutter speed to 1/2000 of a second, and your aperture to f/4. Now press your shutter release button to get a meter reading. You should be pretty close to that zero mark. If not, make small adjustments to one of your settings until it hits that mark. Now is where the fun begins. Start moving your shutter speed slower, to 1/500, and then set your aperture to f/8. Now go the other way. Set your aperture on f/5.6 and your shutter speed to 1/1000. Now review your images. If all went well, all the exposures should look the same. This is because you balanced the light with reciprocal changes to the aperture and shutter speed. Now try moving the shutter speed without changing the aperture. Just make 1/3-stop changes (1/800 to 1/640 to 1/500 to 1/400), and then review your images to see what a 1/3 stop of overexposure looks like. Then do the same thing going in the opposite way. It's hard to know if you want to over- or underexpose a scene until you have actually done it and seen the results.

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