

THE GREAT PAPER-DEVELOPER SHOOT-OUT

Part One: Background, and Paper Comparison (Extended Special Edition)



This is the first of two articles about black-and white enlarging paper and paper developers. In this first piece, the author traces the development of the quest, and presents the results of tests of eleven different papers. The second article will discuss the results of comparing developers.

Background.

“Elegance paper with VersaPrint II developer reminds me of the old DuPont Varigam,” Anthony Guidice, of Fine Art Photo Supply, said. “It doesn’t look exactly like Varigam,” he hedged, “but it reminds me of Varigam.” Anthony is a good friend, and a nice guy. I listen to him. His words got me thinking, as usual when I talk with him. I had always used the old Zone VI Brilliant when it was available, and Oriental Seagull. More recently, I had been using Ilford Mutigrade FB, and Seagull VC, too. All with Dektol. But there was no method to this selection other than whim, and hearsay from people like Dave Usher and Richard Ritter, two fine photographers whose recommendations I would follow into the jaws of death. I had never compared any of the papers, nor had I experimented with developers, even after reading Steve Anchell’s cookbooks word-by-word, including the formulas. I had Ilford Galerie in my freezer that I had never tried.

Something was wrong here. Following the Internet discussion threads, I read a lot of recommendations for paper/developer combinations, but nobody said that they had done the work of trying combinations and directly comparing them (until Ann Clancy and I found each other electronically – she teaches a class that does this. They’re equipped with wine, I should note). Something was still wrong. Time to act.

The Quest and the Candidates.

So, I pledged to undertake The Great Paper/Developer Shoot Out, where I would test fiber-based papers (I don't use RC, and won't, so there's no reason for me to test any...having just said that, stay tuned), and developers, trying each paper with each developer. I'm also a neutral to cold-tone guy, because that seems to look the best with my work, so warm tone papers and developers are for someone else to do. Oh, and, Glossy, please, garcon.

Quickly, this got out of hand. I identified 8 papers and 8 developers. 64 combinations. Then it got worse. Why use only the recommended time? I had heard much about extended development times for paper, but never tried it. So I might as well do that, too. How much longer? Arbitrarily determined to be 3 times the recommended time. It turns out that I standardized on 2 and 6 minutes for every developer, in an effort to keep it simple. Simple?

But wait, how do the papers respond to Selenium toning? Guess I'd better make an extra print from each combination and time to tone, too.

Enough! But now, how to go about it in a way that won't take the rest of my life? Well, it seemed to me that I needed to use one full-range negative for all combinations, so that I could see any differences in a single picture across them all. Standardize on Grade 2 for graded papers and my VC head. It had to be a picture that I liked, too, since I'd be seeing it a lot.

So, prints at different times, and prints to tone. How to get an apples-to-apples comparison, though? Or even close to one?

I decided that I needed to establish the minimum time under the enlarger to print black through clear film with each combination. Make a test strip with clear film, establish the minimum exposure time to get full black, substitute my picture negative, and expose it for the same time. Must be at least 15 seconds (I print using 3-second bursts), so that the differences aren't too large and I can get as close to minimum exposure/maximum black as I can.

With minimum time for maximum black I'm guaranteed to not overprint shadows with papers that might have an ounce or two more contrast than others. Also, it felt a lot harder to match high values consistently across 64 combinations, and might take more than one print to do, taking more time than I wished, and probably more pieces of paper than I had. Not to mention testing for dry-down, and factoring that in.

What would I lose? Some papers may look dull; some may blow out high values. Won't make each paper look its best. Hmm. That one bothered me for a while. It seemed to me, however, that overall I was seeking some "je-ne-sais-quoi" quality that would be evident even if it weren't a perfect print. Some atmosphere or luminosity or feeling would come through. I'd get blacks; I'd see (or not see) shadow detail. I might not see the high values singing their soprano perfectly. But I also felt that certain combinations would call to me to fiddle with, and make the best print to see what they looked like. Within the 100 sheets of each paper that I needed to limit myself to, I should have enough left over to play a little with any apparent favorites. Was I likely to shortchange some combination with this method? Maybe. Was there an alternative that would keep me sane? None that I could see.

I reviewed the methodology and its reasoning with several photographers whose photographs I respect and whose technical acumen I trust. After they stopped laughing, they agreed that the methodology was sound enough. There was a strong lobby from one quarter for printing a step wedge and using a densitometer. While

that answers a number of good questions, it doesn't answer mine, which is what looks best under real life circumstances, and while I could have printed a step wedge with a contact print of a 4x5 negative, I preferred to have 8x10 prints to show to people. And I own neither a step wedge nor a densitometer, which really clinched it.

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 V 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 Crade 2	Zonal Pro Factor One

Wait a minute, that's TEN papers and TEN developers! Oh well. I can't count in the dark anyway. Then, on a whim, I wondered just how good RC paper was. Ted Harris contacted Midwest Photo Exchange, who came to my rescue and donated a box of Ilford Multigrade RC Cooltone at the request of Ted Harris. Eleven papers. Mr. Horowy at Bergger very generously donated 100 sheets of each of Prestige NB-VC and NB-Grade 2. He was also generous with 50 sheets of the Silver Supreme, but that didn't give me enough to test it with all developers, so I decided to only test Silver Supreme with the best developers, which meant going back and redoing some work later. So be it. 11 papers. 11 developers, including Clayton's P90, which Mr. Huff at Clayton sent me, along with P20, Ultra Cold Tone, and some of their wonderful Odorless Fixer, for free. 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 Grade 2 filtration (using the Ilford filtration standard, even for Kodak Polymax), all graded papers using Grade 2. 150mm Schneider Componon. 8x10 prints from a 4x5 negative. Clear film for max black. Acid stop bath, rapid fix. Separately, for one set of prints, pure hypo, followed by Selenium toning with a little Kodalk until it looks right (remember, this is all about me). Hypo-Clear and archival washing. Dry face down on screens. Label the back of each print and insert in a plastic sleeve.

Descend into the darkroom. Do one developer at a time, 5 papers at 4 prints and two 2" test strips each fill the Zone VI 11x14 washer. Take a break, mix new developer, do five more papers. Try to keep temperature as close to recommended as possible by putting developer tray in larger water bath.

Lots of good music helped fight the boredom. Boredom was an enemy if it intruded on meticulous record-keeping. The back of each piece of paper was labeled in soft pencil with what paper it was, what developer, and the development time. Labeling was important. Keeping track of what I had done was important.

Sanity struck, momentarily, like a lightning bolt. Just what was I likely to conclude from this exercise? Really? Well, nothing definitive. I would likely find combinations that I liked more than others, but that's about as far as it would go. Reproduction of subtle differences in print (like in this magazine) was out of the question. It was highly unlikely that there would be any combinations that were awful, although my years of large format snobbishness looked askance at RC, and I had low expectations for it. So then what? Well, package the results in a form that people could look at, and find ways to share. Write an article. Maybe give some starting points for others to do their own explorations (with all essential caveats). Sounded wishy-washy, but it was the only responsible course. No Nobel Prize.

OK, sanity had left again, and it was time to get to work. Some Product Shots of the candidates, and then off to the darkroom. Steve Simmons had expressed interest in an article ("When can you have it done?" he had said, always the editor...).

Expose all the test strips under the clear film, and develop first the 6-minute strips and then the 2-minute ones, since doing the 6-minute ones last made the six minutes feel like 6 hours. Evaluate the strips and write down the exposure times (in my 3-second burst method) on a paper spreadsheet. Then, I would write them down again on scrap paper with a magic marker big enough to see under safelights. I didn't know whether to expect the exposure times to be the same across developers, but I didn't want to risk mistakes, so I always made test strips. It turned out to be the correct way to proceed. Galerie, for instance, is two stops slower than the other papers. Silver Supreme is about a stop slower. And the exposures were never identical from developer to developer.

Exchange blank film for negative. Dust negative. Focus. Align with easel, which is taped to the enlarger baseboard so it won't move. Expose all 6-minute prints, storing them in paper safe. Develop, stop, fix. Mix new developer (20 prints wasn't close to exhausting 2 liters of working solution, but 40 might be). Expose and process 2-minute prints, storing them in running water tray. Get 6-minute prints out of the washer, squeegeed, and on screens. Put 2-minute prints in washer. Get next set of papers ready for tomorrow's test. Get 2-minute prints out of washer and onto screens.

I felt comfortable developing eight 6-minute prints at a time, putting them back-to-back and agitating them by pulling the bottom pair out of the stack, turning them over, and pushing them down on the top of the stack. I only felt comfortable with 4 prints for the 2-minute time, however. If I had done more than 4, I felt some of the prints might get short-changed in a time so short. That's also why I standardized on 2 minutes, even though most developers said that 1½ or even 1 minute was enough. Didn't feel like enough to me, especially with multiple prints in the soup. By the way, "Oversize Trays" are 10x12, midway between 8x10 and 11x14. I was a convert for using them when developing 8x10 film. I am now a convert for 8x10 prints, too. They comfortably hold 2 liters of solution and have plenty of space for the bottom-to-top agitation regimen I follow.

Later, I went back and re-wetted one set of the prints, gave them three minutes in pure hypo, followed by selenium toning. I started with very dilute toner (about 1:40) with a tablespoon of Kodalk added, not knowing how long toning would take. I toned each paper together, about six prints at a time, assuming, in my foolhardy way, that the developer I used would have no effect on the toning time. Wrong again, and more on that in Part 2. As I got more familiar and boredom set in, I increased the amount of toner, but never to where toning times got below two minutes. Three minutes in Hypo-Clear, and in the wash for an hour. Over 200 prints toned, and yes, of course I ran out of toner smack in the middle of it all. And, happily, not one stain.

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. Testing each developer with ten papers took about 3 hours, times eleven developers. Plus going back and doing Bergger Silver Supreme. Plus toning. I was ultimately limited to one developer per day because I ran out of drying screens, until I stole them off the windows of the house (after all, it's winter here in New Hampshire). There are over 400 prints.

More About the Candidates.

Papers. Standard inventory in my darkroom is Ilford Multigrade IV FB, and Oriental Seagull, graded and VC. I bought Galerie to try a while ago, and it has sat in the freezer. Elegance was touted as being good, or bad, depending on to whom I was talking. I had seen the Bergger papers at the last Large Format Conference, and had drooled ever since. Kodak Polymax, because ya gotta have Kodak, and Agfa because of many good things heard about it from trusted voices. I thought about mooching some old Zone VI Brilliant from Richard Ritter, but I didn't have the heart, given that it is no longer available, and I would only weep if it was radically better than the others. Ilford Cooltone because I wanted to see just how bad RC paper really was compared to fiber-based.

The Great Paper/Developer Shoot-Out Papers

Agfa Multicontrast Classic	Can deliver grades 0 to 5. Double-weight paper base. Glossy surface, matte is also available.
Bergger Prestige NB Crade 2	Chlorobromide emulsion on double-weight paper base. Glossy surface, matte also available. Sold in packages of 25 sheets. Red safelight recommended.
Bergger Prestige NB-VC	Chlorobromide emulsion on double-weight paper base. Can deliver grades 0 to 5. Glossy surface, matte also available. Sold in packages of 25 sheets. Red safelight recommended.
Bergger Prestige Silver Supreme	Extra-heavy cotton rag base with warm tone. Grade 2 only, sold only in packages of ten sheets. Portrait Matte surface (the rough side is the emulsion, the smooth the base - I got it wrong the first time I used it). Red safelight recommended. Surface is good for hand-coloring.
Forte Elegance Polygrade V VC	Can deliver grades 00 to 5. Double-weight paper base. Glossy surface, matte is also available. No developer in emulsion. Very informative sheet included with paper.
Ilford Galerie Grade 2	Double-weight graded (used grade 2). Glossy surface. Trusted advisers love it.
Ilford Multigrade Cooltone RC	Double-weight, resin-coated. Formulated to deliver cold tones. Formulated to deliver grades 00 to 5. Glossy, matte is also available. Years of large-format snobbishness gave me low expectations for this plastic stuff.
Ilford Multigrade IV FB	Can deliver grades 00 to 5. Double-weight paper base. Glossy surface, matte is also available. No developer in emulsion. Neutral to cold tone, warm tone also available.
Kodak Polymax Fine Art	Double-weight paper base. Glossy surface, matte is also available. Neutral to cold tone, warm tone also available. Base feels extra heavy and thick.
Oriental Seagull Grade 2	Double-weight graded (used grade 2). Glossy surface. My traditional favorite for snow and ice pictures.
Oriental Seagull VC	Double-weight paper base. Glossy surface, matte is also available. Neutral to cold tone. My traditional favorite VC, it had seemed in the past to have more "presence" than MG IV.

Yes, many papers are omitted, like Luminos and Cachet, and all those warm-tone variants. I'm interested in the new Freestyle paper, and have a gnawing interest in Azo that I have yet to satisfy. But, for now, eleven is plenty.

Developers. I recently tried Sprint Quick Silver, and for the first time got to know and love 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 on their shelves, and because the folks at Clayton sent me samples for free. I had an interest in the old Ansco 130 (Mr. Simmons told me, after the tests were done, that it used to be his favorite), and I found it on the shelf at a local camera shop in its Photographers' Formulary version. Fine Art Photo Supply's VersaPrint II was on the list, having been the origin of all this madness. Trusted opinions said Dektol would come out on top. Ilford Multigrade lists benzotriazole as an ingredient, and I routinely use it with Dektol (Benzotriazole, too? Another variable? Not this time...). More on developers in Part Two.

Experience in the Darkroom.

The papers were roughly the same speed, with the exception of Ilford Galerie, which was two stops slower than the others. The exposure times listed in the exhibit don't show that I opened the lens from f16, the usual aperture, to f8 just for Galerie (one more thing to keep track of). They were also roughly the same speed across developers. Speed doesn't really matter when the variations are this small. If I had to guess, I'd say that differences in the exposure times across papers has to do with differences in the amounts of different chlorides and bromides in each emulsion. Not that it makes a whit of difference as long as the paper makes good prints.

I failed with Zonal Pro Factor One at 2 minutes. Some papers developed well with it, some didn't even have an image after two minutes. A call to the manufacturer and a conversation with a nice man in their lab confirmed that at the manufacturer's recommended dilution a two-minute development time may not be enough. He suggested doubling the recommended dilution. That didn't square with my *modus operandi*, and so I leave Zonal Pro Factor One with only a 6-minute time to evaluate. Later I'll try a different dilution.

Photographers' Formulary 130 looked like Coca-Cola when I mixed it. A call to the PF folks ensued, who said that the glycin was oxidized and that the developer was probably no good. They recommended always getting glycin-type developers fresh from them, rather than from the local retailer where I had gotten mine, since undissolved glycin has a relatively short shelf life. A trade of e-mail messages with Mr. Simmons convinced me to try it anyway. He said it would probably work fine, and it did, in fact, perform admirably. Don't know for sure what lessons to draw from that. Another credible voice told me that the oxidized glycin probably didn't let 130 deliver its full potential. Don't know, but the results are the results at this point, and 130 was a solid performer.

Otherwise, things went pretty smoothly in the darkroom. I made a bare minimum of stupid mistakes, and overall wasted only 5 sheets of paper, 4 of which I fogged with the same mistake. A peripheral, mind-occupying goal came to be to see how efficient I could be in my own darkroom. It worked, and the lessons will apply forever.

The proof is in the prints - I didn't seem to make many mistakes judging black on test strips, so the prints match pretty well. Grade two isn't always the same across papers, and I am in the midst of a hunch that Bergger papers have a different tonal scale than the others, and need to be treated differently than I did for these tests.

Exposure Time Comparison By Paper and Developer

	Exposure Time (number of 3-second bursts) for Maximum Black Through Clear Film									
	Sprint Quick Silver		Ilford Multigrade		Edwal Platinum II		Edwal Ultra Black		Zonal Pro Factor One	
Minutes:	2	6	2	6	2	6	2	6	2	6
Agfa Multiclassic	9	8	9	8	9	8	9	9	N/R	10
Elegance	7	6	7	6	8	6	7	6	N/R	7
Ilford Multigrade Cooltone RC	7	6	7	6	7	6	7	6	N/R	7
Ilford Multigrade IV Fiber Base	8	7	8	7	8	7	8	7	N/R	7
Kodak Polymax Fine Art	9	8	9	8	9	8	9	8	N/R	9
Ilford Galerie Grade 2	6	5	7	5	7	6	8	6	N/R	7
Oriental Seagull Grade 2	10	8	8	6	11	7	8	7	N/R	10
Oriental Seagull VC	8	6	7	5	8	6	7	6	N/R	8
Bergger Prestige NBVC	8	6	8	7	9	7	7	7	N/R	8
Bergger Prestige Grade 2	12	10	11	8	12	10	11	10	N/R	10

	Clayton P20		Clayton Ultra Cold Tone		Clayton P90		Kodak Dektol		FAPS VersaPrint II	
	2	6	2	6	2	6	2	6	2	6
Agfa Multiclassic	10	9	9	8	10	9	10	8	11	9
Elegance	7	6	7	6	8	7	8	6	10	7
Ilford Multigrade Cooltone RC	7	6	8	7	8	7	7	6	8	7
Ilford Multigrade IV FB	8	6	8	7	9	7	9	7	9	7
Kodak Polymax Fine Art	9	9	9	8	10	9	9	8	10	9
Ilford Galerie Grade 2	8	6	7	6	9	6	8	6	9	8
Oriental Seagull Grade 2	9	7	9	8	11	9	9	7	11	9
Oriental Seagull VC	8	7	7	6	9	8	8	6	10	7
Bergger Prestige NBVC	9	7	7	6	9	8	9	7	10	8
Bergger Prestige Grade 2	11	10	12	11	13	11	12	11	13	12

	Photographers Formulary 130	
Minutes:	2	6
Agfa Multiclassic	9	8
Elegance	9	6
Ilford Multigrade Cool Tone RC	7	6
Ilford Multigrade IV FB	8	6
Kodak Polymax Fine Art	10	8
Ilford Galerie Grade 2	8	6
Oriental Seagull Grade 2	10	7
Oriental Seagull VC	9	6
Bergger Prestige NBVC	10	7
Bergger Prestige Grade 2	13	10

N/R - see text for what happened to Zonal Pro at two minutes.

It was interesting to note that 6 minutes of development reduces the required exposure by a meaningful amount (roughly half a stop). Good to know for future work. All of the exposure times were tolerable for the way that I print, so reality intrudes into the testing once again in a good way.

I have posted a copy of the exposure chart on my darkroom wall, thinking that it will be a good reference in the future when I make enlargements. It helps ensure that I'm in the ballpark for exposing prints. I thought it would let me avoid making test strips, and instead make one pilot print at the base exposure and one at either one burst more or less, depending on what I thought it might need after studying the proof. Experience is proving, once again, that shortcuts don't work like I hope they will. I've made a number of bad prints that way now, and will go back to making test strips. The chart stays on the wall, however, just as a check.

I lined up the untuned papers to look at the paper base color. I ranked them from Creamiest (warmest), to whitest (coldest):

Paper Base Color Comparison

Warmest	Bergger Silver Supreme
	Agfa Multiclassic
	Seagull Grade 2
	Seagull VC
	Ilford Galerie Grade 2
	Ilford Multigrade FB
	Elegance Polygrade V
	Ilford Cooltone RC
Coldest	Kodak Polymax
	Bergger Prestige VC
	Bergger Prestige Grade 2

The Bergger Prestige paper bases are blindingly white; the Silver Supreme and Agfa have rich, warm creamy bases. It will be interesting to see how much the paper base affects the overall "temperature" of the paper. Can Galerie still be a cold-tone paper with a relatively warm base? How warm does Agfa's base make that paper feel?

I compared print color, too, looking at untoned prints, all papers developed in Dektol for 2 minutes:

Print Color Comparison (Untoned Prints)

Warmest	Bergger Silver Supreme
	Agfa Multiclassic
	Bergger Prestige NB VC
	Iford Galerie Grade 2
	Elegance Polygrade V
	Iford Multigrade IV FB
	Kodak Polymax
	Iford Cooltone RC
Coldest	Oriental Seagull VC
	Oriental Seagull Grade 2
	Bergger Prestige NB Grade 2

Silver Supreme has a very warm tone, Agfa does, too. Oriental and Bergger Prestige Grade 2 are really cold. The others would qualify as neutral tone. Bergger Prestige NB VC went from cold to warm in a big way – a warmer tone on a cold base. I’m uncomfortable comparing toned prints for color, because that may have more to say about my toning technique (or more precisely, *lack* of toning technique) than the inherent color of toned prints, so I have not included it here.

The Results.

The Evaluation Process. We can compare all the papers in one developer (“which paper is best with this developer?”), or 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 think about the types of photographs that would work best with a given combination (“what would work best for, say, portraits?”). We can choose favorites.

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

- Step one: For each developer, go through the prints and pick out those that just seem, well, better than others.
- Step Two: Force rank all prints from one developer, best to least, spreading them out on our kitchen counter
- Then, finally, look at the labels. Make notes.

I looked at all papers each developer at a time, looking at the untoned prints, force-ranking favorites top to bottom. Then I repeated this with the toned prints. Always in the well-lit kitchen for enough space to spread them out, but more importantly for good, consistent light. No fair to make comparisons under different lighting.

Look for how a combination separates high values, low values, mid-tones: does it do them all equally well? Is it better in some areas and weaker in others? How does that affect its overall “look and feel”? What feeling of substance does the paper have? Try to ignore seeming differences in exposure. Look at color, toned and untoned. Look at the blacks: how black are they? Are low tones “dumped”?

Vocabulary becomes a problem: one runs out of adjectives, and the ones we have are inadequate. Looking that hard for that long is very tiring. One learns what one is looking for in a particular picture. The black rock

in the upper right is what the picture is really about, and it is supported by the white water behind it. The big rock in the center is an important gauge, as is the water in the upper left. The dark rock and water in the lower left and the water in the pothole are the bass notes. The rocks in the upper center should sparkle a little. When it all comes together, the image practically levitates.

Overall Impressions. Wow. There are no bad combinations. There are 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? The exhibits rank the papers by developer, untuned and toned. But remember, they rank from outstanding all the way down to very good. Overall, I could live with any of the combinations if, Heaven forbid, all of our other choices went away. On the other hand, we are blessed with a plethora of fine materials.

Only recently have advisers convinced me to foul my septic system with selenium and tone my prints. They're right, and Forte, Galerie, and Seagull tone beautifully, to my eye (and fast, I learned), taking on a rich, deep blue-black with this image. Bergger Prestige NB Grade 2 toned wonderfully, too.

Favorite Papers: Life and Depth. I put Elegance and Ilford Galerie Grade 2 consistently on top in the blind comparisons of untuned and toned prints. They had a life, depth, and in Elegance's case, 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. These two separated tones well in all areas, and while highs stayed delicate, mid-tones and lows were strong. Some of the papers were distinctly more delicate, and didn't seem as effective with this picture. Still pretty, but not the best with this picture.

The big surprise to me, however, was how good Ilford's RC Cooltone looked. While it never won a blind test, it fairly consistently finished roughly in the middle of the pack, and often bested some fine papers. It is a solid overall performer, and useful, I think, for those with limited washing means, and for proofing negatives. RC may not be archival, but I have yet to be convinced that my images are worth outliving me.

Agfa was distinctly warmer than the other papers, but also rich and robust, and I found myself liking it more and more as I looked at the prints. Seagull is delicious in the high values, with good separation and delicacy. No wonder people (like me) print snow pictures on it. Ilford Multigrade IV was a consistent, solid performer – not as delicate in the highs or as robust in the lows, but nicely balanced. Bergger papers and Kodak Polymax struck me as delicate and feminine: not as seemingly rich and "macho" as Galerie, and not as well suited to this negative, perhaps, but still quite lovely and full of light. I was looking forward to trying Silver Supreme.

Comparison of Papers By Developer Untoned Prints

Clayton P20	Clayton Ultra Cold Tone	Clayton P90	Edwal Platinum II	Edwal Ultra Black	Fine Art Versa Print II	Iford Multigrade	Kodak Dektol	Photographers' Formulary 130	Sprint Quick Silver	Zonal Pro Factor One
Elegance 6 min	Elegance 2 min	Elegance 2 min	Elegance 6 min	Galerie 2 2 min	Elegance 6 min	Elegance 2 min	Galerie 2 2 min	Galerie 2 6 min	Galerie 2 2 min	Elegance 6 min
Seagull-2 6 min	Elegance 6 min	Elegance 6 min	Kodak 2 min	Elegance 6 min	Galerie 2 6 min	Elegance 6 min	Galerie 2 6 min	Seagull 2 6 min	Elegance 2 min	Galerie 2 6 min
Seagull 2 2 min.	Galerie 2 2 min	Agfa 6 min	Elegance 2 min	Elegance 2 min	Elegance 2 min	Galerie 2 2 min	Elegance 6 min	Elegance 6 min	Elegance 6 min	Agfa 6 min
Galerie 2 2 min	Galerie 2 6 min	Seagull 2 6 min	Galerie 2 2 min	Galerie 2 6 min	MGIV 6 min	Galerie 2 6 min	Elegance 2 min	Elegance 2 min	MGIV 6 min	Seagull VC 6 min
Galerie 2 6 min	Seagull 2 6 min	Galerie 2 6 min	MGIV 6 min	MGIV 2 min	Seagull 2 6 min	Seagull 2 6 min	Seagull 2 2 min	Seagull 2 2 min	Seagull VC 2 min	Bergger VC 6 min
Elegance 2 min	Agfa 6 min	Kodak 6 min	Galerie 2 6 min	Agfa 2 min.	Agfa 2 min.	MGIV 2 min	MGIV 2 min	MGIV 6 min	Bergger 2 6 min	Cooltone RC 6 min
MGIV 2 min	Bergger 2 2 min	Kodak 2 min	Cooltone RC 6 min	Seagull 2 2 min	Kodak 6 min	MGIV 6 min	MGIV 6 min	Galerie 2 2 min	Galerie 2 6 min	Kodak 6 min
Agfa 6 min	Cooltone RC 6 min	Agfa 2 min.	Agfa 2 min.	Seagull 2 6 min	Seagull VC 2 min	Agfa 2 min.	Agfa 2 min.	Agfa 6 min	Agfa 6 min	Seagull 2 6 min
Agfa 2 min.	Bergger 2 2 min	Seagull VC 6 min	Cooltone RC 2 min	Bergger 2 6 min	Seagull VC 6 min	Agfa 6 min	Agfa 6 min	Kodak 6 min	Seagull VC 6 min	MGIV 6 min
Bergger VC 2 min	Agfa 2 min.	Cooltone RC 2 min	Kodak 6 min	Cooltone RC 6 min	Agfa 6 min	Bergger VC 6 min	Kodak 6 min	Seagull VC 6 min	MGIV 2 min	Bergger 2 6 min
Cooltone RC 6 min	Cooltone RC 2 min	Seagull 2 2 min	Bergger 2 6 min	Seagull VC 2 min	Galerie 2 2 min	Seagull VC 6 min	Seagull 2 6 min	MGIV 2 min	Bergger 2 2 min	
Cooltone RC 2 min	Seagull 2 2 min.	Galerie 2 6 min	Bergger VC 2 min	Cooltone RC 2 min	Seagull 2 2 min	Bergger 2 2 min	Kodak 2 min	Agfa 2 min.	Bergger VC 6 min	
Bergger 2 2 min	MGIV 6 min	Cooltone RC 6 min	Agfa 6 min	Kodak 2 min	MGIV 2 min	Seagull 2 2 min	Seagull VC 2 min	Bergger VC 2 min	Kodak 6 min	
Bergger 2 6 min	Seagull VC 2 min	MGIV 2 min	MGIV 2 min	Bergger VC 6 min	Cooltone RC 2 min	Bergger 2 6 min	Seagull VC 6 min	Kodak 2 min	Bergger VC 2 min	
Seagull VC 2 min	MGIV 2 min	Seagull VC 2 min	Seagull VC 2 min	Agfa 6 min	Cooltone RC 6 min	Bergger VC 2 min	Bergger 2 6 min	Cooltone RC 6 min	Agfa 2 min.	
MGIV 6 min	Kodak 6 min	MGIV 6 min	Seagull VC 6 min	Kodak 6 min	Bergger 2 6 min	Kodak 2 min	Cooltone RC 6 min	Cooltone RC 2 min	Kodak 2 min	
Kodak 2 min	Kodak 2 min	Bergger VC 2 min	Bergger 2 2 min	Bergger VC 2 min	Bergger VC 6 min	Seagull VC 2 min	Cooltone RC 2 min	Seagull VC 2 min	Seagull 2 2 min	
Seagull VC 6 min	Seagull VC 6 min	Bergger VC 6 min	Bergger VC 6 min	MGIV 6 min	Kodak 2 min	Cooltone RC 2 min	Bergger VC 2 min	Bergger VC 6 min	Seagull 2 6 min	
Kodak 6 min	Bergger VC 6 min	Bergger 2 6 min	Seagull 2 6 min	Bergger 2 2 min	Bergger VC 2 min	Cooltone RC 6 min	Bergger 2 2 min	Bergger 2 6 min	Cooltone RC 6 min	
Bergger VC 6 min	Bergger VC 2 min	Bergger 2 2 min	Seagull 2 2 min	Seagull VC 6 min	Bergger 2 2 min	Kodak 6 min	Bergger VC 6 min	Bergger 2 2 min	Cooltone RC 2 min	

COMPARISON OF PAPERS BY DEVELOPER TONED PRINTS

Clayton P20	Clayton Ultra Cold Tone	Clayton P90	Edwal Platinum II	Edwal Ultra Black	Fine Art VersaPrint II	Iford Multigrade	Kodak Dektol	Photographers' Formulary 130	Sprint Quick Silver	Zonal Pro Factor One
Elegance 6 min	Elegance 2 min	Elegance 6 min	Elegance 2 min	Elegance 6 min	Elegance 6 min	Galerie 2 6 min	Elegance 2 min	Elegance 6 min	Elegance 2 min	Elegance 6 min
Galerie 2 6 min	Galerie 2 2 min	Seagull 2 6 min	Elegance 6 min	Elegance 2 min	Galerie 2 6 min	Elegance 2 min	Elegance 6 min	Elegance 2 min	Galerie 2 2 min	Galerie 2 6 min
Elegance 2 min	Elegance 6 min	Elegance 2 min	Galerie 2 6 min	Galerie 2 6 min	Galerie 2 2 min	Galerie 2 2 min	Galerie 2 6 min	Galerie 2 6 min	Galerie 2 6 min	Kodak 6 min
Cooltone RC 6 min	Galerie 2 6 min	Galerie 2 2 min	Agfa 6 min	Seagull 2 6 min	Elegance 2 min	Elegance 6 min	Galerie 2 2 min	Galerie 2 2 min	Seagull 2 6 min	Cooltone RC 6 min
Bergger 2 6 min	Bergger 2 6 min	Bergger 2 6 min	Seagull VC 2 min	MGIV 2 min	Seagull 2 6 min	Cooltone RC 2 min	Seagull 2 2 min	Seagull 2 2 min	Seagull 2 2 min	Seagull VC 6 min
Galerie 2 2 min	Seagull 2 6 min	Kodak 6 min	Bergger 2 2 min	Bergger 2 6 min	Kodak 6 min	Kodak 2 min	Bergger 2 6 min	Seagull 2 6 min	Elegance 6 min	Agfa 6 min
Cooltone RC 2 min	Bergger 2 2 min	Agfa 6 min	Agfa 2 min	Seagull 2 2 min	Cooltone RC 6 min	Agfa 6 min	MGIV 2 min	Kodak 6 min	Seagull VC 6 min	Bergger 2 6 min
Kodak 6 min	Agfa 6 min	Cooltone RC 6 min	Seagull VC 6 min	Bergger VC 6 min	Agfa 6 min	Seagull VC 2 min	Agfa 6 min	Kodak 2 min	Seagull VC 2 min	Bergger VC 6 min
Agfa 2 min.	Agfa 2 min	Seagull VC 2 min	MGIV 2 min	Bergger 2 2 min	Kodak 2 min	Agfa 2 min	Agfa 2 min.	Agfa 6 min	Bergger 2 2 min	MGIV 6 min
Seagull 2 2 min	Cooltone RC 2 min	Agfa 2 min	MGIV 6 min	Galerie 2 2 min	Seagull 2 2 min	MGIV 2 min	Cooltone RC 6 min	Cooltone RC 6 min	Bergger 2 6 min	Seagull 2 6 min
Seagull 2 6 min	Cooltone RC 6 min	Seagull VC 6 min	Kodak 2 min	Kodak 2 min	Bergger 2 6 min	MGIV 6 min	Kodak 6 min	Seagull VC 6 min	MGIV 6 min	
Agfa 6 min	Seagull 2 6 min	Cooltone RC 6 min	Kodak 6 min	Cooltone RC 2 min	Cooltone RC 2 min	Bergger 2 6 min	MGIV 6 min	Cooltone RC 2 min	MGIV 2 min	
Kodak 2 min	Seagull VC 6 min	Galerie 2 6 min	Bergger 2 6 min	MGIV 6 min	Seagull VC 6 min	Cooltone RC 6 min	Seagull 2 6 min	Agfa 2 min	Kodak 6 min	
Seagull VC 6 min	Seagull VC 2 min	Seagull 2 2 min	Seagull 2 6 min	Agfa 2 min	MGIV 2 min	Seagull VC 6 min	Seagull VC 6 min	Seagull VC 2 min	Kodak 2 min	
Bergger VC 6 min	Kodak 2 min	Bergger VC 6 min	Galerie 2 6 min	Agfa 6 min	Agfa 2 min	Seagull 2 6 min	Seagull VC 2 min	MGIV 2 min	Cooltone RC 6 min	
MGIV 2 min	Kodak 6 min	MGIV 2 min	Cooltone RC 2 min	Kodak 6 min	Seagull VC 2 min	Bergger VC 6 min	Cooltone RC 2 min	MGIV 6 min	Agfa 6 min	
Seagull VC 2 min	MGIV 2 min	Kodak 2 min	Bergger VC 2 min	Seagull VC 6 min	MGIV 6 min	Kodak 6 min	Kodak 2 min	Bergger VC 2 min	Agfa 2 min	
Bergger VC 2 min	MGIV 6 min	MGIV 6 min	Cooltone RC 6 min	Seagull VC 2 min	Bergger VC 6 min	Bergger VC 2 min	Bergger VC 6 min	Bergger 2 6 min	Bergger VC 6 min	
Bergger 2 2 min	Bergger VC 6 min	Bergger 2 2 min	Bergger VC 6 min	Cooltone RC 6 min	Bergger VC 2 min	Bergger 2 6 min	Bergger VC 2 min	Bergger 2 2 min	Bergger VC 2 min	
MGIV 6 min	Bergger VC 2 min	Bergger VC 2 min	Seagull 2 2 min	Bergger VC 2 min	Bergger 2 2 min	Seagull 2 2 min	Bergger 2 2 min	Bergger VC 6 min	Cooltone RC 2 min	

Bergger Follow-up. I was basically right: the Bergger papers didn't test as well as I knew they could look. Hillary, however, brought out the best of Bergger NBVC and NB grade 2, producing lovely prints of her portrait when I printed my usual way (finding the right exposure for the high values). Lovely papers, but with a more feminine character than Elegance or Galerie. I think of snow, and women's portraits. More delicate subject matter than water crashing over rocks.

Exposing a nearly \$3 piece of paper borders on a ritualistic experience. But Silver Supreme was, well, too macho for Hillary's negative. Silver Supreme is a warm-tone paper. Its base is creamier than Agfa by far, and it is incredibly rich. Coming in only matte finish, and only Grade 2, the negative needs to be carefully selected to make the most of its strengths. It is a strong Grade 2, almost grade 3 in my book. I printed several negatives with it using Photographers' Formulary 130 for two minutes. My negatives are too over-developed to match the paper's characteristics well, and the prints look a bit harsh. I will work more with it, using negatives that match it, and perhaps trying a more dilute developer (which seems a shame if it at all compromises the paper's strengths). It seems that the best way for me to use Silver Supreme is with a project that suited its character: tuning my negative development time to match it, and then using it to print the project. That, for me, is reverse of my norm: "tune the rest of the project to the paper," rather than adjust or select the paper for the project.

So be it. Silver Supreme is strong, rich stuff. And, be careful: I'm used to having the rough side of paper be the base, with the smooth, shiny side the emulsion. Silver Supreme is the reverse of this, where the rougher side is the emulsion. My reading of the enclosed instructions found no reference to this, and my first test strip came up blank because I had it in the easel emulsion-side down. Mr. Horowy, please take note, since advice to us novices would be welcome. Its 100% Cotton Rag base makes it float like a cork in the print washer, and I had to hold it down with the top to make sure it stayed down in the wash water. A small price.

It is interesting to note, in the end, that Hillary looked best on Kodak Polymax. It's just a little soft, and that smoothed her skin tones more than the other papers I printed her on, including all 3 Berggers, Agfa, Oriental VC, and Elegance. She fared worst with Elegance and Silver Supreme, which are both strong and a little harder at grade 2, which made her skin tones look a little harsh. My wife, the fiber artist, also chose the Kodak print, saying that it "made Hillary look the most attractive." This realization of *seeing it* brought home, for me, the idea of matching the materials to the subject. That's my most valuable lesson from this whole Shoot-Out. I'm reminded of one of my favorite Chinese maxims: "I listen and I hear; I see and I know, I do and I understand."

Cost Considerations. I pulled prices (early 2004) from the B&H Photo web site for "List" and "Street" prices, the Street price being what B&H Photo uses as a sales price. Prices do not include shipping costs or taxes. Papers are roughly comparable, with the graded papers more expensive than variable contrast. Bergger Silver Supreme is in a class by itself. Elegance wins my "Best Buy" rating for its consistently excellent performance and low cost.

Favorite Developers. Stay tuned for Part Two.



Hillary.

	“List Price” /Quantity	“Street Price “ / Quantity	“Street Price “ / 8x10 Sheet
Agfa Multiclassic	82.95/100	44.95/100	\$.45
Bergger NBVC	N/A	18.50/25	.74
Bergger NB Grade 2	N/A	22.50/25	.90
Bergger Silver Supreme	N/A	27.50/10	2.75
Elegance Polygrade V	82.99/100	52.49/100	.52
Ilford Galerie Grade 2	129.35/100	85.95/100	.86
Ilford Cooltone RC	65.14/100	47.69/100	.48
Ilford Multigrade IV FB	88.97/100	56.95/100	.57
Kodak Polymax	82.10/100	57.49/100	.57
Oriental Seagull Grade 2	128.5/100	76.95/100	.77
Oriental Seagull VC	92.88/100	59.95/100	.60

The Biggest Variable.

One evening, just before dinner, I compared the toned Galerie prints across developers. Once I had ranked them, I recorded the developer rankings. Wait! I remembered that the untoned prints had Dektol for 6 minutes on top. Here, it came in the middle of the pack. I pulled the Dektol print and compared it to the new winner. Dektol looked better.

Oops. I goofed. What happened? The viewing light was darker, since prior comparisons had been done under the same lighting, but with added window light from dreary New Hampshire winter days. I was tired, just before dinner, having looked at a lot of prints that day. Had I subtly changed what I was looking for? Was I happier? More sad? More introspective? Less? More patient? Doubtful. Less patient? Likely. Nevertheless, the differences were so varied, and the winner clearly wrong. So I threw out the results of that comparison and did it again when I was fresher.

I had avoided comparisons when tired, knowing that they were hard enough when fresh. So we have direct evidence of my biggest caveat: these are my evaluations, based on my preferences and my failings. We could throw out all my comparisons, but I think that's extreme. I stand by the paper comparisons, if for no other reason than the differences are larger. Developers are harder, with subtler differences. There is some question about the consistency of my toning, and that such inconsistencies may have affected results across developers.

Conclusions and Next Steps.

I learned it in a more powerful way than I had expected: artists need to know their materials, and make sure they're using the right stuff for their specific work. The paper that made rocks and water levitate made Hillary look less than what she is. That which seemed timid with rocks and water made Hillary glow. Choose the paper that matches the subject. Now, I know, because I have done it (and done it, and done it, and done it...).

Would you buy a car without driving several to compare them? I used to be interested in high-end stereo, and would listen to literally dozens of speakers – all with fine brand names, but significantly different sounds (high end stereo got too expensive, so I migrated to photography, which I'm not sure is any cheaper). So why use papers and developers based on somebody else's opinion?

That said, here's my opinion: I'll keep Elegance in inventory, and get Kodak or Bergger Prestige when I make women's portraits. I'll conjure up a project for Silver Supreme. Next, I'll test Elegance and Kodak for dry-down (as point of fact: I recently printed some new snow scenes on Elegance and guessed at dry-down, and guessed wrong, getting sooty snow instead of glowing snow. Beautiful paper, though, even with a dingy print. Maybe I'll test all the papers for dry-down? Interested in Part 3, Steve?). I will tweak my negative development time to match the range of the negative to that of the paper. My standard development time was surprisingly close in most cases, and exact for MGIV, which is reassuring, since I used that originally for my negative development time test. I need to test the new Tri-X sheet film anyway.

Bergger and Kodak papers will get a snow scene, although I'm not sure the Kodak will have the high value separation to keep the snow alive. But, being "not sure" is why I have to make a print - to see for myself. I have some very abstract snow and ice for Galerie. Deep woods with Agfa.

I'm delighted to recommend Ilford RC Cooltone to anyone who needs to save water, or who is wash-setup compromised - I always feel I've learned more when I'm proved wrong, which I was about RC Cooltone. At only about a nickel less per sheet than Elegance, though, I'm hard pressed to recommend it to the merely budget-constrained. For a nickel, it's worth using a consistently better paper. Sure made nice, flat proofs, though.

Finally, don't take my word for any of this - you owe it to your own hard work photographing to take at least a little bit of time to learn more about your materials and test a few combinations for yourself. You'll learn a lot.

Thanks again to Clayton Chemicals, Bergger, Fine Art Photo Supply, Richard Ritter, 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.

Now, what about Azo?