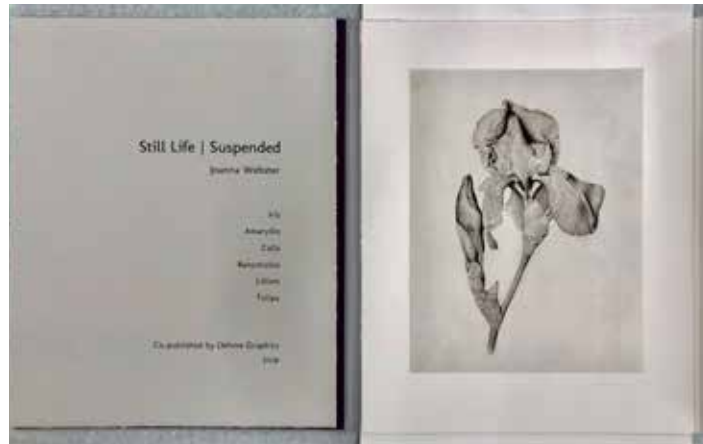# From Powder to Print

Combining the "carbon dust on paper" technique with traditional intaglio printing processes

STORY BY *Joanna Webster*

THE TECHNIQUE OF USING CARBON DUST ON PAPER to create realistic and detailed renditions was developed by renowned medical illustrator Max Brödel in the early 1900s. I was first introduced to this technique by artist Randy Raak at the Denver Botanic Gardens' School of Botanical Art and Illustration, and I quickly came to love it for its ability to create very subtle changes in a wide range of tonal values, from deep black shadows to vivid highlights, as well as intricate, highly refined details.

Put simply, this technique involves the application of finely-ground carbon dust to paper using dry brushes. Semi-smooth paper with a slightly toothed surface catches the dust better than a smooth plate surface, but still allows for fine detail that won't be achieved with a more textured paper typically used for charcoal and pastels.

Carbon dust is not the same type of carbon as graphite or charcoal. Graphite particles are slippery, plate-like particles that are highly reflective. Carbon dust is made from the soot of burnt oil, also known as "lampblack." The particles are non-reflective, and are much smaller and more uniform in shape and size than charcoal, which is made from burnt wood.

I create my own carbon dust by gently grinding down a carbon pencil with a metal or glass file, or an ultra-fine plastic-backed sandpaper (typically used in jewelry making). There is no difference in tone between carbon pencils of different hardness, so using a soft (6B) pencil will make this process faster and easier. I use inexpensive synthetic watercolor brushes in a range of styles and sizes to apply the dust to paper. You can play around with other types of applicators but you need to be really careful not to tear or burnish the paper fibers. Carbon dust does not erase easily like graphite does, so a very light touch is needed when first applying with a brush. I keep a soft, lint-free cloth at hand to remove excess dust from the brush before applying to paper, especially when I am working on very thin layers for lighter tones.

I use a variety of additional tools to work, lift, and erase the carbon dust, such as kneaded erasers, plastic erasers, and chamois cloth. To achieve clear, bright highlights, I use a thin, mechanical eraser pencil with the tip cut into a sharp wedge or point.

To achieve deep, rich, saturated blacks, I apply multiple layers of carbon with a spritz of isopropyl alcohol as a fixative between layers. Using this over the entire work as a final fixative prevents smudging. To achieve very fine lines and details, I use a hard (B or 2B) carbon pencil sharpened to a very fine point.

To protect the paper while I work, I use a layer of tracing paper, leaving only the area I am working on exposed. If carbon dust drops where it's not wanted, it's best to lift the paper upright and tap the carbon dust off, then pick up any remaining particles gently with a kneaded eraser.

With the series of botanical carbon dust "dry paintings" featured here, I engaged the help of photographic printmaking expert, Jon Lybrook *(intaglioeditions.com)*, to transfer the carbon dust images to photopolymer direct gravure plates. I then worked with fine artist and master printmaker Sue Oehme *(oehmegraphics.com)* to ink and print the plates on paper by hand, using a traditional printing press. The photopolymer plates allowed for very accurate transfer of the fine detail and tone created with the carbon dust technique.

The delicate and subtle nature of the carbon dust, with its wide range of tonal values combined with the soft and velvety background created by the inked plate embossing into the paper, lend the finished artworks a rich and luminous quality that, to me, is reminiscent of old gelatin silver photographs. ▨

Joanna Webster is an Australian-American artist, illustrator, and science writer who is passionate about encouraging greater interest in the natural world, plant life, and the role that plants play in the human environment. Jo's loves of botany and drawing led her to immerse herself in the Denver Botanic Gardens' School of Botanical Art and Illustration program in 2015. She received the school's Sydney Parkinson Award for Excellence in Botanical Illustration, and her work has been exhibited in juried group shows and solo exhibitions. Find Jo at *www.strawberryhill.studio* and on Instagram *@strawberryhillstudio*.

All images from the series *Still Life | Suspended,* ©2019, Joanna Webster. From left to right in photo 15, the prints are *Iris, Amaryllis, Calla, Ranunculus, Lilium,* and *Tulipa.* The sheet size of each print is 20 x 16 in, and each image size is 15 x 11.5 in. The suite of six prints is also presented as a complete set in a boxed portfolio *(above, left.)*

1 The basic materials I use, and I always have the live plant to work from!
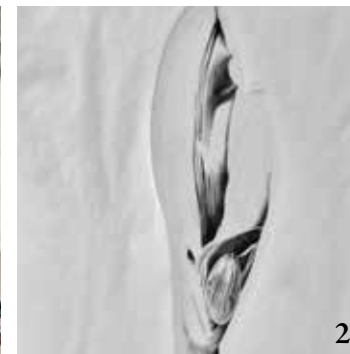
2 & 3 I protect my carbon dust work from smudging and renegade dust particles by taping a layer of tracing paper (with cutouts) over the larger sheet of work.
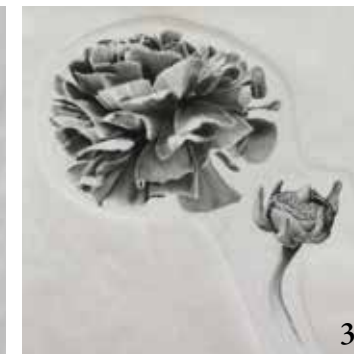
4 To achieve deep blacks, I apply -pushing the dust into the paper -multiple layers of carbon dust (with a light spray of isopropyl alcohol in between).


5 Completed carbon dust "dry painting" of *Amaryllis.*

6 & 7 To achieve fine details, such as petal edges, stamens, and pistils, I use a carbon pencil sharpened to a very fine point. While some illustrators use graphite pencil for such details, I don't, as the reflective nature of graphite can make it difficult to capture these details accurately when transferring to a photopolymer gravure plate.
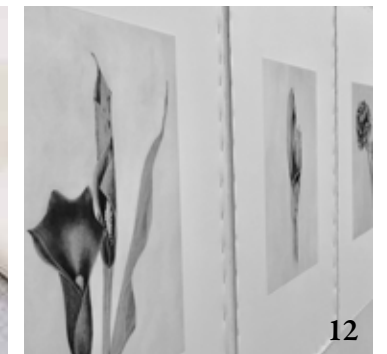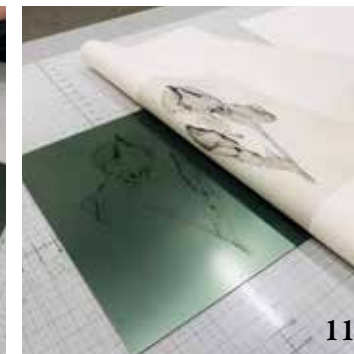

8 Clean photogravure polymer plates ready for inking.
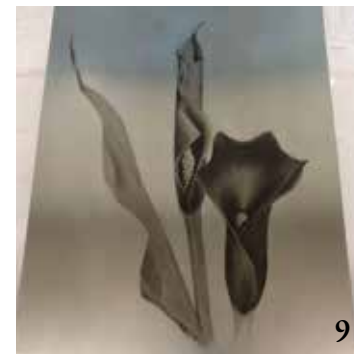
9 Inked plate ready for printing.
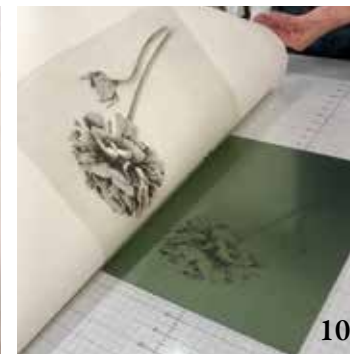
10 & 11 Completed print being gently pulled off the plate.

12 Prints stretched and stapled for drying.

13 & 14 Details. The texture of the ink on paper is different from that of carbon dust, but still has the luminous, velvety look of the living plant.

15 The framed suite of six intaglio prints in the series, *Still Life | Suspended,* ©2019, Joanna Webster.