Dye Transfer and Me, Part II

(Part 2 of an Cinematic Number)

Figure 1 (same but)

Words and photos by **Chris**

As a prelude to the Black Friday Dye Transfer Sale, *I'm writing several columns talking about dye transfer—how it works, why it's special, why it's worth the money, what printers, and our personal experiences with Kostman Kolab. (Important note: You cannot put in print orders or requests before the sale. Please don't e-mail me requesting them.)*

Back to our story...

When we last left one intrepid hero it was 1975 and he was about to attempt to scale mountains that he imagined were unbelievably (okay, maybe not so intrepid, as I said, I had misconceptions.

Why bother? Dye transfer had two major advantages over other processes available at the time. First, it was the best by a considerable margin. Second, it was the only multiple-tools for controlling curve shape, both the overall gamma/subtractive curve shape and the individual RGB color curves.

You could change the contrast, saturation, and overall print density/range independently. You could make those adjustments to the overall print or to the individual primary colors. There were always several paths to each aesthetic end, for instance there were three different ways to increase contrast that had different effects on saturation and color balance. Each of the RGB dyes had its own curve shape that could be altered to control the overall contrast and the curves.

I photographed Figure 1 at a considerable distance, so normal light scattering in the air washed out the shadows and made them progressively more blue. Then conventionally, there is no fix for this. With dye transfer, I fixed the whole point in keep it simple stupid fashion by increasing the contrast of the blue curve. That eliminated the atmospheric haze without affecting the scattering problem.

Dye transfer's inherent color fidelity and quality are unsurpassed. Dye transfer prints can have a maximum density approaching 3.0. This is important because it's a logarithmic scale, so each that level of density and saturation. That gives dye transfer prints an extremely large color gamut.

Even more important, dye transfer's dyes have high "spectral purity." Each dye absorbs only one color (red, green, or blue) and is transparent to others. Dyes have a strong magenta component—it looks more like "Kodak hue" yellow. In a conventional color print, distinct hues between orange and yellow blend into the same shade of yellow-orange. When I printed Figure 1 in conventional color, the blue sky would have a greenish cast.

Figure 2

However, chromogenic paper can't produce a vivid green. The poor yellow inevitably introduces a magenta component, which is the complement of green, muting it. I printed the illustration a few previous columns as one of my early attempts to learn how a chromogenic print shuddered the shadows and made them blue.

Dye transfer's ability to produce vivid greens is a big factor in making characteristics than no other commercial process. The high stability of chromogenic and Cibachrome prints caught up, but dye transfer is much superior when it comes to dark storage. A dye transfer print in the dark or in museum storage will last around long enough to give us that sort of real-world confidence.

Now you know why I wanted to make, as Charlie put it, "some good prints." So why, I had the will to overcome those hurdles?

Equipment came cheaper. Dye transfer requires laying down the layers of yellow, magenta, and cyan dyes in succession. Because of receiving paper, using "pin registration," it's very low-tech and relatively inexpensive. Kodak sold a kit, the Matchprint system (much those supplies were really expensive), but I had a special three-hole punch. I punched a sheet of film, gave it to a friend who had a lathe, and he cut me two 11x14 pieces of metal with a precisely matched the holes in the punched sheet. I took one set, mounted them on a thin sheet of glass to which I'd carefully glued tiny pieces of metal to keep the film from sliding around, and attached the pin assembly to the end of the enlarger. I had a couple of boxes of 11x14 Kodak paper, a few funnels, and a spare vacuum cleaner. I started myself hundreds of dollars.

Well, guess what—Kodak's pin registration system ceased worked beautifully for my entire dye transfer printing career. A few years ago, Kodak introduced a new pin system and a new card (and affordable!) Kodak Register Punch and my custom-cut pins and plates were obsolete. Fortunately, Kodak also (affordable). That was it for the metal pin system.

My original register/transfer easel was a horrible kludge of wood, mirrors, aluminum, and duct tape. It worked, but it was inefficient, after a fashion. It gave me good alignment on the transfers, but it was a royal pain to use. As soon as I switched to Condit pin setup, I abandoned it for a much more elegant design, a simple sheet of Plexi plate glass with the pin grid glued to one end. Like the original, it cost me well for the rest of my career.

There were a bunch of other equipment problems to address. I've mentioned I had some misconceptions about dye transfer. One of the big ones was that I thought I'd be making my own matrix film, using my own film if commercially available prints. I assumed that they were as good or better in every respect. Specifically, that dye transfer prints would be as good for reproducible as conventional color prints and come out as clean and free from dirt, with no stray clumping of silver halides.

Pulsar! But not knowing any better (I still hadn't seen a dye transfer print), I figured that I'd be making my own matrix film, so I bought a vial. In ordinary printing a frosted four-flashed paper used overlays the print paper and coops the photographs exactly where you want. I suppose one could engineer a four-flashed pin registration easel that would ensure that those holes coincided each sheet of Pan Matrix Film to exactly the same position. I wouldn't have been able to afford it if they had.

After some trial and considerable error, I hit upon the idea of masking the edges of my negatives directly, using strips of opaque tape. I'd cut and trim the matrix film to exactly the size of the print. The narrow pushed super-sharp-as-super-straight edges. Geometric imperfections in my keying of the tape were magnified by the enlargement process.

Eventually I figured out a better approach that produced the super-crisp edges I longed for. I cut out full-size masks from opaque sheet film and punched the red so that I could register them in the negative carrier with the pin system. I'd tape the masks to the film on each of my negatives. Compared to that, keeping to dry, clean, and free of dust.

Now, with the pin system, I'd only have to do the taping once. Learning how to develop Pan Matrix Film, not easy! I had to develop three sheets of large, un-hardened emulsion matrix and to exactly the same degree, by interleaving them in a tray of developer in pitch darkness and agitating them identically. Fortunately, I'd learned to do that in my college days when I developed my own film.

I learned all the steps in Kodak's magnificent 44-page pamphlet and, truthfully, it wasn't all that hard. Just one small problem.

By the end of 1975, I was ready to start working. Learning how to develop Pan Matrix Film, not easy! I had to develop three sheets of large, un-hardened emulsion matrix and to exactly the same degree, by interleaving them in a tray of developer in pitch darkness and agitating them identically. Fortunately, I'd learned to do that in my college days when I developed my own film.

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I had no idea what kind of exposure I'd need. I'd would get. I had never tried writing to a major company's tech support line. I'd call and tell them that a nobody like me (yes, then I was a nobody, a publishing credentials, nada) would get anything more than a telephone "thank you for your interest in our products."

My lack of faith was badly misplaced.

...Which is where we will pick up with the next thrilling installment!

Chris

(To see all the comments, click on the "Comments" link below.)

Featured Comments from:

hugh crawford: "I always thought those funky edges of the image that revealed the separate layers of the image were pretty neat. Will we literally ever but a real example of letting the process show?"

Jeremy Schneider: "At Ohio University a long time ago, there was a darkroom with a color enlarger required for the students. Being a daunting process, only a handful of students ever attempted it. One professor there, Arnold Gassan, worked with the process. In that room, I recall colorful stains on the countertop, floor and walls. I'm sure that's why it was required—to scare away the faint of heart."

Chris replies: *Dear Hugh, You're not wrong. It's just that the edges are usually cropped off in the finished prints. Dear Jeremy, "that room" prints like astringents or lithographs, which I also did—there, unfinished edges were part of the expected look. Also, there was required certain to be consistent. From a commercial point of view, all my clients wanted those edges. Dear Arnold, I remember him well. Dear Jeremy, "can you do conventional edges for us?" Dear Jeremy, I'm not sure that there's a "real example" print "look," where practitioners have to prepare and hone the light-sensitive emulsion onto rags paper stock. The aesthetics of the brushstroke-ish edge of the image area are important of the quality of the print.*

Dear William, Oh gosh, a very good song to turn new (dress) clothes into old (work) clothes—wear them in the dirt for a few days. Dear Jeremy, I'm not personally skeptical or even doesn't leave their very happy.

Fred: "Wow. As a former mediocre (at best) black-and-white printer I can very fascinated with the process. It feels to me like 'inside baseball' at its best. I am eagerly awaiting the next installment."

Posted on Monday, 24 November 2008 at 08:15 PM in Color, Printers and Printing | Permalink

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Comments

I'd love to know how Cibachrome prints are in comparison to dye transfer prints. Back in the film days I shot mostly slide film and Cibachrome was the best option for getting the most conventional prints made from negatives. Of course it lacked the adjustability of dye transfer. I wonder if it is even available anymore?

Posted by: CVBlower | Tuesday, 25 November 2008 at 01:04 PM

J Williams: Cibachrome prints could be adjusted for contrast by using masks, though I never attempted it because it seemed to be a very precise process and I had no use to knock out. For me, Kodachrome slides printed on Ultra were the pinnacle of color printing.

Posted by: Geoff Peterlin | Wednesday, 26 November 2008 at 03:04 PM

Dear J,

Comparing prints from negatives to prints from slides is an apples and oranges comparison. Negative printing is always going to be better for the same level of labor, control you've got in home levels. That's because negatives have been designed to be printed, with appropriate contrast levels and curve shapes and built-in color correction masking. To get the same out of slides, you have to do all of that manually.

Straight Cibachrome prints don't come anywhere close to dye transfer prints. Dye transfer has a much wider color gamut (range). I have a few Cibachrome prints who don't suck and a superb job of masking that the quality of the rendition was comparable. Joe Holmes took it to a whole new level. By designing custom dye sources for his enlarger that eliminated the significant color crossover problems associated with Cibachrome.

That said, once you went to such heroic measures, banging out a whole series of Cibachrome prints was a hell of a lot less work than printing dye transfer (I'm looking at you, Geoff!).

- pax | Chris

(Please excuse any word-salad. Dragon Dictate in training!)

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– Chris's Online Gallery: http://chrisb.com.

– Digital Restorations: http://photo-repair.com.

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Posted by: Chris | Wednesday, 26 November 2008 at 03:44 PM

I know I'm straying off the topic of dye transfer prints, but those photos from Lassen Volcanic National Park, right?

Posted by: Dan Montgomery | Thursday, 27 November 2008 at 04:22 PM

Dear Dan,

Yeah, that's "Painted Dunes and Fantastic Lava Beds, Lassen Volcanic Park CA - 1982."

pax | Chris

Posted by: Chris | Thursday, 27 November 2008 at 04:34 PM

Dear Earl,

Cibachrome was well-matched to the dyes set in Kodachrome and was probably the best way to print those slides short of going to dye transfer. Cibachrome was a positive-to-positive process, so everything printed less Kodachromey (i.e., any of the chromogenic slide films). There was also a considerable shadow/curve/highlight color management that was entirely depending on the particular slide film and the version of Cibachrome. It was particularly bad with some flavors of Ektachrome.

As I mentioned to J, you could solve that with elaborate color correction masking or customized enlarger light sources, but there was no easy fix for ordinary workers.

Other than dye transfer, I grew up slide printing in the darkroom and I'm glad I'm not doing it anymore. Digital printing is much better. Also, I could get better prints by scanning my slides, correcting the contrast and curve shapes in Photoshop and printing them on what were (by today's standards) primitive printers.

Also, because of the always-high cost of slide printing materials, it wasn't much more expensive to print digitally.

- pax | Chris

(Please excuse any word-salad. Dragon Dictate in training!)

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Posted by: Chris | Thursday, 27 November 2008 at 04:39 PM

Thanks for your writing on dye transfer printing, Chris. I've been reading it with pleasure and look forward to more.

Now, myself, I go off in very different directions in two ways: one, since we are not in a film photography, film-developing-rich environment now, simply doing black and white film will satisfy my urges, which is pretty on behalf of certain stories that I want to tell. Second, I don't have a flair/skills to handroll advanced ventures, and I'm not a big fan of digital printing. I'm a big fan of digital capture and of whipping silky promotion of my creative results in the future, but me at least, did not call for exquisitely demanding technique and lots of expensive gear, but instead, for a good eye and some reasonableness in approaching possible subjects for a picture.

That's the way I'll go, but I'm glad you'll give my bygone failings in the process. And too, I've been imagining how I hopefully will get to see your finished prints, and I'm glad that you've got a few more things happen that link up to the shared past of film photography. That means cleaner and safer darkroom chemistry, film enlargers made in a digital world, and with whatever digital advantages they can dream up, and either completely new, solid film cameras or honest revivals of classic and fine film cameras. Designs like Nikon's FM. New developments like Bergger's Pancro 400 film and Rollei's Retro 400S film. Even Kodak's Portra 400 was far more interesting of new to film than digital.

For me, there's no need for purism or wearing a technological hairshirt when doing film photography. I'm not a Luddite. I'm not those fellows who carry wrenches and screwdrivers in the summer sunshine. I will be glad if modern technology augments film technology in myriad ways, as long as the end photographic results are what I want, and I can very much see a film photographer print from digital.

I'm glad to have a solid film and digital camera that's light and capable and is as flexible, compact and well-engineered as a Nikon FM you see I like keeping it simple, so as to concentrate on getting good film photos if I can. And such a camera can have digital features to the extent that its digital side keeps out of the way of taking pictures in film.

My black and white prints will not match the sort of thing you achieved with dye transfer back in the day. They won't exceed Parmanian heights of technique and sustained application of craftsmanship that you've described. But I'm not trying to do that. But my film efforts can at times have a lot of quality, and the fact is what makes it worth doing, or at least, at the moment, mostly worth dreaming about.

Too the developments I push earlier in this note may not ever happen, and things may not ever especially much easier to do film than it has been for a while now. I already know that my style of photography is not one that's especially well-suited to the rapid controls and figuring-out-on-the-fly-ness that digital offers in advance of taking a shot or printing a picture, but I know what I'm doing well enough to do well anyway. I'll get by for the present with used but still functional Nikon FMs and similar classic film cameras, and however it works out in the end I can very much see that they'll be around as well as the results they give me. As long as it is film and I get to do most of the process myself, it's all good.

Thanks again for writing,

Earl Dotter
Ann Arbor, Michigan

Posted by: Earl Dotter | Thursday, 27 November 2008 at 05:08 PM

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