

Traditional Silver Negative Prints
from a
Digital Camera Captured File

By
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Vico 571

Like so many other hobbyist photographers Ted Cullen dreamed of one day building his own darkroom in his house. By the time Cullen got around to retiring and pursuing photography full-time, the digital world took over and the necessity of having your own darkroom was no longer apart of the equation.

As Digital Capture has improved over the years Cullen has was amazed at the quality that could be achieved with the ever-increasing mega pixel cameras.

Cullen has always been taken by the quality of digital capture but during his retirement in the past five years he found a new appreciation. He got addicted to the silver-based-negative, black and white print.

The long held argument of Film vs. Digital has always come down to what the finish prints look like and for many their isn't a comparison.

According to Stephen Saunders' co-owner of Hidden-Light, a custom photographic printing lab in Flagstaff AZ, that no matter what new technology has arose to emulate silver negative printing, digital printing has always had this other look to it.

“Digital is mimicking traditional photography. Where silver has continuous tone, digital mimics it , but traditional just has more depths that you just can't mimic.” Saunders said. “Iford came out with a special fiber base paper you can write to digitally and I wasn't that impressed, they just didn't have the density.”

This struggle between the quality of a traditional silver prints and the digital capture is what brought Cullen's engineering mind out of retirement to see if he could bridge the gap.

Two years ago Cullen heard of a guy that prints out CT Scans to x-ray film for hospitals and lawyers, and it made Cullen wonder if it is possible to output his digitally captured files.

The initial test didn't turn out like he hoped but those tests did put Cullen on-course for a solution in bringing the digital and traditional print world together, with a quality unmatched in the industry.

Digital negatives have been around for a many years but the process of creating that negative has been heavily based in using ink-jet printers, to create the digital negs. As the printer and ink have improved so have the negatives, but according to Cullen the ink negatives marred the final prints.

The digital inkjet negatives promoted by Mark Nelson and Dan Burkholder of has caught on has a method of printing platinum prints where the final product softens and covers over the flaws of a digital inkjet negative. In silver prints where detail is king and gradation the goal, both Cullen and Saunders agree that the current inkjet method doesn't hold up.

Cullen research into x-ray film machine's as a method of producing a silver based negative from a digital file led him to purchase an out of production Kodak 8900 that wasn't even able to read a tiff file, let alone reproduce negatives that made for printing.

Luckily Cullen got in contact with a guy in Kodak's Research and Development department that was able to set him in the right direction but doubted he would have much luck with his pursuit.

The first step was to get the machine to read a tiff format file instead of the DICOM format it was built to understand. He found a small programming firm that specializes in writing code for hospitals and their x-ray departments. The firm created a piece of software where Cullen was able to choose his density levels and also customize output sizes and masks.

Since getting the software and everything up and running this past summer Cullen's dream of having a darkroom and printing amazing black and white silver prints has finally come true, even though he has printed four times the number of step wedges in tests than actual finished prints.

"The first print I made it was stunning. I've never made more beautiful prints in my life" Cullen said. I took them to a portfolio review and people were comparing them to master prints and they couldn't believe it was from a digital file."

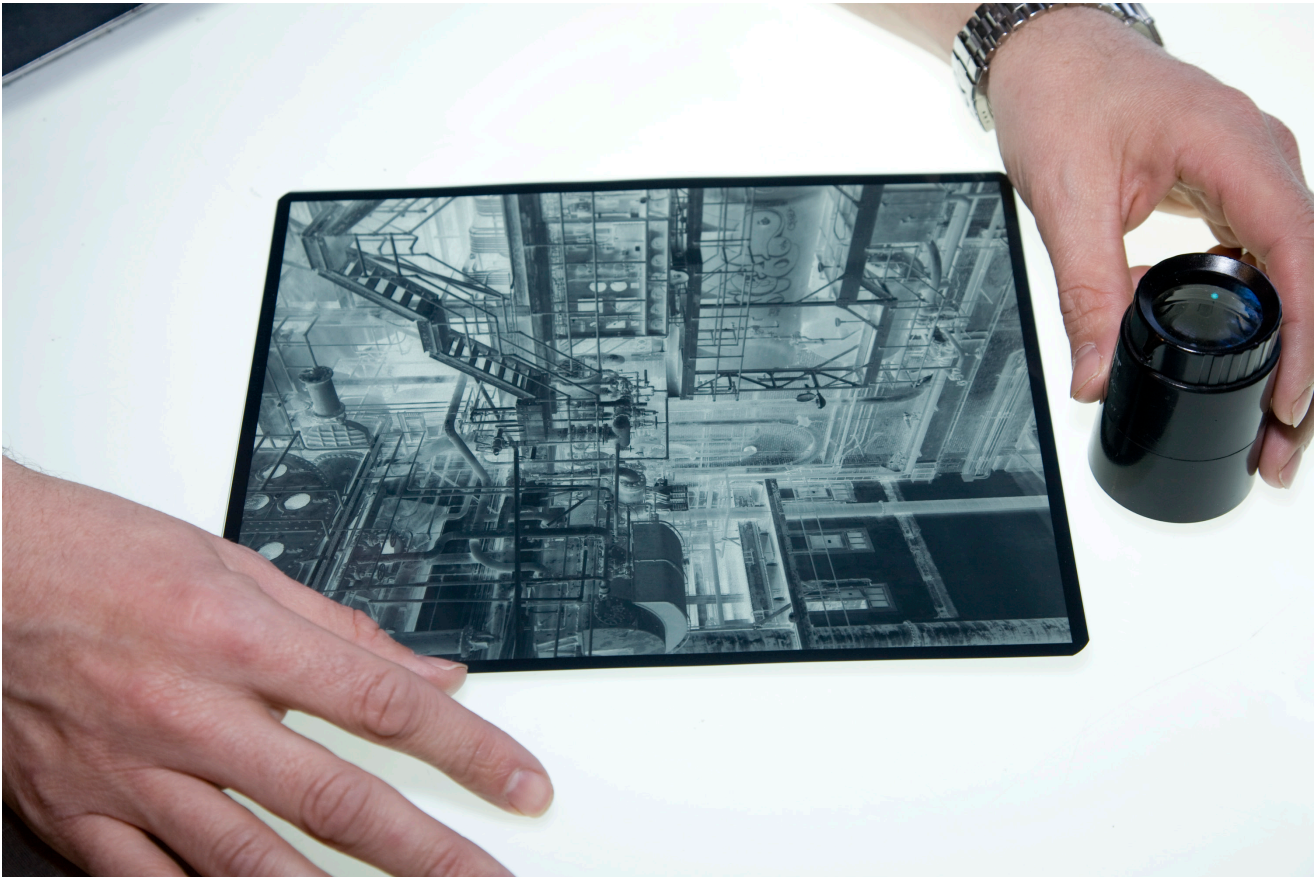
Currently Cullen's process is based off of his digital images shot in raw with his 21 megapixel Canon 1Ds Mark III. It shoots as a 12 bit file but the raw converter opens it as a 16 bit grayscale. The x-ray machine outputs as 12 bit and that conversion comes from the customized software. The 12 bits depth gives 4096 levels of grey as compared to an 8 bit (inkjet) printer only gives 256, thus producing a very smooth gradation.

The machine is a dry process printer and the film reacts to a specific infrared light, which the machine exposes with a spinning laser that gives the quality equal to a 650dpi printer. Exposed to infrared light the film is "fixed" through a heat process. Cullen says "They aren't really fixed because left out in sun the negative would eventually go black or heat could damage them, but if you store them in cool dark places they rate for 100 years life and if you need it replaced you can always hit the print button for a fresh negative."

The machine can record to film ranging in size of 4x5 up to 14x17 negative. With negatives this size Cullen has mostly produced contact prints as his final images. It's if you ever wanted to go up to 16x20 then you might consider doing enlargements.

For this Cullen contacted Saunders and his lab to put his negatives through the test to see if they would hold up to enlargements.

Saunders was initially skeptical because when he louped the 8x10 negative he perceived a different grain structure than traditional negatives. But once he made the 20x24 print, Saunders was a believer. "We were dazzled. They don't look like they came from a digital file. The continuous tone is impressive."



An 8x10 negative originally captured with a Canon 1Ds Mark III 21 megapixel camera and output using Ted Cullen's converted x-ray negative machine. Photo by Stephen Saunders

Beyond diehard silver print enthusiast what will this new technology provide for others? Saunders sees a demand in restoration of original negatives and create these digital copies so prints can be made that can recreate the look and feel of the original image.

Another idea Saunders suggested, is that a place like the University of Arizona that has Ansel Adams' original negatives in their collection could use this for educational purposes. They could digitize the original negative and output identical film negatives for student to work with an exact replica negative so they can attempt to print to the same level as Adams' finished prints.

Cullen is interested in sharing his new discovery so he has set up a business where people can get their digital files transferred to negative. Right now the response has been quite but you have to remember that it's a small community that can really see and know the feel of traditional prints and for many that gap between digital and traditional isn't something many want to bridge.

"It gives them an opportunity to put the two worlds together and make it work. Just because you go off with a digital camera you don't have to leave the darkroom." Cullen said.

For more information you can reach Ted Cullen at www.silverdigitalnegative.com