The Modern Alchemist:
Collodio-Chloride Printing-Out Paper

POP print after processing

Bill Westheimer

In a time that seems long ago and far far away, the earliest photographers made prints which appeared magically without developing. They would rinse and fix to display and extend the life of the image. More recently in the 20th Century portrait photographers used similar technology to make proof prints that would fade as they aged.

Now we make archival digital prints and have nearly forgotten the art of chemical printing. Many photographers have gladly forsaken silver-gelatin printing for the control ease and simplicity of inkjet. But many of us still enjoy the chemical processes—we cherish the journey as well as the destination. We can still buy 20th Century silver printing materials and an ambitious photographer can mix the chemicals necessary for 19th Century processes. Photographers who want to make prints using a historic style printing out paper (but don't want to "roll their own") now have a source for a new collodio-chloride printing-out paper (POP). I spent several days in the lab testing the collodio-chloride paper and toners made by Alt Photo Products. POP is a contact printing process so my first tests were prints made from collodion wet-plate glass negatives. Using a print-ing frame made by Bostick and Sullivan I exposed test sheets using direct sunlight or on cloudy days I made exposures using an Arri 1K fresnel hot light.

Exposing The Paper

The daylight exposures were about two minutes. Using the hot light the exposures were 12 to 25 minutes. The contact-printing frame allowed me to check on the exposure while still maintaining perfect registration. Because the paper is not very sensitive you can work in normal room light and check the exposures and process without a safelight. I found that the exposure is hard to judge because the density lightens dramatically in fixing and then dries darker. The proper exposure gives you an unprocessed print that appears extremely dark. I made test strips keeping careful


Exposing the paper in a contact frame


Untoned Print


With Gold/Borax Toner


With Gold/Ammonium Thiocyanate Toner

records of the exposures and then washing and fixing and drying with a hair dryer before judging the test exposures.

Processing

After exposure the print is rinsed in a salt and citric acid bath for five minutes and then rinsed in running water for five more minutes. Alt Photo Products provides recipes for all the chemicals. The paper curls quite a lot when wet. The manufacturer recommends two techniques for reducing the curling. One involves a complicated hot water rinse with constant attention for 10 minutes of patting the print followed by more rinsing. I chose the simpler and quicker method of soaking the print in isopropyl alcohol. This is the rubbing alcohol available at the pharmacy. After a few minutes in the alcohol the print flattens and is easier to handle. Then the print goes directly into the hypo–a pretty standard 15% sodium thiosulphate solution with the addition of small amounts of sodium carbonate (baking soda) and sodium sulfite (a rinse agent like hypo clear). When placed in the fixer the print transforms from a dense blood-red crimson color to a beautiful subtle sepia tone. The bleaching is substantial despite the addition of the baking soda. After fixing the print is washed–a hypo-clearing bath is also recommended. Then the print is squeegeed and dried in a blotter book.

Each print takes quite a while to process despite not needing a developer. You do not need a darkroom, just lots of running water and some counter space for the rinsing, fixing and washing.

Alt Photo Products also provided two different toners to experiment with. They were provided in very helpful packaging which facilitated toning one print at a time instead of mixing large amounts of expensive toner so you could make just enough for one or two prints. The instructions clearly explained the process–after the alcohol bath, place the prints in the toning bath for five to 15 minutes and then directly into the hypo for the normal fixing and washing times. I found that the gold/ammonium thiocyanate toner subtly reduced the yellow in the highlights after 15 minutes in the toner. I tried the gold/borax toner for five minutes and found the results were similar except the print seemed to have a bit more contrast. The paper emulsion is very hard and less absorbent than the (no longer available) Centennial POP paper that may be familiar to some photographers. This hardness makes for slow toning.

I also tested making prints from digital negatives. This is a very intriguing approach to using POP. You can use any image–from a digital capture to a film scan–that you manipulate in the computer to produce a negative with the proper contrast. The digital file is output on a transparent inkjet film using a regular inkjet printer. I started experimenting with some digital files of images that would have been very hard to capture using a 19th Century process like collodion wet-plate. Action

Original File

Digital Negative

Final print on POP paper

All Images © Bill Westheimer

pictures and scenes with very low illumination would have been impossible to capture in 1860. Using this technique we can make 19th Century style prints of images that early photographers would never have dreamed of capturing.

I found it very difficult to start from a digital file and create a workable negative to be printed on special inkjet transparency film. I preferred the Pictorico Premium OHP film to the Inkpress 7 mil transparency film because the Inkpress tended to have feed problems due to the material curling when going through the printer. The Pictorico fed through the printer perfectly. Creating these negatives is an art in itself that requires a lot of work and testing. I found it very helpful to add a graduated density step chart ranging from 0% to 100% in 10% increments to the digital negative. I recommend refining the technique with conventional silver gelatin prints before proceeding to making POP prints. Even so, a negative that works for silver gelatin paper will need to be altered to make a good negative for POP printing because the contrast and sensitivity is so different.

The Collodio-Chloride Printing-Out Paper should be exposed within 30 days of purchase, although the manufacturer says that once the exposure is made the paper can be stored for a few days before processing. It is hand-coated here in the US, with a collodio-chloride emulsion onto baryta-based glossy paper from Europe. The surface coating was hard and smooth and only a few sheets showed uneven coating. The manufacturer offers packs of second quality paper for testing and I found the sensitivity varied between the two packs of paper that I tested.

Using the paper was fairly simple but time consuming. It was fun to get my hands wet and to be in the lab making prints. I had plenty of time while rinsing and fixing and washing to imagine myself as a 19th Century gentleman with a handlebar mustache printing back in the days when photography was magical. I enjoyed the process and the resulting prints are clearly different from a modern digital print. So if you enjoy chemical photography and don't have a darkroom, this is a way to make prints and have some fun being a modern alchemist.

Since making his first photograph at age 14, Bill Westheimer has been fascinated with alternative processes. At Union College Bill studied with noted painter and educator Arnold Bittelman and later with Jerry Burchfield who introduced him to color photograms and Cibachrome (now Ilfochrome). Early in this millennium he learned the 19th century technique of collodion glass plate photography from France Scully and Mark Osterman.

Recent work includes photograms made on collodion glass plates, Ilfochrome and gelatin silver media. He recently published a book MANUAL—The Personalities of Hands and CRICKETS *a handmade book created in collaboration with Leonard Seastone. His works are exhibited in galleries and museums worldwide. billwest.com*

Resources

Alt Photo Products - Altphotoproducts.com; Arri - arri.com; Bostick and Sullivan - bostick-sullivan.com; Pictorico -pictoricotop.aspx