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Wednesday, 31 August 2011

To Talk of Many Things: Of Digital and Dye Transfer Prints

By Ctein

No cabbages and Kings, I'm afraid. That would be Off Topic. And besides, I am not The Walrus. Still, the question remains...what's the better printing medium for photographs, dye transfer or digital inkjet?

Many would think that putting digital prints and dye transfers into the same conversation (not to mention the same sentence) would be worse than comparing apples and oranges. More like comparing apples and sea anemones. I would disagree.

I wouldn't be alone in that. Talk to folks like Joe Holmes and Charlie Cramer, who gave up the most exalted of darkroom skills to take up digital printing. I'm on the same path; I just haven't quite gotten away from the darkroom entirely yet. If I wasn't still making money off of my dye transfer chops, I would've folded up that tent long ago.

Here's the thing: while dye transfer prints have an undeniable cachet, and so command exalted prices, they are not, artistically and aesthetically, obviously superior to digital inkjet prints (marketability and artistic superiority have at best a tenuous connection). There are distinct differences, and that's the subject of this column, but it doesn't denote clear superiority, any more than oil paintings are superior to watercolors.

I noodled around casually with digital printing for a long time (um, 30 years?) before I took it up seriously in the middle of the last decade. The first real challenge I gave myself was to duplicate my Scotland dye transfer portfolio (one of the photographs from which is being offered in the current sale) as digital prints. I was surprised—in about half the cases, I liked the digital prints as much as I liked the dye transfers. They didn't necessarily look exactly the same, but they made me equally happy. In about a third of the cases, the dye transfer prints were clearly superior. In the remaining one sixth, the digital prints were clearly superior. Understand, that's an entirely subjective judgment, made by yours truly. You might not feel the same way. But it's my art were talking about, so it is unlikely that anyone else is *better* qualified to decide.

The broad equivalency in quality surprised me, given my decades of serious experience with dye transfer printing, versus a handful of years with digital printing. The explanation, though, is pretty straightforward. When it comes to inherent qualities of the medium, such as density range and color gamut, there's little out there that can beat dye transfer. It can render up to a 3.0 density unit range in a print, with a correspondingly huge color space. It's got richness. What gives digital its edge is technique. It can't render as long a tonal range or as large a color space as dye transfer, but, within the range that it can portray, the skilled printer has much, much more control over the precise and exact rendering of tones and colors than is possible in the darkroom. Dye transfer gives the printer immensely more control over the appearance of the print than any other darkroom process, but it's positively crude next to Photoshop.

Medium matters

On average, it's a wash. What about when it's not? That's where the medium matters. That one third of my photographs that I thought looked distinctly better as dye transfer prints were ones that depended upon rich shadow detail with an exquisite rendering of dark tone and color. As an example, my Jewels of Kilauaea series ([starting here](#)) has so far mostly resisted successful interpretation as digital prints. Too many of the photographs depend on shadow detail that goes on forever to give them a feeling of depth and three-dimensionality. I simply haven't yet figured out a way to work around that, artistically, in any other medium than dye transfer. I may eventually get there, but it's a tough nut to crack.

Conversely, photographs that depend on precise control of characteristic curve shapes, especially in the highlights, work better as digital prints. The reason is that it is extremely hard to control the shape of the toe and the shoulder in the characteristic curves of darkroom materials, although it's pretty easy to mess with the midrange. In particular, getting a clean, linear rendition of tone and color in highlights is nearly impossible. Consequently a photograph like [this one](#) looks much better as a digital print than a dye transfer and comes much closer to the look I hoped for in the photograph.

It's not just about obvious highlights, either. In color printing, any hue close to a primary has a "highlight" in one or more of the color channels. [This photograph](#) may lack an obvious white, but those delicate verdant greens have almost no magenta in them; we're up on the highlight portion of that channel's curve. It's the very slight differences in magenta tones that make a difference in the shades of green. The delicacy and accuracy of color separation I saw in the original scene is far better portrayed in a digital print than a dye transfer, as lovely as the dye transfer may be.

Painting this question in broad strokes, if I have a photograph where really rich separation in the deepest shadows is important, dye transfer is going to produce a better print. If I have a photograph where precise control and high accuracy in the highlights or very near the primary colors is most important, digital is going to produce a better print. Sometimes I can get them surprisingly close. Otherwise, they will be equally good, artistically, although not necessarily the same.

Ctein

Ctein's regular weekly column appears on Wednesdays on TOP.

Posted on Wednesday, 31 August 2011 at 12:33 PM in [Ctein](#), [Printers and Printing](#) | [Permalink](#)

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Comments

I'm just glad I'm not the only one who struggles with shadow separation in digital prints. Perhaps this is why HDR tonemapping has become so prevalent?

Posted by: [Mike Shimmell](#) | [Wednesday, 31 August 2011 at 02:08 PM](#)

It'll be interesting to revisit this discussion again in 10 years considering the endless onward march toward improving inkjet printing technology.

Posted by: [Felix](#) | [Wednesday, 31 August 2011 at 02:22 PM](#)

I know you're giggling behind the curtain, but heck, ya gotta do what ya gotta do. I guess.

Posted by: [Flavse](#) | [Wednesday, 31 August 2011 at 02:42 PM](#)

Thanks Ctein,
What I'll always remember from this is that if it's a highlights or primary colour picture I can do it myself with software and printer, if it's a shadow picture I can get it done pro. Nice to learn something.

all the best phil

Posted by: [phil](#) | [Wednesday, 31 August 2011 at 03:04 PM](#)

Huh, did Ctein just tell us that the digital print of the Soyuz rocket that is on sale isn't as good as the dye transfer version? Surely that image was a lot of shadow separation, or am I mistaken?

Posted by: [Isaac Crawford](#) | [Wednesday, 31 August 2011 at 03:14 PM](#)

Dear Mike,
HDR and other local contrast enhancement techniques don't really solve the shadow problem. If it's important to get good and extensive tonal separation in the shadows and you have a limited density range to work within the print, either you have to compress the midtones and highlights a lot to be able to devote the extra density range to the shadows, or you have to lighten the shadows enough that they don't maintain as much visual separation, overall, from the other tones.

I can print the Jewels of Kilauaea photos digitally, but I can't maintain both a strong distinction between shadows and everything else and good shadow tone separation. That turns out to be very important to the aesthetic of the photograph. The results are technically fine; you wouldn't be able to put your finger on anything wrong with the prints . They just don't look GOOD.
~~~~~

Dear Isaac,  
Well, that isn't what I said, but even if it were true, consider that the digital print is 1/10 the cost of the dye transfer print. Maybe you would prefer the dye transfer print; if so, just send me a check for the appropriate amount and you can have one!

In fact, that photograph doesn't need a lot of shadow separation, overall. It just needs it in certain places and all that really has to happen is that the floodlight beams be distinct from the background sky. The richness of the shadows in the dye transfer does improve that photograph...but at the other end of the scale, it's very hard to get acceptable tonal rendition in the rocket and gantry, which are vastly overexposed in the original negative. At that end of the scale, I'm much better off with digital.

This is one of those photographs that I would consider a wash. The two versions don't look the same, and I'm sure some people would distinctly prefer one over the other, but I would consider them artistically comparable in merit.

pax \ Ctein  
[ Please excuse any word-salad. MacSpeech in training! ]  
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-- Ctein's Online Gallery <http://ctein.com>

-- Digital Restorations <http://photo-repair.com>

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Posted by: [ctein](#) | [Wednesday, 31 August 2011 at 06:15 PM](#)

Hi Ctein, I am not an experience printer so this might be a bad link I have made in the following question. I have noticed in my digital prints that the dark/shadow areas have a sort of muddy look about them, like a colour cast and particularly with pigment on matt papers. Is that what you are talking about with "rich seperation" being not so good with digital?

I am really keen to print well and am limited right now to a digital process, should I just shoot bright pictures for printing :)

Posted by: [Tony](#) | [Wednesday, 31 August 2011 at 07:36 PM](#)

Thanks for the hint about magenta distinguishing the greens. I was working on a scene showing a thick layer of evergreens down a hillside. Masked the image by brightness (except for the sky), then applied magenta through the mask. (This is in Picture Window Pro.) Wow, gives the eye much more intricacy to roam over.

Posted by: [Charles](#) | [Wednesday, 31 August 2011 at 07:40 PM](#)

Dear Tony,  
I's not a problem limited to digital prints-- most traditional darkroom materials also have trouble separating out the deep shadow detail, because of the low contrast on that part of the characteristic curve.

Matte papers are NOT the way to get rich blacks and good shadow separation. You can have matte paper or you can have shadow detail you can "fall into." Take your pick.

pax / Ctein

Posted by: [ctein](#) | [Wednesday, 31 August 2011 at 10:36 PM](#)

Dear Folks,  
Just so this is clear-- I am not saying digital prints have poor shadow detail and separation. I am saying dye transfers are capable truly extraordinary shadow detail and separation. Digital prints can have very good shadows; I am just used to getting much more than "very good."

pax \ Ctein

Posted by: [ctein](#) | [Wednesday, 31 August 2011 at 10:36 PM](#)

The difference between dye transfer and digital printing is that I have a digital printer.

Posted by: [Michael Bearman](#) | [Thursday, 01 September 2011 at 03:06 AM](#)

"Here's the thing: while dye transfer prints have an undeniable cachet, and so command exalted prices, they are not, artistically and aesthetically, obviously superior to digital inkjet prints"

And will someone please give me a pithy answer for the next person who earnestly explains to me at an exhibition how the photographer "still only uses film". Here am I looking at a display of skill and artistry that actually transcends the technology used to create it and all that some people see is how the image was captured (I don't like that word) and how it was transferred to paper. It's only a small step from "you take good pictures - you must have a good camera".

Posted by: [Henk Cuijters](#) | [Thursday, 01 September 2011 at 03:14 PM](#)

I am glad to read your treatment of this topic, Ctein, as you're one of the few people qualified to offer experienced thoughts on such a comparison.

The William Eggleston retro exhibition that toured here (Chicago) and elsewhere recently presented a stark dye transfer -vs- digital print comparison. Most of the exhibition prints were dye transfer (or "dye inhibition", as they were titled), as is such a birth mark of Eggleston's best work. But his more "recent" work, shown toward the end of the sequence, was printed on ink-jet. They were well printed and would have looked fine...if they weren't floating in a sea of wonderful dye transfers. They looked like pathetic dowdy sisters.

The primary attraction of dye transfer prints for most collectors and connoisseurs is not detail retention or even palette width. It's the luscious, lick-able colors of a print well-selected and well rendered in the technique. They take on a color dimensionality that's extremely rare and difficult to achieve any other way. It can be done in ink and chromogenic but it takes extraordinary skill.

Prints by my good friend [John Caruso](#) consistently come closer than any others that I've seen.

Posted by: [Kenneth Tanaka](#) | [Thursday, 01 September 2011 at 03:06 PM](#)

Dear Henk,  
JohnMPlores put it best, yesterday:  
"Most cameras over \$400 these days are talent-limited."  
I "have" had someone say to me, upon seeing my prints, "Wow, you must have a really good printer."

~~~~~

Dear Ken,
I think a lot of that "lickable" quality does come from the huge color and density space. Like the difference between listening to music on a sound system that can properly convey a 60 dB range vs one that can convey 90. You don't just hear the difference at the extrema.

It'd be interesting to hear from folks like Charlie Cramer and Joe Holmes how long it took them before they thought they'd gotten any good at digital printing. Took me six months of serious work.

In the heyday of darkrooms, lots of people made darkroom prints; very few made really good ones.

pax \ Ctein

Posted by: [ctein](#) | [Thursday, 01 September 2011 at 03:44 PM](#)

Thanks for validating the last 8 years of my life.

Posted by: [yinfuf](#) | [Thursday, 01 September 2011 at 04:56 PM](#)

I don't understand if you are saying dye transfer prints have a greater d-Max than some digital or what other measurable characteristic is causing the difference? Gamut or problems translating the tonality from one print media to another? Why would I d-Maxing or complex tonal curves application resolve the issue if d-Max and/or gamut was sufficient in the digital print media?

Posted by: [Larry Steiner](#) | [Sunday, 04 September 2011 at 04:55 PM](#)

Dear Larry,
What I said:
"When it comes to inherent qualities of the medium, such as density range and color gamut, there's little out there that can beat dye transfer. It can render up to a 3.0 density unit range in a print, with a correspondingly huge color space."

Dye transfers don't offer a greater density range than "some digital," they can produce a greater density range than all digital media. And other traditional darkroom media.

Makes it hard to find a replacement if the subject is demanding such.

pax / Ctein

Posted by: [ctein](#) | [Monday, 05 September 2011 at 02:10 PM](#)

"...have trouble separating out the deep shadow detail, because of the low contrast on that part of the characteristic curve"

Oh man, I cant wait to get home and experiment with some prints. I think I have actually be reducing contrast (flattening) my pictures with the curves adjustment layers I typical apply (a roughly S type with a pulled down lower 5th to darken shadow... and flatten, doh). This might explain that muddy homogenous look in shadows to a degree. I might try adding some shadow contrast with a luminance masked curves layer.

Posted by: [Tony](#) | [Wednesday, 07 September 2011 at 08:10 PM](#)

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