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Thursday, 21 October 2010

A Perfunctory Guide to Converting Photographic Film to Digital Prints, Part III

By **Ctein**

(*Please read Part I and Part II before reading this one.*)

Image manipulation

The most important recommendation I can make is to learn how to use Curves and use them well. Do not use crude tools like Levels or Contrast adjustments. Do not use the Brightness tool. These are the tools of amateurs. Anything you can do with those tools you can do with Curves with very little effort, and Curves gives you a measure of control over what you're doing that is completely lacking with these other tools. Through the appropriate use of Curves, you control tonal placement and color rendition. Used in a masked adjustment layer in Photoshop, Curves let you do precise, high-quality dodging and burning-in that can accentuate highlight detail and bring out and separate the shadows in ways that the crude Dodge and Burn tools in Photoshop can't come close to.

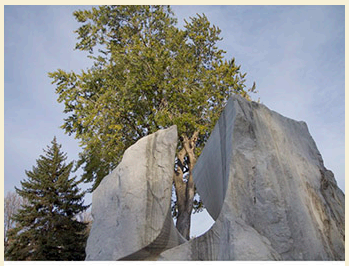
The really big win for digital printing is in highlight rendition. In the darkroom one has little control over how highlight tones are rendered; the toes and shoulders of the characteristic curves in darkroom materials are not much amenable to modification. Printers will discuss at considerable length how to combine long- and short-toed or -shouldered films and papers so as to get a desired rendition of highlight detail. In digital printing such matters become simple modifications of Curves, and the printer has much better control over exactly how tones are rendered in that part of the scale.

This becomes even more significant in color. It's not just the near-whites that involve highlights and color. Any color that is close to a primary is going to have values very close to pure white in one or more color channels. Being able to precisely control how those highlights are rendered means being able to precisely control the rendition of color in both the highlights and the near-primaries.

In fact, the fraction of my photographs that print markedly better digitally than as dye transfers are the ones where highlight rendition is especially important. Even as flexible a process as dye transfer doesn't give one very much control over those extremes. Digital printing offers meticulous control.

The big problem I have consistently seen with digital printing, regardless of the source of the image, is that it suppresses subtle gradations and tonality—"texture," if you will. Surfaces that should show subtle patterns and variations in tone and color come out a lot flatter and more two-dimensional with digital printing. Kind of like the colors in a cartoon cel—they are accurate and the edges are just fine, but everything within the lines is painted the same color (or tone, in the case of black-and-white printing). I have not yet assembled a coherent theory of what's going on, but the observations seem unequivocal.

What one needs to do is investigate tools and techniques that enhance local tonality without changing the overall characteristic curve shape. A very simple one in Photoshop is to apply the unsharp masking filter to the finished image with a radius of 50–60 pixels and a percentage between 10 and 25% (I wrote about this in detail about three years back). It does an awfully good job of restoring that delicate gradation. In more difficult cases, look at a third party plug-in like ContrastMaster, which is incredibly complicated to use but will produce extraordinarily good results when you can make it behave. I don't use it all the time, but it's seriously wonderful when I do (below). There are others out there, like Pixel Vistas' PhotoLift, that seem to work well, but I haven't spent as much time with them, so I have less useful to say.



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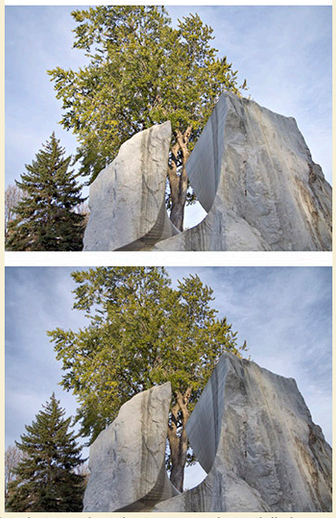

The flat photograph at the top was substantially improved by unsharp masking (middle) but ContrastMaster (bottom) really did the trick.

Avoid oversharpening. I'd rather be looking at a slightly soft print than one that has been sharpened to the point where white halos, "sparklies," and other distracting artifacts appear at edges. Knife-edge sharpness may be a laudable achievement, but if it doesn't add to the artistic effect and it introduces unwanted side-effects that take away from the overall aesthetic intent, then it is a bad thing. In truth, I have rarely seen a print where my first reaction was, "It needs to be sharpened up." I have seen far too many sharpened prints where the sharpening was annoying and bothersome.

Printing

Eventually, if you're good at this, you will have an image on the screen that looks just like what you want and is ready for printing. Or so it will seem. Prints will not look the same as screen images. WYSIWYG is a myth. Don't expect it. Monitors are really WYSIALLYG (What You See Is A Little Like What You Get).

For one thing, unless a luminous display like a monitor is very carefully set up and adjusted for the working environment, it will not produce a visual impression and placement of tones that looks much like what you see in the print. Usually the monitor is too bright. That's often a necessary working condition for doing meticulous corrections, especially in the darker tones, but, still, it won't be a good match to a print.

Another important reason is that the color gamuts of the monitor and the printer cannot be made identical. Monitors render images in red, green, and blue. Printers render images in cyan, magenta, yellow, and black. Their respective color gamuts overlap but there are colors that the monitor can render easily that the printer will have great problems with, and vice versa. Sky blues are especially difficult. They often look much, much better on the monitor that in the print. To some degree, making the perfect print will always be a process of experimentation. I am very experienced at this, and I assume there will be one wasted print before I get to the finished print. On occasions I have been delighted and surprised to nail it on the first try. It's not the norm. It's also equally likely I will find that I need two test prints, or sometimes even three, before I finally managed to get all the tweaks in place.

I do not believe the third-party ink sets nor RIPping software are necessary to make superb prints, not even for black-and-white work. They may improve matters, but they are certainly not a requirement. Something that is a requirement, though, is a custom color profile for each paper that you print on. The canned profiles the printer manufacturers provide are good but not great. A custom profile, calibrated for your particular printer, will produce noticeably better results. This is something you want to do sooner rather than later. A custom profile, of necessity, alters how tones and colors get rendered. If you've gone to considerable effort to tweak your digital file to make the best possible looking print on a non-profiled printer, you're just going to have to repeat that effort once you get it profiled.

Well, there's your forty years of printing experience condensed into 3,000 words. I'm sure I didn't leave anything out.

Next time, something completely different (with a tip of the Pythonesque hat).

Ctein

Ctein's regular weekly column appears on TOP every Thursday, usually but not always in the morning.

Posted on Thursday, 21 October 2010 at 04:05 PM in Ctein, Printers and Printing | Permalink

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Comments

Ctein,

A superb explanation of the complexities and problems associated with digital, and how good it can be if one is willing to invest in the

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process.

And now, I think I'll go slather a mixture of egg yolk, water, and dry pigment on a gessoed panel.

Posted by: Bron | Thursday, 21 October 2010 at 05:11 PM

Oh, please, please tell us a good resource for learning to use curves as you describe and a starting point for learning how to make custom profiles for a printer.

thanks,

Robin

Posted by: Robin Dreyer | Thursday, 21 October 2010 at 05:52 PM

The big problem I have consistently seen with digital printing, regardless of the source of the image, is that it suppresses subtle gradations and tonality—"texture," if you will.

You don't think maybe that using printing technology that is five years old has anything to do with it?

Posted by: Stephen Best | Thursday, 21 October 2010 at 06:51 PM

Thanks, Ctein. Great series.

One day I'll do my own printing. (Sigh)

Posted by: Michael Farrell | Thursday, 21 October 2010 at 08:04 PM

Thank you for confirming my suspicions that RIP software isn't necessary to make great prints. My Canon 9500 II does a great job without it, and I'm fairly particular coming from my traditional printing background.

I'll spend some more time with curves and see how I like it.

Posted by: Mark Sperry | Thursday, 21 October 2010 at 09:22 PM

Dear Stephen,

I never said I'm reporting that for 5-year-old technology, and you certainly have no reason to assume it.

I've observed this deficiency with a wide variety of input and output sources. It may not be universal, but it is certainly general.

~~~~~

Dear Robin,

Unless you're going to work with a very large number of papers, you don't make your own profiles, you have a professional do it. I recommend Cathy's Profiles (Google it); she's very good and inexpensive.

Most any book on digital printing will tell you about Curves.

pax / Ctein

Posted by: ctein | Thursday, 21 October 2010 at 09:24 PM

Cetin;

Thanks for this series. I've read it over and over. It's a great help!

pete

Posted by: pete | Thursday, 21 October 2010 at 10:13 PM

The dodge and burn tools are no longer crude now that you can select highlights, midtones or shadows for your adjustments. It is like painting through a luminance mask but doing it on the fly. Dodging the highlights or mids in a shadow area gives 'shadow detail' a new meaning. I can build local contrast in a flat area with just a few brush strokes. I is almost like magic.

Posted by: james wilson | Thursday, 21 October 2010 at 11:18 PM

Those looking to approach these levels (I don't mean, Levels) of control from Lightroom may not realise that with version 3, a points Curve has been introduced in the Tone Curve panel. This alone may be important enough to justify an upgrade, in my opinion. It operates in luminosity only, so does not give the same ability to control **hues** (via separated RGB adjustments) as you have in Photoshop's more all-embracing tool. For dealing with colours straying close to the (awkward) primary colour extremes, the HSL (hue saturation luminosity) controls do a pretty good job in my experience.

Very often, for a Lightroom user, the big question is "do I **necessarily** need to take this image into Photoshop?" and if the answer were always to be "yes you do, for all images" then Lightroom would lose a lot of its attraction. I don't believe that to be quite the case; even the lack of soft-proofing is not quite fatal in my view; since softproofing itself does not protect us totally from surprises.

Very hard to envisage a Lightroom setup without Photoshop as a wingman/backstop, of course.

Posted by: richardplondon | Friday, 22 October 2010 at 02:37 AM

Ctein, just curious:

Do you ever use the adjustment brush in ACR? I think you can achieve quite nice results in difficult spots - lower the exposure, raise it, increase contrast and so on.

Posted by: erlik | Friday, 22 October 2010 at 02:56 AM

~~~~~

"These are the tools of amateurs."

I stopped reading your article shortly after that sentence. Besides being partly incorrect (although not as versatile as Curves, Levels is a very powerful and useful tool for those who have explored its capabilities), when I see the word "amateur" used in such a disparaging and condescending manner as you have used it, I immediately surmise that this is not an article for mere mortals like me.

Like the overwhelming majority of TOP readers, I am an amateur photographer. Although I do 20 or so portrait sittings a year on commission, and people occasionally offer to purchase other photographs I've made, I remain an amateur. Photography is my hobby. I do photography for the love of it, which by the way, is the original meaning of the word "amateur". If not a single soul saw another one of my photographs, I would continue to make them because I do it for personal enjoyment. As an amateur, I use the Curves tool on nearly all of the photographs I enhance. I use it mainly to improve contrast, but occasionally to color correct, or even tint my photos. Since I am an amateur, I suppose one could say that Curves is also a tool of amateurs.

A writer should first know his audience. Most of us are amateurs. We make photographs with "amateur" cameras and lenses. A few of our photos may make it to the wall in the den, but most of us will never see our work hanging in a gallery or museum. We keep at it anyway. We're not all rubes, we just love photography. And even though the word amateur has come to mean "unsophisticated" in contemporary usage, I believe many of us still wear the name proudly.

Posted by: John Roberts | Friday, 22 October 2010 at 03:50 AM

Thanks man, I will give Curves a chance again :)

Posted by: Peter Hovmand | Friday, 22 October 2010 at 05:58 AM

"tools of amateurs"

John,
Funny, but I read that sentence totally differently--as a sort of humorous or good-humored way of saying, "don't do it your way, Grasshopper, try it my way!" --Not in any way a disparagement. (Maybe you have to know Ctein.)

I'm sure Ctein will chime in here, but in any event I'm quite positive he didn't mean it to be directed at any *particular* Levels- or Contrast-using amateur...thus, you needn't take it personally.

Mike

Posted by: Mike Johnston | Friday, 22 October 2010 at 06:53 AM

Are custom profiles still worth it if you're printing with brand matched paper, printer and inks?

Posted by: John Rodriguez | Friday, 22 October 2010 at 09:22 AM

Regarding the use of the enhancing of local tonality, I've found the highlights/shadows tool in PS is also excellent. You can specify highlights and shadows separately as well as the radius and tonal range.

Posted by: antoine_k | Friday, 22 October 2010 at 09:28 AM

Hmm...interesting. Have wondered about this. Stumbled here looking for a pro lab and found a wealth of info here on other topics.Nice indeed.

Posted by: photodiva30 | Friday, 22 October 2010 at 12:54 PM

Another interesting piece by Ctein. If we could look back to analog/wet process days...In the end, you have to develop a calibrated "eye" no matter the processs or source. Sometmes adapting to a new methodlogy/process involves trade offs. In creating a photograph the old adage of printing is like "a water flowing down a hill...follow it wear it leads" works today even in our digital age. Or just drag a curve point.

Posted by: Mark Norman | Friday, 22 October 2010 at 01:32 PM

If you have a thing about local contrast enhancement, Google ALCE. This inexpensive PS panel plugin can produce some magical effects.

Paul

Posted by: Paul | Friday, 22 October 2010 at 01:49 PM

Dear John,

Surely you are aware that "amateur" has more than one meaning:

-- an (implicitly unskilled) novice

-- a lover of the craft.

Neither are new usages, and I don't care which one was the "original" meaning. Surely you can guess which meaning I meant.

I cannot stop you from construing personal offense where none was given, but I shan't apologize for the remarks. If you're going to stop reading four sentences in because of that, well, that's your loss.

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Dear John,
~~~~~~~~~~

Absolutely! Manufacturer-provided profiles are not very good, on the whole. Some of Epson's "premium" profiles are seriously crappy. A good profile really matters.

pax / Ctein

Posted by: ctein | Friday, 22 October 2010 at 01:51 PM

Dear Ctein;
Thanks once again for offering so much valuable knowledge. Since you started posting your weekly column my digital images have really taken a positive turn and in the last couple of weeks I´m beginning to enjoy working digitally to the same degree as film work. I really appreciate your no nonsense down to earth practical view on photography leaving out the romantic notions and concentrating on hard based proven facts and getting the image. By the way I read the other night an interview with the great Ralph Gibson where he mentions;

"I am one of those people who happens to believe that you get better results scanning from flat art, rather than negatives. You know the world is divided. There are those who think you can scan from black and white negatives and get good results. I don't happen to share that view. I have owned a Nikon CoolScan and I still have one, but the truth is, I don't get the results that I want. And I have spoken to other photographers who corroborate my views. I think that scanning film works better for news agencies."
I´m sure you prefer scanning film but what´s your view on this scanning of actual prints?
Paul

Posted by: Paul | Friday, 22 October 2010 at 02:22 PM

A Postscript on printer profiles:

If you're using a high end Epson like the 9800, the manufacturer-supplied profiles were created by Bill Atkinson, and they're *GOOD*.

Bill doesn't profile the lower-end machines-- you can go to his website and peruse the download packages of his profiles to see if he's got ones for your printer.

pax / Ctein

Posted by: ctein | Friday, 22 October 2010 at 02:53 PM

As always a great set of articles. I'm wondering if anyone has yet discovered a commercial source for cleaning a fimscanner? Ctein, you spoke of the need to do this in a previous posting. Anyone out there; Have you had a good experience getting your film scanner cleaned?

Posted by: Eric Steinberg | Friday, 22 October 2010 at 03:07 PM

First, Lightroom's local adjustment brush are exactly what's needed to do local tone adjustment. I no longer use PSD except when I need layers or some really heavy duty cloning work and the like.

Second, it's the same frustration that I have with inkjet B&W printing, even on the best photo rag or Harman FB Gloss and calibrated monitor and printer and profiles, that led me to experiment with digital negatives. So far, I am really impressed with printing with silver again.

Posted by: Richard Man | Friday, 22 October 2010 at 03:40 PM

Dear Paul (1),

Well, I don't have a "thing" about it [smile], but ALCE looks very interesting. Might be a nice compromise between the simplicity of wide-radius unsharp masking and the effectiveness of ContrastMaster. The former doesn't always do what I want, but I use the latter far less than I ought to because, ummm, well, I often can't figure out how to make it do what I want!

I've written Roberto asking for a review copy of the plug-in to evaluate. Thanks for the pointer.

~~~~

Dear Paul (2),

I've never seen Ralph Gibson print nor seen what one of his original negatives look like compared with a final print, so I'm especially not competent to comment on this. But I can think of circumstances where scanning from a print would work better, or at least would be a hell of a lot easier. If a print involves lots of handwork–– retouching or local bleaching and toning ––it can be really hard to duplicate that in exactly the same way on the computer. Similarly, if the darkroom print looks EXACTLY the way you want the final print to look, including all the warts and idiosyncrasies inherent in the paper and chemicals you use, getting it to look exactly the same on the computer is extremely difficult. I can usually do it, but sometimes it may not even be possible, depending upon the gamut of the darkroom materials versus the digital printer. I realize Gibson is a black-and-white printer, but I am answering the question more generally.

On average, though, I think he's wrong about this being the better way to go. I have no idea what Gibson's skills are as a digital printer (his talent as a darkroom printer is beyond question); it's entirely possible that he is nowhere as masterful on the computer as under the safelight. In that case, letting the darkroom do most of the heavy lifting, artistically speaking, makes a lot of sense.
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Dear Richard,

I only just got my copy of Lightroom 3 this week, so I haven't even had a chance to play with it. Since the majority of my printing involves the kind of finicky local stuff that Lightroom is not designed for, I have yet to see how well its tools integrate into my workflow with Photoshop. Local tonal correction is something I usually do midway or near the end of my “printing” process. I don't know how well it will work for me if I try using it at an early stage of creating the final image. It will be interesting to find out.

pax \ Ctein
[Please excuse any word-salad. MacSpeech in training!]
==========
-- Ctein's Online Gallery http://ctein.com
-- Digital Restorations http://photo-repair.com
==========

Posted by: ctein | Friday, 22 October 2010 at 11:24 PM

Dear Ctein/Mike;
After reading Recent Books of Interest Part II, I think it´s necessecary and only fair I write out the link to the interview I quoted in my comment to Ctein.
http://bermangraphics.com/press/ralphgibson.htm
For any of you who are fans of Ralph Gibson here is another interview.
http://www.parisvoice.com/index.php?option=com_content&task=view&id=492&Itemid=56
Of course Ralph Gibson website.
http://www.ralphgibson.com/
Paul

Posted by: Paul | Saturday, 23 October 2010 at 03:58 AM

Dear Ctein;
Do you miss what I miss in the Lightroom 1 and 2 (I haven´t tried 3) is the fact there isn´t any of the 3 eyedropper icons to fix the damn colour casts? My Canon 1DsII suffers quite badly from this apart from having an awful auto white balance. It also seems to be quite a common problem with at least photographers I know personally who work digitally they just don´t notice colour casts or don´t care. All these images always full of slight colour casts something which I can´t stand and drives me crazy.
Do you ever work in LAB with Photoshop? I once saw a tutorial where using curves in LAB mode selecting A and B to work saturation without affecting contrast, I´ve tried it and it works quite well. Then selecting Lightness in the curves dialogue for contrast. The only thing is I´ve heard changing back and forth between RGB, LAB and once again back to RGB degrades the image some what.
Paul

Posted by: Paul | Saturday, 23 October 2010 at 02:24 PM

Dear Paul,

Thanks; that's a great interview!

It also makes it clear that Ralph is just as smart on the computer as in the darkroom (IOW, very very very), so I'll go with Hypothesis #2-- his darkroom prints do *exactly* what he wants, and replicating that from scratch on the computer is far less productive.

I don't agree with him that this is a better workflow for most photographers, but this won't be the first time experts have disagreed, now will it?

pax / Ctein

Posted by: ctein | Saturday, 23 October 2010 at 03:01 PM

Dear Paul,

Never used LR 1 or 2. I'm a newbie to LR.

Every nonreversable transform degrades data. BFD-- is your goal to "preserve data" or "make a print you really like?" The data dweebs who natter on about losses going between RGB and LAB have totally missed the forest for the trees.

For what it's worth, if you work in 16-bit color instead of 8-bit color, the conversion losses are massively less, as they're caused by roundoff errors in the lower-significance bits. But even if you work in 8-bit, if the results you get look better to your eye then they *ARE* better -- data loss be damned.

pax / Ctein

Posted by: ctein | Sunday, 24 October 2010 at 05:36 PM

Hello Ctein,
Thank you very much for this series. It has been very helpful to me.

Posted by: Robert Billings | Thursday, 28 October 2010 at 10:23 AM

Hi,

interesting problem there with the tonality gradation in the "flats", I'm using a slightly different process and very rarely see it, here's a different take at the image above:
http://mx1.ru/~f_lynx/web/TOP.psd

P.S. could not resist myself not to play with it a little, but I think the file is clear enough to get the idea of what's going on.

Posted by: Account Deleted | Saturday, 06 November 2010 at 03:47 AM

The comments to this entry are closed.
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