

The image captured for the *Get Wet* assignment is of the foam, or head, of a Guinness stout being poured into a slightly chilled glass. The purpose of the image was to capture the detail and variability in size of the stationary bubbles and those in motion. Originally, the intent was to capture a series of still images with the hope of illustrating the interesting phenomenon of the Guinness bubbles travelling downwards. However, the methods attempted to dye a single layer of the bubbles white (in order to distinguish what direction the bubbles were travelling) were all unsuccessful so a single still image was captured instead.

The flow apparatus utilized to create the photograph was a standard pint glass. The phenomenon of the downward travelling bubbles can be easily explained. On the inside surface of the pint glass the bubbles are experiencing drag, or resistance, as they are in contact with the inner surface. Meanwhile, in the center of the pint glass, the bubbles are not in contact with the glass walls and are therefore not experiencing any major types of resistance. Once the bubbles in the center of the glass rise to the top they flow to the outer edges of the glass. In short, the bubbles in the center of the glass rise so rapidly that they create a circulation within the glass directing the bubbles at the edge downwards. As the circulation slows, the large bubbles, or head, at the top of the glass begins to form and eventually the circulations ceases¹. For a figure demonstrating this effect please see figure 1.

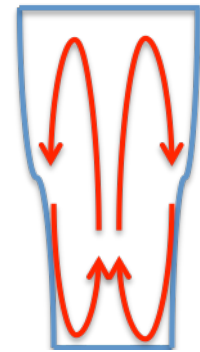


Figure 1: Fluid Circulation

The type of camera used to take the image was a Canon EOS Digital Rebel XS with a 55mm focal length. Prior to the image being taken, the glass was chilled in a refrigerator for approximately 10 minutes. The Guinness was also stored in a refrigerator before being opened and poured. The camera was stationed on a small tripod with the focus of the lens level with the desired center of the image. To create proper lighting, an overhead chandelier was turned on with six (6) standard 60-watt incandescent bulbs installed. See figure 2. The image was captured with an exposure time of 1/40s, f/5.6, at ISO 800 with no flash utilized. The lens was placed approximately 6 inches from the closest edge of the glass and the field of view is roughly 4 inches. Please see diagram 1 for the experimental set-up. Besides cropping the image (original image size of 3888 x 2592, cropped image size of 3888 x 2536), the only other image property changed in Photoshop was the contrast. By

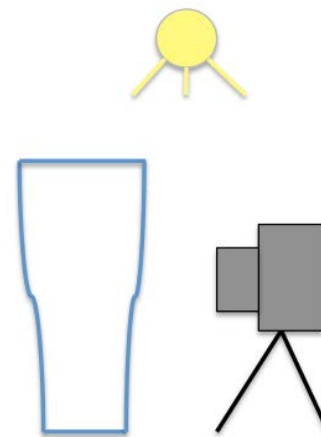


Figure 2: Setup

playing with the contrast curves, a warmer image could be achieved. Please see figures 3 and 4 for respective original and edited images.



Figure 3: Original



Figure 4: Edited

References:

1. Bushwick, Sophie. "Discoblog." *Discoblog*. Discover Magazine, 30 May 2012. Web. 12 Feb. 2013.