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Sunday, 01 December 2019

Dye Transfer and Me, Part V: So Many Hacks...and Finally, Money!

Part 5 of an Uncertain Number

Words and pictures by Ctein

Part I / Part II / Part III / Part IV

I was turning out excellent dye transfer prints by 1980 (Malcolm Gladwell's nonsense about 10,000 hours notwithstanding), but there were still many parts of the craft that vexed me. Matrix development was a tricky thing—for everybody, not just me. Developing three large sheets of film in two minutes with a fussy developer was not a good recipe for consistency or uniformity. Matrix film's unhardened gelatin emulsion is converted to hardened gelatin wherever it is exposed to light and developed with a tanning developer*. Wash the processed film in hot water and the unexposed/unhardened emulsion goes down the drain. That's what makes the "printing plate" that soaks up the dye.

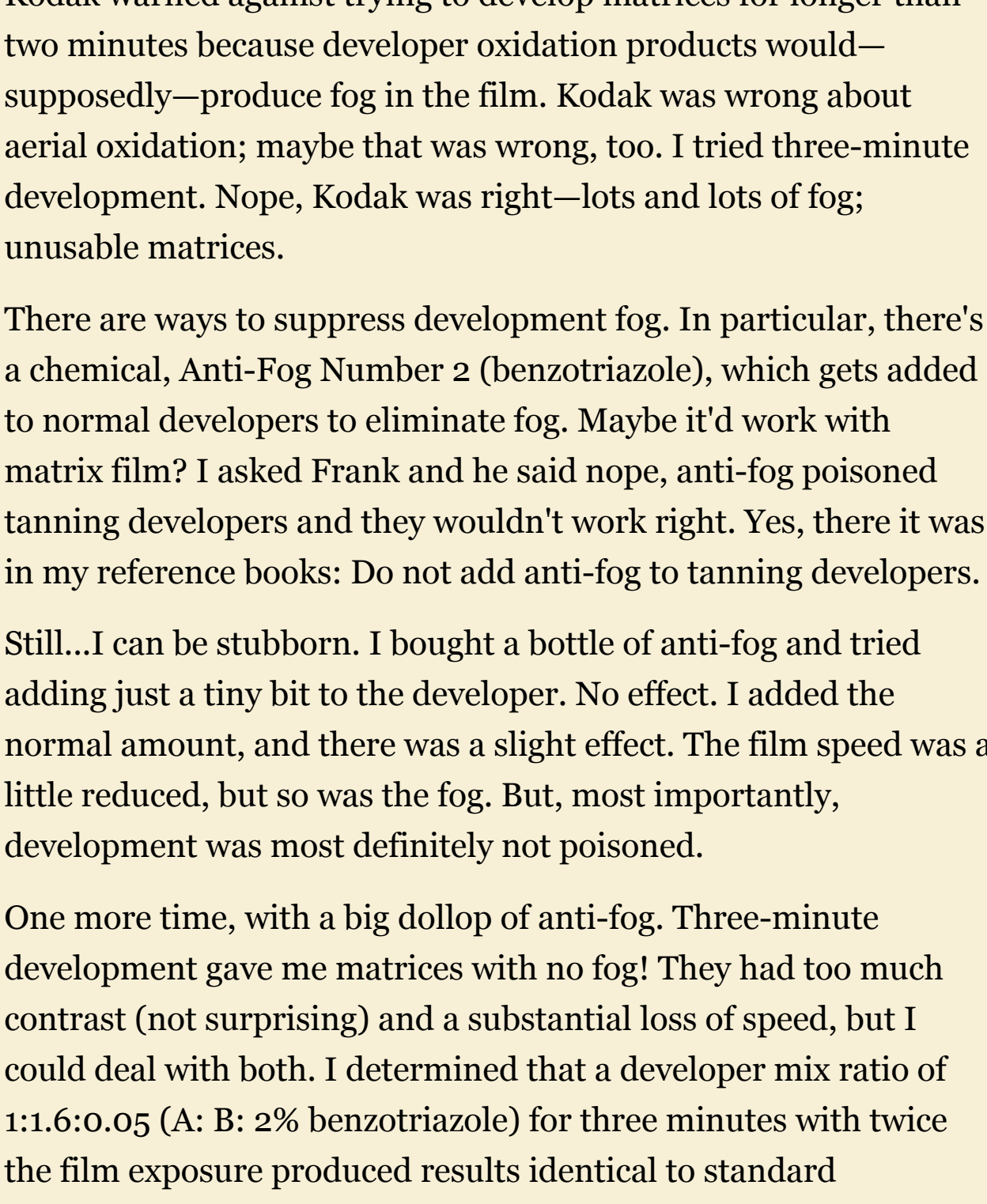
Tanning developer isn't stable. The stock solutions consist of a developing agent (Part A) that gets mixed with a base activator (B) just before use. By changing the A:B ratio between 1:1 and 1:6, one could get a contrast change of about ±1 paper grade. 1:2 was normal contrast. The stock solutions would last for years, but you had to use the mixed developer within a few minutes, according to Kodak literature. Freshly mixed developer was a very pale tan that oxidized within a few minutes to the color of strong tea. After half an hour (or after use) it looked like ink. Definitely not stable!

As I mentioned in Part III of this saga, it was very easy to screw up matrix development. Getting them to wet evenly and consistently and not stick to each other was hard. The very first change I made in my process was to try a water-bath presoak for one minute.

Frank was convinced this wouldn't work, that pre-loading the emulsion with that much water would produce less even development than soaking the matrix directly in developer. Well, it turned out I was right; development was much more even. Frank became convinced when we duplicated my results together in his Kodak lab.

I still wasn't that happy with a two-minute development time, so I switched to single-sheet development. I measured out the required amounts of developer Part A and Part B in separate beakers next to my development tray, flipped off the room lights, and put one of the exposed sheets of matrix film in the water bath. I grabbed the beakers of developer, poured them into the tray and agitated the tray vigorously to mix them together. Then I transferred the film from the water bath into the developer and started rocking the tray for two minutes. Once that sheet of film was in the fixing bath, the room lights went back on, and I emptied and rinsed the developer and water bath trays and set up everything for the next sheet of film.

All in all, it took me about 10 minutes longer this way, but boy oh boy, were the results improved!



Pitted Rocks with Algae

I also worried about developer oxidation. I couldn't exactly duplicate the timing from sheet to sheet. Just how quickly did the developer go bad? Time for more experiments. I made identical exposures of a density step tablet onto two sheets of matrix film. The first sheet went into developer that was mixed 10 seconds previously. The second went into developer that was mixed two minutes previously, the limits Kodak imposed. How much difference would there be?

None. They looked identical and printed the same.

Huh. My curiosity was aroused. Next experiment, 10-second vs. 5-minute developer holding times. Still no difference. Double-huh.

Ahh, whatdahell, go for broke. I let fresh developer sit for a full half hour, turning black, and developed another test sheet. No difference.

What do you know—aerial oxidation *didn't* poison the developer! I stopped worrying about the exact interval between mixing the developer and developing the film.

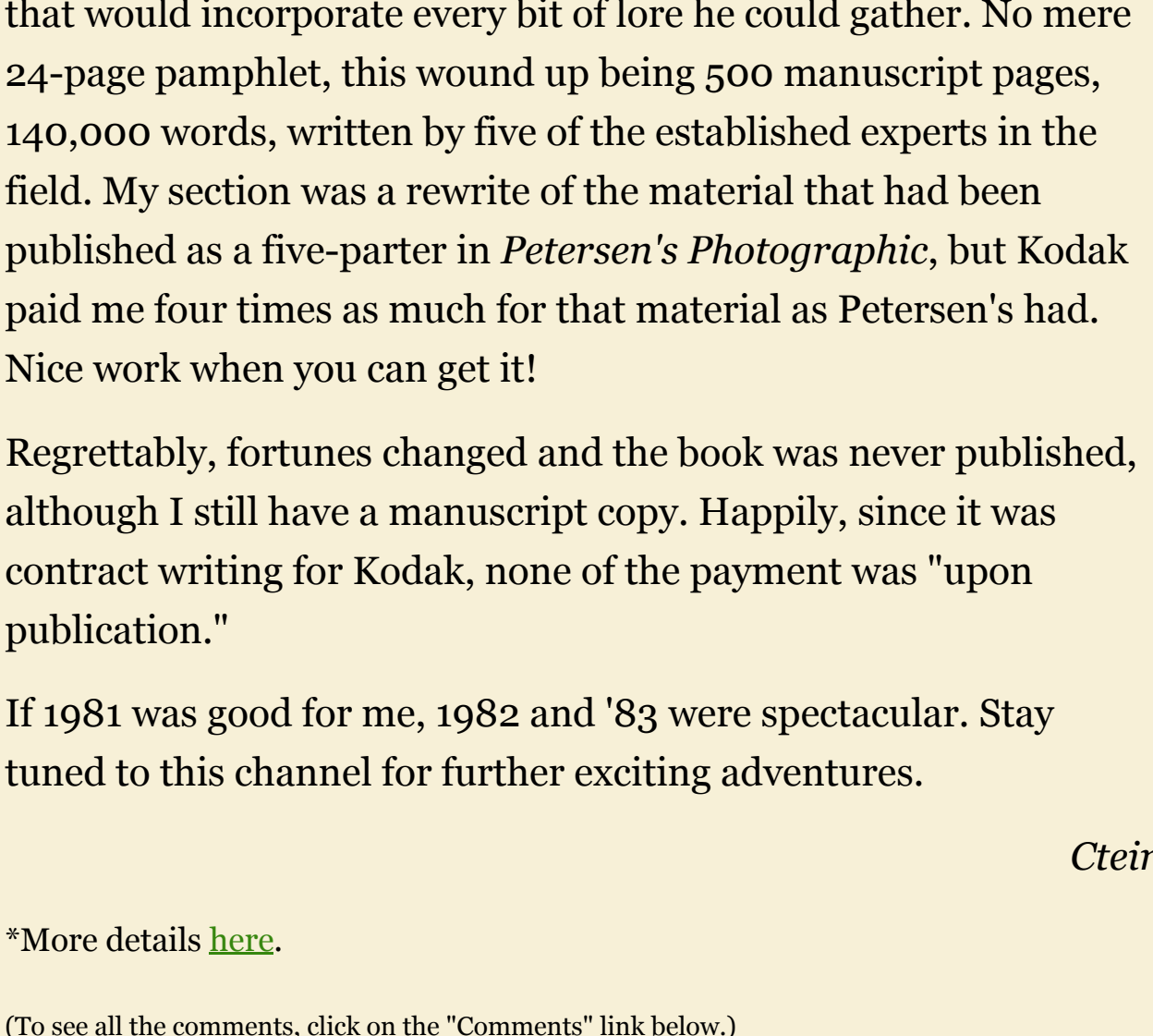
A few years after that, I got to thinking (dangerous practice): Kodak warned against trying to develop matrices for longer than two minutes because developer oxidation products would—supposedly—produce fog in the film. Kodak was wrong about aerial oxidation; maybe that was wrong, too. I tried three-minute development. Nope, Kodak was right—lots and lots of fog; unusable matrices.

There are ways to suppress development fog. In particular, there's a chemical, Anti-Fog Number 2 (benzotriazole), which gets added to normal developers to eliminate fog. Maybe it'd work with matrix film? I asked Frank and he said nope, anti-fog poisoned tanning developers and they wouldn't work right. Yes, there it was in my reference books: Do not add anti-fog to tanning developers. Still...I can be stubborn. I bought a bottle of anti-fog and tried adding just a tiny bit to the developer. No effect. I added the normal amount, and there was a slight effect. The film speed was a little reduced, but so was the fog. But, most importantly, development was most definitely not poisoned.

One more time, with a big dollop of anti-fog. Three-minute development gave me matrices with no fog! They had too much contrast (not surprising) and a substantial loss of speed, but I could deal with both. I determined that a developer mix ratio of 1:1.6:0.05 (A: B: 2% benzotriazole) for three minutes with twice the film exposure produced results identical to standard development. With different mix ratios and a whole lot of anti-fog, I could go as long as five minutes.

This was great! I'd come up with extremely reliable and uniform matrix film processing. Oh, clever, clever Ctein—discovering something new about the dye transfer process after so many decades.

...Not really. Some years later, Phil Condax, whose father invented dye transfer, sent me a set of his father's matrices to print. The set had the processing info scribbled in pencil on the paper sleeve. It read, in parts, "presoak...anti-fog...three-minute development..." So Louis had been doing that before I was even born. I have no idea why that failed to make it into the Kodak literature. I suppose I get some credit for re-discovering it.



Painted Wall in El Triunfo

Co-operation, not competition

There's a point to me having spent so many words on this subject (no, not self-aggrandizement). When I said no one had mastered dye transfer, I wasn't kidding. This was just one tiny corner of the whole process. None of us practitioners know—or can remember—it all. The community that existed around dye transfer folk was invaluable; we all learned tricks from (and served as the collective memory for) each other. Therein lies a brief morality tale:

It's noteworthy that San Francisco had two professional dye transfer operations. Few cities in the entire world did. New York had more—of course—but that's New York for you. Frog Prince (the other dye transfer operation in San Francisco) and I had a friendly relationship. I visited them and we talked about how they did things; in turn, Tom Rankin (one of the owners) visited me and my garage "lab." On occasion, we recommended clients to each other, if we were too busy or thought the other could handle a job better. Frog Prince was the first lab making dye transfer prints for Jim Marshall; I took over, printing from their matrices, when they got out of the business.

In the 1980s, a fellow named Myron opened up a dye transfer lab in the South of Market district. That's all I can tell you about him or his business. Y'see, shortly after he opened Tom went over to introduce himself and bring Myron into our little club. Myron gave him the brushoff. As Tom related it to me afterwards, Myron apparently considered Frog Prince (and presumably me) the enemy, predators after his customers and his trade secrets. Whatever they might have been, if he had any. He sure wasn't going to share his hard-won knowledge and expertise with competitors.

Within a few years, Myron was out of business. I don't know whether it was from lack of customers or expertise, but either way he was at a disadvantage. He might've been the most brilliant, most talented dye transfer printer on the planet, knowing more tricks and hacks than any one of us. But here's the thing—he didn't know more than *all* of us. We shared—what one of us knew, all of us knew. No one person's trade secrets, no matter how wonderful, stood a chance against our collective knowledge, and Myron had cut himself off from that. Competition vs. cooperation? There's no question who's going to come out ahead.

Too bad—we would've welcomed a new fellow traveler.

My business was a different story. The year 1981 was when I started seeing some real money out of dye transfer. I sold *thirty* dye transfer prints at a princely \$180 apiece. Correcting for real inflation, that wasn't too much different from my print price when I closed down the darkroom six years ago. Five prints, of the very first Space Shuttle launch, graced the walls of Apple's Macintosh development building. Thank you Steve Jobs.

And, thanks to Frank McLaughlin, I had other work. A custom lab in San Francisco, Color 2000, wanted to get into dye transfer. Frank recommended me to teach them, as a consultant. There I met one of the managers, Tim Hall, and we stayed friends. Thirty years later, Tim would in turn introduce me to one of my favorite aerial photographers, Bob Cameron (*Above San Francisco*) who was a most perfect example of how it's never too late to start a brand-new career. But, that's a story for another time.

Networking...the gift that can keep on giving.

Frank also had a project—he'd gotten the go-ahead to produce a definitive book on the process, *Dye Transfer Techniques* (E- 81), that would incorporate every bit of lore he could gather. No mere 24-page pamphlet, this wound up being 500 manuscript pages, 140,000 words, written by five of the established experts in the field. My section was a rewrite of the material that had been published as a five-parter in *Petersen's Photographic*, but Kodak paid me four times as much for that material as Petersen's had. Nice work when you can get it!

Regrettably, fortunes changed and the book was never published, although I still have a manuscript copy. Happily, since it was contract writing for Kodak, none of the payment was "upon publication."

If 1981 was good for me, 1982 and '83 were spectacular. Stay tuned to this channel for further exciting adventures.

Ctein

*More details [here](#).

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

Featured Comments from:

Rob L.: "I *knew* I'd seen those shuttle prints before! When I was at Apple for Genius training, the retail training was in the old Mac pirate's cove on Bubb road. Definitely stood out."

Paul Judice: "I dipped a toe into dye transfer with the help of your excellent *Petersen's* series. Pan Matrix was a great way to get hooked, since you didn't need an absurd amount of specialized gear and you could make a beautiful print without making dozens of masks. But, there were always problems—always something going wrong that didn't make sense.

"About a year in, I started making color separations from transparencies and taking in real printing work, but as the only dye lab in Houston I was feeling very alone. Around this time I got to know Frank McLaughlin. Frank would call once a week to see how things were going for my partners and me and give technical advice as well as talk me off the ledge.

"Then I got calls from the Bobs. Bob Desantis had a respected dye lab in LA and could solve almost any dye transfer problem you threw his way. Bob Pace was loved, but kept a dye lab behind his house in Victorville, California and loved to help out the new guys. I think Frank had pushed them to contact me—probably as a sad charity case.

"The generosity of these skilled craftsmen was something I had never experienced. It felt like I had been accepted into a very exclusive club with all the privileges. At one point I asked Bob Desantis if it was wise to share so much with me. In his world-weary voice he said, 'Kid, if you can take my business from me, you deserve it.'

"I went on to work at Tartaro Labs in '87, which seemed like the place anyone interested in dye transfer should go. His masking techniques were mindblowing (actually, everything he did was). By 1990 the dye lab was closed and Kodak was completely out of the dye transfer business."

trecento: "Ctein, I haven't been commenting on your series at all, but I've read every entry. I've gone back and re-read quite a few. I've been thinking about your approach to problem solving. It's quite refreshing! Many people boast about their cleverness for doing one clever thing, but your tone of gentle amusement at yourself as you describe your *methods* as you solve problem after problem is really interesting. In my own life, I'm trying to get more practice with such practical problem solving, so seeing these examples is quite a help."

Posted on Sunday, 01 December 2019 at 09:27 PM in [Ctein](#), [Film and Darkroom](#) | [Permalink](#)

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Comments

When I attended RIT in the mid 1970s, making dye-transfer prints was part of one of the advanced? color courses. Materials and supplies were supplied free to us from Kodak. Instructor's name I can't recall. Course's goal was to make a few final dye transfer prints, but as I recall, most of us succeeded in making only one final print, and with a lot of blood, sweat, and tears and especially a lot of lab/darkroom time. Instruction was excellent but problem solving was left up to us, and it was a 100% hands on learning process. Instructor's mantra was straight out of SUN TZU

"When you hear something you will forget it. When you see something you will remember it. But not until you do something will you understand it."

Posted by [Greg](#) | [Monday, 02 December 2019 at 06:04 PM](#)

Inspiring and insightful reflections on the nature of cooperation in a field where skill and true mastery are scarce. If we are really good at something, we need not fear the others. The good ones will work with us to develop our common field, and the mediocre ones will cater for the less demanding jobs. My own experience exactly, though sadly not in photography (where I am joyful *dilettante*), but in my professional work as an academic teacher (where I have the touch). True skill needs no protectionism.

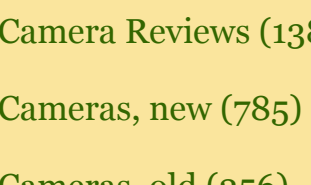
Posted by [Martin D](#) | [Tuesday, 03 December 2019 at 04:16 PM](#)

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