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IV 1 Report

CINE 4200--001

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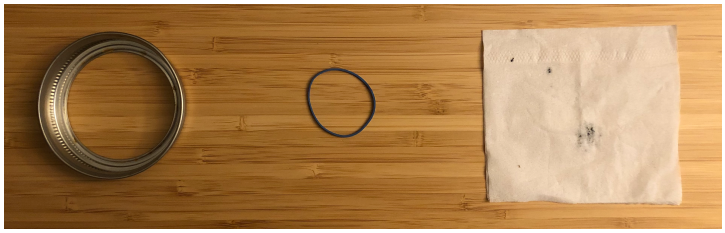
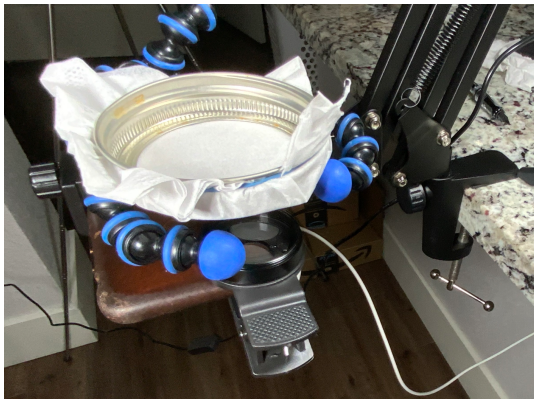
The purpose for this video is to display the way ink spreads on a piece of tissue in order to visualize the path and flow of capillary action. The intent was to use an extreme closeup and slow motion video to accentuate the flow of the ink and to create a meditative space of expansion. I was specifically attempting to capture capillary action and how fluids follow the path of least resistance.

The apparatus I used to accomplish these shots was a camera stand attached to a small tripod holding the tissue apparatus that was backlit by two Neewer LED lights. The tissue apparatus was built by wrapping a cut-out square of tissue around a mason jar lid without its center, and was secured by a rubber band. Ink was dropped onto the top of the tissue using a Lamy fountain pen with a piston converter, but a pipet or syringe would have worked as well. The flow moved quickly and efficiently in every direction across the paper in a fractal pattern. The actual spread of the ink was approximately two centimeters per drop once it completely stopped spreading.

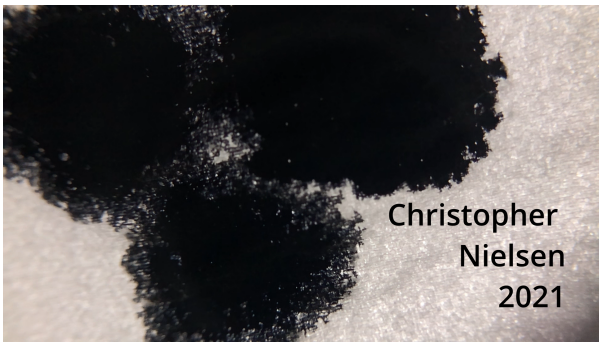
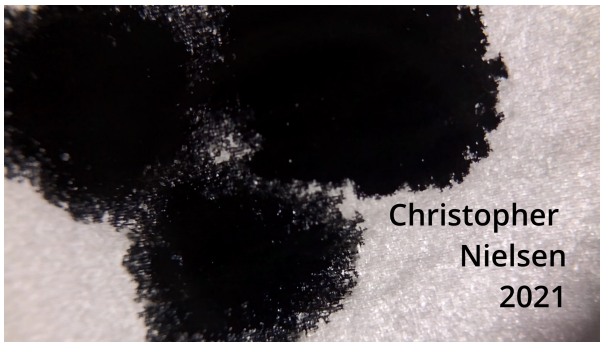


The visualization technique I used was ink and tissues. The ink is from a 50ml bottle of Waterman black ink made in Paris France, and was acquired from McGuckin Hardware in Boulder Colorado. The tissues came from a bundle of tissue boxes from Kirkland at Costco, and were cut in quarters to increase the yield of coverage per tissue. The ink was not diluted at all, and was filled directly into the fountain pen (again any applicator would suffice). I used a set of small Neewer LED lights to backlight the tissue apparatus. All other lights in my apartment were turned off in order to avoid scan lines from any fluorescent lights present and to control the exposure. The lights were on their medium setting and aimed at an approximate 45 degree angle at the tissue apparatus. The ink worked perfectly to cover the light coming through the tissue and being backlit intensified the black.



To capture this video I used my iPhone 8 with an application called FiLMiC Pro Mobile Video which overwrites the phone's camera to give the user control over focus and exposure. The application also gives more control over frame rate as well as aspect ratio. This video was captured at a 1920x1080 aspect ratio and recorded at 240 frames per second, replayed at 24 frames per second

(23.98 fps). The video was recorded with a HEVC codec and exported as a MOV file in H.264 as well and further processed in HandBreak to compress it into a MP4 file at a fraction of the size while maintaining the color information. The distance of the lens to the subject was approximately three centimeters, and the ink was dropped from a height of about nine centimeters from the top of the tissue. The iPhone 8 has a prime 3.99mm lens with a fixed aperture of f/1.8. I also attached a Xenvo 12.5x macro clip-on lens to my phone's camera to get as close as possible to the tissue and still have sharp focus. The project is digital and overcranked at 240fps and played back at 24fps (23.98fps) to get a slow motion video. The exposure was accomplished by using a 22 ISO and 1/192 shutter speed setting in filmic pro and as shallow of a focus as I could get. The sound design was created by myself by recording natural harmonics on guitar and playing it in reverse. In post processing I color corrected very minimally, mostly just normalizing the color space in Davinci Resolve's color window. I used the lift and gain wheels to adjust the color space to its full limit and left the saturation alone. Most of the work to get this image is in the process of exposing properly.

Ungraded Video	Graded Video
	

The video reveals the mesmerizing way in which ink flows through paper. I enjoy the spontaneity of the flow as it "explodes" in the frame even though it is in slow motion. I wish that there was more control over aiming the ink onto certain portions of the frame. Another difficulty is that the tissue only allows a visual flow in one direction and pools up on the other side. This resulted in some takes being wasted by a muddy and blurred image as the ink pooled on top of the tissue rather than flowing all the way through to the bottom ply. I fulfilled my intentions of this project, in fact my expectations were exceeded. I could not imagine how spectacular the slowed down video of the ink came out to be. I think that another direction this idea could go is incorporating different colored ink to see if there is a visible flow of the ink spreading on the tissue as well as into each other color.