NIGHT AND LOW-LIGHT PHOTOGRAPHY

PHOTO **WORKSHOP**

Develop your digital photography talent

ALAN HESS

NIGHT AND LOW-LIGHT PHOTOGRAPHY

PHOTO WORKSHOP

Alan Hess

John Wiley & Sons, Inc.

Night and Low-Light Photography Photo Workshop

Published by
John Wiley & Sons, Inc.
10475 Crosspoint Boulevard
Indianapolis, IN 46256
www.wiley.com

Published simultaneously in Canada

ISBN: 978-1-118-13822-9

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1

Library of Congress Control Number: 2011940395

About the Author

Alan Hess is a photographer and author based in San Diego, California where he lives with his wife and two dogs. He has written books on both photography and technology including the *Exposure Digital Field Guide*, *Composition Digital Field Guide*, *iPad Fully Loaded*, and the *iPad 2 Fully Loaded*. His concert and backstage images appear in numerous online and print publications and they have also been used for promotional purposes, including music packaging.

Alan has been a part of the Instructor Dream Team for Photoshop World where he taught classes on concert and event photography and the basics of Exposure and Composition. He has written articles on concert photography and Photoshop for *Photoshop User Magazine*.

His website is www.alanhessphotography.com where he writes a semiregular blog or you can find him on Twitter as ShotLivePhoto.

Credits

Acquisitions Editor
Courtney Allen

Project Editor
Cricket Krengel

Technical Editor
Haje Jan Kamps

Copy Editor
Marylouise Wiack

Editorial Director
Robyn Siesky

Business Manager
Amy Knies

Senior Marketing Manager
Sandy Smith

Vice President and Executive Group Publisher
Richard Swadley

Vice President and Executive Publisher
Barry Pruett

Senior Project Coordinator
Kristie Rees

Graphics and Production Specialists
Jennifer Henry
Andrea Hornberger
Jennifer Mayberry

Quality Control Technician
Melissa Cossell
Lauren Mandelbaum
Dwight Ramsey

Proofreading
Laura Bowman

Indexing
Potomac Indexing, LLC

Acknowledgments

I would like to thank my wife for enduring yet another book with crazy hours and weird schedules. This time at least it made sense as I was out creating the images for this book mostly at night.

Big thanks go to Courtney for all she does in getting me the right projects and to Cricket for trying her hardest to keep me on track, which is nearly impossible no matter how good my intentions are. Also, a big thanks to Haje for all his work making sure all the numbers and tech stuff are right. If you find something that's wrong, it just means I didn't fix something I should have. You can check out his work at http://kamps.org.

To the great group of photographers who helped with images, I couldn't have done this without you. A huge thanks goes out to all of you:

Kenny Kim for his help with the wedding chapter and all that goes into photographing some of the best weddings ever. You can find out more about Kenny at www.kennykim.com.

Larny Mack for his insight into photographing interiors and the use of his images to illustrate the point. Check out his work at www.larnymack.com.

Jacob Lucas for the use of his great star trails image, I can't thank you enough. His work is at www.jflphotography.com.

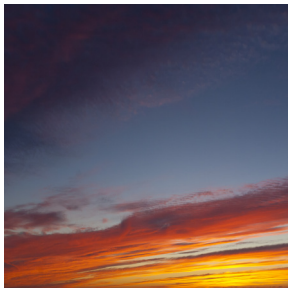
E. Howe-Bryne for the star trails image. It is a great shot and I am honored that you allowed me to use it here. For more on E. Howe-Bryne check out http://littleredtent.net/LRTblog.

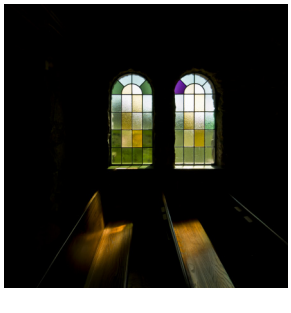
Ken Toney who supplied the image of the flowing water and the use of the neutral density filter, it's a great photograph and I thank you for its use here. Check out Ken's work here: www.kentoneyphoto.com.

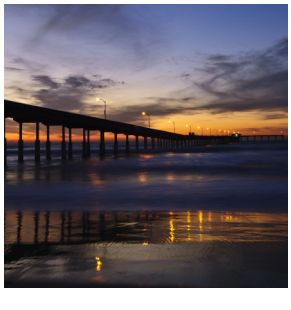
To everyone at Nik Software especially Laurie, Janice, and Kevin, thanks for everything. Working with you and your products is always a joy.

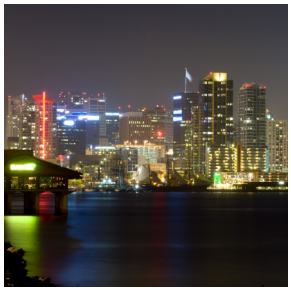
For Nadra

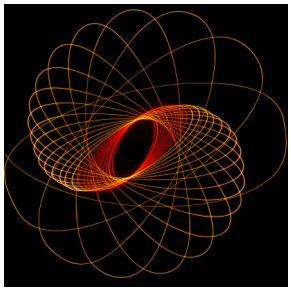
Contents

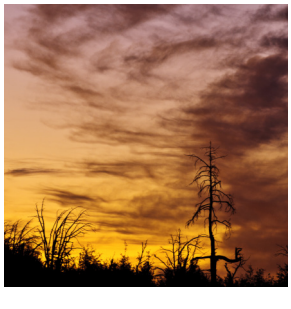


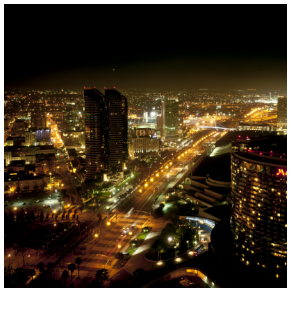












Introduction

It's easy to take photos on a bright sunny day. With plenty of light, it's easy to freeze the action, and you can use low ISO settings and get virtually noise-free images. The real challenge and excitement start when the light goes down.

Digital camera technology has come a very long way since I bought my first camera. The new cameras have more advanced built-in light meters and metering modes that allow photographers to focus more on the composition. The problem is that these advances don't really help when it comes to shooting in very low light or at night. There is no way to use the light meter when photographing fireworks or when painting with light for example.

The good news is that this book deals with all those situations where the camera might not be able to capture the image correctly. This means starting at the beginning and covering the basics of light and exposure settings as well as the importance of understanding the color of light and white balance. Many types of photography can be done with any type of camera and lens, but there are certain types of low-light photographs that are made easier by using a lens with a wide aperture and the high ISO capability of the camera along with the accessories, like a tripod and cable release that make long exposures possible. All this and more are covered in Chapter 3.

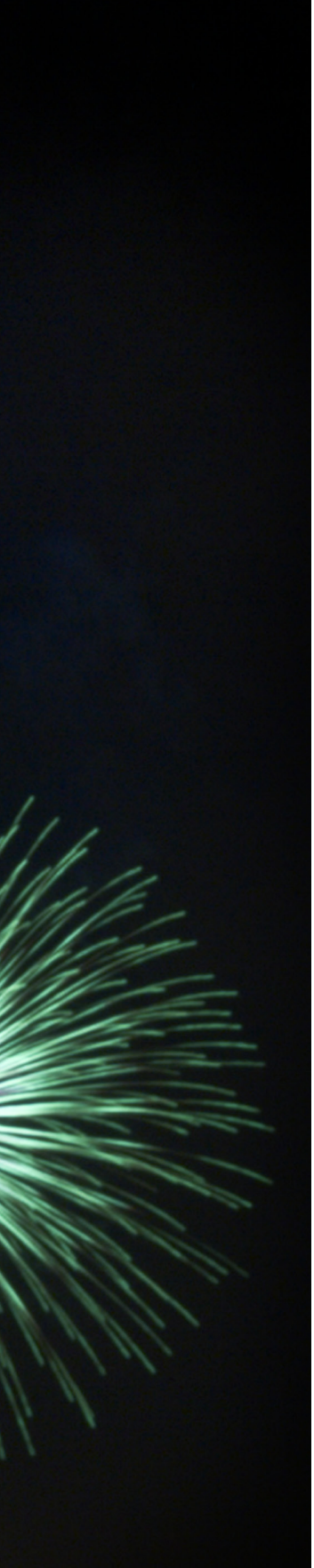
Chapters 4, 5, and 6 deal with photographing people in various low-light situations, from portraits to concerts and even sports. This includes dealing with adding your own lighting, freezing fast-moving action, and dealing with scenes that the camera's built-in light meter just can't deal with consistently.

Next up is some of the most enjoyable photography you can do at night, and that is photographing the night sky — from sunsets to the moon, star trails, and fireworks. This is the type of photography that just can't be taken any other time. Chapter 7 is all about photographing the night sky, and Chapter 8 deals with city lights, light trails, and one of my favorite subjects, neon signs.

Chapter 9 covers light painting from the traditional to the experimental and a fun technique that you can do in any darkroom with a flashlight and a piece of string that will amaze people. I don't want to give it away here, but the results of this technique will have people wondering exactly how you did it without a computer.

Chapter 10 is about taking the traditional landscape photography and doing it at night when the long exposures reveal details that you just never see during the day. It also addresses how to deal with the very long exposures that can literally turn night into day. To wrap it all up, Chapter 11 visits the digital darkroom and postproduction using Adobe Lightroom and Photoshop Elements. Topics include adjusting the white balance, dealing with digital noise, and using blend modes.

So turn the page and jump right into the very interesting world of night and low-light photography!



CHAPTER 1

NIGHT AND LOW-LIGHT PHOTOGRAPHY OVERVIEW

Photographing at night is challenging because there is usually less light available, and the less light available, the harder it is to get a proper exposure. This also applies to low-light situations such as shooting indoor events or sports, or even the kids just playing in the living room. The basics of photography don't change when the sun goes down or the action moves inside, but the tradeoffs become much more noticeable.

The lack of light means that you have fewer choices for the settings that you can use to create a photograph, and the challenges of getting the image to look exactly the way you want increase. When it comes to getting the proper exposure, there are only three controls that can be changed: the shutter speed, the aperture, and the ISO. Controlling these settings to get the shot you want in reduced lighting conditions is key. At times faster shutter speeds are needed to freeze movement, and at other times slower shutter speeds are needed to show the full movement. There are times when a wide aperture is needed to allow as much light in as possible, and other times a smaller aperture is needed to create a deep depth of field.

For example, in Figure 1-1, taken from a ferry dock at Coronado Island with the San Diego city lights in the background, I needed to use a setting that exposed the sky and the background, but I also wanted a deep depth of field. I started with a low ISO (100) to keep the digital noise to a minimum, and then set the aperture to f/10, which gave me the depth of field I wanted. Then I set the shutter speed long enough to get the exposure I wanted. Because the shutter speed was 2.5 seconds, I made sure the camera was properly locked down in a tripod and used a cable release. I then corrected the color by adjusting the white balance in postproduction.

SHOOTING CHALLENGES

If you believe the advertisements on television and in magazines, photography is easy: Just point the camera at the subject and press the button. No worries about the amount of light or the movement of the subjects or any of the camera settings. I don't blame the camera manufacturers for making it all look so easy; their job is to sell cameras, not to make sure you get the best results from the camera. Many of the situations they depict — shooting in a crowded, dimly lit restaurant or capturing a touchdown pass using the built-in flash — are not going to yield nicely lit photos because those are both examples of difficult lighting situations.

LACK OF LIGHT

Lack of light is easily the biggest challenge, not only with night and low-light photography, but with most photography.

Many times this lack of light can be frustrating to newer photographers — they see a great scene, whip out the camera, and take the photo, only to look at the LCD on the back of the camera and see an image that is blurry; so they turn on the flash and the results are even worse. This frustration often results in missed photos because the next time a low-light photo-op presents itself, they just leave the camera in the bag. For example, I live in San Diego and spend a fair amount

ABOUT THIS PHOTO *The San Diego skyline in the distance with the ferry dock in the midground and the rocky shore in the foreground taken right after the sun had set. Taken at 2.5 seconds, f/10, and ISO 100.*

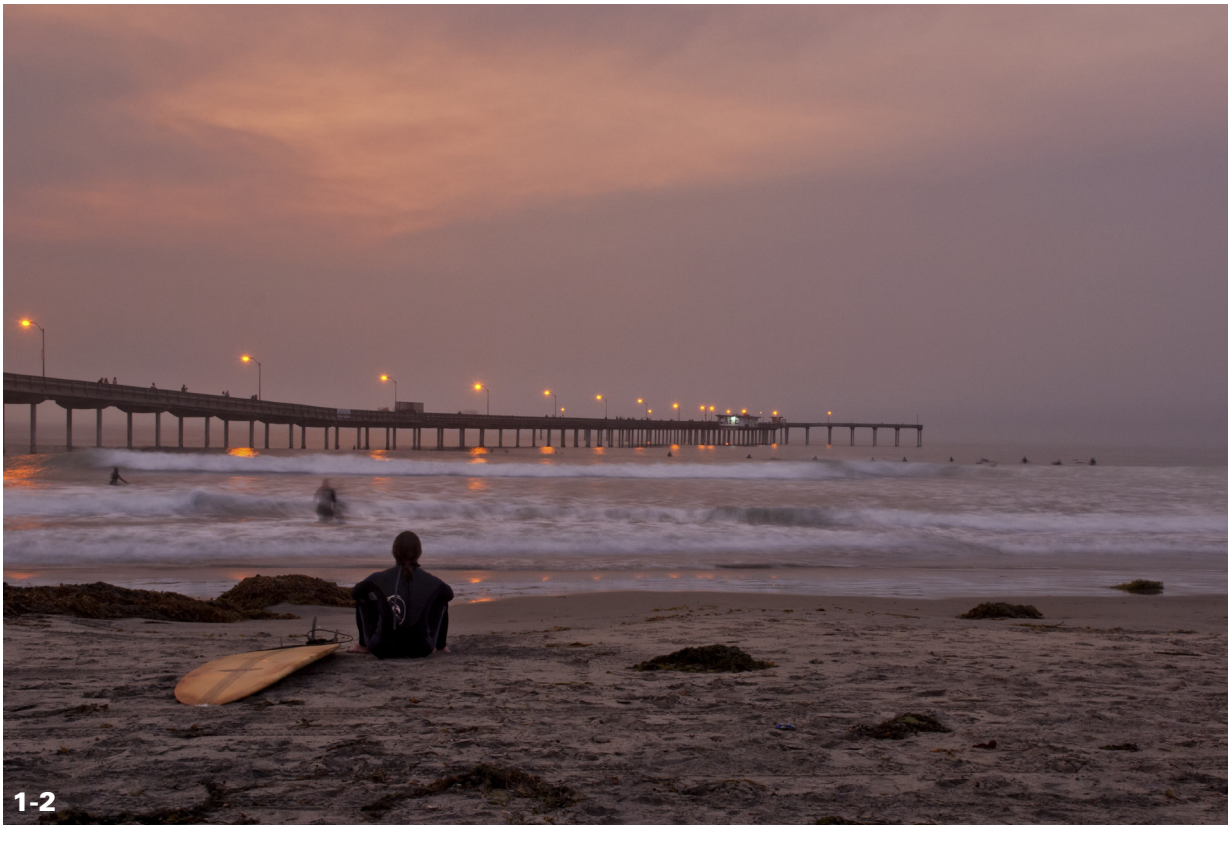
of time photographing the beautiful sunsets here, and it never fails to amaze me when I see someone standing with a camera at the water's edge trying to capture the sunset with the pop-up flash turned on. I know that when they get home, they will be disappointed because there is no way that the image will come out as they envisioned.

The solution is to understand how the camera works and which of the settings needs to be adjusted. Many times, the shutter speed needs to be increased, allowing the shutter to remain open for longer, and at the same time the camera needs to be supported so that it doesn't move during the exposure. The surfer sitting on the beach in

Figure 1-2 was photographed using a shutter speed of 1.3 seconds, which allowed enough light to reach the sensor to make a proper exposure. The camera was set on the sea wall to make sure it didn't move during the exposure, and luckily, the surfer didn't move either.

FREEZING ACTION

The only way to freeze action is to use a shutter speed high enough that in the time the shutter is open the subject doesn't move. That is not to say the subject has stopped and is waiting for you, but instead the sliver of time the shutter moves out of the way and allows light to reach the sensor is short enough that the subject looks frozen in place. The shutter speed needed depends on the subject being photographed. For example, a person walking is a lot slower than a horse running, so the shutter speed needed to freeze a horse mid-run is shorter than the shutter speed needed to freeze a man walking. The faster the action, the less time the shutter can be open before the subject starts to blur. The problem with low-light scenes is that with the small amount of light available, using a high shutter speed means that you have to either increase the ISO or open the aperture up as wide as possible — and in most cases, you have to do both. For example, when I photographed the Lipizzaner Stallions, shown in Figure 1-3, I made



ABOUT THIS PHOTO *The surfer was sitting on the beach watching the waves right after sunset. I didn't know if he had just come out of the water or was waiting to go in. Taken at 1.3 seconds, f/10, and ISO 100.*

1-3

ABOUT THIS PHOTO *The Lipizzaner Stallions are amazing horses to see and to photograph. To make sure I froze the movement of the horse rearing up, I used a fast shutter speed. Taken at 1/320 second, f/4.0, and ISO 1000.*

sure I was using a shutter speed fast enough to capture the action of the horse rearing up. To do this, I needed to use the lowest aperture available to me — in this case, f/4.0 — and I needed to push the ISO up to 1000 so that the exposure would be correct at the 1/320-second shutter speed.

x-ref

There is a lot more on freezing the action covered in Chapter 5 and Chapter 6.

When it comes to using shorter shutter speeds to freeze the action in low light, one of the other exposure settings needs to change — either the aperture needs to be made larger or the ISO has to be increased. The higher ISO values can cause other problems, however, the biggest of which is the introduction of digital noise.

DIGITAL NOISE

Digital noise is the catchall term for a range of problems that appear in images, especially those taken at high ISOs or when leaving the camera shutter open for a long time. This topic is mentioned so much in later chapters because many images taken at night or in low light require either a high ISO or a slow shutter speed, which creates digital noise in these images. Digital noise

can look like little spots of unwanted color, especially in areas that should have a smooth tone. It can also look grainy when viewed at a distance, and subjects can even look slightly out of focus if the noise is very high in the critical areas of your subject.

On the positive side, for new photographers and especially for those just getting into night and low-light photography, the camera manufacturers, as well as the software developers who create noise reduction algorithms, have really made improvements. The images produced today have far less noise than images produced a few years ago in the same conditions because cameras can now shoot at much higher ISO values and still get relatively noise-free images. And those images that need a bit of help can be fixed in postproduction or using in-camera noise reduction (if your camera offers that feature). For example, the image in Figure 1-4 was photographed at ISO 400 in 2005, and even at that relatively low ISO the noise is really obvious, especially in the shirt and skin tones.

LIGHT

There are really only two types of light in photography: the light that is already in the scene, often called available light, and the light the photographer adds to the scene. Both of these types of light can be used to create great images, and many people will argue about which is better. I believe that the type of light that you use is dependent on the subject and the shooting conditions. It would be great to always have the option of using extra light by adding a flash where needed, but at times that isn't possible.

ABOUT THIS PHOTO *The photograph of guitarist Mark Karan backstage was shot using available light, so the ISO was pushed to 400 and the shutter speed was dropped to the lowest speed I could successfully handhold without motion blur. Taken at 1/20 second, f/3.5, and ISO 400.*

USING AVAILABLE LIGHT

The available light in a scene can be from multiple sources and can be used to create great images if you use it to your full advantage. This can mean just waiting until the light is in the right position, as when shooting a concert by timing the movement of the spotlight, or leaving the