ADOBE PHOTOSHOP HANDBOOK

PHOTOSHOP EDITION!



MARK SIPRUT

Foreword by Bryan Lamkin, Adobe Systems, Inc.



BESTSELLER!

Adobe Photoshop™ Handbook

PHOTOSHOP 3 EDITION

Mark Siprut



Adobe Photoshop™ Handbook, Photoshop 3 Edition

Copyright@1995 Mark Siprut

Some portions carried over from the 2.5 Edition of the book are copyright © 1993 by David Biedny, Bert Monroy and Mark Siprut.

Cover art by Bill Niffenegger

Book composed and produced by Sybil Ihrig, VersaTech Associates

Adobe Photoshop is a trademark of Adobe Systems, Inc.

All rights reserved. No part of the contents of this book may be reproduced in any form or by any means without the written permission of the publisher.

Published in the United States by Random House, Inc., New York, and simultaneously in Canada by Random House of Canada, Limited.

Manufactured in the United States of America

Third Edition

0987654321

ISBN 0-679-75325-7

The authors and publisher have used their best efforts in preparing this book, and the programs contained herein. However, the authors and publisher make no warranties of any kind, express or implied, with regard to the documentation or programs contained in this book, and specifically disclaim, without limitation, any implied warranties of merchantability and fitness for a particular purpose with respect to programs and/or techniques described in the book. In no event shall the authors or publisher be responsible or liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential or any other damages in connection with or arising out of furnishing, performance, or use of this book or the programs.

Trademarks

A number of entered words in which we have reason to believe trademark, service mark, or other proprietary rights may exist have been designated as such by use of initial capitalization. However, no attempt has been made to designate as trademarks or service marks all personal computer words or terms in which proprietary rights might exist. The inclusion, exclusion or definition of a word or term is not intended to affect, or to express any judgment on, the validity or legal status of any proprietary right which may be claimed in that word or term.

New York Toronto London Sydney Auckland

Foreword

February 1995 marks the fifth anniversary of the introduction of Adobe Photoshop. Over the course of five years, Adobe Photoshop has become the hub of desktop imaging, enabling an explosion of desktop color publishing with continuous-tone images.

Adobe Systems has gone to great lengths to keep Adobe Photoshop on the leading edge of image editing. However, the success of Adobe Photoshop cannot be attributed to the product alone. Adobe Photoshop has given rise to, and in turn, has been supported by scores of companies and products, including software and hardware developers and training providers. The Adobe Photoshop Handbook is exactly such a product.

Like Adobe Photoshop, the *Adobe Photoshop Handbook* broke new ground when introduced by leading Photoshop experts David Biedney and Bert Monroy in 1991. With the 2.5 Edition update, the baton was passed to Mark Siprut, who made a great reference guide even better. With this new Version 3 edition of the *Adobe Photoshop Handbook*, Mark Siprut continues to demonstrate his mastery of desktop color and of Adobe Photoshop 3 in particular.

The Adobe Photoshop Handbook serves as an excellent reference guide, with full chapters dedicated to fundamentals such as input, color correction, filters, and mask generation.

If you are new to Adobe Photoshop and the world of desktop color publishing, you will find the *Adobe Photoshop Handbook* a great learning complement to the documentation tutorials provided with the product. More experienced users of Adobe Photoshop will find invaluable the indepth case studies and the Color Gallery featuring the works of some of the world's leading Photoshop artists.

Great software is like a living being. Each new version is merely a snapshot of an ongoing development process that refines and distills the thinking of a team of creative individuals pursuing a common objective. The *Adobe Photoshop Handbook*, Photoshop 3 edition echoes this dedication to excellence and continued refinement that will benefit all of our users as they strive to get the most out of Adobe Photoshop 3.

Bryan Lamkin Senior Product Marketing Manager Adobe Systems Incorporated

Preface

I wrote the *Adobe Photoshop Handbook* with the Photoshop artist in mind. The book provides the kind of practical advice and techniques that you usually learn only through real-life experience and years of trial and error. This is the third edition in the Handbook series; the books have become progressively more dense as Adobe Photoshop has become more complex. Listen to what artists are saying about Photoshop version 3:

Version 3.0 is a radical departure from 2.5. The layers will revolutionize the way commercial illustrations are done, because they give the artist freedom to experiment at no risk. You don't have to save 10-15 copies because the client may want to make changes—you save one version with 15 different layers.

-Wendy Grossman, Illustrator

Photoshop 3.0 is an example of a better interface. In 2.5 I would have to jump through hoops to do what I can in 3.0 with ease. Now that hoop jumping time and energy can be expended into the artistic process.

—Greg Vander Houwen, Photographer

Photoshop 3.0 is definitely a step beyond 2.5. There are almost too many choices. Many fine artists are still daunted by technology. The technical tool is not transparent; the learning curve is definitely there. Computer artists, unless they have a technical background, will run into many stumbling blocks. But if something is meaningful, it's worth the time and effort it takes. With 3.0 my work has taken another leap forward. I'm doing my best work ever.

—Diane Fenster, Fine Artist

The development of each new version of Photoshop really seems to be in step with my needs as I develop as an artist

-Adam Cohen, Illustrator

You can learn almost any program by methodically plowing through each and every command in sequence, but in Photoshop the tendency is to play with the features, creating "happy accidents." Many of the techniques described in the following chapters were discovered this way, and I encourage you to explore (as long as you keep backups of your master graphics files!). Advises photographer Stephen Johnson, "Get a good scan, and then let your heart be the motivator for the work, not the tools. Be very critical of your own work."

For those of you just starting out with Photoshop, this book contains discussions and techniques that will help you in your quest to produce quality work. If you have already spent some time in the Photoshop universe, you'll appreciate the expert perspectives and more advanced techniques found throughout the chapters.

This book is not, however, a replacement for the *Adobe Photoshop User Guide* included with the program, which describes functional aspects of Photoshop in technical detail. Rather, the goal of this book is to share useful techniques and tips, and to provide creative suggestions for using the feature-rich program. This book will compliment and augment the *User Guide*, explaining how Photoshop's features work together and how the program can be incorporated into the larger picture of visual communication.

I am continually amazed at the depth and complexity of Adobe Photoshop. I constantly discover new subtleties within the program as I explore it (and remember, I work with Photoshop almost full time!). So don't be overwhelmed. Dig in and enjoy!

Book Organization

Although this book is structured for random access, you may want to read it sequentially the first time around, especially if you are new to Photoshop. You should also keep the *Adobe Photoshop User Guide* handy for further reference.

Through the Photoshop Handbook you will discover the many arenas in which Photoshop can be applied: photography, print production, multimedia, video, illustration, fine arts, and more. Depending on your job, some of the program features may be more useful than others. For example, different filters may be appropriate for special animation effects but not for corporate newsletter production.

Topics discussed and demystified in this book include an overview of Photoshop, its uses, and its main features in Chapter 1, "Welcome to Photoshop;" essential system issues and tips for Macintosh *and* Windows users in Chapter 2, "Setting Up Your System;" calibrating your system in Chapter 3, "Configuring Photoshop;" getting a good scan and working with

Photo CDs and digital cameras in Chapter 4, "Input;" the myriad of controls available with the tools and palettes in Chapter 5, "Tools and Palettes;" layers and channels in Chapter 6, "Image Selection and Masking;" manipulating and editing images in Chapter 7, "Image Processing;" color theory and control in Chapter 8, "Color;" creative uses of filters in Chapter 9, "Filters and Plug-ins;" combining images and effects using layers, channels, and calculations in Chapter 10, "Compositing;" how to output images using color digital printers, offset lithography, and video in Chapter 11, "Output;" and preparing images for interactive on-screen presentations in Chapter 12, "Multimedia." The book concludes with case studies from more than 30 talented artists who use Photoshop.

This Book is for Macintosh and Windows Users

Previous versions of the Adobe Photoshop Handbook were written for the Macintosh only. For the most part, Photoshop 3.0 functions identically on both the Macintosh and IBM-compatible personal computers running under the Microsoft Windows operating system. This book now serves both platforms. Information specific to Photoshop for Windows has been integrated into each chapter. Wherever possible I point out where the Macintosh and Windows systems differ, so watch for notes and warnings.

Although this book uses Macintosh keyboard instructions, these are easily translated for those of you using the Windows version. Two global assumptions about the keyboard instructions can be made for the Windows user: where you see the Command key mentioned, substitute the Ctrl key, and for the Option key substitute your Alt key.

Acknowledgments

Many people helped with the Photoshop 3 revision of the *Adobe Photoshop Handbook*, contributing artwork and tips, locating facts, and chatting about Photoshop over the phone and on-line. I would like to thank the following:

Special thanks to Michael Roney, a patient and understanding editor. More special thanks to Anna Stump for copy editing, creative suggestions, and moral support.

Bill Niffenegger created this book's stunning cover art and provided creative and technical advice.

Steve Werner contributed to Chapter 4, "Input," Chapter 8, "Color," and Chapter 11, "Output." Werner is Manager of Training and Development for Rapid Graphics of San Francisco, California. He has taught graphic arts software and electronic prepress at Platt College in San Diego and Universities of California at Los Angeles and San Diego Extension programs.

Steve Shubitz contributed the Windows guidelines to this book. Shubitz is President of Published Perfection!, a La Jolla, California electronic publishing and consulting company providing production, training, and integration for the Windows and Macintosh platforms. Shubitz is a faculty member at The Advertising Arts College where he teaches Desktop Publishing. He has written numerous magazine articles about publishing in Windows and has co-authored three books on desktop publishing.

Andrew Rodney, a photographer and digital artist, contributed to Chapter 9, "Filters and Plug-Ins." Rodney is Vice President of PhotoFX, a chain of hybrid imaging centers based in Santa Fe, New Mexico, which provides digital imaging services and training to both consumers and professionals. He has taught electronic imaging at Winona School of Photography, The Scitex Color Center and The Santa Fe Photographic Workshops: His work has been

featured in Photographic Magazine, Camera and Darkroom, Shooters Rag and Photo District News.

Chris Swetlin, a commercial artist working in video and multimedia, contributed to Chapter 12, "Multimedia." Swetlin is the co-owner, with Gary McDaniel, of Mediaweave, a multimedia development company in Fremont, California.

Sandra Alvez, a computer graphic artist at Scripps Research Institute in La Jolla, California, contributed to Chapter 6, "Image Selection and Masking."

Matt Brown, of Adaptive Solutions in Sunnyvale, California, provided a technical review of the book and contributed to Chapter 6, "Image Selection and Masking," and Chapter 10, "Compositing." Brown is the Technical Marketing Manager for the PowerShop 64 Image Processing Accelerator for Photoshop on the Macintosh.

Kai Krause of HSC Software in Santa Barbara, California contibuted his Chops to Chapter 10, "Compositing."

Rita Amladi, John Leddy, Brian Lamkin, Tracy Wright, and Sonya Schaefer at Adobe Systems Inc. provided invaluable assistance.

Sybil and Emil Ihrig of VersaTech Associates in Prescott, Arizona provided invaluable professional expertise on the book layout and production.

Charles Levine, vice president and publisher, Random House Reference and Electronic Publishing, provided valuable assistance in coordinating book production.

Additional technical advice and support came from Gerry Yeager of Nelson Photography, San Diego; Bruce Powell and Sharon Powell of Synergy, San Diego; Jeff Raby of TX Unlimited in San Francisco; Ralph L. Mittman of Commercial Press in San Diego; Dan Ziagos, Multimedia Training Consultant at Pacific Bell in San Ramon, California; Kristin Keyes, Susan Kitchens and Julie Sigwart of HSC Software; Gary Dailey and David Methven of DayStar; Chi Huang of Radius; Bart Wilson of PhotoFX in Santa Fe; Keri Walker at Apple Computer Inc.; Linnea Dayton; Jim Abbott, Joe Runde, Lisa Gardner, Marilyn Berwind, Terry McArdle, and Paul McAfee of Kodak; Carol McClendon of Waterside Productions; Kim Haas and Michelle Hassan of McLaen Public Relations; Melkan Khosrovian of Microtek, Inc.; Cindy Czyrak of Image Bank; Sheila Dye of Strata Inc.; Barry Weiss of Adaptive Solutions; Jan Sanborn at Pixar; Tim Gill and Elizabeth Jones of Quark, Inc.; Steve Guttman of Fractal Design, Inc.; Eve Elberg; and Lior Saar of Xaos Tools.

Special thanks to the talented artists who contributed their images to the book: Joseph Bellacera, Eric Benson, Alan Brown, Dan Burkholder, Craig Carlson, Nino Cocchiarella, Adam Cohen, Hagit Cohen, Tom Cross, Margaret Evans, Sarah Everding, Nick Fain, Diane Fenster, Ed Foster, Charly Franklin, Craig Freeman, Wendy Grossman, Francois Guerin, David Herrold, Emil Ihrig, Stephen Johnson, Sanjay Kothari, Dorothy Simpson Krause, Ellen Land-Weber, John Lund, Gary McDaniel, Hiroshi Miyazaki, Bert Monroy, Rick Nease, Bill Niffenegger, Merrill Nix, Greg Notzelman, Jean-Francois Podevin, Guy Powers, Andrew Rodney, Mike Roney, Philip Rostron, Larry Scher, Jeff Schewe, Sharon Steuer, Anna Stump, Rob Sturtz, Chris Swetlin, Cher Threinen-Pendarvis, Terry Toyama, Joseph Tracy, Ellen Van Going, Varden Studios, Greg Vander Houwen, and Lanny Webb.

Photo CD images were scanned by ZZYX in Los Angeles, California, thanks to Bob Goldstein.

Stock photography images were provided on CD ROM by CD Folios Sky, Cloud Gallery from Mary and Michael, CMDC Stock Photos, Comstock Digital Photography from Comstock, Inc., Digital Photographics from Husom & Rose Photographics, Digital Stock Inc., D'pix Folio from D'pix, Inc., Fresco from Xaos Tools Inc., The Image Bank, Classic Textures from Pixar, PhotoDisc Inc., and PhotoSphere.

Of course, Photoshop couldn't be thoroughly explored without the necessary hardware and software, including the following products, which were made available by their manufacturers: Radius SuperMac PressView 21°T monitor, and the Thunder II GX°1360 accelerated video card; DayStar Digital Charger accelerator, Turbo 040 processor upgrade, Power Pro 601 Power PC upgrade, and Colorimeter 24 Precision Display Callibrator; Microtek 45T Film Scanner and 35T Film Scanner; Wacom ArtZ ADB Digitizing Tablet from Wacom Technology Corp; and Fujitsu Dynamo 128 Mb Magneto Optical drive from Fujitsu Computer Products of America.

The following companies also provided assistance: Adobe Corporation, Alias Research Inc., Alien Skin Software, Andromeda Software, Inc., Apple Inc., Applied Graphics Technologies, Calgari, Electronics for Imaging, DayStar Digital, Equilibrium Technologies, Delta Tao Software, Inc., Eastman Kodak Co., Fifth Generation Systems, Focoltone Ltd., Fractal Design Corporation, Gryphon Software, HSC Software, Imspace Systems, InSoftware, Leaf Systems Inc., Light Source, Macromedia, Mainstay, Micro Frontier, Newspaper Association of America, Pantone Inc., Pixar, Pre-Press Technology, Quark, Inc., Ray Dream Inc., Savitar, Second Glance Software, S. H. Pierce and Co., Silicon Wizards Inc., Solutions, Inc., Specular International, Strata, Symantec Corp., Total Integration, Inc., Toyo Ink Co., Trumatch Inc., Ultimatte Corp., VideoFusion, Vision Software Inc., Vividus Corp., and Xaos Tools.

Thanks to the School of Art, Design and Art History at San Diego State University for support. And thanks to Maile Sakamoto for brightening this book with her smile.

Last but not least, thanks to David Biedny and Bert Monroy for their initial vision and continuing support.

Mark Siprut San Diego, California

Contents at a Glance

Control (Co.)		
	rew	
HO	PAUL	ord

Preface

Acknowledgments

- 1 Welcome to Photoshop 1
- 2 Setting Up Your System 21
- 3 Configuring Photoshop 51
- 4 Input 103
- 5 Tools and Palettes 145
- 6 Image Selection and Masking 209
- 7 Image Processing 267
- 8 Color 301
- 9 Filters and Plug-ins 359
- 10 Compositing 431
- 11 Output 475
- 12 Multimedia 521
- 13 Case Studies 549

Appendix A: File Formats 609

Appendix B: Contributors to This Book 629

Appendix C: Vendors 633

Glossary 645

Index 661

Contents

Foreword Preface Acknowledgments

CHAPTER 1

Welcome to Photoshop 1

```
Who Uses Photoshop? 3
Photographers 3
Fine and Commercial Artists 3
Multimedia Artists and Producers 3
The Digital Revolution 4
Print Publishers and Corporate Communicators 4
Service Bureaus 4
Advertising 4
Scientific and Medical Applications 4
Manufacturing 4
Changes in the Printing Industry 8
Ethics, Copyright, and Responsibilities of the Artist 8
Photoshop Main Features 10
RAM: Working in Real Time 10
Support for Multiple Open Documents 10
```

Cross-Platform Flexibility 10
Wide Variety of Image-Processing Features 11
No Screen Redraw 12
DirectSet Entries on Real -Time Color Controllers 12
Virtual Memory 12
Variable Resolution 13
Anti-Aliasing 13
Virtual 24–Bit Working Environment 13
Crazy Eights: Working in 8-Bit? 14
It's All Black and White 14
Filters 14
Extension with Plug-Ins 15
Image Selection and Masking 16

Summary 19

Variety of File Formats 19
Dynamic Data Sharing 19
Compatibility with Object-Oriented Programs 19

CHAPTER 2

Setting Up Your System 21

System Requirements 21

Macintosh 22

Windows 23

Setting up a Mac for Photoshop 24

Layers, Masks, and Channels 16 Sophisticated Color Tools 18

Setting up Windows for Photoshop 24

Fonts and Photoshop 25

Anti-Aliased Typefaces 26

Fonts and Macintosh 27

Fonts and Windows 28

Memory 29

Virtually Speaking 29

RAMming it in 29

Memory Sources 30 RAM Disks 30 Allocating RAM/Macintosh 31 Allocating RAM/Windows 32 Storage 34 Using the Hard Disk for Virtual Memory 34 Drive Types 36 Small Computer System Interface (SCSI) 38 Acceleration 40 CPU Acceleration 40 Photoshop-Specific Acceleration 41 43 Displays 24-Bit Color 43 16-Bit Color 44 8 Bits and Less 44 Changing Monitor Bit Depth Characteristics 45 Monitors: Sizing Things Up 46 Mice and Graphics Tablets 47 Windows Display Glitches and Setup 47 Mouse Options 48 Track Balls 48 Digitizing Tablets 48 Introduction to Printers Introduction to Calibration 49 Summary 49

CHAPTER 3

Configuring Photoshop 51

General Organization 51
Screen Display 53
The Menus 54
Palettes 57
Display Modes 58

Layers 61

Channels 61

Paths 62

Document Management 63

Magnifying Image Elements 63

Document and Scratch Size Indicators 64

Previewing Page Size 64

Other Size Parameters 65

Rulers 66

Entering File Info 66

Setting Preferences 67

General 68

Gamut Warning 74

Plug-ins 74

Scratch Disks (Macintosh Only) 74

Memory (Windows only) 75

Transparency 75

Units 75

Monitor Setup 75

Printing Inks Setup 76

Calibration 77

Separation Setup 77

Separation Tables 77

The Steps of Calibration: an Overview 79

Create a Color Environment 79

Monitor Calibration 81

Monitor Setup Preferences 83

Printing Inks Preferences 84

Printing a Color Proof 85

Adjusting the Display to the Output 86

Optimizing Input 87

Color Management Systems 88

Kodak Color Management System 89

DayStar ColorMatch 89

EfiColor Works 90