RECENT POSTS

The Best Battery Jumper: Update to the Update, and I Promise This is the Last of This

UPDATE: Auto Emergency Preparedness! Or, O Happy Day

Be of Good Cheer (OT)

Breakage

If You Want to Be a Portraitist...

The Writing Life (OT)

Mystery Couple

Elliott Has Left the Building

'Tish' and 'Lee'

Old Enough to Vote

+ SPONSORS

RESOURCES

About Us

The Old Site

Advertising information

Comment Guidelines

Publisher's Statement

Contact

« Permanence and Impermanence | Main | Ctein in Minneapolis »

Thursday, 07 October 2010

# A Perfunctory Guide to Converting Photographic Film to Digital Prints, Part I

By **Ctein**

Too commonly I hear photographers engage in segregation by medium. Many are convinced that it's impossible to obtain satisfactory digital prints from photographic film. Or, conversely, satisfactory traditional (a.k.a. darkroom a.k.a. analog) prints from digital files. Neither happens to be true. In fact, many accomplished printers are successfully "coloring outside the lines." I will go so far as to say that in the hands of a skilled printer, a better print can often be made from film digitally than can be made in the darkroom unless one takes extraordinary measures. For some photographs, digital printing will exceed the very best darkroom prints. (I define success by how well the print serves the artist's intent. Spec-comparing and pixel-peeping are not part of that equation.)

As a long-standing dye transfer printer, I work with those very-best prints. In my rather informal and certainly not objective statistical sample, about half the time I think my digital prints are just as artistically successful as my dye transfer prints, although they look extremely different. About one third of the time the dye transfer prints are clearly superior. The remaining one sixth of the time, the digital prints come closer to fulfilling my artistic intentions than the dye transfer prints do. Considering that dye transfer is at the pinnacle of color darkroom processes, that's remarkable. Conventional color darkroom printing doesn't come close.

Even in the realm of black-and-white printing, digital holds its own. The ability to precisely control characteristic curve shapes with programs like Photoshop and Picture Window makes a huge difference in the tonal qualities of black-and-white prints. In broad terms, you can match any black-and-white film and darkroom paper combination that has ever existed. It may take you trial and error to get there, but it's entirely doable. My Alcoa Building photograph (below) is a good example. The density range of a good modern digital print on semigloss or gloss paper is not markedly different from that of a well made darkroom print. (If you're printing on matte papers, that's an entirely different matter, and you may have to give them up or get to be very, very good at printing). In the extreme, an exceptionally well-made black-and-white darkroom print may convey a longer density range than a digital print, but the far more precise and complete control over tonal placement in digital usually trumps that hand.

The negative languished in my files for over 30 years, after the darkroom paper that I needed to get it to print just right was discontinued. Last year I successfully printed this negative again...digitally. The print is better than the best darkroom print I'd ever been able to make.

That said, achieving these kind of results in digital prints is not easy nor always straightforward, and it requires paying attention to myriad details that may be unfamiliar to the traditional printer. Broadly speaking, the digital printing process can be divided into three steps: scanning the film to produce a raw digital file, manipulating that file in a program like Photoshop to obtain precisely the aesthetic results one wants, and successfully rendering that result on print paper. Obviously a short tutorial cannot tell you how to make masterful prints. It took me many years of my life to learn how to do that, and the methodologies would fill a book (which I may write some day). This relatively short series, though, will set you on the right course and help you avoid many of the more obvious pitfalls.

***Scanning***

Do get a dedicated film scanner. It is rare for a flatbed scanner to offer scan quality anywhere near as good as that produced by a proper film scanner, no matter what the printed specifications may suggest.

PORTALS

Support Sustain Contribute via Patreon

SEARCH

Google

WWW
T.O.P.
Google Search

CATEGORIES

Around the Web (220)
Baker's Dozen (50)
Blog Notes (563)
Bon Mots (10)
Book of the Week (15)
Books (521)
Camera Reviews (138)
Cameras, new (775)
Cameras, old (252)
Carl Weese (23)
Collecting (53)
Computers (91)
Ctein (370)
Digital Techniques (72)
Eamon Hickey (2)
Editing and Portfolios (75)
Exhibits (84)
Film and Darkroom (127)
Followups (147)
From the Archives (38)
Geoff Wittig (2)
Gordon Lewis (15)
Interviews (7)
Jim Hughes (31)
John Camp (8)
John Kennerdell (17)
Ken Tanaka (11)
Kirk Tuck (8)
Legal and social issues (112)
Lenses (316)
Mini-Portfolios (5)
Morning Coffee (32)
Music Notes (105)
News and Occasions (472)
Obituaries (81)
Off-topic posts (488)
Open Mike (336)
Oren Grad (1)
Past Blasts (23)
Peter Turnley (66)
Photo equipment (343)
Photo industry (169)
Photo-tech (221)
Photographers, current (240)
Photographers, historical (163)
Photographic aesthetics (219)
Photography businesses (26)
Photojournalism (85)
Polls (16)
Print Offers (260)
Printers and Printing (169)
Quote o' the Day (95)
Random Excellence (246)
Random Snaps (123)
Reader Prints (7)

Scanning film, especially negative film, is very straightforward in principle. People most often get into trouble when they try to get too "clever" about their scanning, hoping to divine some magical trick. The purpose of scanning should simply be to capture as much data as possible from the original film in a form that is easily manipulated on the computer. Choose scanner settings that will catch the longest density range in the film, hopefully everything from the deepest shadows through the brightest highlights (this can frequently be done with a not-excessively-expensive scanner), at as high a resolution as is practical, and in as linear a form as is possible.

Aesthetically, such a scan will not look good: it will look flat, low in contrast and/or color saturation, and it will in no way make a good print by itself. Effectively, it is a digital negative. But, that's what you want to start off with.

Finding the scanner settings that allow capturing the maximum density range is a matter of trial and error. Every scanner software package behaves differently. You certainly want to do your scans in 16-bit-per-channel mode. You will need all that extra data later. Whether you scan the film as a negative or slide, whether you set the scanner in "linear" mode or not, these are matters that depend upon the particular make and model of scanner and software. There is not an obvious answer that I can give you except to try different modes and see which one captures the longest total density range. In some cases you will find that your scanner captures a longer density range from the film if you scan a negative as a slide, so don't be afraid to give this a try.

I'll pick this up next week with further comments on film scanning and some remarks about what a big win digital image manipulation is.

*Ctein*

*Ctein's regular weekly TOP column appears on Thursday, usually in the morning.*

**Posted on Thursday, 07 October 2010 at 12:28 PM in Ctein, Printers and Printing | Permalink**

**Unique contents copyright © 2010 by Ctein and the commenters**

**Comments**

"Do get a dedicated film scanner."

Well I hear what you say, but dedicated film scanners that will handle medium format are extremely expensive. I've seen some superb results from Epson flatbeds coupled with bespoke negative holders and third-party software.

**Posted by: Chris Bertram | Thursday, 07 October 2010 at 12:45 PM**

That's a beautiful photograph Ctein! I'm curious about the long curved specular reflection on the building. Was there a break in the clouds behind you when you took it? It is very unique in that it cuts across both faces of the building.

I'm looking forward to reading more about scanning as I have many dense color slides and B&W that have been waiting years for a good scanning solution.

**Posted by: Jeremy | Thursday, 07 October 2010 at 01:29 PM**

Hi,

In the 2nd paragraph there is a small incorrection. I'm sure you meant to say 2/3 of the time: «The remaining one sixth of the time, the digital prints come closer to fulfilling my artistic intentions». One sixth of the time would be equal to 16,6%!

Looking forward for the next chapters!

**Posted by: Paulo Pascoal | Thursday, 07 October 2010 at 01:35 PM**

I'd definitely be interested in any book you write on printing.

I currently have a flatbed scanner. Can you recommend a dedicated film scanner?

Thanks,

Mark

**Posted by: Mark Olwick | Thursday, 07 October 2010 at 01:37 PM**

I never found a scanner doing a good job with a setting to negative when scanning B&W negatives, the only way I get good results is to go 'Slide', and then invert in Photoshop.

These days one could also use a good digital camera with macro lens to copy the negative. The advantage is that the RAW file is much smaller then the 16 bit TIFF version, and is at least as good. In CS5 you can even make a positive within the RAW workflow, but you need CS5 itself to make it really shine.

**Posted by: Eduard de Kam | Thursday, 07 October 2010 at 01:40 PM**

Digital prints - never!

**Posted by: cb | Thursday, 07 October 2010 at 01:42 PM**

"The print is better than the best darkroom print I'd ever been able to make."

Recommended Cameras (14)
Reflections (198)
Reruns (19)
Roger Overall (2)
Sarge (1)
Satire Alert! (25)
Shooting Skills and Camera Handling (6)
Shooting techniques (157)
Software (75)
Sunday Support Group (73)
TOP contests (6)
TOP's Own Books (10)
Visual Culture (270)
Websites and links (141)
Weekend Exercises (5)
Workshops (19)
Your Turn (9)

**ARCHIVES**

December 2023
November 2023
October 2023
September 2023
August 2023
July 2023
June 2023
May 2023
April 2023
March 2023

More...

Ctein - My big question there is "why is it better?" or "what makes it better?". I'm still not clear on what makes one print better than another, other than the easy to recognize things like completely blocked shadows, blown out whites, or poor sharpness (when all of those are unintentional). Is that what you're talking about?

**Posted by: David Bostedo** | Thursday, 07 October 2010 at 01:44 PM

Good topic - but except for flatbed and very high end there's not much choice of scanner (and not a good spares situation for used)- how about using a copy set-up, macro or enlarging lens and dslr?
Danny

**Posted by: Danny** | Thursday, 07 October 2010 at 01:54 PM

Ctein- that's the most thoroughly generalized, and accurate, tutorial on film scanning ever!

**Posted by:** Stan B. | Thursday, 07 October 2010 at 02:08 PM

Dear Ctein;
This is a post most film users are going to benefit tremendously from! Do we have to wait till next week for more!!!!
When you´ve completed these set of posts may I suggest another set of posts in the opposite direction:
A Perfunctory Guide to Converting Digital Images to Photographic Film Look.
Paul

**Posted by:** Paul | Thursday, 07 October 2010 at 02:10 PM

Wow, I'm looking forward to this! I've switched to film after getting fed up with the tiny viewfinders on DSLR's and ended up with a Mamiya RZ67 which finally gives me the view I want. I develop my own B/W, but I haven't done any darkroom printing yet (and to be honest, it doesn't interest me that much either).
Do you have any suggestions about the scanner? I'm not at all familiar with dedicated scanners, I know the Nikon 9000 has a really good reputation, but that's about it... (I'm using a lowly Epson V500 which was all I could afford, but there's a decent dedicated scanner at school I can use...)

**Posted by:** raccou | Thursday, 07 October 2010 at 02:13 PM

I think I'll enjoy this series, Ctein. For reasons not entirely rational I'm shooting a bit more film than usual these days. Unfortunately, *I hate scanning*. A savvy judge sentencing me for conviction would send me to serve years scanning film, my version of Dante's Inferno. It seems like having to take the same picture twice...with the "second" usually sucking. Yes, I can hire a goggle-eyed scan master but the expense seems unwarranted.

So I'm always looking for useful tips on scanning although, surveying the books on the subject on my desk and the number of tip-links in my browser hot list I have to admit...that I rarely find any. Most of the stuff is little more than self-evident drivel. So I eagerly anticipate you breaking this dismal uninformative streak for me.

p.s. Did I mention that *I hate film scanning*? Oh, good.

**Posted by:** Ken Tanaka | Thursday, 07 October 2010 at 02:51 PM

It's only a flatbed, but FWIW, on a Canon 8400F using the stock CanoScan driver v4.9, the setting for positive color film (slides) seems to capture significantly more range than any setting for negative film. I think it's far less processed than the other settings.

However, the resulting TIFF can be so flat that I sometimes find it difficult to get, say, a classic pushed 35mm BW look. For that kind of stuff, the default negative setting actually makes life easier (I now consider it a "pushed" setting).

**Posted by: robert c** | Thursday, 07 October 2010 at 03:06 PM

Hi Ctein - do you scan a lot of negatives regularly, and what scanner(s) do you use? I'm looking forward to your next article, because my own experience of scanning is that it is anything but simple - I'm hoping for some useful suggestions to help me with my workflow.

**Posted by:** Richard | Thursday, 07 October 2010 at 03:47 PM

I would agree wholeheartedly with your summation, I was a very late convert to the digital age. My friends had long given up the negative whilst I was happily shoving HP5+ delta or triX through my cameras.

I always developed my own film for two reasons firstly cost and secondly whenever I tried labs the negs would invariably come back with minute marks on them or worse tram lines.

It also of course enabled me to experiment with the tried and tested developers available. I loved Rodinal and perceptol the former as it was so cheap but delivered lovely acutane the perceptol made the HP5+ glow it was stunning combination.

Scanning via the wonderful minolta 5400 and into CS3/4 was my initial entry into the digital age, it was like being given the keys to the proverbial sweet shop..the finesse you can bring to bear on the scan in PS is impossible to replicate within the conventional wet darkroom, think eyes on a portrait.

I have printed for more years than I care to remember and considered myself a good printer, I have had numerous fine art prints sold and to a degree do miss the almost therapeutic feeling I had whenever I printed. Yes it could be frustrating but it is such a tactile experience and I never lost the excitement of seeing the image appear.

That said moving into the "lightroom" was a revelation, dodging, burning in, contrast changes, toning, could be made so much more easily and with such a degree of control that I could never have achieved via a conventional wet darkroom. And consistently some might consider that aspect a negative.

You also allude to those really difficult negs we all have tucked away,too thin, too dense, under/over exposed those you really struggled with, hey presto the magic of scan and PS enables those demons to be exercised.

I would also add that I have used the epson V750 flatbed scanner and have been amazed at the quality it produced, it was to my eye as good as the scan I achieved via the minolta, so I certainly wouldn't dismiss using them.

Sadly my use of film has declined due to using my Olympus and glorious ricoh..do I miss film? Yes on occasion, but they are fleeting moments. I personally see the Ricoh GR Digital 3 I use as a latter day leica, remember when 35mm film was viewed as not proper film.

Over to you.

**Posted by:** Martin Yeates | Thursday, 07 October 2010 at 04:03 PM

---

Good advice, as always, Ctein. I'd add one more suggestion when scanning film and that is to turn off all sharpening in the scanner, if possible.

**Posted by:** Rob Reiter | Thursday, 07 October 2010 at 04:05 PM

---

"In broad terms, you can match any black-and-white film and darkroom paper combination that has ever existed."

I'm sure that's correct. On the other hand, I've heard it said that "museums and galleries currently don't like to accept hybrid inkjet prints for sale."

I would guess that both statements are accurate, so seemingly here's an interesting theoretical issue: make the best print (digitally) or an almost-as-good print (darkroom). In my case, since my last darkroom print was made around 2001 I guess that I'm out of the museum and gallery business. But I don't have to worry, because there aren't any museums or galleries clamoring for my work.

**Posted by:** Mike Mundy | Thursday, 07 October 2010 at 04:08 PM

---

So this book you may someday write, where can I preorder it?

**Posted by:** ben | Thursday, 07 October 2010 at 04:49 PM

---

Ctein,
sure, if the neg is less than perfect digital scanning/printing can make getting a good result easier, but at least in monochrome when the neg is good the wet print can really sing. I scan and print for my regional galleries and museums here in australia and have done for years and under glass I agree with you, but hold a wet print in the hand and to me the inkjet will always look like a squirt print, the simple problem being the image is on the surface not IN the paper like a good silver print. Whilst writing I have to winge about Ilford's gold fibre silk inkjet paper, how can a company that makes beautiful silver paper think this looks anything like silver paper, it's beyond a joke it's so bad, the surface texture is appalling and exaggerates the 'on the surface' problem.
Lastly I find wet monochrome printing done properly far faster than digital printing done properly. And in colour I still prefer the look of a good Cibachrome, shame it's such a bugger to get right.
Mark

**Posted by:** mark lacey | Thursday, 07 October 2010 at 05:22 PM

---

In my limited experience, scanning software is generally good at driving the scanner, and horrible for everything else. Just a linear scan, with the film base not quite black, and no highlights are blown out (even a mid-end flatbed has more dynamic range than most negatives; slides may be different). Then use other software to process the negative. But usually, just adjusting contrast with a sigmoid, then shifting brightness with a gamma setting will get you 99% there with most negatives.

And while the V700 I use is marginal for 35mm, it is plenty for medium format. Which is a good thing, as the only available dedicated film scanner for 6x6 or above is the Coolscan 9000, which is just north of "you have got to be kidding" in price. I know of at least one professional photographer that uses a V700 for the files he submits to clients. He's still in business so it can't be all bad.

**Posted by:** Janne | Thursday, 07 October 2010 at 05:41 PM

---

For a topic such as this where the technology is subject to change, I am not sure a book is the best delivery method. A paid subscription service with periodic updates would be a better medium. (That is, a printed book may not be the best way to study the art of negative printing.)

Alex

Posted by: Alex Vesey | Thursday, 07 October 2010 at 06:06 PM

What paper was it that the Alcoa Building neg printed perfectly on?

Voltz

Posted by: V.I. Voltz | Thursday, 07 October 2010 at 06:11 PM

"The ability to precisely control characteristic curve shapes with programs like Photoshop and Picture Window makes a huge difference in the tonal qualities of black-and-white prints."

It doesn't get much publicity but Picture Window Pro is a very powerful photo editing tool. It's also cheap with excellent support.

Posted by: Ian Macdonald | Thursday, 07 October 2010 at 07:12 PM

As others have noted, this is a topic of great interest. I started photography (as a serious hobby, as in learning what f-stop and ISO actually meant) in 2005 with a Canon 350D. I had no desire to return to film, and, now knowing the pertinence of ISO, I wondered how film folks managed all those years with effectively just one choice...and no histogram! Nevertheless, for a variety of reasons (affordable rangefinder, Daido Moriyama grain, etc), in early 2008, I picked up a Bessa rangefinder and a Nikon Coolscan V ED while in Tokyo. Although I still intended to use the 350D (for the majority of shots), my first scan of Tri-X forced the 350D and digital into early retirement.

I have never been in a darkroom, and admittedly, when film traditionalists argue that one shouldn't bother shooting film unless they produce a wet print, I have little to argue, except this. My basis of comparison was not between wet print and inkjet, but between digital monochrome conversions and scanned negatives, and the latter was palpably superior to me (subjectivity noted). As for inkjet versus wet print, perhaps the silver halide prints benefit from a certain depth and tonality; but I am not really in a position to comment at this stage (I only do black & white, even though, perhaps ironically, color inkjets seem to render better).

Even if wet prints are the best, it's not going to happen for logistical reasons, at least not yet. Plus, I really enjoy using curves in Photoshop, maybe some burn/dodge brushes. I processed hundreds of digital files before picking up a film camera, so it's very natural, and I question what control I would have in the darkroom. I still admire the darkroom printers, and I've seen too many gorgeous wet prints at museums and such to demand better, let alone replacement. Yet, it's reassuring to hear from Ctein and others on here that scanning negatives is not only not blasphemous, but possibly even advantageous! Yes, I still have a lot of work on my side, but that challenge is exciting within itself. Looking forward to future articles on the subject.

To note, currently use Vuescan with the Nikon to convert to RAW file. Then use Photoshop ACR to stretch out tonal spectrum before saving as PDS and using curves. Master file is unsharpened. Sharpen while making prints or batch sharpen for web postings...for what its worth.

Negatives professionally developed, but I'll start doing this soon on my own...still nervous about this aspect.

Posted by: sjones | Thursday, 07 October 2010 at 07:17 PM

"A paid subscription service with periodic updates would be a better medium. (That is, a printed book may not be the best way to study the art of negative printing.)"

I think I agree...a series of video tutorials would make the whole thing easier to update incrementally, plus be flexible in terms of how information is presented. (Computer screenshots, video, stills with voiceover, etc.) I've been enjoying Lynda.com lately. It seems like a good way to learn. 2- to 5-minute videos where you can pick what you want to look at.

The downside risk is prolixity, which can be a weakness of video tutorials. In a book you can skim, and skip knowing where you were and where you went; if you don't find what you want it's easy to go back and look for it. In video presentations, not so easy. Videos don't have to reinforce, because people can go back and watch them again. But it's really tough to skip ahead because you don't know what you'll be missing in the material you skipped.

Mike

Posted by: Mike Johnston | Thursday, 07 October 2010 at 07:56 PM

Yummy! Love the subject despite I haven't shot any film in 5 years. After reading an article on the internet about film making a come back, not say&rumors but through real numbers compiled from worldwide sales, I came to the conclusion that what film needs to make a triumphal return is more available cheaper and better medium and large format scanners. (35mm is so much surpassed by its digital counterpart that is out of the question) Other than that, I don't see it happenning. Looking forward for your next article. Thanks

Posted by: Eduardo Cervantes | Thursday, 07 October 2010 at 08:05 PM

How timely. I have been experimenting with contact printing on Adox 110 silver paper using the Precision Digital Negatives system in the last couple months and the results are really encouraging. My latest blog entry is in fact on that subject.

Posted by: Richard Man | Thursday, 07 October 2010 at 08:17 PM

I am in the midst of attempting to scan in my negatives with a Minolta 5400 II. I am very happy to see this article, especially since my scans looked terrible to me. I was convinced I was doing something wrong! It sounds like I may have been on the right track after all. I will be eagerly awaiting the next installment.

Posted by: Keith I. | Thursday, 07 October 2010 at 08:25 PM

I agree with the prolixity of videos. However, written materials can also be circumlocutory and pleonastic.

Posted by: Jeff | Thursday, 07 October 2010 at 08:57 PM

Unless you have a perfect negative, you can make many more adjustments in Photoshop than you could waving dodging tools and burning through elaborately punctured sheets of mat board. Once I have an image which looks just right, if I want the best of both worlds, I send the digital file to Digital Silver Imaging in Massachusetts. They have converted a Durst Lamda machine to run Dektol and process Ilford double weight silver paper! I have been printing for over 25 years and this is the biggest breakthrough imaginable. Each print they have made for me would have been almost impossible to replicate in the darkroom. I had always been happy with my printing skills till this new innovation became available...

If you have a particularly difficult negative which has given you fits for years and years, this might be the thing you've been waiting for.

Of course the fact that I recently purchased an Imacon scanner helps make the end result all the better.

This is the link to their site and the owner Eric has been great to work with...

http://digitalsilverimaging.com/fiberservices

Posted by: Matt Weber | Thursday, 07 October 2010 at 09:45 PM

Dear Jeremy,

No, it's simple projective geometry-- the sun reflected by the perspective-converging slats on the building creates a parabola. No weird slits or clouds required.

~~~~~~~~

Dear Paulo,

I meant what I said-- 1/2 + 1/3 + 1/6 = 1.

~~~~~~~~

Dear Mark et.al.,

I use a Minolta Dimage Multi Pro, which handles up to 6x9cm frames. Nikon also has/had medium format and 4x5 film scanners.

A film scanner is not expensive when amortized over hundreds of photographs. The time you'll invest in doing scanning is much more expensive. And tedious. Nearly beyond words. It is very sane to hate scanning. It's a necessary evil.

I have never seen a good digital camera or flatbed scanner get anywhere close to the resolution of a dedicated film scanner. Which matters (as explained next week).

~~~~~~~~

Dear David B.,

Reread the first paragraph-- there's your answer.

~~~~~~~~

Dear Paul,

That guide will have to be written by someone who has an interest in making digital look like film. Not moi.

~~~~~~~~

Dear Robert e,

Go back to scanning in slide mode. Add a curves adjustment layer in Photoshop with a strong S-shaped curve. You will like.

pax / Ctein
==========
-- Ctein's Online Gallery http://ctein.com
-- Digital Restorations http://photo-repair.com
==========

Posted by: ctein | Friday, 08 October 2010 at 12:51 AM

Dear Martin,

Did I allude to "difficult negatives?" I don't think so, but if I did I misspoke. I am talking about printing entirely ordinary negatives.

The Alcoa photograph is not difficult to print at all, and the negative is very conventionally "perfect." It is just that for the print to look *good* the tonal placement has to be just so. I got lucky when I first printed it -- the paper characteristic curve was just what that negative demanded. Nothing special about the paper either, simply happened to be the perfect match.

~~~~~~~~

Dear Mike M,

You're talking commerce, I am talking art. I think we're not in the same conversation.

~~~~~~~

Dear Mark,

90+% percent of my portfolio photographs are from "perfect" negatives. If the negative isn't perfect, I simply don't bother with it, save in very rare circumstances where the subject matter is so extraordinarily compelling or unusual that I think it's worth trying to rescue that photo.

In this article, I'm not talking at all about that aspect of digital printing -- its ability to rescue "hopeless" cases. It's an interesting
~~~~~~~

topic, but a different one.

It sounds like surface finish, for you, trumps most other image qualities. I can understand, even if I feel differently.

OTOH if you really think there's such a thing as good Ilfochrome color we could simply have utterly incompatible tastes. Ilfochrome was the very first analog process I gave up.

OK, not entirely fair-- I've known exactly two printers who could get good color out of Ilfochrome. You could be the third.

If you tell me you liked the voided polyester iridescent base, we may be forced to dueling pistols at ten paces. Some matters simply cannot be allowed to stand [g].

~~~~~~~~

Dear Alex,

The principles and techniques of high quality printing change little, if at all, with changes in the hardware. While not entirely universal, they are highly generalizable. And I'm not much interested in writing a book about the hardware.

~~~~~~~~

Dear sjones,

Stand your ground. Traditionalists are full of ... ummm ... opinions. And I can run printing rings, analog or digital, around 99% of them.

~~~~~~~~

Dear Matt,

Oh yes, you can get the best of all worlds by mixing and matching! I've printed dye transfer prints from digital files, via intermediate films, starting back in the early 1980's. Very sweet.

Several (10?) years back I printed a series of dye transfers for Mark Laita. This photo, or one very similar, was one of them: http://www.marklaita.com/#/section=0&gallery=19&image=5
What makes this germane is that the originals were 8x10 chromes. Mark scanned them , modified the photos in Photoshop, and then wrote out new 8x10 chromes, which he shipped me to print. I can't tell you what was different, because I never saw the camera originals, but it sure was an interesting workflow.

pax / Ctein
==========
-- Ctein's Online Gallery http://ctein.com
-- Digital Restorations http://photo-repair.com
==========

**Posted by: ctein | Friday, 08 October 2010 at 01:23 AM**

---

Ctein: if you write a book on scanning and digital printing, please pencil me in for a copy - right now!
I've never left film although I don't have the space nor the inclination to do a darkroom, so I scan and print digitally.
And I'm not happy with the results even though I have invested in a good printer, a good workflow and thorough profiling.
Same for b&w digital printing: I just can't get what I know the scans can produce from the negatives.
Very interested on anything related to using a dslr with a macro lens as a scanner: I use a coolscan V and a 9000ED, but it's a slow process and I have thousands of good images to go through.
The new el-cheapo sensor-based scanners are a waste of time, just not enough rez.
Anything you can share is sooooo welcome, you can't possibly imagine!

**Posted by: Noons | Friday, 08 October 2010 at 02:34 AM**

---

I have a lot / too much amateur experience with film scanning, and I can tell you: It hell!
Especially to get the colours "right."
A "good" solution is to make the colour pictures into black and white - that will save the day :)

**Posted by: Peter Hovmand | Friday, 08 October 2010 at 05:01 AM**

---

http://www.laurenhenkinblog.com/2010/09/the-interpretive-print/

I came across this posting a week ago and was surprised at how flat Tyler Boley's scan was.

As a film photographer, moving into the 21st Century I have lots to learn about scanning & digital printing, so I'm looking forward to your series of articles

**Posted by: Andy | Friday, 08 October 2010 at 05:32 AM**

---

Happy to see a comment from Matt Weber. If you click on his name, it will link to his super website.

**Posted by: latent_image | Friday, 08 October 2010 at 06:58 AM**

---

I have a flatbed scanner that I use for various things, including slides and negatives. It's true that a dedicated film scanner would do a much better job, but I've gotten acceptable results for my purposes from the flatbed (in this case, usually just Flickr). For the most part, the images I scan are old and not very important, and I scan maybe six images per year.
~~~~~~~~

That said, what kills me most about scanning is the scanning software. The Canoscan software that came with my scanner is adequate for the most basic things, but that's about it. It's clunky and weird and frustrating to use.

I've looked at third-party software but haven't found one that's appealing and reasonably priced. The most highly recommended one seems to be Silverfast, but just parsing through their web site and trying to figure out which of the seemingly dozens of variations they make is the one you need is like decoding a Rubic's cube composed of Chinese boxes.

And the software itself is sort of bewildering.

Why is it so hard to make easy-to-use scanner software? All I need is a preview image, a few quality options (bit depth, number of passes), and a few sliders for image adjustment. BUT NO! We always seem to get a colossal acid trip of cryptographic pathways through a mind-bendingly awkward interface.

OK, second rant about bad software in as many days. Back to work... ;-)

**Posted by:** Ed Hawco | Friday, 08 October 2010 at 09:08 AM

---

I am another one fascinated by the shape of that reflection on the Alcoa building. Can't figure out what the light source was! Also thanks for a practically useful brief summary, which generally tends to confirm what I have been doing - or trying for, anyway.

**Posted by:** John Lloyd | Friday, 08 October 2010 at 09:48 AM

---

Ctein: as always, I enjoy your posts. Several comments have asked about "affordable" negative and slide scanners. I have recently been testing the Plustek 7600Ai (street price around $650-$700) because Nikon no longer produces the 5000 ED and the 9000 is expensive (around the $2700 mark). I am getting some very decent results and was wondering if you had done any testing of this unit?
Looking forward to the rest of this series.

**Posted by:** Marshall Cant | Friday, 08 October 2010 at 10:04 AM

---

Ed: In regards to your question about software for scanning. Check out VueScan (www.hamrick.com) It supports thousands of scanners, is simple to operate, is updated frequently, and the Pro Version sells for $79 with lifetime upgrades. The software has excellent controls and is no where near as, shall I say, "eclectic" as SilverFast. And, no, I am not affiliated in any way ; )

**Posted by:** Marshall Cant | Friday, 08 October 2010 at 12:03 PM

---

"These days one could also use a good digital camera with macro lens to copy the negative."

"how about using a copy set-up, macro or enlarging lens and dslr?"

I've been curious about this ever since the Nikon D3 came out, but I've never actually heard of anyone trying it. Fool's errand? I would think if the results are decent, it'd be a much less painful process than scanning.

**Posted by:** Luke | Friday, 08 October 2010 at 12:18 PM

---

I can't wait for this series, too.

I put together a practical tutorial about how to overcome some of the hardware (and software) limitations of consumer-grade scanners here: http://jingai.com/scanningguide/

**Posted by:** Roger | Friday, 08 October 2010 at 12:19 PM

---

I forgot to include my reaction to the photograph: Very cool!

**Posted by:** robert e | Friday, 08 October 2010 at 12:24 PM

---

Ed Hawco: I highly recommend VueScan. VueScan is very capable and will make the most of whatever your scanner has to offer. Buy the pro version once, and it's yours forever through all the upgrades. Ed Hamrick is constantly making sure that it supports any new scanners that come along. Get a new scanner, and you'll find that VueScan supports it, which means that you will always be working with a very familiar interface. Price is quite reasonable.

Any scanner software is a bit confusing, but--with an excellent online manual and good support--you will only have to learn VueScan once. There is also a huge community of VueScan users so it's quite easy to get help from others.

One suggestion. On VueScan's Color Tab, there is a place to input "Color | Slide/Negative/B/W vendor/brand/type." This is where you might specify that a negative is Kodak Vericolor VPH. Regard these settings as approximate at best. Often the generic settings are just as good a starting point. You will have to play around a bit until you find something that looks good to you. Trust your eye, and it's easy.

**Posted by:** latent_image | Friday, 08 October 2010 at 12:37 PM

---

I'm still climbing the scanning learning curve, but what has worked for me so far (shooting negatives) is to scan everything as color positive without any correction, 16bit TIFF, no sharpening; black and white gets saved as grayscale TIFF. This is on an Epson flatbed.

For each film stock, I find a completely exposed section and a completely unexposed section (the leader area of 35mm film is perfect here, I scan a small bit of it into a single frame). Load that into PS, and set the white and black points in the curves adjustment using the fully dark and fully light areas. That affects the RGB channels, the "all" channel can then be flipped to invert the image. Save the curve.

Now I load a scanned image which has a useful gray point reference, apply the curve I saved earlier, then set the gray point in curves adjustment (which again alters the RGB curves, this can be skipped for B&W), adjust the "all" curve to get a good tonal range, and save the updated curve.

Create an action to apply the curve and you can use Bridge to batch process the entire scanned roll.

Hopefully (!) this should give decent consistency, or at least be close enough in all cases to serve as a good starting point.

The auto exposure/correction usually blows highlights, blocks shadows, and puts terrifying magenta color casts on images which have a lot of greenery. I don't recommend it. Ever.

**Posted by:** Paul Glover | Friday, 08 October 2010 at 12:48 PM

---

Dear Andy,

One should never make too much of illos on the web, but that first Tyler Boley figure is indeed way too low in contrast to be a good scan. A good scan looks flat because it's capturing a very long density range from the film and rendering it with a linear characteristic curve. The histogram for that scan should still be well-populated, though, using up 90% of the range from 0 to 255. This figure's showing less than half that.

~~~~~~~~

Dear Marshall,

No I've not tested that scanner, nor many scanners at all. A good scanner is expensive. I am certain many people are getting by with rephotographing or using flatbed scanners and getting decent results. They're not getting the best results, any more than using a second-tier enlarging lens got one the best results. Many very fine prints were made with less than first-tier darkroom gear; I'm sure many folks are happy with the flatbed/DSLR transfers.

But it's not what I'm going to recommend for rollfilm formats, because it's second-rate. Affordable? Sure. Desirable? Nope.

pax / Ctein
==========
-- Ctein's Online Gallery http://ctein.com
-- Digital Restorations http://photo-repair.com
==========

**Posted by:** ctein | Friday, 08 October 2010 at 01:15 PM

---

I have been making digital prints from photographic film ( 4 x 5 ) since 2004 and must say I really have enjoyed the process, previously I had been making wet prints in the darkroom, although they have their own beautiful look, I have found the degree of control I have been able to achieve with digital prints outstanding.

Gary

**Posted by:** Gary Nylander | Friday, 08 October 2010 at 01:26 PM

---

Dear Ctein

"I use a Minolta Dimage Multi Pro, which handles up to 6x9cm frames. Nikon also has/had medium format and 4x5 film scanners."

I didn't know that Nilkon made any 4"x5" scanners. I use the LS 9000 which will do 9 x7 maximum. That's fine for medium format stuff or when using Horseman backs on my large format gear (Lasersoft). Otherwise I have a good option renting time on an Imacon X5 at the local lab. I'm still not sure I have these machines really sorted out though. Have you any thoughts on them?

**Posted by:** Richard | Friday, 08 October 2010 at 02:05 PM

---

The link that Andy posted above to Lauren Henkin's example of a flat print (negative) is pretty helpful. Ctein, perhaps you could post what the negative for the Alcoa building print looks like before you interpreted it?

Also, do the rules for a "good exposure" change when exposing with scanning in mind? Does one still expose for the shadows, for instance?

Thanks Ctein, I did a happy little dance when I saw the topic.
Will

**Posted by:** Will Frostmill | Friday, 08 October 2010 at 03:11 PM

---

"Go back to scanning in slide mode. Add a curves adjustment layer in Photoshop with a strong S-shaped curve. You will like."

Thanks, Ctein. Perhaps I've been just too timid (or Lightroom has been) applying the S curve. I'll go back with more aggression, maybe even XS.

I'm hoping that your perfunctory guide includes some remarks about sharpening strategy, and how to pull it off in Lightroom (if possible).

**Posted by:** robert e | Friday, 08 October 2010 at 08:07 PM
~~~~~~~~

Dear Richard,

Google "Nikon 4x5 film scanner."

---

Dear Will,

Honestly, it's a perfectly ordinary-looking negative; it is simply that if the tonal placement isn't just so, the print doesn't work. Nothing that I could even show you in web illos and not really of import, anyway.

---

Dear Robert e,

Don't get your hopes up. This really is perfunctory.

Pax / Ctein

**Posted by: Ctein | Friday, 08 October 2010 at 11:44 PM**

---

The vuescan software I can certainly recommend,as I purchased it and use it, it is easy to use and there are users out there who will share and help should you have problems. The best part is the price cheap as chips as we would say.

I appreciate where Ctein is coming from but would reiterate you can achieve very good results from the Epson V750 and V700 flatbed scanners. I have no affiliation to the company I'm merely a user of their kit. I well remember the late and great Barry Thornton running tests on enlarging lenses, he gave the meopta anaret outstanding praise for its quality when judged against the expensive competition and felt it was one of the best he had ever used, and he continued to use it.

I also owned a meopta Opemus enlarger and when I purchased it second hand it came with the lens he had raved about, I did my own comparisons against my Nikkor and leica lens and like him found it held its own easily.

For what its worth I think that Barry Thornton was one of the finest exponents of B&W photography and for my mind was head and shoulders above anyone I've ever seen, or read on the issue of fine Black and White photography.

I only make mention of this to highlight that you should not discount something out of hand unless you have tried it or at least researched info on it. I don't doubt that for utmost quality it would be lovely to go out and buy an Flextight X1 scanner but for the majority of folk out there I would suggest that is pie in the sky.

**Posted by: Martin Yeates | Saturday, 09 October 2010 at 08:28 AM**

---

Dear Martin,

I think a Flextight is unnecessary. But where I draw the line is at less than a dedicated film scanner. I have researched it. That is my judgement.

People are free to not take my advice, but I shant withdraw it. That's where my line is drawn.

pax / Ctein

**Posted by: ctein | Saturday, 09 October 2010 at 07:07 PM**

---

I'm delighted at the timing of your article. Just a few days ago I decided to sell my dSLR and compact cameras (both fairly new and excellent), keeping only a pocket-sized point and shoot for digital capture. I simply prefer to shoot film, scan it, and do my own digital printing, as I feel more secure with a film original.

Looking forward to your next column, thank you!

**Posted by: Pat Trent | Monday, 11 October 2010 at 08:52 AM**

---

Although I agree with Ctein that a dedicated film scanner is the optimum solution, people interested in exploring the world of medium or large format film shouldn't be put off by the difficulties and expense involved in acquiring a dedicated film scanner that will handle these formats. In this case quite acceptable results (in my experience) can be achieved using consumer flatbeds. Depends on your expectations and purpose of course, but I'm all for more people getting interested in using film, and not being discouraged. Lusting after that old Rolleiflex or some such thing, maybe.

**Posted by: Richard | Monday, 11 October 2010 at 11:13 PM**

---

WARNING: this is a really dull post about FLEXTIGHT SCANNING...

I shoot 6x6 slide film and have an EPSON V750 that I use for "proof scans" - the quality is acceptable for getting the images onto a computer, for web based images and for prints up to about A3 size.

For images that need more than that I rent a Flextight (Imacon 949 or Hasselblad X5) and will even occasionally get a drum scan. The difference between the EPSON and the Flextight is truly huge; between the Flextight and the drum not so huge, but the drum gives better shadows and a small amount of extra detail.

I am posting this for the benefit of anyone using a flextight scanner to tell you about the often ignored FFF mode of those machines. [FFF = flexible file format]

When scanning with a Flextight, the operator will usually make all the necessary adjustments (colour, sharpening etc etc) at the preview stage, before setting the output size and hitting SCAN, which scans the image and saves the output as a .tif file to a disc or drive.

When scanning in .fff, you bypass all the steps and [after some basic set-up] simply hit a button that says "SCAN FFF" whereupon the machine scans the image to the max (about 300MB in 16bit from a 6x6) and spits out a .fff file. After the fact you open up this .fff file using the same software that operates the scanner (Flexcolor) and then you can make all he adjustments you like - curves, sharpening etc etc - and output a .tiff. Making adjustments this way looks exactly the same as it does when you make adjustments on the prescan.

With a .fff file you can revisit the prescan stage as many times as you want to make sure you end up with the perfect scan for your needs. Most usefully for a beginner you dont waste any expensive scanner time learning how to use the scanner software. If you are working on a scan and realise that you scanned it not quite right, you just open up the file and start again.

Working without .fff I used to be able to get about 12 scans an hour from the machine, of which 2-3 would be really bad. With .fff I can do up to 20 of them with no rejects at all.

**Posted by: Robert P | Tuesday, 12 October 2010 at 11:15 AM**

---

Dear Robert,

That is a really great trick.

An aside-- even 10 frames an hour is much higher throughput rate than a midlevel scanner (like mine) can produce. I'm happy if I come out with 2 scans an hour (including setup and prep time for the film). The much higher price of the Flexscan does buy you an incremental improvement over something like the Minolta, but it's not earthshaking. The difference in productivity is.

pax / Ctein

**Posted by: ctein | Tuesday, 12 October 2010 at 04:38 PM**

---

we have a couple of Med format nikon film scanners and an Imacon 848 and an flextight X5.

My opinion. (in brief) Nikon scanners. Film flatness hard to achieve, resulting in less than uniform focus. Particularly noticeable in the film grain. There are custom made wet mount glass holders available for the nikon medium scanners to address this issue. Don't fancy using them.

The optical path in the imacon flextight scanners has significantly less lens flare. (at least in our scanners here) This is quite noticeable on some of the some negatives I've scanned.

The X5 condenser lenses are prone to pick up dust and ruin the scans. Often the dust issue only becomes apparent when scans are being adjusted later in photoshop. The condensers in the X5 are difficult to keep perfectly dust free. For quality scans I prefer the imacon 848. slower scans but doesn't have condenser lenses waiting to put dust streaks down your scans.

Regards
Peter Miles

**Posted by: Peter Miles | Wednesday, 13 October 2010 at 12:14 AM**

---

Agree with Robert about the Flextight. I'm also able to rent an X5 when occasion demands - eg for large format or 6x12. For medium format the difference between my own film scanner (Nikon LS9000) is noticeable but not so important for the sizes I'm printing. Where it really scores though is in throughput - blisteringly fast even with 4x5 at max resolution. And if you go the .fff route (similar to using the HDR workflow with Lasersoft's Silverfast) you can be very productive.

**Posted by: richard | Wednesday, 13 October 2010 at 12:20 AM**

---

Peter - not sure what Nikon scanners you are talking about - but the glass film holder for the LS-9000 works pretty well. I haven't had problems with Newton's rings or anything. The medium format holder delivered with the machine is pretty hopeless though, I'll agree.

**Posted by: Richard | Wednesday, 13 October 2010 at 10:07 AM**

---

The comments to this entry are closed.