

Artists nowadays are used to using materials that have already been made, ready to go, ready to be manipulated and transformed. It's easy to forget about the material's roots, where it all came from, how it became, and how it impacted life when it first appeared. Artists are used to the artificial lab-made materials, materials that are cut off from these roots. My work has always revolved around materials, but for this project I took it a step further, creating the materials I needed by making them the way they were traditionally made. In this process, I went back to the beginning of where these roots began. Back to raw materials, giving them a new life.

“Through the agency of color I could begin to understand, or at least to catch fragments of, what was being said on the walls all around... Learning the language of color is really about learning to see and create connections” (Ball). Color is a term that many of us throw around without really knowing where it came from. Color is the essence of landscape, of mood, of our whole perception of the physical world. Color is the base of my exploration and experimentation. By focusing on the process of color making I hoped to create a project that would transform itself into a lab for conducting experiments. I wanted to focus on process, and to allow the materials to guide me, thus giving new life to the importance of raw materials by placing them on a pedestal, and making them the center of what my project revolves around.

“Materials influence form,” said the American artist Morris Louis in the 1950s. This claim sums up my overall intention for this project. It supports the idea that raw color is more than just a physical medium from which artists can begin to create images. I sought to prove this statement by asking myself how these raw materials would guide my work, using materials not merely as objects but as emotions, or as a representation of the idea in itself. Through this process I created a window into the past and gained knowledge through the materials I used and the history of the colors that presented themselves to me. I followed Sasha Duerr's advice: "Getting the color is part of the art; otherwise it becomes someone else's work" (Sasha Duerr, New York Times). By capturing color I brought it into eternity; I created the dissolution of this evolution that has occurred over the years. It has all been fused together as one by going back to the roots and bringing it into the present of our synthetic color making era.

Natural plant colors

The idea that colors, like chemical substances, have elementary components from which they are composed goes back to antiquity. In order to fully understand the appearance of color in the first place it's important to realize that the history of color follows the history of civilization.¹ Over 15,000 years ago our ancestors were using natural pigments to decorate the walls of caves. Many of these colors were of mineral rather than plant origin. The earliest dyes were probably not fixed permanently so these textile fabrics can't really be traced, however it is more than likely that the craft of dyeing developed simultaneously in various parts of the world. Many of the plants used in dyeing also had medicinal properties, which may have been one of the ways the dyeing and coloring ability of the plants were discovered. Archeological finds indicate that dyes from natural sources have been used to color textiles for at least 6,000 years. Between about 4,000 to 3,000 BCE, dyeing had become an established craft in India, China, and parts of South America. The way these earliest civilizations discovered the chemistry of dyeing is really

¹ Wild Color, the complete guide to making and using natural dyes, Jenny Dean. Introduction, pages 1-21.

amazing: natural curiosity, trial and error, and experimentation definitely all played very important roles in this process. There are many historical instances where dyeing was one of the skills that was most valued, such as during the Bronze Age and the Iron Age in Europe, where blues and reds were valuable colors along with purples and yellows. These colors showed up in almost any piece of fabric work and painting made during that time.

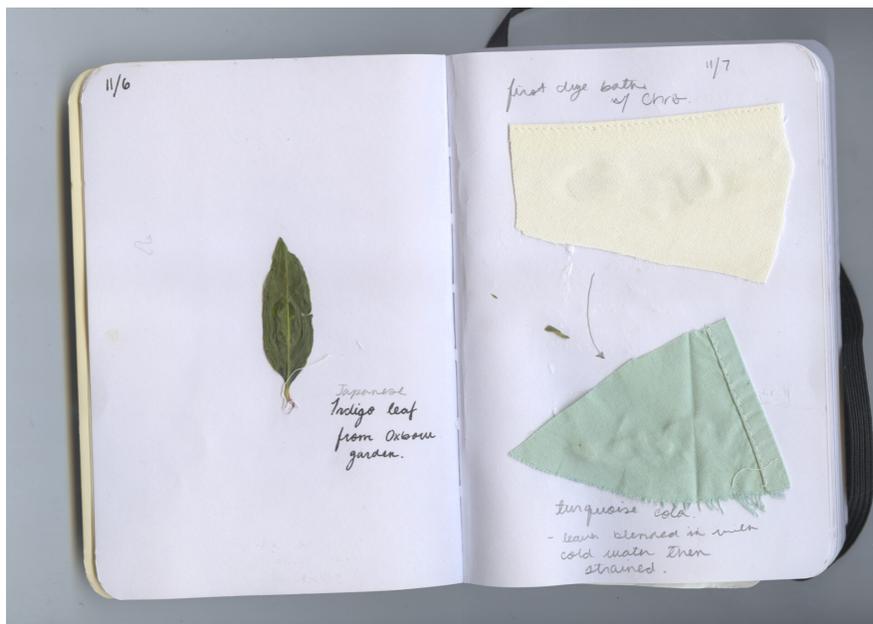
Blue

One of the most important and successful dyes in the history of the earth, as well as the oldest to be used for dyeing and printing, is indigo. Indigo is a dye that has been used as far back as 5000 BC, discovered in the fabric covering Egyptian mummies from ancient tombs. It is a dye that became worldwide faster than the blink of an eye. Excavated fragments show that indigo dyestuff was being used by the third millennium BC. For many ancient civilizations the production of indigo and woven textiles were absolutely fundamental parts of life. Since indigo dyeing requires a particular expertise, it became a very special and quite expensive dye around the world which many myths, superstitions and religious rituals were born from. Indigo echoes the infinite richness of the sea, the shadowy dusk, and the early dawn. Many saw it as a spiritual or reassuring color standing for loyalty, an association that continues to accompany the color today.

In India the marketing of indigo was complicated, speculation was common and prices were inconsistent. Crop and land purchasers had to be on the lookout for fraud as the quality and price of indigo was overseen by being channeled through company depots known as factories. The price fluctuated to keep up with the supply and demand. Indigo supplies were greatly affected by political factors, especially by wars. From the 1600s to the 1800s India was the greatest exporter of textiles the world has ever known. This popularity of imported goods and cotton textiles, according to Chadhuri, a writer and cultural commentator, was the root cause of Europe's Industrial Revolution, which then started the mechanization of spinning and weaving. Producing indigo was and is very labor-intensive; around the 19th century indigo had already spread across and affected many nations.² This involved indigo in a very elaborate four-cornered trade, which brought Asian indigo dyed textiles to Europe for re-export to West Africa, as essential bargain for slaves, and then back to India. Without a suffering labor force, indigo's story would be very different. The Japanese culture of traditional methods for dyeing eventually began to fade, and natural dyes were replaced with synthetic ones to meet the popular demand. It had taken almost fifty years of determined research to produce artificial indigo. It's really incredible to realize how much a plant can really affect everything around it, shape the world we live in today, and can continue to be an important and influential material even after thousands of years. Without indigo the world would have had no colorfast blue dye until the nineteenth century, since it is nature's only source of blue. Yo-Yo Ma said it best: "Indigo presents endless possibilities for learning across various disciplines... its incredible story is a gateway to connect the personal experiences of our everyday lives (for example our own ubiquitous blue jeans) with the history, geography and culture of the whole planet."

² In the 19th century India exported so much raw indigo dyestuff that 1 million people were employed in either production or transport to Europe. At one point it was the largest export business in the world. (http://olahinc.com/denim_survival_guide/the-story-of-indigo/)

Experimenting with the process of dyeing with indigo made me realize how truly universal and amazing this plant really is. I sourced indigo plants from the Oxbow gardens, pulled them out, and then plucked each leaf off individually. To my surprise the plant was a light green, a plant I could have walked right by and never even guessed it contained a blue pigment. This made me think about how people discovered this dye, and how if they had never used the plant medically the color would have never existed from a natural source. Making the indigo dye vat was a very long and tedious process; I can only imagine what it would be like to be doing this for a whole entire day. I used a cold-water technique for this method, called “fresh indigo leaf dyeing,” a popular and relatively fast way to get a turquoise color on silk. The dye bath I created wasn’t blue in color, instead it was the same color of the leaves themselves, a bright green, and to be honest I didn’t think it was going to work. The fabric I had been moving around in the dye bath for several minutes still looked white. It wasn’t until I took the silk out that it, like magic, turned into this light beautiful turquoise color. Through the contact with oxygen and water the color changed, proving what Phillip Ball stated: “Color is a function of illumination.” Natural pigments obtain their colors by absorption of light. Color is a property that does something to light; it’s an amazing and interesting relationship, and something I see as symbiotic and perfect. The idea of holding this color, catching a color, is something that I can’t really explain; it was definitely a very eye-opening experience. This idea was not the only thing that was interesting to me but also the ability to feel connected with history and create this commitment to sustain old traditions was very prominent during the entire process.



Japanese indigo leaf, left, and a silk swatch before and after the indigo dye process.

Red

Along with indigo, madder is one of the most ancient dyes in existence. It can be traced as far back as the Indus civilization of around 3,000 BCE. Cloth dyed with madder has been found on ancient Egyptian mummies, and madder was used for dyeing the cloaks of Libyan women in the time of Herodotus (5th century BC). Madder became really popular when used by

the ancient Persians, Egyptians, Greeks, and Romans, and basically every culture used it until the early 20th century. This proves how universal it became. Madder was also employed as a medicinal treatment for amenorrhea, the absence of menstruation, in ancient and medieval times. In the book *Color*, Victoria Finlay states, “For many cultures the color red can mean both death and life—a beautiful and terrible paradox. If we look at our modern language of metaphors the color red is anger, it is fire, it is the stormy feeling of the heart, it is love, it is the god of war, and it is power.”

The concepts she explains were all very well understood in the ancient times, for example let’s take a look at the Incan empire. The Incan empire controlled 10,000 kilometers of roads: they had no wheel mechanisms, horses, telephones or emails, but the government ruled this land with a huge team of relay runners. This system was made even trickier with the absence of a sophisticated writing system, and sometimes the messages were too hard for the messenger to remember—one can only assume that this happened often. Messengers therefore carried coded cords also known as “quipus” to pass on information. Quipus were an ancient Incan device for recording information. Every color and knot meant something different—black represented time, yellow was gold, and blue represented the sky and the gods. But the color red represented the Incas themselves. Life, power and death were all knotted up in a single piece of string.

Henry II of England chose red as the color for the livery of his servants, which was to be “dyed red with madder,” which in turn led to the color of the coats of the British Army. It’s so interesting to see how these associations of color come to us so easily today, yet were created such a long time ago, and we keep using them. We made these interpretations based on the vibrations and the actions going on around us, and translated them into a visual substance. How we form connections to material objects manifested how color could be so much more than just a reflection of light.

Yellow

Above all other plants, marigolds are one of the easiest plants to collect and dye with. Marigold plants originally come from Central America; the Portuguese introduced them to South Asia, Europe and India in the sixteenth century. They were greatly valued by the ancient people in South Asia. Their golden color was considered to resemble the color of honorable people, and it was used to demarcate special spaces like pavilions and to line sacred fire-pits in which ceremonies were performed. No color is neat and unambiguous in its symbolism, and yellow is one of the colors with the most mixed messages of all. It can be the color of pulsating life: think corn, gold and angelic haloes. It can also be a color of anger, or the devil. In the animal kingdom, yellow paired with black is a warning. In Asia yellow symbolizes the color of power, where traditionally emperors were the only ones allowed to wear yellow robes. Yellow can also represent the decline of power; an unhealthy yellow face complexion comes with sickness, and the yellowing of leaves in autumn indicates death.

Marigolds have been used for centuries as a beverage, dye, and flavoring, as well as medicinally. It was a sacred herb of the Aztecs who used the flowers to decorate their shrines and temples. Upon arrival of the Spanish in the early 16th century, the flower took on a whole new significance; it became a living symbol of the Spanish massacre of the Aztec people, showing the red blood of the Aztecs splashed over the yellow gold that the Spanish stole. Marigolds are sometimes called “flor de muerto,” for flower of death, and represent pain and grief. This flower

is living evidence of how things can be interpreted differently based on the surroundings. This flower/herb was intercontinental, and each different place it went transformed the plant and its color into a completely different meaning that suited the local history and happenings.

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In conclusion Phillip Ball stated, “Klein did not just want to show us pure color; he wanted to display the glory of new color, to reveal its materiality” (Ball). Each individual color has its own complicated line of history. Each color is more than just a name, for the name of the color is the history summed up into a couple of words. We are so used to using materials that appear easily to us; we can basically snap our fingers and have anything we can possibly think of. I believe that this beauty of uncovering, this beauty of creating connections with nature, has been buried and lost. We have lost our ability to see and use the resources that are available to us because we have everything, everything that could become a synthetic chemical and anything can be duplicated twenty billion times for the whole world. Early on in my process of experimentation I realized that in order for me to create color using the natural resources around me, I had to learn about the color. I had to learn about the history of the plant and about ancient dyeing processes, and go back to where it all began; it wasn't until then that I truly learned how to see.

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