

THE GREAT PAPER-DEVELOPER SHOOT-OUT

Part Two: Summary of Part One and Developer Comparison



This is the second of two articles about black-and white enlarging papers and paper developers. In the first piece, we traced the development of the quest, and compared eleven different papers. This second article will compare developers. The method and madness were more fully described in the first part. This article summarizes Part One. This is the expanded Web version, so if you're reading this you also have access to the expanded Part One. You would be well-advised to read it first, if you want all the juicy details of the process and agony in the darkroom.

The Quest and the Candidates

The Great Paper/Developer Shoot Out tested mainly fiber-based papers and developers, trying each paper with each developer.

Initially, I identified 8 papers and 8 developers. 64 combinations. I wanted to try extended development times, too, and arbitrarily standardized on 2 and 6-minute prints for every developer. An extra print from each combination and development time was made for toning in Selenium.

One full-range negative served for all combinations, so that I could see any differences in a single picture across them all, standardized on Grade 2 for graded papers and my VC head.

I found minimum time under the enlarger to print black through clear film with each combination. I made a test strip with clear film, established the minimum exposure time to get full black, substituted the picture negative, and exposed a sheet for the same time. With minimum time for maximum black I didn't overprint shadows with combinations that might have more contrast than others. It seemed, however, that I was seeking some quality that would be evident even if it weren't a perfect print. Was I likely to overlook some combination with this method? Maybe. Was there an alternative that would keep me sane? None that I could see.

So, here were the candidates:

The Great Paper/Developer Shoot Out Candidates

Papers	Developers
Kodak Polymax Fine Art	Kodak Dektol
Oriental Seagull Grade 2	Ilford Multigrade
Oriental Seagull VC	Edwal Platinum II
Ilford Mutigrade IV FB	Edwal Ultra Black
Agfa Multicontrast Classic	Photographer's Formulary 130
Forte Elegance Polygrade VC	Fine Art Photo Supply VersaPrint II
Ilford Galerie Grade 2	Sprint Quick Silver
Bergger Prestige Silver Supreme	Clayton Ultra Cold Tone
Bergger Prestige NB-VC	Clayton P20
Bergger Prestige NB Grade 2	Zonal Pro Factor One

Mr. Horowy at Bergger donated three of their papers (plenty of Silver Supreme to work with, but not enough to test with the others, however). Then, on a whim, I wondered just how bad RC paper was. At the request of kind Ted Harris, Midwest Photo Exchange donated a box of Ilford Multigrade RC Cooltone. Eleven papers. Mr. Huff at Clayton Chemicals sent me three developers included in these tests. Eleven developers. Fine Art Photo Supply donated balanced alkali and pure hypo for toning. I am deeply grateful to those who donated materials.

The Hardware and the Process

A Saunders LPL with the VCCE head, with all VC paper using a Grade 2 filter (using the Ilford filtration, even for Kodak Polymax), all graded papers using Grade 2. 150mm Schneider Componon. 8x10 prints from a 4x5 negative.

Over 40 hours in the darkroom, and a day in the studio sleeve-ing, labeling and fitting prints into big binders had the work done. Uncounted hours looking at prints. Testing each developer with ten papers took about 3 hours, times eleven developers. Plus going back and working with Bergger Silver Supreme and more printing with some of the papers. Plus toning. There are over 400 prints.

More About the Developer Candidates

Having recently tried Sprint Quick Silver, I fell in love with the convenience of liquid developers. I have lingering doubts about storage life, and with all my leftovers, we'll see. Developers were chosen because the local photography shops had them, and because the folks at Clayton sent me samples for free. I had an interest in the old Ansco 130, and I found it at a local camera shop in its Photographers' Formulary version. Fine Art Photo Supply's VersaPrint II was the origin of all this madness (see Part One). Trusted opinions said Dektol would come out on top. Ilford Multigrade lists benzotriazole as an ingredient, and I routinely use it with Dektol (try benzotriazole in the developers too? Nah. Too many variables already, not enough time or paper). The table

gives almost enough information to be useful, but quite frankly, I don't care what's in it as long as the prints look good.

I have left out many favorites, including Agfa Neutol and Ethol LPD (nobody had them on their shelves locally). Amidol, while I have never tried it, seems to be more trouble than I'm ready to put up with.

The Great Paper/Developer Shoot-Out Developers

Clayton P20	Liquid concentrate, dilutes 1:7 with normal use. Phenidone and hydroquinone. Neutral tone.
Clayton Ultra Cold Tone	Liquid concentrate, dilutes 1:7 with normal use. Hydroquinone. Formulated to deliver cold tones.
Clayton P90	Liquid concentrate, dilutes 1:7. Phenidone and hydroquinone. Formulated to deliver cold tones.
Edwal Platinum II	Liquid concentrate, dilutes 1:9 for normal use. Hydroquinone. Formulated to deliver neutral tones.
Edwal Ultra Black	Liquid concentrate, dilutes 1:7 for normal use. Hydroquinone. Formulated to deliver neutral to cold tones, and deep blacks.
Fine Art VersaPrint II	Powder. Non-sequestered, glycin-based. Standard dilution 1:1. Stock should be kept out of light, and powder should be mixed soon, since glycin oxidizes fairly quickly. May have warm tone.
Ilford Multigrade	Liquid concentrate, dilutes 1:9 for normal use. Hydroquinone and benzotriazole. May have cold tone.
Kodak Dektol	Powder. Stock solution dilutes 1:2. Hydroquinone. Considered neutral tone.
Photographers' Formulary 130	Powder. Non-sequestered, glycin-based. Based on an old Ansco formula. Standard dilution 1:1. Stock should be kept out of light, and should be mixed soon, since glycin oxidizes fairly quickly. Hydroquinone, metol, glycin. May have warm tone.
Sprint Quick Silver	Liquid concentrate, dilutes 1:9 for normal use. Hydroquinone. Formulated to produce neutral tones.
Zonal Pro Factor One	Liquid concentrate, dilutes 1:15. Hydroquinone. Formulated to produce neutral tones.

Experience in the Darkroom

Much of the darkroom experience is chronicled in Part One.

I was sure that toning would be easy. Tone all of one paper at the same time, and they should all take the same time regardless of developer, right? Wrong. Developer seems to affect toning time, and toning look. Dektol prints take about twice as long to "look" like other developers' prints. I toned by look: when the mid-tones started to turn color compared to an untuned print, I pulled the print and put it in running water (Richard Ritter told me to do that, and I do what Richard says). Conclusions: toning time varies by developer, so just "going by the clock" doesn't cut it unless the clock is calibrated to the paper/developer combination, and then it might just have a lot to do with the image itself, too. I won't be toning by the clock, except to use it as a general guideline. I toned about seven prints at a time, all of the same paper. I had to be sure to avoid using a really cold-tone untuned print as a reference, or else I was at risk of over-toning by the time I saw color change compared to a really cold untuned combination. I toned the reference print by the clock after all the rest had

been done. I started with Kodak Rapid Selenium Toner at a 1:40 dilution, since that gave me plenty of safety margin. Then I got bored and went to about 1:20. Most of my toning times at that dilution were from 2 to 6 minutes. Hypo Clear for 3 minutes and an hour wash in an archival washer. Dried on screens.

And yup, the overall ‘look’ of the toned prints varied by developer. The results are reflected in the Comparison of Toned Prints, and accounts, I think, for the changes in the rankings between Untoned and Toned prints. Remember, this is about me, and I like, or thought I liked, colder tones.

The Results

The Evaluation Process. In Part One, we compared all the papers in one developer (“which paper is best with this developer?”). Here, we’ll compare each paper across developers (“which developer is best with this paper?”). We can see how a combination tones compared to untoned prints (“how does this paper/developer combination tone?”). We can compare two different development times (“what changes does a longer development time make?”). We can choose favorites.

With labels on the backs of the prints, I did a “blind” test:

- For each paper, go through the prints and pick out those that just seem, well, better than others. I did this first for 2-minute prints, then 6-minute ones.
- Force-rank all prints at both development times from one paper, best to least.
- Then, finally, look at the labels. This comparison ranks developer and time for each paper.

I looked at the untoned prints, then I repeated with the toned prints. Always in our well-lit kitchen for enough space to spread them out, but more importantly for good, consistent light. One day I took some with me to the local high school and ranked them under fluorescent lights. Very different rankings, which I noted but did not use. Consistency was important.

Overall Impressions. There were no bad combinations. There were no merely good ones. I could force a ranking because they did look different. But rather than judging quality, I found myself asking with what kind of picture this combination would work best. Snow scene? Portrait? Barn wood? Deep woods?

I was surprised how subtle the differences were between developers on the same paper. Some developers had substantial differences between 2 and 6-minute development times, some didn’t. Some developers were colder, some distinctly warmer. There was much less consistency ranking developers than there was with papers.

Overall, I could live with any one of the combinations if all of our other choices went away. On the other hand, we are blessed with a plethora of fine materials.

Favorite Papers - Life and Depth. In Part One, I chose Elegance and Galerie consistently in the blind comparisons of untoned and toned prints. They had a life, depth, substance, and glow that were consistently more appealing to me with this negative. That’s an important point: this is a pretty “macho” negative that favors a strong paper. Some of the papers were distinctly more delicate, and didn’t seem as effective with this picture. Subsequent printing got Bergger Prestige papers to shine, and I decided that the best way to use Bergger Silver Supreme is to design a project around it, and calibrate other variables (especially negative development time) to match the paper’s characteristics.

It is interesting to note that after Part One was published, I had the chance to show the prints to Richard Ritter and Anthony Guidice. Under the same “blind” circumstances, they both chose Elegance as their favorite paper. I feel better about that, personally. Ted Harris, on the other hand, chose Ilford Multigrade FB. That tells me that sharp eyes also have different tastes, and look for different things. That’s fine.

Favorite Developers. For most of the developers, time made a difference, and, as shown in the tables, 6 is most often better than 2 minutes – not good news for those of us who are impatient. What was the difference? It varied by paper. On some papers, 6 minutes depressed the mid-tones, but on other combinations, mid-tones looked a hair lighter with more glow. Sometimes six minutes gave more substance and weight, sometimes less. Richard Ritter reminded me that I was dealing with the Mystery Chemicals, using them on the Mystery Stuff (paper). Nevertheless, the results seem to be all over the lot, and very inconsistent. I even went back and did all the rankings again when I was mentally fresher, and the results were basically the same. The differences, as I said, are subtler than comparing papers, but they can be seen, and for this negative, I prefer some to others.

Developer Tone. I looked at Elegance’s untuned prints across developers to determine relative warmth and coldness. I compared them “blind,” without knowing which developer I was looking at, lining up the prints warmest to coldest. Glycin developers, like 130 and VersaPrint II tend to be slightly warmer. The benzotriazole in Ilford Multigrade gave it less of a cooler tone than I expected. The middle of the pack is hard to distinguish, Edwal Ultra Black and Sprint Quick Silver are really cold.

Different papers react differently to developers, giving varied results. I’ll stick with this ranking as a general guide, though, since it’s from my preferred paper.

Developers Ranked Warmest to Coldest – Untoned Prints

Warmest	Fine Art VersaPrint II
	Photographers’ Formulary 130
	Kodak Dektol
	Ilford Multigrade
	Clayton Ultra Cold Tone
	Clayton P90
	Clayton P20
	Edwal Platinum II
	Zonal Pro Factor One
	Sprint Quick Silver
Coldest	Edwal Ultra Black

In my forced rankings of untuned prints, Ilford Multigrade developer lands in the top three or four surprisingly often. Edwal Ultra Black is in the top half of a paper’s rankings more often than any other. VersaPrint II is up there frequently, too. For toned prints, I still see a lot of Ultra Black. Interesting that Ilford Multigrade Developer wins with Multigrade IV paper. Many Clayton Ultra Cold Tones. Some differences between untuned and toned results, too.

Comparison of Developers - Untoned Prints

Agfa	Bergger 2	Bergger VC	Forte	Galerie 2	Cooltone RC	MGIV	Kodak	Seagull 2	Seagull VC
Clayton P90 2 Min.	Clayton P20 6 Min.	Sprint Quick Silver 2 Min.	Fine Art VersaPrint 2 MIN.	Kodak Dektol 6 Min.	Clayton P20 6 Min.	Sprint Quick Silver 6 Min.	Kodak Dektol 6 Min.	Fine Art VersaPrint II 6 Min.	Kodak Dektol 6 Min.
Iflord Multigrade 2 Min.	Clayton Ultra Cold Tone 6 Min.	Iflord Multigrade 2 Min.	Photog. Form. 130 2 Min.	Fine Art VersaPrint II 6 Min.	Zonal Pro Factor One 6 Min.	Sprint Quick Silver 2 Min.	Iflord Multigrade 2 Min.	Clayton Ultra Cold Tone 6 Min.	Fine Art VersaPrint II 6 Min.
Clayton Ultra Cold Tone 6 Min.	Sprint Quick Silver 2 Min.	Clayton P20 2 Min.	Edwal Ultra Black 6 Min.	Photog. Form. 130 6 Min.	Edwal Ultra Black 6 Min.	Edwal Ultra Black 6 Min.	Edwal Ultra Black 2 Min.	Kodak Dektol 6 Min.	Sprint Quick Silver 6 Min.
Clayton P90 6 Min.	Sprint Quick Silver 6 Min.	Clayton P20 6 Min.	Iflord Multigrade 2 Min.	Photog. Form. 130 2 Min.	Fine Art VersaPrint II 6 Min.	Clayton Ultra Cold Tone 2 Min.	Zonal Pro Factor One 6 Min.	Edwal Ultra Black 6 Min.	Edwal Ultra Black 2 Min.
Iflord Multigrade 6 Min.	Edwal Ultra Black 2 Min.	Edwal Ultra Black 6 Min.	Fine Art VersaPrint II 6 Min.	Iflord Multigrade 6 Min.	Edwal Ultra Black 2 Min.	Iflord Multigrade 6 Min.	Photog. Form. 130 2 Min.	Sprint Quick Silver 2 Min.	Clayton P90 2 Min.
Clayton Ultra Cold Tone 2 Min.	Edwal Ultra Black 2 Min.	Edwal Ultra Black 2 Min.	Edwal Ultra Black 2 Min.	Clayton P90 2 Min.	Clayton Ultra Cold Tone 2 Min.	Kodak Dektol 2 Min.	Kodak Dektol 2 Min.	Clayton P20 2 Min.	Clayton P20 6 Min.
Edwal Platinum II 2 Min.	Edwal Platinum II 6 Min.	Zonal Pro Factor One 6 Min.	Clayton Ultra Cold Tone 6 Min.	Edwal Platinum II 6 Min.	Fine Art VersaPrint II 2 Min.	Kodak Dektol 6 Min.	Photog. Form. 130 6 Min.	Sprint Quick Silver 6 Min.	Zonal Pro Factor One 6 Min.
Photog. Form. 130 2 Min.	Iflord Multigrade 2 Min.	Clayton P90 2 Min.	Clayton P90 6 Min.	Kodak Dektol 2 Min.	Clayton Ultra Cold Tone 6 Min.	Photog. Form. 130 6 Min.	Edwal Ultra Black 6 Min.	Clayton P90 6 Min.	Clayton P90 6 Min.
Edwal Ultra Black 2 Min.	Edwal Platinum II 2 Min.	Photog. Form. 130 2 Min.	Edwal Platinum II 2 Min.	Clayton P20 6 Min.	Clayton P90 6 Min.	Fine Art VersaPrint II 6 Min.	Clayton P90 6 Min.	Kodak Dektol 2 Min.	Clayton P20 2 Min.
Edwal Platinum II 6 Min.	Clayton Ultra Cold Tone 2 Min.	Kodak Dektol 2 Min.	Kodak Dektol 2 Min.	Edwal Ultra Black 6 Min.	Photog. Form. 130 2 Min.	Edwal Ultra Black 2 Min.	Clayton Ultra Cold Tone 6 Min.	Photog. Form. 130 2 Min.	Photog. Form. 130 2 Min.
Sprint Quick Silver 2 Min.	Clayton P20 2 Min.	Iflord Multigrade 6 Min.	Iflord Multigrade 6 Min.	Sprint Quick Silver 2 Min.	Kodak Dektol 2 Min.	Clayton Ultra Cold Tone 6 Min.	Iflord Multigrade 6 Min.	Photog. Form. 130 6 Min.	Edwal Platinum II 6 Min.
Kodak Dektol 2 Min.	Fine Art VersaPrint II 6 Min.	Fine Art VersaPrint II 6 Min.	Clayton Ultra Cold Tone 2 Min.	Clayton Ultra Cold Tone 6 Min.	Photog. Form. 130 6 Min.	Edwal Platinum II 6 Min.	Fine Art VersaPrint II 6 Min.	Clayton P20 6 Min.	Iflord Multigrade 6 Min.
Clayton P20 2 Min.	Kodak Dektol 6 Min..	Sprint Quick Silver 6 Min.	Clayton P20 6 Min.	Edwal Ultra Black 2 Min.	Sprint Quick Silver 2 Min.	Fine Art VersaPrint II 2 Min.	Fine Art VersaPrint II 2 Min.	Edwal Ultra Black 2 Min.	Sprint Quick Silver 2 Min.
Fine Art VersaPrint II 2 Min.	Clayton P90 6 MIN.	Clayton Ultra Cold Tone 6 Min.	Sprint Quick Silver 2 Min.	Zonal Pro Factor One 6 Min.	Clayton P90 2 Min.	Clayton P20 2 Min.	Clayton Ultra Cold Tone 2 Min.	Fine Art VersaPrint II 2 Min.	Edwal Ultra Black 6 Min.
Edwal Ultra Black 6 Min.	Iflord Multigrade 6 Min.	Edwal Platinum II 2 Min.	Kodak Dektol 6 Min.	Clayton P20 2 Min.	Sprint Quick Silver 6 Min.	Iflord Multigrade 2 Min.	Clayton P20 2 Min.	Clayton Ultra Cold Tone 2 Min.	Clayton Ultra Cold Tone 6 Min.
Sprint Quick Silver	Zonal Pro Factor One	Clayton P90 6 Min.	Clayton P20 2 Min.	Iflord Multigrade 2 Min.	Iflord Multigrade 2 Min.	Clayton P90 2 Min.	Sprint Quick Silver	Iflord Multigrade 6 Min.	Clayton Ultra Cold Tone

Comparison of Developers - Untoned Prints

Agfa	Bergger 2	Bergger VC	Forte	Galerie 2	Cooltone RC	MGIV	Kodak	Seagull 2	Seagull VC
6 Min.	6 Min.						6 Min.		2 Min.
Kodak Dektol 6 Min.	Kodak Dektol 2 Min.	Kodak Dektol 6 Min.	Sprint Quick Silver 6 Min.	Clayton Ultra Cold Tone 2 Min.	Clayton P20 2 Min.	Clayton P20 6 Min.	Edwal Platinum II 6 Min.	Clayton P90 2 Min.	Edwal Platinum II 2 Min.
Clayton P20 6 Min.	Clayton P90 2 Min.	Photog. Form. 130 6 Min.	Clayton P90 2 Min.	Fine Art VersaPrint II 2 Min.	Kodak Dektol 6 Min.	Edwal Platinum II 2 Min.	Clayton P20 6 Min.	Edwal Platinum II 6 Min.	Photog. Form. 130 6 Min.
Zonal Pro Factor One 6 Min.	Photog. Form. 130 2 Min.	Edwal Platinum II 6 Min.	Zonal Pro Factor One 6 Min.	Sprint Quick Silver 6 Min.	Edwal Platinum II 6 Min.	Clayton P90 6 Min.	Clayton P90 2 Min.	Zonal Pro Factor One 6 Min.	Iford Multigrade 2 Min.
Fine Art VersaPrint II 6 Min.	Photog. Form. 130 6 Min.	Clayton Ultra Cold Tone 2 Min.	Edwal Platinum II 6 Min.	Clayton P90 6 Min.	Iford Multigrade 6 Min.	Photog. Form. 130 2 Min.	Edwal Platinum II 2 Min.	Edwal Platinum II 2 Min.	Fine Art VersaPrint II 2 Min.
Photog. Form. 130 6 Min.	Fine Art VersaPrint II 2 Min.	Fine Art VersaPrint II 2 Min.	Photog. Form. 130 6 Min.	Edwal Platinum II 2 Min.	Edwal Platinum II 2 Min.	Zonal Pro Factor One 6 Min.	Sprint Quick Silver 2 Min.	Iford Multigrade 2 Min.	Kodak Dektol 2 Min.

Comparison of Developers - Toned Prints

Agfa Multiclassic	Bergger Prestige NBVC	Bergger Prestige NB Grade 2	Forte Elegance	Ilford Galerie Grade 2	Ilford Cooltone RC	Ilford Multigrade IV	Kodak Polymax	Oriental Seagull Grade 2	Oriental Seagull VC
Clayton Ultra Cold Tone 6 min	Sprint Quick Silver 2 min	Edwal Ultra Black 6 min	Kodak Dektol 2 min	Kodak Dektol 6 min	Clayton P20 6 min	Ilford Multigrade 2 min	Edwal Ultra Black 2 min	Kodak Dektol 2 min	Edwal Platinum II 2 min
Clayton Ultra Cold Tone 2 min	Clayton P20 2 min	Clayton Ultra Cold Tone 6 min	Clayton P90 6 min	Fine Art VersaPrint II 6 min	Edwal Ultra Black 6 min	Clayton Ultra Cold Tone 6 min	Clayton Ultra Cold Tone 6 min	Sprint Quick Silver 2 min	Edwal Platinum II 6 min
Photographers' Formulary 130 2 min	Edwal Ultra Black 6 min	Kodak Dektol 6 min	Fine Art VersaPrint II 6 min	Clayton P20 2 min	Clayton Ultra Cold Tone 2 min	Kodak Dektol 2 min	Clayton P90 6 min	Fine Art VersaPrint II 2 min	Zonal Pro Factor One 6 min
Ilford Multigrade 2 min	Ilford Multigrade 6 min	Edwal Platinum II 2 min	Ilford Multigrade 2 min	Edwal Ultra Black 2 min	Edwal Ultra Black 2 min	Clayton P20 2 min	Clayton P20 6 min	Clayton P90 2 min	Clayton P90 6 min
Edwal Platinum II 6 min	Ilford Multigrade 2 min	Sprint Quick Silver 2 min	Clayton P90 2 min	Sprint Quick Silver 2 min	Clayton P90 2 min	Edwal Ultra Black 2 min	Ilford Multigrade 2 min	Clayton P90 6 min	Photographers' Formulary 130 6 min
Zonal Pro Factor One 6 min	Edwal Ultra Black 2 min	Ilford Multigrade 2 min	Clayton Ultra Cold Tone 6 min	Fine Art VersaPrint II 2 min	Photographers' Formulary 130 6 min	Fine Art VersaPrint II 2 min	Sprint Quick Silver 6 min	Fine Art VersaPrint II 6 min	Fine Art VersaPrint II 6 min
Kodak Dektol 6 min	Edwal Platinum II 6 min	Edwal Ultra Black 2 min	Photographers' Formulary 130 6 min	Kodak Dektol 2 min	Zonal Pro Factor One 6 min	Fine Art VersaPrint II 6 min	Edwal Ultra Black 6 min	Photographers' Formulary 130 2 min	Sprint Quick Silver 6 min
Clayton P90 6 min	Sprint Quick Silver 6 min	Sprint Quick Silver 6 min	Clayton P20 2 min	Edwal Ultra Black 6 min	Clayton P90 6 min	Clayton P90 2 min	Photographers' Formulary 130 2 min	Photographers' Formulary 130 6 min	Kodak Dektol 6 min
Fine Art VersaPrint II 6 min	Zonal Pro Factor One 6 min	Clayton P20 2 min	Photographers' Formulary 130 2 min	Clayton Ultra Cold Tone 2 min	Kodak Dektol 6 min	Ilford Multigrade 6 min	Photographers' Formulary 130 6 min	Edwal Ultra Black 2 min	Ilford Multigrade 6 min
Ilford Multigrade 6 min	Edwal Platinum II 2 min	Clayton P20 6 min	Clayton Ultra Cold Tone 2 min	Ilford Multigrade 6 min	Kodak Dektol 2 min	Sprint Quick Silver 6 min	Zonal Pro Factor One 6 min	Kodak Dektol 6 min	Kodak Dektol 2 min
Photographers' Formulary 130 6 min	Edwal Ultra Black 2 min	Clayton Ultra Cold Tone 2 min	Kodak Dektol 6 min	Sprint Quick Silver 6 min	Fine Art VersaPrint II 2 min	Edwal Platinum II 6 min	Fine Art VersaPrint II 6 min	Clayton Ultra Cold Tone 2 min	Clayton Ultra Cold Tone 2 min
Sprint Quick Silver 6 min	Clayton Ultra Cold Tone 6 min	Edwal Platinum II 6 min	Edwal Platinum II 2 min	Clayton P90 2 min	Ilford Multigrade 2 min	Edwal Ultra Black 6 min	Edwal Platinum II 2 min	Clayton P20 2 min	Edwal Ultra Black 2 min
Fine Art VersaPrint II 2 min	Clayton P90 6 min	Ilford Multigrade 6 min	Sprint Quick Silver 2 min	Clayton P20 6 min	Clayton P20 2 min	Kodak Dektol 6 min	Kodak Dektol 6 min	Clayton P20 6 min	Clayton Ultra Cold Tone 6 min
Clayton P20 6 min	Kodak Dektol 6 min	Fine Art VersaPrint II 6 min	Edwal Platinum II 6 min	Ilford Multigrade 2 min	Photographers' Formulary 130 2 min	Clayton P90 6 min	Clayton P20 2 min	Clayton Ultra Cold Tone 6 min	Clayton P20 2 min
Edwal Ultra Black 6 min	Clayton P90 2 min	Clayton P90 6 min	Edwal Ultra Black 6 min	Photographers' Formulary 130 2 min	Clayton Ultra Cold Tone 6 min	Clayton P20 6 min	Kodak Dektol 2 min	Ilford Multigrade 6 min	Edwal Ultra Black 2 min
Clayton P90 2 min	Photographers' Formulary 130	Zonal Pro Factor One	Fine Art VersaPrint II	Clayton Ultra Cold Tone	Ilford Multigrade 6 min	Clayton Ultra Cold Tone	Edwal Platinum II 6 min	Edwal Ultra Black 6 min	Clayton P90 6 min

Comparison of Developers - Toned Prints

Agfa Multiclassic	Bergger Prestige NBVC	Bergger Prestige NB Grade 2	Forte Elegance	Ilford Galerie Grade 2	Ilford Cooltone RC	Ilford Multigrade IV	Kodak Polymax	Oriental Seagull Grade 2	Oriental Seagull VC
	6 min	6 min	2 min	6 min		2 min			
Sprint Quick Silver 2 min	Fine Art VersaPrint II 6 min	Photographers' Formulary 130 6 min	Edwal Ultra Black 2 min	Edwal Platinum II 6 min	Fine Art VersaPrint II 6 min	Photographers' Formulary 130 2 min	Clayton Ultra Cold Tone 2 min	Sprint Quick Silver 6 min	Ilford Multigrade 2 min
Kodak Dektol 2 min	Kodak Dektol 2 min	Clayton P90 2 min	Clayton P20 6 min	Photographers' Formulary 130 6 min	Edwal Platinum II 6 min	Photographers' Formulary 130 6 min	Clayton P90 2 min	Ilford Multigrade 2 min	Photographers' Formulary 130 2 min
Clayton P20 2 min	Clayton Ultra Cold Tone 2 min	Photographers' Formulary 130 2 min	Sprint Quick Silver 6 min	Zonal Pro Factor One 6 min	Edwal Platinum II 2 min	Edwal Platinum II 2 min	Sprint Quick Silver 2 min	Edwal Platinum II 2 min	Fine Art VersaPrint II 2 min
Edwal Platinum II 2 min	Photographers' Formulary 130 2 min	Kodak Dektol 2 min	Zonal Pro Factor One 6 min	Clayton P90 6 min	Sprint Quick Silver 6 min	Sprint Quick Silver 2 min	Fine Art VersaPrint II 2 min	Zonal Pro Factor One 6 min	Sprint Quick Silver 2 min
Edwal Ultra Black 2 min	Fine Art VersaPrint II 2 min	Fine Art VersaPrint II 2 min	Ilford Multigrade 6 min	Edwal Platinum II 2 min	Sprint Quick Silver 2 min	Zonal Pro Factor One 6 min	Ilford Multigrade 6 min	Edwal Platinum II 2 min	Clayton P90 2 min

So how does one make any sense out of this? I tried being quantitative: counting up points: ten for a first-place, nine for second, and so forth, comparing the top half of the rankings for untoned prints. That's fine if one assumes that one is going to keep all ten papers in inventory. Then I repeated that exercise for Elegance, Galerie, and Agfa (as a warm tone variant), figuring that I can narrow the developers to only those that are best with my favorite papers.

The quantitative rankings look thus:

“Best” Developers, All Papers, Untoned	“Best” Developers, “Favorite” Papers, Untoned
Edwal Ultra Black	Ilford Multigrade
Sprint Quick Silver	Photographers' Formulary 130
Kodak Dektol	Fine Art VersaPrint II
Fine Art VersaPrint II	Clayton P90
Ilford Multigrade	Clayton Ultra Cold Tone
Clayton Ultra Cold Tone	Edwal Ultra Black

“Best” Developers, All Papers, Toned	“Best” Developers, “Favorite” Papers, Toned
Edwal Ultra Black	Clayton Ultra Cold Tone
Clayton Ultra Cold Tone	Fine Art VersaPrint II
Clayton P90	Kodak Dektol
Ilford Multigrade	Clayton P90
Kodak Dektol	Ilford Multigrade
Fine Art VersaPrint II	Photographers' Formulary 130, Clayton P20

Well, so much for quantified results. The facts are: VersaPrint II is #1 for Elegance, untoned (at only 2 minutes! Yippee!) and #2 for Galerie (6 minutes, oh well). Dektol is #1 for Elegance toned (2 minutes! Hooray!), and for Galerie toned (6 minutes). I'll keep both these developers around. I like the way I conveniently package Dektol Stock solution (in 16 oz. Glass Coke bottles, to make 1½ quarts of working solution, and the stock keeps, seemingly, forever). I'll similarly package VersaPrint II stock solution (I'm testing whether the 20 oz. plastic Coke bottles keep the stock from oxidizing – long ago, with more primitive plastics, Dektol went bad quickly). So much for the convenience of liquid developers. I'll miss them when I've finished using up what I have left.

Hey, Barlow! You said you liked cold tones, but VersaPrint II and Dektol you list as being on the warmer side. What gives? True, I said that. Maybe I'm not as much a cold-tone bigot as I thought (read Part One where I “warm” to Agfa Multiclassic). All I can say is, if I'm going to keep it to only two developers, I like these two the best with both Forte and Galerie. Get off my case.

Subsequently, Richard Ritter and Anthony Guidice also looked at developers for Elegance, their favorite paper. Under the “blind” test conditions, they both chose VersaPrint II. Maybe there is something to the “glycin glow.”

Subsequent to that, about 25 photographers gathered at my house to see for themselves as part of a Western Mass Large Format gathering. Results, expectedly, were all over the lot, but there were a lot of Forte fans by the end. Developers got them, however, and there was much moaning about how subtle the differences

were between developers. I was interested to hear that a number of photographers chose the paper they had been using for years in a blind test. That is encouraging to me – that they were familiar enough with their particular material to pick it out in a blind test with somebody else’s picture. Good for them!

Subsequently, at two Large Format Conferences, many fine photographers and outstanding printers chose Forte Elegance with Fine Art VersaPrint. In fact, the consensus is almost scary. A standout disagree-er is Paula Chamlee, however, who chose Galerie in Dektol. I trust her eyes, too. We recall I chose Forte with Dektol...

Cost Considerations. Prices in the table are from the B&H Photo web site (early 2004) for “Street” prices, the Street price being what B&H Photo uses as a sales price. Clayton prices come from the packing slip they sent me with samples. The VersaPrint II price is from Fine Art Photo Supply. Prices do not include shipping costs or taxes.

It seemed the most useful developer cost comparison was for the cost per 2 liters of working solution. I calculated that based on the manufacturer’s recommended dilution, which I used for the tests. The glycin developers – VersaPrint II and PF 130 – are significantly more expensive than the others, and note that there will be shipping costs, too. Kodak Dektol wins the Best Buy rating here. Until one comes up against the glycin developers, however, the difference is about the cost of a sheet or two of paper, which is not enough to get me excited if the results are worthwhile.

Developer Costs Per 2 Liters Working Solution

Developer	“Street Price” /Volume	Cost/2 liters Working Solution
Clayton P20	8.32/liter	\$2.08
Clayton Ultra Cold Tone	9.75/liter	2.44
Clayton P90	8.75/liter	2.19
Edwal Platinum II	15.49/liter	3.10
Edwal Ultra Black	15.49/liter	3.10
Fine Art VersaPrint II	22.00/4 lt.	5.50
Ilford Multigrade	29.99/2.5 lt.	2.40
Kodak Dektol	5.49/gal.	.92
Photographers’ Formulary 130	15.95/4 lt.	3.99
Sprint Quick Silver	28.5/4 lt.	1.43
Zonal Pro Factor One	8.50/qt.	2.13

Anthony Guidice reminds me that VersaPrint II has a large capacity per liter of working solution, and can be more economical when one saves the working solution between printing sessions. That’s not a habit I have developed, but seems to be an easy one. Use it to capacity. Save money. Save the planet. Anthony also got me to stop using an acid stop bath (“you’re pouring salad dressing into your septic system...”).

Conclusions and Next Steps. Would you buy a car without driving several to compare them? So why use papers and developers based on somebody else’s opinion?

That said, here’s my opinion: I’ll keep Elegance, and maybe Galerie (costs a lot more, but it sure is pretty) in inventory. While Elegance would probably look good developed in orange juice, I don’t have a refrigerator in the darkroom, and so will use Dektol and VersaPrint II as my developers. I’ll test 4-minute development times with Dektol to see if I can save myself from the boredom of 6 minutes without sacrificing quality. Advisers told me that 4 minutes would be enough for the tests, but that didn’t seem long enough for me

- I wanted to take it over the top. Now I can split the difference between 2 and 6 and see how much, if anything, I lose. I'll also test VersaPrint II at a 1:2 dilution instead of 1:1 to see what I lose, since Anthony says that a 1:2 dilution works, too (later, I did test it, it does work diluted 1:2 just fine). Save money. Save the planet.

I also need to test for dry-down, since I just had an unfortunate experience printing wonderful snow scenes that dried down more than I expected, and into dingy, awful prints. I may test all the papers for dry down (hey, Steve! Part Three??) so that I know. Does drydown vary by developer for the same paper? Don't know, would guess not, but I also guessed that toning times wouldn't vary by developer for the same paper, which was dead wrong. On the other hand, I have narrowed the field so much that I only really need to try that for Elegance and maybe Galerie in VersaPrint II and Dektol. The other papers we can test in only Dektol, because life's too short to spend it testing.

It is important to note one last time that were no merely good combinations, and especially with developers, the differences are very subtle. All the combinations were of very high quality, and your tastes may be different from mine. These days anyone who makes materials for us non-digital photographers deserves our applause, support, and patronage.

In the meantime, I'll use my leftover paper and developers to print real pictures and learn more about all these fine materials.

Thanks again to Clayton Chemicals, Bergger, Fine Art Photo Supply, Richard Ritter, Ted Harris, Steve Simmons, and Anthony Guidice for all their invaluable contributions. This show can go on the road, contact me at BBarlow690@aol.com, or visit www.finefocusworkshops.com.