

ELEVENTH EDITION

PHOTOGRAPHY

Barbara **London** | Jim **Stone** | John **Upton**

PEARSON

Boston Columbus Indianapolis New York San Francisco Upper Saddle River
Amsterdam Cape Town Dubai London Madrid Milan Munich Paris Montréal Toronto
Delhi Mexico City São Paulo Sydney Hong Kong Seoul Singapore Taipei Tokyo

President: *Yolanda de Rooy*
Editorial Director: *Craig Campanella*
Editor-in-Chief: *Sarah Touborg*
Acquisitions Editor: *Billy Grieco*
Director of Marketing: *Brandy Dawson*
Executive Marketing Manager: *Kate Mitchell*
Marketing Assistant: *Paige Patunas*
Managing Editor: *Melissa Feimer*
Production Liaison: *Joe Scordato*
Full-Service Management: *Laserwords Maine*
Production Editor: *Laserwords Maine/Steve Martel*

Senior Operations Specialist: *Diane Peirano*
Creative Director: *Pat Smythe*
Interior Design: *Studio Montage*
Cover Design: *Studio Montage*
Cover Image Credit: *Sham Mosher © 1995 Lois Greenfield*
Digital Imaging Technician: *Corin Skidds*
Senior Digital Media Editor: *David Alick*
Digital Media Project Manager: *Rich Barnes*
Composition: *Laserwords Maine*
Printer/Binder: *The Courier Companies*
Cover Printer: *Lehigh-Phoenix Color Corp.*

Credits and acknowledgments borrowed from other sources and reproduced, with permission, in this textbook appear on page 318 and constitute a continuation of the copyright page.

Copyright © 2013, 2008, 2005 by Pearson Education, Inc. All rights reserved. Manufactured in the United States of America. This publication is protected by Copyright, and permission should be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or likewise. To obtain permission(s) to use material from this work, please submit a written request to Pearson Education, Inc., Permissions Department, One Lake Street, Upper Saddle River, New Jersey 07458, or you may fax your request to 201-236-3290.

Many of the designations used by manufacturers and sellers to distinguish their products are claimed as trademarks. Where those designations appear in this book, and the publisher was aware of a trademark claim, the designations have been printed in initial caps or all caps.

Library of Congress Cataloging-in-Publication Data

Cataloging-in-Publication Data is on record at the Library of Congress

10 9 8 7 6 5 4 3 2 1

PEARSON

Student Edition:
ISBN-10: 0-205-93380-7
ISBN-13: 978-0-205-93380-8

Instructor's Resource Copy
ISBN-10: 0-205-93391-2
ISBN-13: 978-0-205-93391-4

Brief contents

Preface	VIII	10 Lighting	168
1 Getting started	2	11 Extending the image	202
2 Camera	14	12 Seeing photographs	226
3 Lens	36	13 History of photography	252
4 Exposure, sensors, and film	66	Troubleshooting	304
5 Light and color	92	Glossary	309
6 Entering the digital darkroom	106	Bibliography	314
7 Image editing	120	Credits	318
8 Printing	142	Index	319
9 Organizing, storing, and presenting work	154		



RINKO KAWAUCHI
Untitled,
from the series *Illuminance*, 2007

Contents

Preface

VIII

1 Getting started 2

Introducing the Camera.....	4
Getting Your Camera Ready.....	5
Focusing and Setting the Exposure.....	6
Taking Your Picture.....	8
What Will You Photograph?.....	9
Some Basic Guidelines to Get You Started.....	9
Photographing People.....	10
Photographing Places.....	12

2 Camera 14

Basic Camera Controls.....	16
The Shutter.....	18
The Shutter and Light.....	18
The Shutter and Motion.....	20
Conveying Motion in a Still Photograph.....	22
The Aperture.....	24
The Aperture and Light.....	24
The Aperture and Depth of Field.....	26
Using Shutter and Aperture Together.....	28
Choosing a Camera.....	30
Keeping the Camera Steady.....	33
■ photographer at work Photojournalist James Nachtwey.....	34

3 Lens 36

From Pinhole to Lens.....	38
Lens Focal Length.....	40
Normal Focal Length.....	42
Long Focal Length.....	44
Short Focal Length.....	46
Zoom Lenses.....	48
Special-Purpose Lenses.....	49
Focusing Your Lens.....	50
Manual Focus.....	50
Automatic Focus.....	52
Focus and Depth of Field.....	54
Controlling Depth of Field.....	56
Zone Focusing.....	58
Focusing on the Hyperfocal Distance.....	59

Perspective.....	60
Guidelines for Buying a Lens.....	62
Getting the Most from Your Camera and Lens.....	63
■ photographer at work Documentary Photographer Mary Ellen Mark.....	64

4 Exposure, sensors, and film 66

Exposure Basics.....	68
Equivalent Exposures.....	68
How Exposure Meters Work.....	69
In-Camera Exposure Meters.....	70
Automatic Exposure.....	71
How to Meter.....	72
An Overall Reading of a Scene with Average Tones.....	72
Using Different Types of Meters.....	73
Metering High-Contrast Scenes.....	74
Exposing for Specific Tones and Bracketing.....	76
Hard-to-Meter Scenes.....	77
The Histogram.....	78
Measures a Digital Photograph.....	78
Three Histograms for Color.....	79
Exposure Latitude and Dynamic Range.....	80
How Much Can Exposures Vary?.....	80
Responding to Light.....	82
Silver and Pixels.....	82
Selecting and Using Film.....	83
Film and Sensor Speed.....	84
Speed and ISO.....	84
Grain and Noise.....	85
Using Filters.....	86
Extending Beyond Visible Light.....	88
Infrared Photographs.....	88
Using Exposure.....	89
■ photographer at work Advertising Photographer Clint Clemens.....	90

5 Light and color 92

Color: Additive or Subtractive.....	94
Color Photographs: Three Image Layers.....	95
Color Characteristics.....	96

Color Balance.....	98
Color Changes throughout the Day.....	98
Color Temperature.....	99
Color Casts.....	100
Mixed Light.....	101
Color Modes and Gamuts.....	102
Color Management.....	103
■ photographer at work Another Angle on Sports—Walter Ioss, Jr.....	104

6 Entering the digital darkroom 106

Hardware and Software.....	108
An Overview.....	108
Capturing Detail.....	109
Resolution and Bit Depth.....	109
Photographs Are Files.....	110
File Formats.....	110
Channels.....	112
Color or Black and White?.....	112
Importing Your Images.....	114
Downloading from a Camera/Scanning.....	114
Making a Scan.....	115
Setting Up a Workflow.....	116
Workflow Applications.....	117
■ photographer at work Digital Storyteller Pedro Meyer.....	118

7 Image editing 120

Digital Post-Processing: Getting Started.....	122
Choosing Software.....	122
Your Work Area and Tools.....	123
An Image-Editing Workflow.....	124
A Step-by-Step Process.....	124
Adjusting Shape.....	126
Crop and Rotate.....	126
Adjusting Color and Value.....	128
Different Approaches.....	128
Using Levels.....	129
Curves.....	130
Adjusting All or Part of an Image.....	132
Selection Tools.....	132
Using Layers.....	133
Other Editing Commands.....	134
High Dynamic Range.....	134

Filters for Special Effects.....	135
Sharpening.....	136
Retouching.....	137
Compositing.....	138

■ **photographer at work**

RetouchShopee—	
Scalese and Villarreal.....	140

8 Printing 142

Printers and Printing.....	144
Printer Choices.....	144
Drivers and RIPs.....	145
Profiles and Soft Proofing.....	146
Papers and Inks.....	147
Printing Options.....	148
Panoramic Photographs.....	148
Printing in Black and White.....	150
Displaying Your Work.....	152
The Internet—Gallery and Resource.....	152
Ethics: How Far Can You Go?.....	153

9 Organizing, storing, and presenting work 154

Image Storage.....	156
Size Matters.....	156
Metadata: Data About Your Files.....	157
Software to Keep You Organized.....	158
Archiving Digital Images.....	159
Archiving Film and Prints.....	160
Mounting a Print.....	162
Equipment and Supplies You'll Need.....	163
Dry Mounting.....	164
Cutting an Overmat.....	166
Framing and Glazing.....	167

10 Lighting 168

Direction of Light.....	170
Degree of Diffusion:	
From Hard to Soft Light.....	172
Available Light—Outdoors.....	174
Available Light—Indoors.....	175
Artificial Light.....	176
Lights and Other Lighting Equipment.....	176
Qualities of Artificial Light.....	177

The Main Light: The Dominant Source.....	178
The Fill Light: To Lighten Shadows.....	180
Lighting with Flash.....	182
Flash Equipment.....	183
Basic Flash Techniques.....	184
Manual Flash Exposures.....	186
Automatic Flash Exposures.....	187
Fill Flash: To Lighten Shadows.....	188
Controlling Background Brightness.....	190
Simple Portrait Lighting.....	192
Multiple-Light Portrait Setups.....	194
Lighting Textured Objects.....	196
Lighting Reflective Objects.....	197
Lighting Translucent Objects.....	198
Using Lighting.....	199

■ **photographer at work**

Dance Photographer Lois Greenfield.....	200
--	------------

11 Extending the image 202

Using Scale.....	204
Pictures Very Large and Very Small.....	204
Multiple Images.....	206
More is Better.....	206
Fabricated to be Photographed.....	208
The Photograph as Object.....	210
Using Projections.....	212
Making a Book.....	213
Alternative Processes.....	214
Cyanotype Printing.....	214
Platinum and Palladium Printing.....	215
Gum Bichromate Printing.....	216
Collodion and Tintypes.....	217
A Photogram: A Cameraless Picture.....	218
Pinhole Photography.....	220
How to Make a Close-Up Photograph.....	222
Close-Up Exposures.....	223
Copying Techniques.....	224

12 Seeing photographs 226

Basic Choices.....	228
Content.....	228
Framing the Subject.....	230
Backgrounds.....	232
Basic Design.....	234
Spot/Line.....	234

Shape/Pattern.....	236
Emphasis/Balance.....	238

More Choices.....	240
Using Contrasts of Sharpness.....	240
Using Contrasts of Light and Dark.....	242
Placing the Subject within the Frame.....	244
Perspective and Point of View.....	246

Looking at—and Talking About—	
Photographs.....	248

Showing Your Work to Editors	
and Others.....	250

13 History of photography 252

The Invention of Photography.....	254
Daguerreotype: “Designs on Silver Bright”.....	255
Calotype: Pictures on Paper.....	256
Collodion Wet-Plate: Sharp and Reproducible.....	257
Gelatin Emulsion/Roll-Film Base:	
Photography for Everyone.....	258
Color Photography.....	259
Early Portraits.....	260
Early Travel Photography.....	262
Early Images of War.....	263
Time and Motion in Early Photographs.....	264
The Photograph as Document.....	265
Photography and Social Change.....	266
Photojournalism.....	268
Photography as Art in the 19th Century.....	272
Pictorial Photography	
and the Photo-Secession.....	273
The Direct Image in Art.....	274
The Quest for a New Vision.....	275
Photography as Art in the 1950s and 1960s.....	276
Photography as Art in the 1970s and 1980s.....	278
Color Photography Arrives—Again.....	280
Digital Photography	
Becomes Mainstream.....	282
A Gallery of Contemporary	
Photography.....	284

Troubleshooting.....	304
-----------------------------	------------

Glossary.....	309
----------------------	------------

Bibliography.....	314
--------------------------	------------

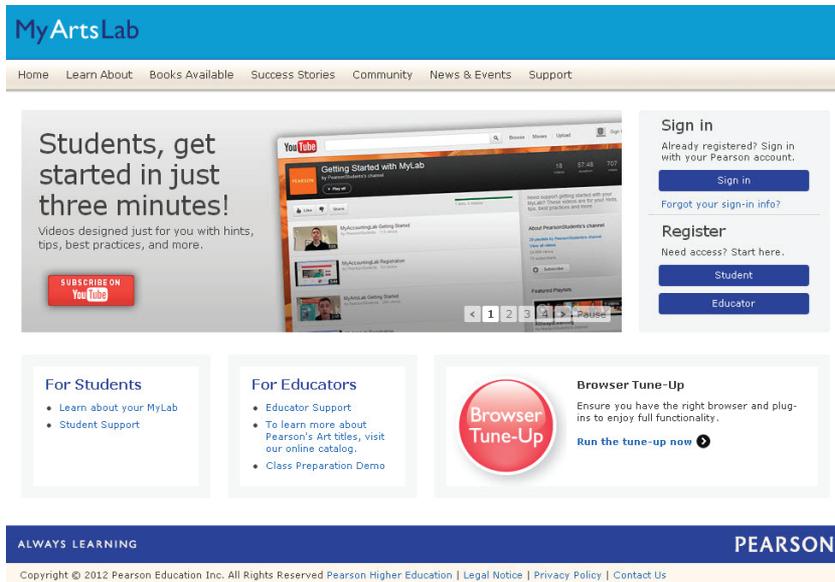
Credits.....	318
---------------------	------------

Index.....	319
-------------------	------------

Throughout this book you will find icons, like the one just below. Each icon is a reminder of the additional information available to you at MyArtsLab.com. When you see a line like this

 **Watch** the Video on myartslab.com at the bottom of a page, it is a signal that you'll find extra resources on the topics that appear on that page. In the eText version of this book, those icons are links that will take you to more resources automatically. From the paper book, navigate manually. Even if a link does not appear, MyArtsLab.com provides chapter audio as well as a review, tests, and quizzes for each chapter. Take a look!

Point your Web browser to <http://myartslab.com/> to get started. Look under the tab “Books Available” for this book, Photography, and find extra material by selecting the tab for “Resources.”



A BETTER TEACHING AND LEARNING EXPERIENCE

This program will provide a better teaching and learning experience for teachers and students. Here's how:

The new MyArtsLab delivers proven results in helping individual students succeed. Its automatically graded assessments, personalized study plan, and interactive eText provide engaging experiences that personalize,

stimulate, and measure learning for each student. And, it comes from Pearson, a trusted partner with educational expertise and a deep commitment to helping students, instructors, and departments achieve their goals.

- The Pearson eText lets students access their textbook anytime, anywhere, and any way they want, including downloading the text to an iPad.
- To lower the price of the printed text for students, four chapters of the previous edition, and part of a fifth, have been moved to the Pearson eText as a new set of online Appendices, including Developing a Negative (Chapter 5 in the previous edition); Printing in a Darkroom (old Chapter 6); View Camera (old Chapter 15); The Zone System (old Chapter 16); as well as coverage on darkroom developing and printing color film.
- Chapter Audio allows students to listen to the text so they can concentrate on images and diagrams.
- A personalized study plan for each student promotes critical-thinking skills.
- Simulations help students understand the functions of a camera.

- Assessment tied to videos, applications, and chapters enables both instructors and students to track progress and get immediate feedback.
- Closer Looks give students insight into the compositional choices a photographer made in creating a great picture.
- Animated demonstrations and FAQs give students insight into camera techniques and common problems.
- Videos include tutorials from the “Five Minute Photographer,” a series by Shelton Muller. These five-minute videos include lessons on how to understand artificial lighting and electronic flash, manage digital files, and understand depth of field.
- MediaShare. This program—integrated into MyArtsLab—provides a free, course-specific dropbox for students to upload their photographs, facilitating peer critique, and allowing instructors to grade student work with customizable gradebooks.

For instructor access, visit www.MyArtsLab.com or speak to your local Pearson representative.

JAMES HENKEL

Volume 1-7, 2004

Henkel has often made photographs that “address the form and authority which we associate with books.”

Out of respect for that authority, Henkel says, he initially found it difficult to destroy them for his Stacks series, “but once I cut the first few it was quite easy.”



Preface



More than a million copies of *Photography* are now in print. Many people who have used this book have become professional photographers, exhibiting artists, or photography instructors, or are continuing to pursue their personal interest in photography. Whatever your interest in photography, this book is designed to teach the skills that you will need to use the medium confidently and effectively.

This edition continues that tradition; it lays out what you need to know to make photographs. This time, however, the material is presented differently. The book has been slimmed down by about 20%, in order to reduce the price to almost half the cost of the tenth edition. Material has been divided, with chapters that pertain only to film photography available in the eText version.

Purchase of the paper book gives you full access to the eText that contains everything that is in the paper book, plus *Developing a Negative*, *Printing in a Darkroom*, *Color: Film and Darkroom*, *View Camera*, and *The Zone System*. View it on any computer or tablet with Internet access.

This book presents all facets of photography. The emphasis, however, continues to be in two major areas—technique and visual awareness. The technical material helps you

learn how to control the photographic process, or as Ansel Adams put it, to understand the way that the lens “sees” and any light-sensitive material “sees.” Equally important, this book can help you see by showing you the choices that other photographers have made and that you can make when you raise a camera to your eye.

Clarity and convenience have always been a focus of this book. In this edition even more effort has been made to organize and format information into an easy guide for beginning photographers and a quick reference for those with experience.

- The easy-to-use format has been maintained, with every two facing pages completing a single idea, skill, or technique.
- Boldfaced topic sentences outline the text on every page.
- Workflow routines are easy to understand and to follow, presented in a step-by-step manner.

The general presentation of technical information has been maintained, with some reorganization for this new edition.

- General photographic techniques and camera handling are covered completely in Chapters 1–5: digital and film cameras, lenses, sensors and film, and exposure,

*Photography is continually changing, and each version of *Photography* reflects that change.* View cameras yielded to 35mm. Black-and-white photography gave way to color. Manually adjusting cameras became automatic. Digital photography has almost completely displaced film. The tools and practice of photography are constantly changing, and so are the images we make with it.

This book changes with the medium and with the times; as with each new edition, this book updates the traditional practice of photography as well as incorporating current technologies.

In response to changing technologies, especially those related to accessing information, this print book is now integrated with an eText. But its fundamental goal remains, it shows how to make photographs, how to control photographic processes, and how different photographers employ them for their own creative purposes.

along with color theory and practice.

- Chapters 6–9 present information on digital photography, focusing on the information that a beginning student needs to know about bringing images into the computer, adjusting, printing, mounting, and presenting them, and then creating a system so digital files and prints can be safely stored and easily found.
- Chapters 10–11 cover lighting, ways to extend the photographic medium, and special techniques (such as the making of cyanotypes and gum bichromate prints).
- Chapters 12–13 continue the presentation of great historic and contemporary photographs, and discuss the reasons they succeed and the ways your own photographs might aspire to similar great accomplishment.
- A fully illustrated Troubleshooting section for digital photography, beginning on page 304, groups together technical problems, their causes, and ways to prevent them. A second Troubleshooting section, for film and darkroom problems, appears in the eText as Appendix F.

Improving visual awareness is a major emphasis of the book. Many demonstration photographs make topics easy to understand.

Throughout the book you will find hundreds of illustrations by the best photographers showing how they have made effective use of various technical concepts. See the examples detailed here:

- The photographs illustrating lens focal length on pages 42–47, or how two photographers use electronic flash plus available light on page 191.
- *Photographer at Work* pages throughout the book feature interviews with photographers who have developed successful careers, with a celebrated sports photographer (pages 104–105) and an advertising photographer who photographs cars that aren't really there (pages 90–91), as well as an interview with professional retouchers Giulia Scalese and Thomas Villarreal (pages 140–141).
- Chapter 12, *Seeing Photographs* (pages 226–251), deals with composition, tonality, sharpness, and other visual elements that will help you make better pictures yourself, and see other people's photographs with a more sophisticated eye.
- Chapter 13 (pages 252–303) surveys the history of photography so that you can place today's photography—and your own—in a historical context.

Reasons to use the new Eleventh Edition:

In addition to complete coverage of traditional photographic technique in the eText, the eleventh edition embraces the new photography that is captured, shaped, transmitted, printed, and saved electronically.

- Digital and chemical camera techniques are integrated throughout. The book, in tandem with the e-text, meets the needs of students using an all-digital, all-chemical, or mixed workflow.
- Updated chapters dedicated to digital technique. Four chapters, 6–9, explore the current state of digital photography. Chapter 6 introduces software applications that manage a digital workflow, and they are integrated throughout the following chapters. Chapters 7 and 8 survey the options you have when adjusting or printing a single image. Chapter 9 covers the organizing of an archive for storing photographs that may have no physical

form and can't be saved in a shoebox. It also suggests methods and products to help you to quickly find one image among thousands, and offers finishing techniques for making your prints look great on the wall of your room—or of a major museum.

- Over thirty new fine art photographs illustrate technical concepts and help you develop visual awareness. This edition adds a wealth of images from contemporary photographers including Lynsey Addario, John Chervinsky, Daniel Coburn, Christopher Colville, Carl De Keyzer, Mitch Dobrowner, William Eggleston, Ed Jones, Kate Joyce, Rinko Kawauchi, Frans Lanting, Nikki S. Lee, Lori Nix, Elaine O'Neil, Catherine Opie, Philipp S. Rittermann, Kathleen Robbins, Martha Rosler, Stanley Rowin, Jeff Rotman, Stephen Shore, Phillip Toledano, Ian van Coller, and Mihoko Yamagata.

Every edition of *Photography* has been a collaborative effort. Instructors, students, photographers, manufacturers, editors, gallery people, and many others participated in it. They fielded queries, made suggestions, responded to material, and were unfailingly generous with their time, energy, and creative thinking.

Special thanks go to instructors who reviewed the previous edition of *Photography*, as well as parts of this edition, and who volunteered many good ideas. They brought a particularly useful point of view, contributing many ideas on not only what to teach, but how to teach it:

Ashley Feagin, Louisiana Tech University

Michael Ensdorf, Roosevelt University
Deidre Engle, Mt. San Antonio College
Richard Fleming, Sacramento City College

Robin Dru Germany, Texas Tech University

Jennifer Greenburg, Indiana University Northwest

Julia Grieve, Portland State University
Frank Hamrick, Louisiana Tech University

Without editorial and production assistance, a book of this size and complexity would be impossible to complete. Many thanks to Cristina Olds for patiently getting co-author Stone on the right track and up to speed with an unfamiliar page-layout program. Masumi Shibata stepped up to help the monolingual authors arrange for Japanese photographers' work to appear. Lois Greenfield made the remarkable photograph that appears on the cover. Special thanks for editorial, production, and marketing support to Billy Grieco, Sarah Touborg, Laura Carlson, Joe Scordato, and Corin Skidds at Pearson Education, and to Steve Martel and the team at Laserwords Maine for somehow keeping track of it all.

Many equipment manufacturers supplied photographs of, and information about, their products, joining other experts who answered questions. In no particular order, thanks to Bill Gratton from the MAC Group, Adobe Software's Julieanne Kost, Tom Hogarty, Rick Miller, and John Nack, David Bram from *Fraction Magazine*, and *Macworld's* Ben Long. Thanks are also due to Extensis, Plustek, Sony, Delkin, Nikon, Panasonic, Seagate, Pentax, Canon, and SanDisk—all of them forward-thinking corporations, many of which have made their product photographs readily available on the web, simplifying the process of illustrating up-to-date equipment.

Jim Stone owes special thanks for support and tolerance to his mother, Sylvia, and to his wife Linda. Their son Skye, now twelve, and seven-year-old daughters Amber and Jade are not only willing models for demonstration photographs, but are making their own great photographs because of this book.

Students keep this book. They refer to it long after they have finished the basic photo course for which it was purchased. Some of the people who contributed to this edition used the book themselves when they were studying photography, and still have their original, now dog-eared, edition. As you work with the book, you may have suggestions on how to improve it. Please send them to us. They will be sincerely welcomed.

This is dedicated to everyone who is part of this new edition.