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Hertzberg/Sweetman  
Flow Visualization

## **Expanding with Surface Tension and Ink**

The purpose for this experiment was to expand on a previous experiment, *Suminagashi*. The first Japanese marbling image I previously presented was for the "Get Wet" project and my personal favorite experiment. The newest idea was to incorporate black and white photography with black ink and paper marbling, as a fine art photographer this was the most creatively appealing experiment I encountered so far.

To refresh your memory, *Suminagashi* is a technique for marbling paper as well as an actual Japanese ink. To create this experiment with similar reproductions one would need black *Sumi* ink or *Pelikan* ink (although *Pelikan* is less expensive *Sumi* is much easier to work with), Japanese brushes which are not made with any metals, a glass pan around 15 inches long, 8 inches wide and 3.5 inches deep, *PhotoFlo*, a photographic wash used to protect negatives from drying with dust particles or water spots on them. Newspaper, 2 bowls, medicine dropper, a white garbage bag

or parchment paper, rice paper, a stepping stool and lighting equipment are needed as well.

It is easier to work on a long low standing table, this gives the photographer better angles to shoot and light the pan with out reflection or flare issues in the photograph. Clear a section of the table and cover it with newspaper that will obviously protect the table from spills and mess. The garbage bag or parchment paper goes underneath the glass pan. The pan is filled with water 1 to 2 inches deep. Using a paper towel skim the surface of the water to wipe out any unwanted particles that could show in the image. In a separate container/bowl mix 1 tablespoon of water with one tablespoon of *Sumi* ink. Add 2 to 3 drops of *PhotoFlo* (no more) and mix. Too much *PhotoFlo* will dilute the ink so much that it will not spread in desired patterns. Set up your lights at 45-degree angles (I used Tungsten bulbs in covers clamped to lighting poles. Play with them so that one is lighting the surface and the other is lighting the side illuminating and balancing the entire pan.

In the other bowl mix one tablespoon of *Photoflo* with a quarter cup of water. Wet your brushes and dampen out in a towel. Dip one brush into the inkless mixture and the other into the ink mixture. Tap the tip of the ink brush

onto the surface of the water in the pan then touch the other brush in the middle of the ink spot. This separates the ink and water in ringlets. After that it is free as to how you want to make your rings, experiment with the ink and *PhotoFlo*. Do not do too much only a few at a time and then start shooting the images standing on the stool look straight down, or to the side. The water and ink will eventually tire. Using the rice paper, lay it over the surface of the water and peel away the excess of ink. The pan and bowls must be cleaned out every 3 to 4 times you make a design otherwise it will become muddled.

Using 2 250-watt Tungsten lights that, as mentioned before where placed at 45-degree angles from the pan about 2 feet away and above, this decreased the reflective glare the water picked up otherwise. This image was shot indoors in a dark room with only the Tungsten lights. Flash photography produced too much of a glare and diminished the depth of the surface of the water to the bottom of the pan.

I shot this using a digital SLR Nikon D50 at 1/560<sup>th</sup> of a second at F 4. I was about 1.5 feet away from the surface of the water, using a 28-100 mm lens that was zoomed in at about 70 mm out. This image is 2000 pixels by 3000 pixels. I did not crop the image, for this experiment I was more aware of the borders and framed the images as best I could.

I shot this in color and changed the color into black and white, as mentioned in the beginning I wanted to express *Sumi* ink in black and white.

I like this image because it is expressive in the idea of surface tension and the reaction of ink with *Photoflo*, as well as abstract in form and color. One can see different illusions, such as a woman or a tree, like ink blot tests. The first image I shot using this ink experiment was more chaotic and shocking in color. I feel this images overlaps fine art photography with scientific theory more accurately. I feel this picture demonstrates the connection between the two subjects and the integration of art and science harmoniously. The idea of surface tension in a metaphorical sense ironically illustrates fine art and science. I liked that I improved my image in this experiment by having more control over the ink and *PhotoFlo* then the last time. I want to keep expanding on this project by add organic elements such as fruit slices as well as incorporating alternative mixtures such as oil or corn syrup.