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Best Black & White



A black-and-white photo is being printed on an Epson Stylus Color 3000, which accepts various papers up to 17" x 22". The smaller Epson 860, costing about \$150, prints on 8.5" x 11" paper. *Image courtesy of Cone Editions Press, Vermont.*

Scanning The Horizon

By BRIAN EVANS



Catching up with current trends in digital printmaking.

One of the best ways to see and understand the newest digital printing technologies is to attend trade shows devoted to them. I remember the thrill I felt the first time I saw an Iris print hanging from an exhibitor's booth at a conference. I realized then that we'd be seeing amazing new ways for artists to create fine art digital prints.

That was 10 years ago at a show for SIGGRAPH (Special Interest Group Graphics), which is a part of a professional organization known as the Association for Computing Machinery. An annual SIGGRAPH conference features all the latest research and products in computer graphics and interactive techniques, and it is a good place to see the newest digital printing technologies.

This year's SIGGRAPH show was held in New Orleans, and I decided to attend the conference because I was anxious to see where a decade of development has taken us. I was a bit surprised to find that none of the digital printer manufacturers were there showing off new machines. It turned out that these companies had moved to other shows that are dedicated to printing.

The absence of the printer manufacturers from the SIGGRAPH trade exhibit floor tells me that the technology is steadily maturing. In a way, it's becoming old news. Inks are stable, print quality is high, and costs are relatively low. There is, right now, no "buzz" in the digital printing world.

But, although the printers were not on the trade show floor, they were humming away at another SIGGRAPH venue called The Studio. Here, conference attendees got hands-on experience with a variety of hardware/software combinations. It was a space filled with dozens of people trying out dozens of computers, scanners and printers. Big canvas prints were hanging from walls and spilling out of large-format printers by Hewlett Packard and Colorspan. While there was really nothing new here, it was nice to see so much artistic energy focused on fine art digital printmaking.

As I worked my way through the maze of people, computer workstations and other digital hardware at The Studio, there were a couple of things that caught my attention. One was a set of amazing black-and-white photographs emerging from a little \$150 Epson desktop printer.

Raising the Bar

Jon Cone of Cone Editions Press in Vermont has been at the vanguard of fine art digital printmaking for nearly 10 years. He opened his printmaking studio in 1980 and integrated digital printing around 1992. Not resting on his laurels, he has introduced a new digital print technology that is having a big impact on black-and-white photography, significantly raising the bar in this area.

Cone served as the coordinator of two-dimensional printing at The Studio. While he oversaw the image processing and printing of large works on paper and canvas, he also had a small Epson printer on which attendees could create high-quality black-and-white photographic prints of their own.

Cone calls this process Piezography@BW (named after the inkjet

technology used). It allows the printing of black-and-white images that rival, and in some ways surpass, traditional photographic reproduction methods. What makes this new technology even more remarkable is that it can be done with a very inexpensive inkjet printer (Figure 1). The technology is called quad black or quad tone printing, using four shades of black ink rather than the standard cyan, magenta, yellow and black (CMYK) that are used for printing in color. (Six-color black printing also is possible with new six-color inkjet printers.)

With these inks, and Cone's proprietary software, it is possible to print black-and-white imagery at an astounding 2,160 dots per inch, creating a continuous, visually true tone (no visible dots). Prints can be made on a wide variety of substrates, from photo gloss to watercolor papers and canvas. The inks are pigment-based and have a lightfastness of 100 years or more. The dynamic range, or the number of gradations possible from pure black to full white, is larger than that possible with traditional photographic methods.

Currently this technology is supported by a handful of Epson desktop inkjet printers; it will be available soon for large-format systems. Here is a technology landmark that moves black-and-white photography solidly (and affordably) into the digital world. It is more cost-effective and less toxic than a darkroom and photo developing materials. I suspect that many darkrooms will disappear over the next few years, to be replaced by quad black printing.

Artist/composer Brian Evans, who has a doctorate in music composition (and a minor in computer graphics), has been exhibiting his digital art internationally for 15 years. He established lightSpace Editions in 1995 (www.lightspace.com), where he produces and publishes fine art digital prints of his own work.

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