

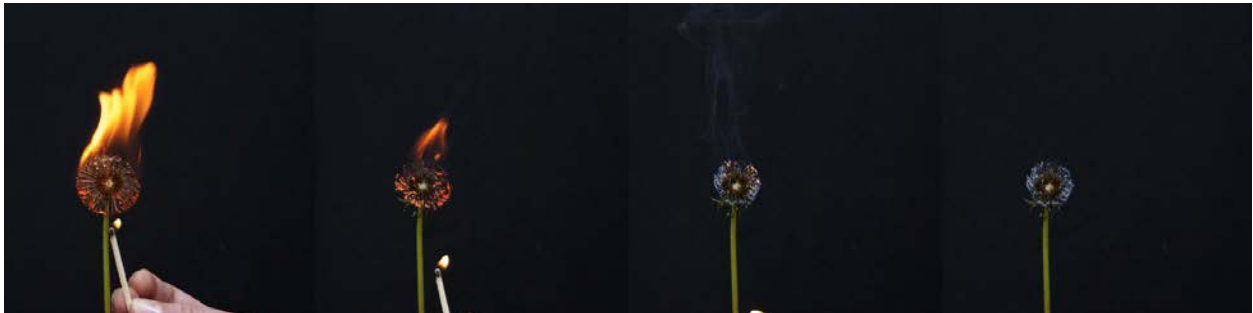
UNIVERSITY OF COLORADO, BOULDER

Burning Dandelion Progression

Team Image 3

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Flow Visualization

Introduction

The image pictured on the front page was created for the CU Boulder course Flow Visualization for the third team assignment. Our team chose to explore different visualization techniques using fire. Millie Blackstun, another Flow Visualization student, helped me to set a dandelion on fire and capture the progression of what happens when it burns. The image captures four important stages, and each displays beauty in its own way.

Apparatus & Flow

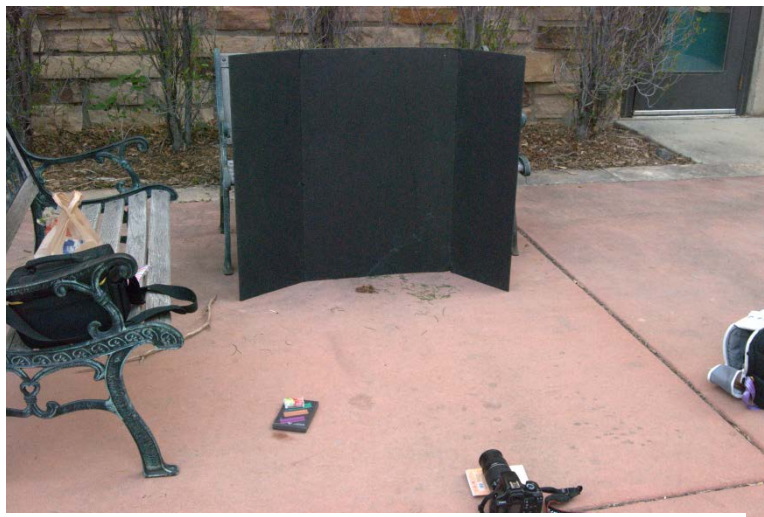


Figure 1: Experimental Setup

This setup was simple, and required only the use of a black poster board for a backdrop. Millie held the dandelion parallel to a tripod, on which the camera was affixed. When I was ready, Millie lit a match and held it to the dandelion until it began to burn. The duration of flames lasted only a few seconds. The image was taken using natural sunlight, with a slight overcast.

This picture was inspired by a picture I found on Pinterest. It depicts the dandelion to burn in different colors, as seen at the right. The results of my image were not similar, and after doing some research on the internet, it seems that this image may have been digitally enhanced to produce the colors in the flames. The motion of the flame, however, did look similar. It was really interesting to note that the integrity of the dandelion remained mostly intact during the initial phases of burning, and even slightly after. I really loved how the flame is most prominent around the outside edge of the blossom. That shows that flammable properties of the outside tuft and the inside stems are different enough that they burn at different rates.



Figure 2: Experiment Inspiration
(artist unknown)

Technique

I chose the shutter priority option on my digital Nikon DX40 (focal length of 46mm), and opted for a quick shutter speed of 1/400s because I knew the entire sequence would happen within seconds. The ISO was set to 1600 to help increase the light exposure, and the resulting f-number was 1/5.3. The flash was not necessary because of the natural sunlight. One of the original photos can be seen below.



Figure 3: Sample Original image. (3900 x 2613 pixels)

I used Photoshop to crop the image and enhance the shadows. I wanted to frame the four images in squares, and link them together to form a sequence. I liked the contrast of the dandelion against a dark, almost completely black background. I also liked the inclusion of Millie's hand, because of how it progressed down and out of the frame by the fourth image.

Conclusion

The dandelion did not burn the bright color that I had hoped it would, but I was able to capture a visually stunning set of images that depict the actual burning of a dandelion. I think it's really great to see the burning of the individual tufts along the outside, as well as the plume of smoke once the flame died. Another cool way to capture this phenomenon would have been via video.