



# FLAAR Reports

Updated OCTOBER 2003

Report SERIES on Color Management for Inkjet Printing

## Book Reviews

of Publications on Color Management



Digital Graphics books booth at GOA tradeshow 2003





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## Introduction

Many of the titles here were already in the FLAAR Reports, as references for Nicholas Hellmuth's glossary. However we noticed that not all training programs on color management included even a basic list of suggested reading. And virtually no training program offered a totally comprehensive bibliography. So in October 2003 we decided to add two new titles to the color management series: this present title on "Recommended Reading" and a completely new title on "Recommended Training Programs and Consultants in Color Management" (available possibly by late November; we will be glad to send this to you at no additional cost; just write [FLAARtest@aol.com](mailto:FLAARtest@aol.com) and say "you promised you would send the new color management training review when it was finished.").

In the process of writing this bibliography we also were surprised to notice that most books on color management, excellent as they are in their own right, totally lack references and usually fail to even include a list of recommended reading.

FLAAR feels this is something that a university professor does well – tracking down publications, articles, and references, and annotating them. The annotations indicate which titles are worth your special attention. The value of Hellmuth's annotations is that we do not sell books, nor are we otherwise beholden to any particular publisher. This is a polite way of saying that our reviews can be honest because we are not being paid by anyone.

## Books specifically on Color Management

Many of the book reviews included here come from a FLAAR report which is part of the digital photography course. However for this stand-alone report in the color management series we updated that by adding new titles, overall made it comprehensive, and then edited the content so it might be easier to read. We hope you like the results.

The best book on color management to date just came out earlier this year, "Real World Color Management," Peachpit Press (all their books are great). Authors are Bruce Fraser, Chris Murphy, and Fred Bunting. Buy this book immediately. Just be sure you set aside a rainy weekend to actually read it, and then additional time to practice with the tools and software.

There is an isbn.nu web site (ISBN probably stands for International Standard Book Number) which lists the contents of most books. The contents of many books are also included on Amazon's web site. However if you need help figuring out which book is best for your personal needs, and if you wish to communicate with a human being instead of a web page, we recommend DGB, Digital Graphics Books. Contact is [Rick@dgbooks.com](mailto:Rick@dgbooks.com), telephone (781) 344-1894.



Digital Graphics Bookstore booth at GOA 2003 tradeshow



**ADAMS, Richard M, II and Joshua B. WEISBERG**

1998 The GATF Practical Guide to Color Management. GATFPress, Pittsburgh.

Discusses color management in general. Has only three pages on color management for digital photography. Not otherwise oriented either to digital photography nor to inkjet printing. Nonetheless, well written, nicely illustrated, and lots of facts on specific products (hardware and software for color management). The first chapter is almost identical to that of the other GATF book on color management but after that they diverge. I read them both the same day and other than the first chapter I learned something new in each of these books. Includes a scanner software test chart.



Since many of the color management products mentioned in 1998 are no longer available or obsolete, and as some of the companies have gone out of business, merged, or sort of are not on top anymore, be sure to get the 2nd edition, which is also already three years out of date, or four, if you figure it was probably written a year before it could be published.

**Adams, Richard M, II and Joshua B. WEISBERG**

2000 GATF Practical Guide to Color Management. 2<sup>nd</sup> edition. GATFPress.

We do not yet have the update at hand, but will check it out. Most updates of this nature are a considerable improvement over earlier versions.

Contents

- Introduction
- Color Theory
- Closed-Loop Color
- Color Measurement
- Color Characterization
- Color Management Profiling Software
- Integrating Color Management
- Visual Color Evaluation
- Color Management Tools for Users
- Appendices
- Glossary
- Index



**AGFA**

1997 The Secrets of Color Management. Agfa Educational Publishing, Randolph, MA. An excellent book. Worth tracking down, even used. Try an Agfa book distributor such as DGB, e-mail [rick@dgbooks.com](mailto:ricker@dgbooks.com), tel (781) 344-1894. The illustrations are among the best available.

Contents

- The Digital Reproduction Workflow
- What is Light?
- How do we Perceive Color
- How do Colors Mix?
- Color Models
- Why is Color Management?
- Input Limitations
- Bit Depth
- Characterizing Input Devices
- Monitor Limitations
- Characterizing Monitors
- Output Device Limitations
- Characterizing Output Devices
- Color Separation
- Principles of Digital Proofing
- Color Management Today
- Glossary



**BOHNEN, Roy and Sean O'LEARY**

(no date listed). Fundamentals of Large-Format Color Management. International Reprographic Association, Oak Brook, IL.

77 page booklet by knowledgeable authors. Worth acquiring, however realize that many illustrations are identical to those in the free booklet by X-Rite. Similarly among various GATF publications on color science, often the same material is in several books. This is natural because the basic material on color science has not changed much over the years. When a good illustration is already available, makes sense to use it.

First appendix nicely lists software products, but is two generations (versions) out of date (circa 1999 or 2000; for example, still on Gretag version 3; current version is 4.1).

You should be able to obtain this from Chromaticity, [rbohnen@chromaticity.com](mailto:rbohnen@chromaticity.com), 616 874-2779 ext 124. Not free but worth its price as long as you don't expect a book which explains step by step what you have to do.

Contents

- Introduction to Color Theory
- Additive and subtractive color spaces
- Introduction to color range
- Device-independent color spaces
- How color is built
- Principles of calibration
- Image capture devices
- Color look-up tables
- International Color Consortium: Introduction to profiles
- Profiles and the workflow



RIP's (raster Image Processors)

Appendix

No glossary. No index. No bibliography nor any other list of references no where else to find info.

**BRUEES, Stefan, MAY, Liane, and Dietmar FUCHS**

1999 Postscriptum on Color Management: Philosophy and Technology of Color Management. LOGO GmbH (GretagMacbeth).

This is the kind of book you would expect a German or Swiss color scientist to write. Despite that, it is actually quite readable. Sometimes at tradeshowes you can wrangle a copy from the GretagMacbeth booth. If you buy one of their nice products you ought to try to get the book thrown in as a bonus.



Surprising for a German professor: no bibliography, no index. Being a European book don't expect such handy reader-friendly features such as a glossary. Nonetheless this is essential reading and worth tracking down.

Contents

- Why Color Management?
- An Introduction to Colorimetry
  - The perception of color
  - Additive and subtractive color mixing
  - Color temperature and light source
  - The development of the CIE chromaticity diagram
  - The development of visually equidistant CIE color models
  - Color collections
  - The difference between color measurement devices
- Components of a Color Management System
  - Color space conversion
  - The four ICC rendering intents
  - What is an ICC color profile?
  - Developing ICC device profiles
  - The mechanisms of an ICC profile
  - The ICC standard
  - Other ICC compatible color profile formats
  - The color management module
  - The architecture of Apple ColorSync
  - LogoSync and other ICC color management modules
  - Ideal ICC compatible applications
- Calibration and profiling an input and output systems
  - Calibration of input and output systems
  - Monitor calibration
  - Calibration of digital color printing systems
  - Standardization of conventional prepress printing
  - Processing measurement data
  - Measurement conditions
  - Measurement geometry
  - Influencing the color target
  - Processing the measured data
  - Correcting print variations in individual prints

- Correcting print variations within a print run
- Updating the print run measurement data over an extended period of time
- Generating a master measurement file for different presses
- Correcting gradation variations
- Profiling input and output systems
- Profiling monitors
- Profiling scanners and digital cameras
- Output profiling
- Separation in a color management system
- Implementing color management today
  - Color management for Macintosh
  - Color management for Windows
  - Color management in PostScript
  - Data formats, PostScript, and BatchMatcher PS
  - Color management in the OPI server
  - Media independent image databases
  - PDF and color management
  - Color management in the World Wide Web
- Color management in Photoshop and QuarkXPress
  - Adobe Photoshop 4.0.x
  - Adobe Photoshop 5.x
  - ICC compatible plug-ins for Adobe Photoshop
  - QuarkXPress 3.3.x
  - QuarkXPress 4.0.x

**FIELD, Gary G.**

1999 Color and Its Reproduction. 2<sup>nd</sup> edition, GATFPRESS, Pittsburgh.

Has a lengthy glossary, albeit technical and not illustrated. However most of the concepts are illustrated in the book itself. If you prefer an illustrated glossary, most Agfa publications are actually in a glossary format – the whole Agfa booklet is a combination of text with illustrations but practically in glossary format.

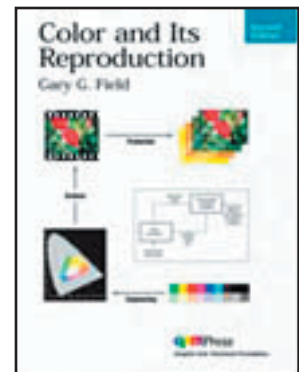
As you would expect for a book written by a color scientist, the GATF book has an extensive bibliography. The publishers also provide an ample index.

Books by GATFPRESS are written by color scientists for offset and related traditional press methods. Although these monographs do not include inkjet printing technology, the basic principals of color are the same. If you are a printer operator in any professional setting, it would be useful to peruse the various GATF publications. Find them at a library and then order the specific titles you feel you would like to keep. That is because out of the approximately four GATF titles, they naturally all tend to cover the same basic core material relative to offset printing color management.

It would be helpful for this class of color specialist to address the problems of inkjet color management. So far, the friendly folks at Chromaticity come the closest.

Contents

- Preface
- History of Color Reproduction
- Color Theory



Color Systems  
 Color Perception Fundamentals  
 Complex Image Color Perception  
 Color Measurement and Specification  
 Paper and Ink  
 Color Printing  
 Printing Systems Analysis  
 Color Originals  
 Color Reproduction Objectives and Strategies  
 Color Separation  
 Color Proofing  
 Color Communication  
 Color Quality Strategy  
 Appendix A: Symbols and Abbreviations  
 Appendix B: Color-Related Standards and Specifications  
 Appendix C: Color Difference Equations  
 Appendix D: Equations for Color Reproduction  
 Appendix E: Sources of Standards and Related Technical Information  
 Glossary  
 References

**FIELD, Gary**

2001 Color Essentials: Color and Quality for the Graphic Arts and Sciences, Vol. I. GATF.

Contents:

Color Reproduction Objectives  
 High-Fidelity Color  
 Gray (Color) Balance  
 Color Saturation  
 Color Halftoning  
 High-Resolution Color  
 Color Image Sharpness  
 Fifty Years of Color Scanning  
 Digital Color  
 Predicting Color Reproduction  
 Color Printing Quality



**FRASER, Bruce, MURPHY, Chris, and Fred BUNTING**  
 2002 Real World Color Management. Peachpit Press, Berkeley.

An excellent book which describes everything. Nice long descriptions, with plenty of illustrations and examples. Some chapters are veritable glossaries in themselves. However this is not a practical guide for the lost soul who just needs to know how to do linearization and custom profiles to get his/her colors right in the final inkjet print. 533 pages are simply too much for the average mortal. I have considerable interest in learning color management, but I fell by the wayside after about 350 pages.







Not that the book is bad, but that it explains too much detail about everything under the sun related to color management. In the process it neglects to walk the lost soul through what they have to do out in the print shop, starting at a print with an angry artist demanding to know why their inspirational colors in the original oil painting did not reproduce in the inkjet (giclee) print.

Includes an ample index, a useful 20 page glossary, but no bibliography. That's right, not a single solitary list of books, as though nothing else on the planet had ever been written on color management. Not any kind of references nor where else to find info. Within the text, books by other authors are cited from time to time. However a book on a technical subject with no bibliography is almost a contradiction of terms.

Still, we recommend this book as among the best available so far. The authors definitely know the material inside out.



**GIORGIANNI, Edward J. and Thomas E. MADDEN**

1998 Digital Color Management: Encoding Solutions. Prentice Hall.

If these are the people who invented the Kodak Photo CD system I just hope their book is less oriented to low-end, entry-level (which was the original intent of the Kodak Photo CD system). I also hope they don't push the same color scheme inflicted by Kodak Photo CD either. However since this book does discuss the dreadful Kodak Photo YCC scheme, if you have ever used a Kodak Photo CD, you need to get this book. Also be sure to read the book "Official Kodak Photo CD Handbook," by Peachpit Press. Out of print but worth getting via Interlibrary Loan.

Contents

- Foreword
- Preface
- Introduction
- Fundamentals
  - Measuring Color
  - Color-Imaging Systems
  - The Human Color-Imaging System
- The Nature of Color Images
  - Video Images
  - Reflection Images
  - Photographic Transparencies
  - Photographic Negatives
- Digital Color Encoding
  - Encoding Concepts
  - Densitometric Color Encoding
  - Colorimetric Color Encoding
  - Photo CD Color Encoding
  - Color-Encoding Data Metrics
  - Output Signal Processing
  - Myths and Misconceptions
- A Unified Color-Management Environment
  - Color-Management Paradigms
  - Unified Paradigm: Basic Properties
  - Unified Paradigm: Color Encoding
  - Unified Paradigm: A Prototype System



- Unified Paradigm: Color Interchange
- Unified Paradigm: Overall System Architecture
- Final Thoughts and Conclusions
- Appendices
  - Colorimetry
  - Densitometry
  - Photographic Media
  - Adaptation
  - Viewing Flare
  - PhotoYCC Color Space
  - Transformations for Color Interchange
- PhotoYCC Space to Prototype CES
- Prototype CES to Photo YCC Space
- PhotoYCC Space to YC(b)C(r)
- PhotoYCC Space to Cineon 522
- Prototype CES to FlashPix NIFRGB
- Photo YCC Space to FlashPix NIFRGB
- Glossary
- Recommended Reading



**GREEN, Phil**

1999 Understanding Digital Color. GATFPress.



**GretagMacbeth**

2002? ColorCookbook. Free download in PDF format from [www.i1color.com](http://www.i1color.com) (eyeOne abbreviated i1).  
Comes along with free animated training manuals.

Contents

- The Eye-One Color Cookbook
  - Device dependence
  - Device independence
  - Device color space
  - Device profile
  - Profile connection space
  - Device link profile
  - Modular color space conversion
  - Asymmetric color space conversion
  - Printer rendering intents
  - Black point compensation
  - Comparing measured colors
  - Recommended soft-proofing settings
- Eye-One ICC Scanner Profiles
  - Profiling color positive materials
  - Profiling non-ICC scanning systems
- Eye-One ICC Monitor Profiles
  - The RGB viewing space



- The RGB working space
- On-screen color consistency
- Scanner space and RGB working space
- The monitor-size RGB working space
- The all-purpose RGB working space
- Mac OS monitor profiles
- Matching black and white points
- Adobe Photoshop 6.0.1
  - Linking to the monitor profile
  - One-step soft-proofing
- Adobe Photoshop 5.5
  - Linking to the monitor profile
  - Two-step soft-proofing
- Adobe InDesign 1.5.2
  - Linking to the monitor profile
  - Two-step soft-proofing
  - File formats for soft-proofing
- Adobe Illustrator 9.0.2
  - Linking to the monitor profile
  - Soft-proofing limitations
- Adobe Acrobat 5.0
  - Linking to the monitor profile
  - Soft-proofing limitations

**HOMANN, Jan-Peter**

Color Management. Springer Verlag, Germany.

This English translation of this book has been stalled for almost two years. Evidently available in German original, 2000, Digitales Colormangement. Farbe in der Publishing-Praxis. Macintosh- und Windows-Version. Possibly finally published as of June 2003 but we have not yet seen a copy ourselves.

**JOHNSON, A. J.**

1998 *Guidelines for Choosing the Correct Viewing Conditions for Colour Publishing* 2nd edition [Pira International](#)

We have been unable to locate a copy of this book. It is no longer listed in the Pira web site.

**KELLY, Kenneth L, and Deane B. JUDD**

1955 The ISCC-NBS Method of Designating Colors and a Dictionary of Color Names. National Bureau of Standards Circular 553, U.S. Dept. of Commerce, Washington, D.C.

**Kornerup, A., and J.H. Wanscher, (1967).** *Methuen Handbook of Colour*. Second edition. Methuen Co., London. 243 pp and 30 two-page color plates.

**Munsell, Alfred H.**

1976 Munsell Book of Colors. Various editions; various titles over the years.

In the early 1900's Munsell developed a system for color notation that used numbers instead of illogical names such as passionate petunia. His book of colors has been standard reference at least since the 1950's. As an archaeologist and art historian I used Munsell color charts for years, to provide color designations for the colors of pre-Columbian art and artifacts. Even today, in the computer era, the Munsell color charts are still valid. A brief but helpful commentary on the Munsell system is available from [www.wikipedia.org/wiki/Munsell\\_color\\_system](http://www.wikipedia.org/wiki/Munsell_color_system). Munsell's position in color science is perhaps best realized by the fact that the Rochester Image of Science named their prestigious lab the "Munsell Color Science Laboratory." Munsell color charts are available today from GretagMacbeth.

**Ridgway, Robert**, (1912). *Color Standards and Color Nomenclature*. Washington, D.C., published by the author. 43 pp and 53 color pls.

Bibliographic information on Ridgway is from [www.colorsystem.com/projekte/engl/30ride](http://www.colorsystem.com/projekte/engl/30ride.htm). htm. Ridgway is the epidomy of elaborate descriptive names for colors. It was probably excessively idiosyncratic naming systems such as this that Munsell reacted against with a more systematic numerical nomenclature.

Considering that Ridgway was an ornithologist and lover of nature, he can perhaps be forgiven for his flowery names for colors such as Vinaceous Tawny. Ridgway colors were the standard in archaeological literature up to the 1930's. At least by the 1960's archaeologists had switched to the Munsell system.

**SHARMA, Abhay**

2003 Understanding Color Management. Delmar Publishers.

**TALLY, Taz and Glenn MARTIN**

Not yet Avoiding the Color Management Blues, Prentice Hall.

This book has been announced; then delayed, for two years. Word on the street is that there was a difference of opinion between the author and the publisher. Whatever the excuse, this title should be placed in the "vaporware" bin. Besides, now that the Bruce Fraser book is out you don't need to worry about most of the others. Although some web sites suggest the book has been available since July 2002, it is more likely to be obsolete unless it has been substantially updated during the years of delay.

**YULE, John A.**, update chapter by Gary Field

2001 Principles of Color Reproduction. GATFPress, Pittsburgh.

Contents

- Introduction
- Elementary Principles of Color
- Elementary Principles of Color Reproduction
- Masking Methods
- Tone Reproduction and Color Balance
- Spectral Sensitivities for Color Separation
- Inks and Papers
- Additivity and Proportionality of Densities
- Graphical Analysis of Color Correction
- Mathematical Analysis of Color Correction
- Four-Color Printing and the Black Printer



Color Scanners  
Moire Patterns  
Appendix A: Tables  
Appendix B: Calculations of Tristimulus Values  
Appendix C: Calculations of Colorimetric Quality Factor  
Appendix D: Calculations of Selected Ordinates  
Appendix E: The Neugebauer Equations  
Appendix F: Construction and Use of Spectroscope  
References  
Index

**X-Rite**

**1998 The Color Guide and Glossary. X-Rite, Inc., Grandville, Michigan.**

This booklet is free; we got ours from William Owens of X-Rite, fax (616) 534-5939. This is a glossary of color science; not a 'how to' booklet on color management. However it is worth getting ahold of so you can start to learn the terms. It is nicely illustrated.



Contents

- Color Communications
  - Understanding Color
  - The CIE Color Systems
  - Spectral Data vs. Tristimulus Data
- Color Management and Control
  - Instrumentation
  - Measurement in the Graphic Arts Workflow
  - Color Specification
  - Color Management
  - Color Formulation
  - Color Control
  - Color Verification
- Glossary

**Articles on Color Management**

**AMERICAN PRINTER MAGAZINE**

2001 Color Proofing: Handbook for the Graphic Arts. Part 2 of 2. American Printer Magazine, BRIDG'S: Basic Requirements for International Design & Graphic Solutions. Wheaton, IL.

Although only about 24 pages long, this booklet is packed with information on printers for proofing. Includes a brief but helpful glossary.

**BOURGOIN, Michael**

Introduction to Color Management Systems.

Michael Bourgoin is a color specialist at Adobe. Various papers and lectures by him are available on the Internet, such as [www.color.org/slidepres2003.pdf](http://www.color.org/slidepres2003.pdf).

**GRIFFIN, Jay**

2003 Color Management and Software Issues for Successful Digital Textile Printing. 6<sup>th</sup> Annual Digital Printing of Textiles Conference, IMI, Oct 2002, Palm Springs, California.

This is actually one of the better articles I have ever seen on ICC color profiles. It just happened to be presented at a digital-printing-of-textiles conference. A brief summary of the lecture is available from [www.techexchange.com/thelibrary/ColorProfile.html](http://www.techexchange.com/thelibrary/ColorProfile.html).

**ICC**

2001 ICC Color Management. International Color Consortium, PowerPoint presentation.

**Articles on Color Management in trade magazines**

The Big Picture Magazine and Digital Output are the two main trade magazines for wide format inkjet printing. They have something on color management at least once a year. Even when they are infomercials, at least you can see what is available. Also check the PrePress Bulletin for articles by Gary G. Field. The PrePress Bulletin is now retitled IPA.

There is not really a magazine specifically on scanning or scanners. Magazines on digital photography sometimes have articles on color management. Try Digital Capture magazine; it's new since last year.

**EADS, Andrew** (2002). Why its time to make time for color management. The Big Picture magazine, Jan/Feb 2002, pp. 48-57.

**HOWARD, Courtney E.** (2002). Profiling color management progress. Electronic Publishing, Feb. 2002, pp. 29-31.

**POWER-JONES, Shannon** (2002). Color Management 101. Digital Output, March 2002, pp. 24-27.

**RUFF, Mike** (2002). Selective GCR (Gray Component Replacement). Screen & Display Graphics magazine, Oct. 2002, pp. 30-33.

**Books on Digital Imaging or other subjects which have chapters on Color Management**

**JOHNSON, Harald**

2003 Mastering Digital Printing. Muska & Lipman, Cincinnati, OH 45208.

Written by a person with several decades of experience in fine art and printing. As moderator of an on-line fine art discussion group he is most likely exposed to about everything that end-users chat about on-line.

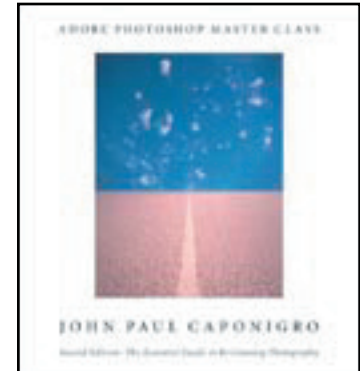
The book covers digital printing in general, so mentions dye sub, RGB laser light (Durst Lambda, Light-Jet), Fuji Pictography and inkjet, especially desktop size (13 x 19 inch). Covers primarily printing of photographs and art: this is not intended to be a book on solvent-ink printing of billboards.

**O'Quinn, Donnie** (2000) Print publishing: A Hayden shop manual. Indianapolis:Hayden Publishing.

This book on digital prepress has occasional comments on color spaces but is not a book specifically on color management at all.

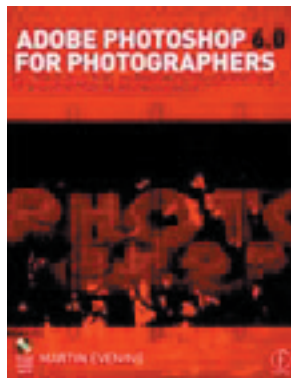
**Books on Adobe PhotoShop with chapters related to Color Correction**

Please recognize the total distinction between color management and color imaging. Color imaging means color correction, which implies tweaking, changing, altering, improving the color of your image. You can do color imaging primarily in Adobe Photoshop but also in some color management programs. Nonetheless, color imaging is not in and of itself, color management.



Color management is making colors transform from one device to another and be predictable (and hopefully the same) on each varying device. So if you have imperfect color, then color management will merely make all devices show the same imperfections, nicely as before.

Color management will not improve your color balance! Color management will not produce the colors your clients want! Color management is only intended to take the colors you already have and reproduce them faithfully no matter what printer, inks, or media you use.



The better books on Adobe PhotoShop cover color management, but each author has his/her own perspective. You really need to read several of the books since you don't necessarily want to depend on just one person's viewpoint.

**BLATNER, David and Bruce FRASER**  
2002 Real World Photoshop 7. Peachpit Press, Berkeley.

These authors are among the better known PhotoShop gurus. We hope to acquire this book shortly, at which point we will add comments on their coverage of color management. An earlier edition is available for Photoshop 6.

**CAPONIGRO, John Paul**  
2003 Adobe Photoshop Master Class, second edition: The Essential Guide to Revisioning Photography. Adobe.

The first edition was about one person's philosophy of PhotoShop as his vehicle for computer generated art; it is not really a book on PhotoShop in the traditional sense. Yet obviously this author knows color management and his comments on pp 24-25 are worth reading (first edition). However get the book at a library or on Inter-Library loan, it's not a reference book for your desk.

**DAVIES, Adrian and Phil FENNESSY**  
2001 Digital Imaging for Photographers. Focal Press: A division of Reed Educational and Professional Publishing Ltd



Although I find the Davies + Fennessy books recommendable, its section on color management is shunted to the back of the book as Chapter 9. However I would rather have everything else excellent and not much on color management since books on digital photography are tough to find whereas books on color management are now readily available.

### **EVENING, Martin**

2002 Adobe Photoshop 7.0 for Photographers. Focal Press.

An earlier volume is also available for Photoshop version 6, and a still earlier edition for one of the version 5's. This excellent book devotes the longest chapter in the book to color management, his Chapter 4 (in the edition we used for this review). Just remember, in inkjet printing, you want to keep your image in RGB; never in CMYK. Be sure absolutely never to change to CMYK and then back to RGB. If that happens, throw the file away and go back to an untouched RGB original.

Traditional prepress scanners will tend to auto-convert to CMYK. Never allow your scanner to auto-convert to CMYK. Most pre-press scanners convert to CMYK since that is what an offset press wants.

### **HAYNES, Barry**

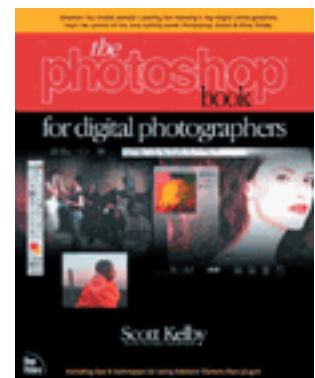
2002 Photoshop 7 Artistry: Mastering the Digital Image. New Riders Publishing, Indianapolis.

### **KELBY, Scott**

2003 The Photoshop Book for Digital Photographers. New Riders Publishing, Indianapolis.

#### Contents

- Start Me Up: Mastering the File Browser
- Cream of the Crop: Cropping and Resizing.
- Big Fix: Digital Camera Image Problems.
- Color Me Bad: Color Correction for Photographers.
- The Mask: Masking Techniques.
- Head Games: Retouching Portraits.
- Invasion of the Body Snatchers: Body Sculpting.
- 38 Special: Photographic Special Effects.
- Back in Black: From Color to Grayscale.
- Sharp-Dressed Man: Professional Sharpening Techniques.
- The Show Must Go On: Showing It to Your Clients.
- Contributing Photographers.
- Index





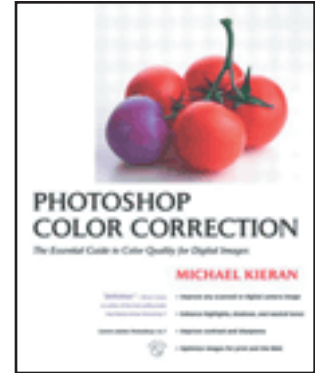
**KIERAN, Michael**

2002 Photoshop Color Correction. Peachpit Press, Berkeley.

Covers Photoshop 6 and 7. As soon as this book arrives we will comment on it further. But it appears that this book is for the pro; this is not a book intended for, or written for, beginners. Sorry.

Contents:

- Color Fundamentals.
- Color Management.
- Photoshop Tools.
- Highlights and Shadows.
- Neutral Tones.
- Contrast.
- Sharpening.
- Advanced Techniques.
- Appendixes.



**McCLELLAND, Deke**

2002 Photoshop 7 Bible. John Wiley & Sons.

The hardcover edition appears to be the “Professional Edition” which costs considerably more than the software regular edition. There is an earlier Macworld PhotoShop 6 Bible. Color management is described in his Chapter 16, which offers the basics. All the books in the “Bible” series are as thick as a Gideon Bible.

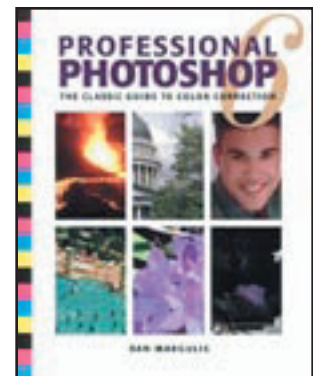
**MARGULIS, Dan**

1999 Professional Photoshop 6: The Classic Guide to Color Correction. John Wiley & Sons, New York.

2002 Professional Photoshop. The Classic Guide to Color Correction. Updated for Photoshop 7. John Wiley & Sons, New York.

His sub-title says it all, color, but correcting it. His excellent book is dedicated to showing you how to rescue either a lousy scan of an average photo or a good scan of a terrible original photo.

If you do a good job with your scanning or digital photograph you will never have to use his book ever. If all your photographs are digital, you will never have to scan. If all your digital photos are flawless out of the camera, you won't need to correct for bad color.



This book is also available in an edition for version 7 of PhotoShop. His writing style is very individualistic; he lists color management under calibration. Considering his entire book is on color, this is a good book to buy. Just realize he works primarily in CMYK and you want to stick with RGB. His workflow can be applied to RGB in most instances. Just remember that color correction in Adobe PhotoShop is what you do before you enter the realm of color management.



Be sure you also get a hold of Martin Evening's book for a different approach. There are many schools of thought. To fully master Photoshop you need to know all the styles of working with Photoshop, of which Margulis is the leader in one style, a style not favoring ICC color profiles. Margulis expects his devotees to work by the numbers. That implies too much memory space in the brain of an average mortal, so we skip learning by the numbers and just try to get as much inspiration from Margulis's philosophy as we can bear.

### Contents

- Preflight: What Shall We Do with This Image?
- Color Correction By the Numbers.
- The Steeper the Curve, The More the Contrast.
- Sharpening with a Stiletto.
- Plate Blending as Poetry.
- Inferences, Illusions, and When to Bet the Image.
- In Color Correction The Key Is the K.
- RGB Is CMY.
- HSB Is LAB.
- Friend and Foe In Black and White.
- All Color spaces Are One.
- Making Things Look Alike.
- Managing Separation And Color Settings.
- The Great Dot Gain Gamble.
- Resolving the Resolution Issue.
- Changing the Rules After the Cards Are Dealt.
- Friend and Foe in Color.
- Every File Has Ten Channels.

### **RICH, Jim**

2001 Photoshop 6 Color Companion. GATFPress, Pittsburgh.

Has an excellent glossary. Rich's first two books on Photoshop were on Photoshop in black and white. In "...Color Companion" he tackles color relative to Adobe Photoshop software.

This book could potentially be subtitled, "Photoshop for Offset Printing & Proofing," because the entire first portion of the book is devoted to color management. The author is a consultant in that crucial field. Offset printing implies a CMYK workflow. Wide format inkjet printing is an RGB workflow. Even though the printer prints with CMYK inks, the RIP and driver software prefer to receive the file in RGB.



### Contents

- Introducing the basics of the powerful new Photoshop
- Photoshop 6: a new imaging adventure for novices and pros alike.
- Getting your feet wet: your first masterpiece.
- Understanding Photoshop's new color management system.
- Optimizing your workspace: Photoshop preferences.
- Introducing image formats, image modes, and color capability.
- Acquiring Photoshop images.
- Outputting your Photoshop work.



- Enhancing productivity: automation and other cool tools.
- Digging deeper into the treasure chest.
  - Selecting in Photoshop: ah, the many ways to select stuff.
  - Building images layer by layer.
  - Painting with pen and path selection tools.
  - Introducing shapes: someplace between paths and selections.
  - Creating special effects with type.
- Exploring the cool stuff.
  - Color correcting and exposure: basic image improvement.
  - Repairing an heirloom photo.
  - Finding (and fixing) mistakes in pictures.
  - Using the clone stamp tool, image selection, and distortion.
  - Making the impossible look plausible: surrealistic Photoshop.
  - Saving the day with Photoshop and a scanner.
  - Mixing 3D graphics with photographs.
  - Using a boatload of native Photoshop filters.
  - Working with type.
- Introducing imageready:
  - Optimizing images for the web.
  - Creating image maps and instant web galleries.
  - Creating rollovers and animations.
- Closing thoughts.
  - Here's where the path divides
  - Appendix: The inside Adobe Photoshop 6 CD-ROM.

### **ROMANIELLO, Steve**

2002 Photoshop 7. Sybex, San Francisco.

This is part of the Sybex "Savvy" series.

This book has quite a bit on color management. Like most other books on Adobe PhotoShop, this is heavy in discussion of artistic effects, but Romaniello is a serious and known personage in digital imaging and clearly has plenty of practice.

### **Final comments**

Obviously there are dozens of other books on Adobe Photoshop. We review some of them in our course on digital photography. But the reason we single out the books by Kelby, Kieran, Margulis, and Rich is because they are dedicated to color correction aspects of Adobe Photoshop, rather than using that software to create masterpieces by cropping out the head of an iguana and placing it on the body of a mule to create "art."

### **Resources on the Internet**

[www.creativepro.com/story/feature/14331.html](http://www.creativepro.com/story/feature/14331.html)

Article by Bruce Fraser walks you through calibration

[www.aim-dtp.net/aim/calibration/monitor\\_calibration/monitor\\_calibration.htm](http://www.aim-dtp.net/aim/calibration/monitor_calibration/monitor_calibration.htm)

Good definition of monitor gamma.

[www.aim-dtp.net/aim/](http://www.aim-dtp.net/aim/)

Information from "Accurate Image Manipulation."

[www.cctlmonitors.com/icc\\_profiles.html](http://www.cctlmonitors.com/icc_profiles.html)

Informative site about ICC color profiles.

[www.dpreview.com/reviews/colorvisionmonitorspyder/](http://www.dpreview.com/reviews/colorvisionmonitorspyder/)

Practical discussion by Phil Askey of ColorVision Spyder for monitor calibration.

[www.drycreekphoto.com/Learn/monitor\\_calibration.htm](http://www.drycreekphoto.com/Learn/monitor_calibration.htm)

Electronic form of GretagMacbeth ColorChecker, so you can compare it on your monitor to the real thing and useful comments on various optional color measurement tools for calibrating your monitor

<http://epaperpress.com/monitorcal/>

Information on monitor calibration.

[www.ephotozine.com/techniques/viewtechnique.cfm/recv/12](http://www.ephotozine.com/techniques/viewtechnique.cfm/recv/12)

Good step-by-step explanation, based on using your ColorSync system within any recent Apple computer and comments on differences between Mac and PC approach to monitor calibration.

[www.jasc.com/monitor1.asp](http://www.jasc.com/monitor1.asp)

Precise information about targets.

[www.photo.net/bboard/q-and-a-fetch-msg?msg\\_id=003zIG](http://www.photo.net/bboard/q-and-a-fetch-msg?msg_id=003zIG)

Difference between calibration and profiling.

<http://users.erols.com/fward/calibrate.html>

Information on monitor calibration.

[www.viewsonic.com/support/calibration\\_check.cfm](http://www.viewsonic.com/support/calibration_check.cfm)

Help calibrating a Viewsonic monitor.

### Sources and Resources on the Internet

[http://64.78.37.127/pdf/Article\\_Formulabs\\_August.PDF](http://64.78.37.127/pdf/Article_Formulabs_August.PDF)

"The Language of Color" Annette Groscup, Formulabs, Inc

[www.adobe.com/support/techguides/color/cms\\_glossary/W.html](http://www.adobe.com/support/techguides/color/cms_glossary/W.html)

This glossary was no longer at this path in October 2003.

[www.adobe.com.au/print/tips/phs7inkjet/main.html](http://www.adobe.com.au/print/tips/phs7inkjet/main.html)

Adobe, color management, inkjet printers.

[www.adobe.co.uk/print/features/smithsonian/main.html](http://www.adobe.co.uk/print/features/smithsonian/main.html)

Photographing fine art paintings for Smithsonian Magazine.

[www.aim-dtp.net/aim/calibration/middle\\_gray/index.htm](http://www.aim-dtp.net/aim/calibration/middle_gray/index.htm)

Explains 18% gray card and Kodak Q-13 color chart and gray scale.

[www.aip.org/tip/INPHFA/vol-7/iss-3/p16.pdf](http://www.aip.org/tip/INPHFA/vol-7/iss-3/p16.pdf)

Information on digital color in general.

[http://americanprinter.com/ar/printing\\_color\\_management/](http://americanprinter.com/ar/printing_color_management/)

Bill Owens, X-Rite, on color management.

[www.apple.com/colorsync/](http://www.apple.com/colorsync/)

Essential reading, on color management especially if you have a Macintosh. Most Mac enthusiasts do not realize that today's Windows software has the same color management ingredients as Mac's beloved Color Sync, namely from Linocolor. Yes, the core of ColorSync is not from Apple, it is from the German company Linocolor (part of Heiderlberg). So all Windows had to do was license the same core.

[www.apple.com/creative/resources/color/](http://www.apple.com/creative/resources/color/)

Mac-centric but still has tidbits of useful information.

[www.apple.com/creative/resources/color/4camera.html](http://www.apple.com/creative/resources/color/4camera.html)

Useful for profiling digital cameras: which is what you are after.

[www.apple.com/creative/resources/color/4camera.html](http://www.apple.com/creative/resources/color/4camera.html)

Very brief, with doses of Mac-centric PR.

[www.arrach.com/ps6\\_tips\\_colormanage1.htm](http://www.arrach.com/ps6_tips_colormanage1.htm)

Color management, tips and tutorials.

[www.barcoview.com/gotopage.asp?page=prepress.asp](http://www.barcoview.com/gotopage.asp?page=prepress.asp)

Nicely illustrated on color management.

[www.brucelindbloom.com/](http://www.brucelindbloom.com/)

Color reference images; more than just Macbeth ColorChecker.

[www.cameraprofiles.com](http://www.cameraprofiles.com)

The web site of Integrated Color Corporation, the makers of ColorEyes 20/20.

[www.chromix.com](http://www.chromix.com)

A place that sells ColorThink for peeking inside ICC color profiles. Chromix also sells ColorEyes for digital cameras.

[www.cis.rit.edu/fairchild/PDFs/CAM1.pdf](http://www.cis.rit.edu/fairchild/PDFs/CAM1.pdf)

"Color Appearance Models: An Overview," about 80 PowerPoint pages as PDF, by Mark Fairchild. Unfortunately in B&W not in color.

<http://cit.dixie.edu/vt/reading/gamuts.asp>

Colorful supplemental reading on color gamuts.

[www.cldigital.com/ScheweNotesLowRes.pdf](http://www.cldigital.com/ScheweNotesLowRes.pdf)

25 informative pages by Jeff Schewe, highly acclaimed photographer who often serves as a success story for Adobe, Apple, and Epson.

[www.color.com/default.asp](http://www.color.com/default.asp)

Commercial web site for ColorBlind software.

[www.color.org](http://www.color.org)

Web site of the International Color Consortium, ICC, Filled with potential information.

[www.color.org/info\\_profiles2.html](http://www.color.org/info_profiles2.html)

The word straight from ICC itself.

[www.color.org/profile.html](http://www.color.org/profile.html)

Helpful "Information on Profiles" with links to additional assistance.

[www.colorspectrum.com/support/tutorials/cmpl/ICCINFO.asp](http://www.colorspectrum.com/support/tutorials/cmpl/ICCINFO.asp)

Links to sites filled with info on color management

[www.colorremedies.com/articles.html](http://www.colorremedies.com/articles.html)

Has articles on

- Managing Color in Photoshop 6
- Top 10 Color Management Pros/Cons
- The Intro Series (to ColorSync and ICC-based color management)

[www.colorremedies.com/articles/Top10CMProsCons.pdf](http://www.colorremedies.com/articles/Top10CMProsCons.pdf)

Nice basic statements by an ICC believer, Chris Murphy

[www.colorsavvy.com/](http://www.colorsavvy.com/)

Commercial web site for their products; has one page of helpful information, a definite must read. Realize that they evidently do not sell direct; their products are rebranded and sold by others.

[www.colorsavvy.com/Products/Learn/Calibration.htm](http://www.colorsavvy.com/Products/Learn/Calibration.htm)

“Overview of Calibration.”

[www.colorsystem.com/projekte/engl/30ride.htm](http://www.colorsystem.com/projekte/engl/30ride.htm)

Brief bibliography of Robert Ridgway, author of a 1912 book on color system nomenclature.

[www.computer-darkroom.com/](http://www.computer-darkroom.com/)

Ian Lyons on scanning, Photoshop, color management, and more.

[www.computer-darkroom.com/incamera-pi/incamera-pi.htm](http://www.computer-darkroom.com/incamera-pi/incamera-pi.htm)

User review of Pictographics inCamera 3.1.

[www.computer-darkroom.com/editlab/editlab\\_1a.htm](http://www.computer-darkroom.com/editlab/editlab_1a.htm)

Pictographics iCorrect EditLab 3.0.

[www.creativepro.com/story/feature/11132.html?origin=story](http://www.creativepro.com/story/feature/11132.html?origin=story)

“Out of Gamut: Color-Correct Vocabulary,” a brief glossary by Bruce Fraser.

[www.creativepro.com/story/feature/11132.html](http://www.creativepro.com/story/feature/11132.html)

Brief glossary of color management by Bruce Fraser.

[www.creativepro.com/story/review/1796.html](http://www.creativepro.com/story/review/1796.html)

Bruce Fraser article on OptiCal, dated 1999

[www.creativepro.com/story/feature/14331.html](http://www.creativepro.com/story/feature/14331.html)

Part of an excellent article by Bruce Fraser on color management from monitor onwards.

[www.creo.com/documents/color\\_management\\_guide.pdf](http://www.creo.com/documents/color_management_guide.pdf)

Brief, illustrated, color management guide for Creo equipment.

[www.cs.rit.edu/~ncs/color/t\\_convert.html](http://www.cs.rit.edu/~ncs/color/t_convert.html)

“Color Conversion Algorithms,” in case you need technical data. But I like this for its succinct definitions of different ways to show or define color.

[www.designjet.hp.com/Manuals/Eiffel/en/c000-1.htm](http://www.designjet.hp.com/Manuals/Eiffel/en/c000-1.htm)

Tutorial from HP on color management for inkjet printers, especially 10ps, 20ps, and 50ps.

<http://desktoppub.about.com/cs/colorcalibration/>

Lists about ten sources on ICC color profiles, color management, for desktop publishing; I would bet that many of these links go to sites and pages filled with useful information on color management.

<http://desktoppub.about.com/cs/iccprofiles/>

Links for tons of stuff on ICC color profiles.

[www.digitaldog.net/tips.html](http://www.digitaldog.net/tips.html)

List of PDFs on a wide variety of topics, color management, resolution, product reviews, etc.

[www.digitalmastery.com/companionsite/magazine/psuser18.pdf](http://www.digitalmastery.com/companionsite/magazine/psuser18.pdf)

Color Management in Photoshop 6.0, Ben Willmore.

[www.digitalmediadesigner.com/2001/07\\_jul/features/lemaui/lemaui-page1.htm](http://www.digitalmediadesigner.com/2001/07_jul/features/lemaui/lemaui-page1.htm)

“Large Format, Big Color Management,” by Bob McIntosh.

[www.digitaloutput.net/back%20edit/apr02/dphoto.html](http://www.digitaloutput.net/back%20edit/apr02/dphoto.html)

Review of Monaco products.

[www.digitaloutput.net/back%20edit/edittopic2g.html](http://www.digitaloutput.net/back%20edit/edittopic2g.html)

“Color Management: No Pain, No Gain,” by Joe Luter. Brief, no illustrations.

[www.dl-c.com/Color%20Management.pdf](http://www.dl-c.com/Color%20Management.pdf)

“Color Management,” PDF by Jonathan Sachs, 1999-2000, 43 pages. Discusses color management in Windows operating system. Sachs is a knowledgeable writer, from Digital Light & Color.

[www.graphintel.com/downloads/FAQEpsonDriver.pdf](http://www.graphintel.com/downloads/FAQEpsonDriver.pdf)

“Profiling RGB Printers” with GretagMacbeth software, from the Graphic Intelligence Agency.

[www.helios.de/support/manuals/PDFH-e/pdfh-html/Output/Anhang1.html](http://www.helios.de/support/manuals/PDFH-e/pdfh-html/Output/Anhang1.html)

Color transformation via Lab.

[www.imagingspectrum.com/cgi-local/SoftCart.exe/icc\\_color\\_management.html?L+scstore+ffgh2368f928f92+1014709495](http://www.imagingspectrum.com/cgi-local/SoftCart.exe/icc_color_management.html?L+scstore+ffgh2368f928f92+1014709495)

At the bottom of this page are three movies on color management using ColorVision color management products.

[www.imagingspectrum.com/Images/profile\\_tools.pdf](http://www.imagingspectrum.com/Images/profile_tools.pdf)

Presents official Kodak PR on their ICC profile solution, “ColorFlow ICC Profile Tools.”

[www.informit.com](http://www.informit.com)

The actual page path is too long to include here. The article in question is by Wendy Crumpler, et al, from the publisher New Riders. There are various articles, such as “Color Spaces, Device Characterization, and Color Management in Photoshop 7” from the book “Photoshop 7 Artistry.

[www.ipa.org/pdf/bulletin/JF03colormgt.pdf](http://www.ipa.org/pdf/bulletin/JF03colormgt.pdf)

“Color Management: What Press Operators Need to Know,” by Larry Warter, Fuji Photo Film, IPA.

[www.kodak.com/global/plugins/acrobat/en/professional/products/cameras/digitallySpeaking.pdf;jsessionid=ZG2O5SZVBDD43QHIO3JXWIY](http://www.kodak.com/global/plugins/acrobat/en/professional/products/cameras/digitallySpeaking.pdf;jsessionid=ZG2O5SZVBDD43QHIO3JXWIY)

Kodak booklet, “Digitally Speaking: Questions, Answers, Understanding the language of digital photography.”

[www.lexjet.com/lexjet/color\\_mgt\\_tools.asp?](http://www.lexjet.com/lexjet/color_mgt_tools.asp?)

Helpful info from a helpful wide format inkjet media company.

[www.lexjet.com/lexjet/photoshop\\_6.asp](http://www.lexjet.com/lexjet/photoshop_6.asp)

This page lists all the articles within the LexJet site on color management and related topics including resolution.

[www.macworld.com/2001/03/07/reviews/calibrators.html](http://www.macworld.com/2001/03/07/reviews/calibrators.html)

Very short but helpful.

[www.macworld.com/2002/05/reviews/one-eye.html](http://www.macworld.com/2002/05/reviews/one-eye.html)

Bruce Fraser article on GretagMacbeth Eye-One

[www.matrixcolor.com/color/links.htm](http://www.matrixcolor.com/color/links.htm)

List of links to color management information

[www.microsoft.com/windowsxp/digitalphotography/gopro/fixit/colormanagement.asp](http://www.microsoft.com/windowsxp/digitalphotography/gopro/fixit/colormanagement.asp)

Color management seen from the world of Windows XP

<http://minerva.education.ucsb.edu/~john/CS290a/CMM.pdf>

"Overview of Digital Color Management & Encoding Methods" 12 PowerPoint pages in PDF format.

[www.mpressdigital.com/ColorSync.pdf](http://www.mpressdigital.com/ColorSync.pdf)

Nice brief discussion of Apple ColorSync for PageMaker, InDesign, QuarkXpress, Illustrator, but for Photoshop only version 5.5.

[www.nebulus.org/tutorials/2d/photoshop/color/index.html](http://www.nebulus.org/tutorials/2d/photoshop/color/index.html)

Nicely illustrated on Color in Photoshop.

[www.normankoren.com/color\\_management.html](http://www.normankoren.com/color_management.html)

On-line information on color management by prolific photographer-write Norman Koren.

[www.nyu.edu/its/pubs/connect/archives/98spring/galantercolor.html](http://www.nyu.edu/its/pubs/connect/archives/98spring/galantercolor.html)

1998 is a bit dated, but you can still learn something from any good material.

[www.onyxgfx.com/article1.html](http://www.onyxgfx.com/article1.html)

"Success Story," using Onyx RIP for fine art prints.

[www.parallab.uib.no/SGI\\_bookshelves/SGI\\_Developer/books/CirMgmtSys/cgi\\_html/go01.html](http://www.parallab.uib.no/SGI_bookshelves/SGI_Developer/books/CirMgmtSys/cgi_html/go01.html)

Brief glossary of color management; no illustrations.

[www.parallab.uib.no/SGI\\_bookshelves/SGI\\_Developer/books/CirMgmtSys/cgi\\_html/index.html](http://www.parallab.uib.no/SGI_bookshelves/SGI_Developer/books/CirMgmtSys/cgi_html/index.html)

"Coloratura Programmer's Guide." Has some useful, albeit technical, info. Hard to tell how old this is.

[www.picto.com](http://www.picto.com)

Commercial site for Pictographics.

[www.peimag.com/pdf/pei00/pei1000/schewepei1000.pdf](http://www.peimag.com/pdf/pei00/pei1000/schewepei1000.pdf)

Information on the development of Adobe PhotoShop version 6, by Jeff Schewe.

[www.poynton.com/PDFs/Sun\\_Color\\_Mgmt.pdf](http://www.poynton.com/PDFs/Sun_Color_Mgmt.pdf)

Has some helpful definitions.

[www.praxisoft.com/pages/buy.html](http://www.praxisoft.com/pages/buy.html)

Discusses an excellent but sometimes little known color management software, including for digital cameras.



[www.praxisoft.com/files/PS6\\_Color\\_Management.pdf](http://www.praxisoft.com/files/PS6_Color_Management.pdf)

Includes a wide range of Andrew Rodney's articles are available from this Praxisoft site. The list of Rodney's articles is also on [www.praxisoft.com/pages/workshop.started.html](http://www.praxisoft.com/pages/workshop.started.html).

[www.praxisoft.com/files/advances\\_in\\_digital\\_color.pdf](http://www.praxisoft.com/files/advances_in_digital_color.pdf)

"Advances in Digital Color Management Software Control Color and Profits," by Robert Eversole.

[www.rit.edu/~nxspph/cms/labs/](http://www.rit.edu/~nxspph/cms/labs/)

Various and miscellaneous, includes some on digital photography.

[www.rit.edu/~nxspph/courses/cms/labs/camera.pdf](http://www.rit.edu/~nxspph/courses/cms/labs/camera.pdf)

Walks you through establishing a digital camera profile with Kodak profiling software.

[www.rgbnet.co.uk/ilyons/incamera/incamera.htm](http://www.rgbnet.co.uk/ilyons/incamera/incamera.htm)

A review of Pictographics inCamera Professional 3 software for profiling digital cameras.

[www.rgbnet.co.uk/ilyons/optix/optix\\_1.htm](http://www.rgbnet.co.uk/ilyons/optix/optix_1.htm)

Review of MonacoOPTIX monitor calibration system, by Ian Lyons.

[www.rgbnet.co.uk/ilyons/ps7-colour/ps7\\_1.htm](http://www.rgbnet.co.uk/ilyons/ps7-colour/ps7_1.htm)

Color management in Adobe PhotoShop 7, by Ian Lyons

Spanish version is available on [www.gusgsm.com/html/01ps7.html](http://www.gusgsm.com/html/01ps7.html).

[www.rgbnet.co.uk/ilyons/ione/ione-1.htm](http://www.rgbnet.co.uk/ilyons/ione/ione-1.htm)

Review by Ian Lyons of GretagMacbeth Eye-One

[www.rgbnet.co.uk/ilyons/ps7\\_print/ps7\\_print\\_mac.htm](http://www.rgbnet.co.uk/ilyons/ps7_print/ps7_print_mac.htm)

Managing color when printing with PhotoShop 7 by Ian Lyons.

[www.rioh-red.com/support/color/applic/c-applic.htm](http://www.rioh-red.com/support/color/applic/c-applic.htm)

Color tips for color laser printers and color copiers.

[www.rit.edu/~nxspph/cms/labs/](http://www.rit.edu/~nxspph/cms/labs/)

Various and miscellaneous, includes some on profiling digital cameras.

[www.seminars.apple.com/business/digitalimaging/learn.html](http://www.seminars.apple.com/business/digitalimaging/learn.html)

Apple seminars on digital photography: we have not attended so can't judge yet.

[http://seminars.seyboldreports.com/1998\\_san\\_francisco/EckhardHuebnerDCam.pdf](http://seminars.seyboldreports.com/1998_san_francisco/EckhardHuebnerDCam.pdf)

Heidelberg has not survived well in the digital millennium. They failed with flatbed scanners; they failed with drum scanners; they failed with digital cameras. And unfortunately they failed with ICC profile software for digital cameras too. They had a potentially good solution, but were unable to market it. This 1998 report, albeit aged, is worth reading if you have to profile a digital camera.

[www.tasi.ac.uk/advice/creating/targets.html](http://www.tasi.ac.uk/advice/creating/targets.html)

On color and resolution targets; lens resolution, not pixel resolution.

[www.theimagingfactor.com](http://www.theimagingfactor.com)

They sell a variety of Photoshop add-ons, including color correction tools for white balance, white point, and other aspects.

[www.westcoastimaging.com/wci/page/services/colorprint/epson9600photo/9600%20softproof/BillAtkinsonProfiles.pdf](http://www.westcoastimaging.com/wci/page/services/colorprint/epson9600photo/9600%20softproof/BillAtkinsonProfiles.pdf)

Profiles for Epson 9600 by Bill Atkinson.

[www.wikipedia.org/wiki/Munsell\\_color\\_system](http://www.wikipedia.org/wiki/Munsell_color_system)

Brief but good description of the Munsell color system.

[www.yarc.com/colortut.htm](http://www.yarc.com/colortut.htm)

Brief, but nicely illustrated. Although Yarc itself disappeared as a RIP company years ago, this web page seems to be frozen in time and was still on the Internet a year ago.

### PDF Downloads from the Internet on Color Management

Many of the items on the Internet are more sophisticated than a mere web page; these are available in PDF format. We list a few here.

The following two Fuji items are only if you are interested specifically in a FujiFilm workflow. The other PDFs here cover more general interests and should be acquired for sure.

#### **FAIRCHILD, Mark**

Color Appearance Models: An Overview.

[www.cis.rit.edu/fairchild/PDFs/CAM1.pdf](http://www.cis.rit.edu/fairchild/PDFs/CAM1.pdf)

#### **FujiFilm Electronic Imaging Ltd.**

2001 Colour Management, Technical White Paper. FujiFilm Electronic Imaging Ltd., 16 page PDF report, downloadable from [www.colorprofiling.com](http://www.colorprofiling.com).

#### **FujiFilm Electronic Imaging Ltd.**

2002 2003 ICC Colour Management Applications Workshop. FujiFilm Electronic Imaging Ltd., 40 page PDF report, downloadable from [www.colorprofiling.com](http://www.colorprofiling.com).

#### **IMAI, Francisco Hideki, N. Tsumura, H. HANEISHI, and Y. Miyake**

Prediction of color reproduction for skin color under different illuminants based on the color appearance models.

[www.mi.tj.chiba-u.jp/~tsumura/Tsumura/papers/JIST97\\_imai2.pdf](http://www.mi.tj.chiba-u.jp/~tsumura/Tsumura/papers/JIST97_imai2.pdf)

A bit technical but has some informative historical notes on origin of Cie Lab color system.

#### **KING, James C.**

Various titles, dates, from Adobe. Available to be downloaded from various web sites including from [www.color.org/info\\_profiles2.html](http://www.color.org/info_profiles2.html).

#### **LAWLER, Brian**

1999 The ColorSync Technology Brief. Downloadable from several web sites including from [www.thelawlers.com/ClearingHouse.html](http://www.thelawlers.com/ClearingHouse.html)

#### **McDowell, David**

Various titles, various dates, various aspects of ICC profiles, downloadable from [www.color.org/info\\_profiles2.html](http://www.color.org/info_profiles2.html).

**RODNEY, Andrew**

Various titles related to Adobe Photoshop, color management, and WiziWYG from Praxisoft, various dates, on [www.praxisoft.com/files/advances\\_in\\_digital\\_color.pdf](http://www.praxisoft.com/files/advances_in_digital_color.pdf).

**Issue Date**

First issued about September 2003. Substantially updated during October 2003, adding all the references and bibliographies present in various individual FLAAR reports on color management. Those lists of references had grown to the point that we felt it more practical to list them all alphabetically in a single place. The impetus for this dedication to forming a comprehensive bibliography on color management was attending a 3-day program on color management where the list of suggested reading was helpful, but meager. Since we already had the lists of pertinent articles and web sites, we felt it would be useful to publish this information so everyone could have it.

**Citing and Crediting**

The material in this report is not only copyright, it is also based on years of research. Therefore if you cite or quote a pertinent section, please provide a proper credit, which would be minimally "Nicholas Hellmuth, year, [www.FLAAR.org](http://www.FLAAR.org)." If the quote is more than a few words then academic tradition would expect that a footnote or entry in your bibliography would reference the complete title. Publisher would be [www.FLAAR.org](http://www.FLAAR.org).

If you intend to quote any portion of a FLAAR review in a PowerPoint presentation, if this is in reference to any product that your company sells or promotes, then it would be appropriate to license the report or otherwise notify us in advance. FLAAR reports are being updated every week sometimes, and our comment on that product may have been revised as we learned more about the product from end users. Also, we noticed that one company cited the single favorable comment we made on one nice aspect of their printer, but neglected to cite the rest of the review which pointed out the features of the printer which did not do so well. For them to correct this error after the fact is rather embarrassing. So it is safer to ask-before-you-quote a FLAAR review on your product.

**Legal notice**

Inclusion in this study by itself in no way endorses any printer. Equally, exclusion from this study in no way is intended to discredit any printer. The same is true for the RIP, ink and media choices.

**Advisory**

We do our best to obtain information which we consider reliable. But with so many diverse makes and models of color management tools, software, printers, and sometimes when information about them is sparse, or conflicting, we can only work with what we have available. Thus you should be sure to rely also on your own research, especially asking around. Find another end user of the color management software or tools you need to know about. Do not make a decision solely on the basis of a FLAAR report because your situation may be totally different than ours. Or we may not have known about, and hence not written about, one aspect or another which is crucial before you reach your decision.

The sources and resources we list are those we happen to have read. There may be other web pages or resources that we missed. For those pages we do list, we have no realistic way to verify the veracity of all their content. Use your own common sense plus a grain of salt for those pages which are PR releases, outright ads, or infomercials.

We are quite content with the majority of the specific printers, RIPs, color management solutions, media, and inks we have in the two FLAAR facilities at the two universities. We would obviously never ask for hardware, software, or consumables that we knew in advance would not be good. However even for us, a product which looks good at a tradeshow, sounds good in the ad literature, and works fine for the first few weeks, may subsequently turn out to be a lemon.

Equally often, what at first might be blamed on a bad product, usually turns out to be a need of more operator experience and training. More often than not, after learning more about the product it becomes possible to produce what it was intended to produce.

But we can't guarantee or certify any make or model nor its profitability in use because we don't know the conditions under which a printer system might be utilized in someone else's facility. As a result, products are described "as is" and without warranties as to performance or merchantability, or of fitness for a particular purpose. Any such statements in our reports or on our web sites or in discussions do not constitute warranties and shall not be relied on by the buyer in deciding whether to purchase and/or use products we discuss because of the diversity of conditions, materials and/or equipment under which these products may be used. Thus please recognize that no warranty of fitness or profitability for a particular purpose is offered.

The user is advised to test products thoroughly before relying on them. We do not have any special means of analyzing chemical contents of inks, media, or laminates, nor how these need to be controlled by local laws in your community. There may well be hazardous chemicals, or outgassing that we are not aware of. The user must assume the entire risk of ascertaining information on the chemical contents of inks, media or laminates as well as using any described hardware, software, accessory, service, technique or products.

We have no idea of your client's expectations relative to color management. What students on our campus will accept may not be the same as your Fortune 500 clients. In many cases we have not ourselves used the products but are basing our discussion on having seen them at a tradeshow, during visiting a print shop, or having been informed about a product via e-mail or other communication. Tradeshow are idealized situations, with full-time tech support to keep things running. The same equipment may not work as well in your facility as we, or you, see it at a tradeshow. All the more reason to test before you buy; and keep testing before you make your final payment. Your ultimate protection is to use a gold American Express credit card so you can ask for your money back if the product fails.

Heat, humidity, dust, experience level of your workers (whether they are new or have prior years experience): these are all factors that will differ in your place of business as compared with our two universities.

Actually you may have people with even more experience than we do, since we deliberately use students to approximate newbies. FLAAR is devoted to assisting newcomers learn about digital imaging hardware and software. This is why Nicholas Hellmuth is considered the "Johnny Appleseed" of wide format inkjet printers.

Therefore this report does not warranty any product for any quality, performance or fitness for any specific task, since we do not know the situation in which you intend to use the hardware or software. Nor is there any warranty or guarantee that the output of these products will produce salable goods, since we do not know what kind of ink or media you intend to use, nor the needs of your clients. You will most likely need a color management system which implies color measurement tools and software. To handle ICC color profiles, you may need ICC color profile generation software and color measurement tools since often the stock pre-packaged ICC color profiles which come with the ink, media, printers and/or RIPs may not work in your situation. Not all RIPs handle color management equally, or may work better for some printer-ink-media combinations than for others.

Be aware that some RIPs can only accept ICC color profiles: you quickly find out the hard way that you can't tweak these profiles nor generate new ones. So be sure to get a RIP which can handle all aspects of color management. Many RIPs come in different levels. You may buy one level and be disappointed that the RIP won't do everything. That's because those features you may be lacking are available only in the next level higher of that RIP, often at considerable extra cost. Same thing in the progression of Chevy through Pontiac to Cadillac, or the new Suburbans. A Chevy Suburban simply does not have all the bells and whistles of the Cadillac version of this SUV.

Don't blame us... besides, that's why we are warning you. This is why we have a Survey Form, so we can learn when you find products that are inadequate.

Be aware that some inks have severe health hazards associated with them. Some are hazardous to breathe, others are hazardous if you get them on your skin. And most inks are clearly not intended to be consumed. Obviously these tend to be solvent inks and UV-curable inks. Yet other inks are edible, seriously, they are printed on birthday cakes. Indeed Sensient is a leader in a new era of edible inks.

Just remember that every machine has quirks, even the ones we like. It is possible that the particular kind of images, resolution, inks, media, or other factors in your facility are sufficiently different than in ours that a printer which works just fine for us may be totally unsatisfactory for you and your clients. However it may be that the specific kind of printing you need to do may never occasion that shortcoming. Or, it may be that your printer was manufactured on a Monday and has defects that are atypical, show up more in the kind of media you use which we may not use as often or at all during our evaluations. Equally possibly a printer that was a disaster for someone else may work flawlessly for you and be a real money maker for your company.

In some cases a product may work better on a Macintosh than on a PC. Software may function well with one operating system yet have bugs and crash on the same platform but with a different operating system. Thus be sure to test a printer under your own specific work conditions before you buy.

You absolutely need to do print samples with your own images and the kind provided by your clients. Do not rely on the stock photos provided by the printer, ink, media, or RIP manufacturer or reseller. They may be using special images which they know in advance will look fabulous on their printer. Equally well, if you send your sample images to the dealer, don't be surprised if they come back looking awful. That is because many dealers won't make a serious effort to tweak their machine for your kind of image. They may use fast speed just to get the job done (this will result in low quality). Check with other people in your area, or in the same kind of print business that you do. Don't rely on references from the reseller or manufacturer (you will get their pet locations which may be unrealistically gushy): find someone on your own.

Another option is to bring your images on a CD disk to the FLAAR facility at BGSU. Here you can test your images on an Iris 3047 giclee printer (Ixia version), Mimaki JV4 (with textile inks for silk), either of two ColorSpan printers (DisplayMaker XII, Mach 12, HP 5000 (essentially same quality as the HP 5500 which is primarily faster). We also have a Canon W7250, Epson 5500, Epson 7600, HP 120nr and the HP 20ps. If you are curious to see your images on a color laser, we have 13 x 19inch color output available on a QMS-Minolta 6110. Such a visit is treated as a consultation which implies a 1-day minimum consulting fee plus the ink and media used.

Although we have found several makes and models to work very well in our facilities, how well they work in your facilities may also depend on your local dealer. Some dealers are excellent; others just sell you a box and can't provide much service after the sale. Indeed some low-bid internet sales sources may have no technical backup whatsoever. If you pay low-bid price, you can't realistically expect special maintenance services or tech support later on from any other dealer (they will tell you to return to where you paid for the product). This is why we make an effort to find out which dealers are recommendable. Obviously there are many other dealers who are also good, but we do not always know them. To protect yourself further, always pay with a level of credit card which allows you to refuse payment if you have end up with a lemon. A Gold American Express card allows you to refuse payment even months after the sale. This card may also extend your warranty agreement in some cases (check first).

Most of the readers of the FLAAR Reports look to see what printers we use in our own facilities. Readers realize that we will have selected the printers that we like based on years of experience and research. Indeed we have met people at trade shows who told us they use the FLAAR web site reports as the shopping list for their corporate purchases.

Yes, it is rather self-evident that we would never ask a manufacturer to send a product which we knew in advance from our studies was no good. But there are a few other printers which are great but we simply do not have them in our facilities yet. For example there are three Mimaki printers we would love to have (their flatbed, their newest textile printer, their new UV-curable ink printer)

We would definitely like to have a Gradco Mammoth (flatbed up to 3 inches). Would like to evaluate an Encad NovaJet 880 to print on thick material (up to half an inch if I remember correctly).

When Roland finally comes out with an 8 color version of Epson's 10000 printhead generation which offers 32 passes, wider than Epson's 44 inch limit and no banding whatsoever (if that is possible) that would be the ultimate fine art giclee printing factory. But since that printer does not yet exist, the art students on our campus use our HP DesignJet 5000ps, newly arrived HP 5500ps and ColorSpan Mach 12. The art department does museum exhibits and wins awards with the output.

We are also interested in the Western Graphtec cutter-printer with eight heads (their new model as of year 2001).

So if a printer is not made available by its manufacturer, then there is no way we can afford to have all these makes and models in our facility. Thus to learn about models which we do not feature, be sure to ask around in other print shops, with IT people in other corporations, at your local university or community college. Go to tradeshows....but don't use the booth...ask questions of people in the elevator, in line at the restaurant, anywhere to escape the smothering hype you get in the booth.

Taking into consideration we do not know the conditions in which you may be using your hardware, software, or consumables, neither the author nor FLAAR nor either university is liable for liability, loss or damage caused either directly or indirectly by the suggestions in this report nor by hardware, software, or techniques described herein because.

## Acknowledgements

Fortunately the two universities cover most of the operating costs of FLAAR on their campus. Thus we do not really have much incentive to pocket hush money from producers of lousy products nor special funding from companies who make the better products. We feel that the pros and cons of each product speak more than adequately for themselves. Just position the ad claims on the left: put the actual performance results on the right. The unscrupulous hype is fairly evident rather quickly.

With 20 employees the funding has to come from somewhere, so although the universities cover the core expenses, we do

welcome sponsorship, grants, and project-oriented funding from manufacturers. Fortunately, our budget is lean and cost effective as you would expect for a non-profit research institute. As long as we are not desperate for money we can avoid the temptation to accept payment for reprinting corporate PR hype. So the funding is used for practical research. We do not accept (nor believe) and certainly do not regurgitate corporate PR. For example, how many manufacturer's PR photos of their products have you seen in our reports or on our web sites?

Besides, it does not take any money to see which printers function as advertised and which don't. We saw one hyped printer grind to a halt, malfunction, or otherwise publicly display its incapacities at several tradeshow in a row. At each of those same tradeshow another brand had over 30 of their printers in booths in virtually every hall, each one producing museum quality exhibits. Not our fault when we report what we see over and over and over again. One of our readers wrote us recently, "Nicholas, last month you recommended the ..... as one of several possible printers for our needs; we bought this. It was the best capital expenditure we have made in the last several years. Just wanted to tell you how much we appreciate your evaluations...."

We thank ColorSpan, Hewlett-Packard, Parrot Digigraphic, Canon, Scarab Graphics, ITNH, and ProVar LLC for providing funding for technology training for the FLAAR staff and our colleagues at Bowling Green State University and Universidad Francisco Marroquin. Grant funds from these companies are also used to improve the design and appearance of the web sites of the FLAAR Information Network. We thank Canon, ColorSpan and HP for providing wide format printers to the two universities where FLAAR does research on wide format digital imaging. We thank Epson America for providing a printer to our facilities at Francisco Marroquin University and Parrot Digigraphic for providing two different models of Epson inkjet printers to our facilities at BGSU. We thank Mimaki USA for providing a JV4 and then a Mimaki TX-1600s textile printer and Improved Technologies (ITNH) providing their Ixia model of the Iris 3047 giclee printer. We thank GretagMacbeth for providing an EyeOne for our university in Guatemala and X-Rite for providing a DTP41uv for use at Bowling Green State University.

We thank 3P Inkjet Textiles and HP for providing inkjet textiles so we could learn about the different results on the various textiles. IJ Technologies, 3P Inkjet Textiles, ColorSpan, Tara, Encad, HP, Nan Ya Pepa, and other companies have provided inkjet media so we can try it out and see how it works (or not as the case may be; several inkjet media failed miserably, one from Taiwan, the other evidently from Germany!). We thank Aurelon, ColorGate, ColorSpan, HP, PerfectProof, PosterJet, Onyx, Ilford, ScanvecAmiable, Wasatch and many other RIP companies for providing their hardware and software RIPs.

We thank Dell Computers for providing awesome workstations for testing RIP software and content creation with Adobe Photoshop and other programs. We also appreciate the substantial amount of software provided by Adobe. As with other product loaned or provided courtesy of ProVar LLC (especially the 23" monitors which makes it so much easier to work on multiple documents side by side).

We really liked some of the results whereas some of the other products were a bit disappointing. Providing samples does not influence the evaluations because the evaluators are students, professors, and staff of Bowling Green State University and Francisco Marroquin University. These personnel are not hired by any inkjet printer company; they are universities employees (as is also true for Nicholas Hellmuth). The testing person for the HP ColorPro (desktop printer) said he frankly preferred his Epson printer. When we saw the rest results we did not include this Hewlett-Packard ColorPro printer on our list of recommended printers, but we love our HP DesignJet 5000ps so much we now have two of them, one at each university.

Some of the media provided to us failed miserably. Three printers failed to meet common sense usability and printability standards as well (HP 1055, one older desktop model, and one Epson). Yet we know other users who had better results; maybe ours came down the assembly line on a Monday or Friday afternoon, when workers were not attentive. One costly color management software package was judged "incapable" by two reviewers (one from the university; second was an outside user who had made the mistake of buying this package).

So it's obvious that providing products or even a grant is no shield from having your products fail a FLAAR evaluation. The reason is clear: the end user is our judge. The entire FLAAR service program is to assist the people who need to use digital imaging hardware and software. If a product functions we find out and promulgate the good news. If a product is a failure, or more likely, needs some improvement in the next generation, we let people know. If a product is hyped by what an informed user would recognize as potentially false and misleading nonsense, then we point out the pathetic discrepancies very clearly.

This is what you should expect from an institute which is headed by a professor.

Actually, most of our reviews are based on comments by end users. We use their tips to check out pros and cons of virtually every product we discuss. You can't fool a print shop owner whose printer simply fails to function as advertised. And equally, a sign shop owner who earns a million dollars a year from a single printer brand makes an impact on us as well. We have multiple owners of ColorSpan printers tell us that this printer is their real money earner for example. We know other print shops where their primary income is from Encad printers. Kinkos has settled on the HP 5000 as its main money maker production machine, and so on.



Yet we have documentation of several print shop companies whose business was ruined by specific brands that failed repeatedly. It is noteworthy that it is always the same two brands: one due to banding and printheads then simply no longer printing one color; the other brand due to pokiness of the printer simply not being competitively fast enough.

Grant funding, demonstration equipment, and training are supplied from all sides of the spectrum of printer equipment and software engineering companies. Thus, there is no incentive to favor one faction over another. We receive support from three manufacturers of thermal printheads (Canon, ColorSpan and HP) and also have multiple printers from two manufacturers of piezo printers (Epson and Mimaki). This is because piezo has definite advantage for some applications; thermal printheads have advantages in different applications. Our reviews have universal appeal precisely because we feature all competing printhead technologies. Every printer, RIPs, inks, or media we have reviewed have good points in addition to weaknesses. Both X-Rite and competitor GretagMacbeth provided spectrophotometers. Again, when all sides assist this program there is no incentive to favor one by trashing the other. Printer manufacturer ad campaigns are their own worst enemy. If a printer did not make false and misleading claims, then we would have nothing to fill our reviews with refuting the utter nonsense that is foisted on the buying public.

It is not our fault if some printers are more user friendly, print on more media than other brands. It is not our fault that the competing printers are ink guzzlers, are slow beyond belief, and tend to band or drop out colors all together. We don't need to be paid by the printer companies whose products work so nicely in both our universities on a daily basis. The printers which failed did so in front of our own eyes and in the print shops of people we check with. And actually we do try to find some redeeming feature in the slow, ink gulping brands: they do have a better dithering pattern; they can take thick media that absolutely won't feed through an HP. So we do work hard at finding the beneficial features even of printers are otherwise get the most critique from our readers. Over one million people will read the FLAAR Information Network in the next 12 months; 480,000 people will be exposed to our reports on wide format printers from combined total of our three sites on these themes. You can be assured that we hear plenty of comments from our readers about which printers function, and which printers fail to achieve what their advertising hype so loudly claims.

We turn down offers of funding every month. These offers come from PO Box enterprises or products with no clearly visible point of manufacture. Usually the company making the offer presumes they can buy advertising space just by paying money. But that is not what our readers want, so we politely do not accept such offers of money.

Grant funding is, however, open to a company who has an accepted standing in the industry. It is helpful if the company has a visible presence at leading tradeshows and can provide references from both end users and from within the industry. Where possible we prefer to visit the company in person or at least check them out at a tradeshow. Obviously the product needs to have a proven track record too. Competing companies are equally encouraged to support the FLAAR system. We feel that readers ought to have access to competing information. Competition is the cornerstone of American individualism and technological advancement.

FLAAR also covers it's costs of maintaining the immense system of 12 web sites in three languages and its two university facilities in part by serving as a consultant such as assisting inkjet manufacturers learn more about the pros and cons of their own printers as well as how to improve their next generation of printers. FLAAR also serves as consultants to Fortune 500 companies as well as smaller companies and individuals who seek help on which printers to consider when they need digital imaging hardware and software.

A modest portion of our income comes from our readers who purchase the FLAAR series. All income helps continue our tradition of independent evaluations and reviews of inkjet printers, RIPs, media, and inks.

<a href="http://www.wide-format-printers.org">www.wide-format-printers.org</a>	<a href="http://www.fineartgicleeprinters.org">www.fineartgicleeprinters.org</a>	<b>CLICK HERE TO VIEW EACH FLAAR NETWORK SITE</b>
<a href="http://www.digital-photography.org">www.digital-photography.org</a>	<a href="http://www.flatbed-scanner-review.org">www.flatbed-scanner-review.org</a>	
<a href="http://www.laser-printer-reviews.org">www.laser-printer-reviews.org</a>	<a href="http://www.cameras-scanners-flaar.org">www.cameras-scanners-flaar.org</a>	<a href="http://www.large-format-printers.org">www.large-format-printers.org</a>
<a href="http://www.FLAAR.org">www.FLAAR.org</a>	<a href="http://www.ctpid.ufm.edu.gt">www.ctpid.ufm.edu.gt</a>	<a href="http://www.wide-format-printers.NET">www.wide-format-printers.NET</a>

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