It should be familiar: the book as a time stamp

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IT SHOULD BE FAMILIAR:
THE BOOK AS A TIME-STAMP

by
Catherine Liu

A thesis submitted in partial fulfillment
of the requirements for the
Master of Fine Arts
degree in Book Arts in the
Graduate College of
The University of Iowa

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Thesis Supervisor: Associate Professor Sara Langworthy
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“I began then to think of time as having a shape, something you could see, like a series of liquid transparencies, one laid on top of another. You don’t look back along time but down through it, like water. Sometimes this comes to the surface, sometimes that, sometimes nothing. Nothing goes away.”

Margaret Atwood
Cat’s Eye
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PUBLIC ABSTRACT

*It Should Be Familiar* is an artist’s book and collection of copper and steel intaglio printing plates. Together they examine shifts in external and internal identities, personal symbols, and perceptions of trauma over time. The book is printed with a plant-based dye mixture that reacts differently to each metal plate. As a parallel to the mentioned personal shifts, images in the book will change color with exposure to the metals as well as UV light.
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Being a second-generation Chinese-American immigrant gave me an early opportunity to develop an acute awareness and fascination of identity shifts when crossing cultural boundaries. The most notable shifts were my own changes in language, mannerisms, and name pronunciation when moving from the more private, domestic space of my childhood home to the more public American school system.

In printmaking, the matrix informs the physical characteristics of a print, but rarely does it publicly exist. Inversely, the print is invisible during the process of its creation, as the hand primarily works with the matrix. Thus, printmaking is a medium of transference and trust. Plant and insect-based natural dyes possess similar characteristics. Introducing metallic salts, known as mordants, and/or tannins to such a dye alters the dye’s color and resilience to UV rays over time. The hidden colors of these dyes always exist, but require particular contexts to be visually present.

The initial spark of my thesis was the desire to figure out a way to combine all these shifts, imagining the book as a way to contain time.
Although I am ethnically Chinese, my education has been primarily informed by the historical canon of the American school system. When starting research for my thesis, there was a frustrating lack of accessible information on Chinese craft—both methods of the past and how those methods survive today. If I was to make work based on my relationship with language and culture, it was important to me that I approach the subject with a deeper connection to my ancestry.

In the summer of 2017, I was awarded a Graduate College Summer Fellowship to study traditional craft in China. During this trip I studied under Huáng Rónghúá in Songzhuang, China, a specialist in Cāomūrǎn (草木染), or plant-based, heat processed, natural dyes. In this process, plant matter is simmered in water to extract a dye. Such dyes bond differently to cellulose and protein fibers, and the introduction of mordants and tannins alter the dyes’ appearance and color retention when exposed to UV rays.

Figure 1: Sappanwood (Biancaea sappan) dye samples drying
Together, we created a collection of samples to serve as a quick visual guide on how each dye interacted with silk and cotton cloth as well as with the mordants: potassium alum, ferrous sulfate, and copper sulfate.

Figure 2: Dye samples made from lychee peels (Litchi chinensis) on silk and cotton with different mordants.

The following summer I was awarded another Graduate College Summer Fellowship as well as a Stanley Graduate Award for International Research. With these, I was able to observe and study with textile artisans in Guizhou, China. Dyeing practices in Guizhou primarily utilize lán rǎn (蓝染), a cold dye process using natural indigo (Indigofera tinctoria). Since the indigo dye molecule is not water-soluble, indigo leaves are fermented to break down the particles so that they rest in-between the fibers of cloth.

I first visited Danzhai to see Yáng Fāng, head artisan of a studio that specializes in producing traditional Miao textiles. These textiles use a technique called làrǎn (蜡染), in which hot beeswax is applied selectively with a crescent shaped brass tool, lǎdāo (蜡刀) onto
a piece of cloth. An immense amount of skill is needed to control the làdāo and replicate the tight, intricate Miao designs. Some understudies practice for over 50 years before they are allowed to sign their work.

When dyeing, the areas with wax resist the dye. When the wax is removed, by boiling the cloth in a solution of water and calcium oxide, the resisted areas remain the same color as the original cloth.

*Figure 3: Yáng Fāng’s understudy applying wax with a làdāo*
Afterward, I ventured east and stayed at the Dong village, Zhaoxing, for about one month to take an indigo dyeing and resist workshop with Lù Shū Shèng. As a class, we started multiple indigo vats with fresh indigo paste, liquor or fruit, soybean stalk ash, and water, and were tasked with keeping all of them alive for the duration of the workshop. The indigo vat is an ecosystem and maintained like another being—routinely fed with sugar and alkali to sustain the bacteria fermenting the indigo. Learning about the maintenance of indigo vats coincided with learning two dye resist techniques: lán yínhuā bù (蓝印花布) and lán jiǎ xié (蓝夹缬).

Lán yínhuā bù is a technique where a paste made of stale soybean flour, calcium oxide, and water is pressed through a waterproof stencil onto fabric. Traditionally, the stencil was made of thin, layered paper or vellum finished with tung oil, but that method is no longer cost effective. Contemporary stencils may be made of thick board finished with tung oil or a PVC sheet.
After the paste is applied to the fabric, it is left to sit flat for 24 hours. The paste becomes waterproof and adheres firmly to the fabric. Like the wax in the lán răn method, the paste resists the dye and pasted areas remain the same color as the original cloth. To remove the paste, the fabric is soaked overnight in water and the paste is scraped off with a metal spoon.
Figure 6: Lán yínhuà bù textile

The lán jiā xié dye method involves two identical, mirrored-image, carved boards. The boards were traditionally hand-carved and made from hard redwood (*Metasequoia glyptostroboides*) or mountain yangmei (*Myrica rubra*), but many contemporary artists use CNC-routed foam core.

The boards are clamped together tightly, cloth in-between, so that when submerged in the dye the raised areas resist the dye. This resist method is typically associated to Han Chinese people living in Wenzhou, but I was told there were a few old families practicing lán jiā xié in Guizhou.
Before I left China, I briefly stopped by Changsha, my mother’s hometown to visit my maternal grandmother, who I had not seen in 17 years. By this time, her sense of hearing
was gone and I was unable to verbally communicate with her. Although some hand gestures and hugs were realized, I departed wondering if I had missed out on a connection.

The term used for a “Chinese citizen,” Zhōngguó rén (中国人), also translates to “Chinese person.” Due to strict housing policies in China, not all hotels and apartments can host non-Chinese citizens. This restriction was especially frequent in the smaller villages where the craft artisans lived and worked. Hotel staff and renters frequently rejected me because I was not a Chinese citizen, and their rejection was always paired with the phrase: “你不是中国人，你不可能住在这里。” “You are not a Chinese person, you cannot stay here.”

I left China with a collection of disparate techniques and experiences that mirrored disconnects between my ethnicity, upbringing, education, culture, and familial bonds.
My impulse upon mentally sorting through my collection of techniques and experiences was to build connections between them. My memories of China manifested in a series of mind maps to help me visualize and sort through the dense complexities of emotions during and after my trip. Ultimately, I realized that going to China had been a sort of trauma, an affirmation that my foothold in origin and place was lost. I was always perceived as an outsider in the country I was born in, constantly probed with the question, “Where are you really from?” And, I was an outsider in the place I answered with.

As I continued making mind maps, I began connecting this trauma with other pains: experiences with oppression, long-term illnesses, loss. The result was a visual progression of my experiences with trauma and how they changed with the influence of another incident, context, and time.
I became interested in experimenting with various ways I could incorporate plant-based dyes in my printing practice—uniting these newly learned Chinese craft skills with my Euro-centric foundation as a way to piece together my own being.
During my preliminary research, I found a few recipes for making screen-printing or stamp ink by thickening dye with starch, but I specifically wanted to know if there was a way to print with natural dyes on a Vandercook Proof Press. Letterpress printing felt vital to my practice—an art of sorting pieces of a language, reading it from multiple angles, and repositioning it until it makes sense. I found no research on creating natural dye ink with a consistency that was appropriate for printing on a Vandercook Proof Press, so I began an extensive amount of tests to figure out if it was possible.

Trials included mixing dye and mordant extracts with various ink bases: VanSon Rubber Base, Caligo Safe Wash, Akua Intaglio, and guar gum. Out of these, only Akua Intaglio Ink both bound to the extracts and spread evenly on a rubber roller.

Akua Intaglio Ink was designed by Susan Rostow to be used in both intaglio and relief processes. It is a hybrid water and oil-based ink. The water makes the ink compatible with water-soluble materials such as watercolor, gouache, and dyes, while the oil allows the ink to be printed on damp paper or re-dampened without disturbing the image. The oil also adds a layer of protection to prevent the water from tarnishing metal.

Despite the oil in the ink providing some protection, it was important to note the risks of using unconventional substances on a communal press. The Printing Facilities Supervisor, Sara Langworthy, generously allowed me to experiment with this ink on the University of Iowa Center for the Book Vandercook Proof Presses, provided that I carefully watch how the ink was responding to the metal and rubber rollers.

Printing off of a Vandercook Proof Press allowed me to experiment with applying dye in selective, precise areas and see what changes occurred when a mordant overlapped with the ink. Refinements made over the next year, which included finessing ratios and heat setting the ink to improve the longevity of the color.
Figure 10: Example of color shift when layering eastern braziliwood, or sappanwood (Biancaea sappan), dye ink (brown circles) over alum acetate and ferrous sulfate inks.

Figure 11: Line drawing of a flower printed with alum acetate ink. Circles and lines printed with logwood (Haematoxylum campechianum) ink layered on top, showing a color change when they overlap (purple color). Printing plates were made from photopolymer.
Plant-Based Dye Ink-Making Process

Materials

- Plant or insect-based, water-soluble dye
- Mordant
- Akua Intaglio Transparent Base
- Induction cooker with programmable temperatures starting from 100°F/38.78°C
- 0.01 gram/high precision scale
- Non-reactive, magnetic cooking bowls and utensils
- High mesh-count strainer
- Airtight plastic, amber jars

Part One: Making a Concentrated Dye Liquid

1. Heat plant or insect material in water (3:1 water:organic material) to 180°F/82.22°C for 20 minutes.
2. Reduce the heat to 100°F/38.78°C and let it slowly evaporate until it has the consistency of condensed milk.
3. Strain.

Part Two: Making a Concentrated Mordant Liquid

1. Measure out mordant based on compound and amount of ink (alum acetate: 25% weight of Akua Intaglio Transparent Base; ferrous sulfate: 5% weight of Akua Intaglio Transparent Base)
2. Mix mordant in water (3:1 water:mordant) and bring to a simmer. Let the dye evaporate until half of the liquid volume remains.
3. Strain
Part Three: Making the Ink

For making a pure dye or mordant ink:

1. Heat Akua Intaglio Transparent Base to 100°F/38.78°C
2. Add concentrated dye/mordant liquid based on desired depth of color
3. Stir until color and consistency is even. Remove from heat and allow it to cool
4. Store in an airtight container

For making a mordant and dye mixture ink:

1. Heat Akua Intaglio Transparent Base to 100°F/38.78°C
2. Add concentrated mordant liquid
3. Stir until color and consistency is even
4. Add concentrated dye liquid based on desired depth of color
5. Stir until color and consistency is even. Remove from heat and allow it to cool
6. Store in an airtight container

* The ink seems to deepen in color when stored over time

In an intaglio class taught by Terry Conrad at the School of Art and Art History, I had the opportunity to experiment with printing this ink off of metal intaglio plates. I discovered that the different metals caused the ink to shift color when introduced to the heat of a hot plate and the water from a dampened sheet of paper.

This discovery was particularly exciting because the innate qualities of matrices were causing the shift in color, making a chemical and physical impression. I felt this satiated a desire to introduce more qualities of the matrix in my prints.
Figure 12: Sappanwood dye printed off a steel (left) and copper plate (right)
The primary printing method I chose for this project was intaglio because the sculptural and dynamic nature of the matrices. Intaglio plates collect their own “memories”—getting scratched up and flattened as they are used, distorting the original etch. Likewise, language constantly evolves with context, so I wanted to present the plates as an adjacent to language.

Production of my thesis began by generating a fount of intaglio plates shaped like symbols associated with particular memories, events, and mental states. Each symbol was assigned a metal based on my initial emotions towards that symbol—copper for moments of larger impact and steel for moments of smaller impact—and cut out of each corresponding metal with a fretsaw. The focus of generating the plates was to create a large quantity of plates to work with rather than being concerned with what would appear in the book. Deciding not to use a plate was less of an act of not needing it, but rather, not being ready to use that particular plate within the context of the book. This collection was made with the intent that I could always revisit, print from, and add to it.
The fabrication of my thesis occurred primarily in two spaces: the University of Iowa Center for the Book and the Visual Arts Building. As I traversed between these two spaces, I became more and more aware of the labor required to ferry materials back and forth. An actual bridge connected these two spaces, and it was often difficult to cross—due to ice or wind—while holding precious materials. In order to protect loose materials from the elements, I began tightly packing them in boxes. This too, became an experience I wanted to express in my thesis.

I began working on a box structure that was functional and could adapt to its contents as I built my collection. I also considered its presentation: would exhibiting the box alongside their prints tighten the gap of visibility between matrix and print?

The proportions of the box are based on metal type job cases to associate the symbols with language.
Figure 14: Layout of a California Job Case (Image downloaded from http://excelsiorpress.org/reference_html/JobCaseLayouts.html in May 2019.)
Typically, job cases have a set layout, but I envisioned that the partitions of my box be removable to allow for changes in the collection. The inner walls of the box are lined with individual covered boards with notches in-between that are just wide enough for another wall to slide in and out. All the vertical walls have similar notches to accommodate the horizontal walls.

As I arranged the plates within the box, I considered the proximity and grouping of each symbol to another. Symbols with analogous meanings are grouped in the same unit and symbols likely to be used together are placed close by, similar to the arrangement of a particular language’s job case where closely used letters are placed near each other.
Figure 16: An arrangement of personal symbol job case
As I amassed a collection of plates, I began arranging them to create a narrative within a codex. I referred back to my mind maps, curating words and phrases to guide the interactions between the plates.


Labels for each symbol were printed with photopolymer plates over each intaglio print’s emboss on the opposite side of the paper. The photopolymer plates were created from negatives of my own line drawings and handwriting. The ink is a grey rubber base (VanSon Black, Process Blue, and Transparent White Rubber Based ink) mixed with graphite powder.

Certain labels are more directly relate to the image (a Florida Applesnail labeled as “FLORIDA APPLESNAIL”), while some are more subjective (a sock labeled as “LOST” and its pair labeled “CONNECTIONS”).
Figure 17: Intaglio prints of symbols

Figure 18: Labels on the backside of intaglio prints
The clinical titles printed in metal Palatino type contrasts the handwritten scrawl of meanings to highlight disconnect between form, labels, and location. The type was printed with ink made of madder (*Rubia tinctorum*) and kakishibu (fermented, unripe persimmon, or *Diospyros kaki*).

The ink for the intaglio prints, sappanwood (*Biancaea sappan*) mixed with pomegranate peels (*Punica granatum*), will change with time and handling. Labels of certain symbols also change with the shift in chapter.

*Figure 19: Appearance of the shadow (labeled: “PAST”) and rock (labeled: “LEARN TO LIVE WITH IT”) in “Habitat”*
Figure 20: Appearance of the shadow (labeled: “PAST TENSE”) and rock (labeled: “FUTURE PERFECT”) in “Social Behavior”

The backgrounds were pressure printed with VanSon Rubber Base ink. They create a visual sense of place without concretely defining the space’s laws of scale and gravity. The shapes in the pressure prints were drawn from visual forms found in the intaglio plates, but are more obscure and unlabeled to resemble haloes of distant memories. The exception is one defined pressure print form labeled “ILLUSION OF HARMONY” which has no associated intaglio print on the opposite side of the page.
The bookcloth used for the covers was pressure printed with the same ink mixture used to print the chapter headings—madder and kakishibu. The title was printed on top of the pressure print with ink made of ferrous sulfate, which turned purple following contact with the madder and kakishibu ink.

Madder and sappanwood were chosen for the inks because of their use in traditional Chinese dye crafts and for their color—both resemble my own skintone. Madder is more lightfast than sappanwood, which made it a more appropriate choice for the covers and chapter headings. The color of sappanwood is more prone to change with metals and light, making it a better conceptual fit for the intaglio printed forms. Pomegranate and kakishibu are both high in tannins, which were added to help the ink bond to the substrate and increase their lightfastness. Kakishibu, in particular, is high in proanthocyanidin-type tannins that darken with exposure to UV rays, which is similar to tanning in skin. References
to the skin are also mentioned in the introduction, where the copper plates are referred to as scar tissue and the steel as freckles.

The binding is a hybrid lapped case with a long stitch sewn through the paper lap to emphasize that the particular component is a spine. The combination of references to the body brings memories and trauma to an external plane of being. They are always carried and intermittently re-surface throughout life.

![Figure 22: “It Should Be Familiar” covers](image)

Printmaking is the process of trusting that invisible actions and consequences are still real and present through multiple manifestations. *It Should Be Familiar* collects and realizes the invisible labor of crossing spaces. The printed objects are a series of moments that recall a separated matrix. While the scale and positioning of the printed objects do not resemble a particular or consistent place, they interact with each other to create a cohesive whole. The reactive printing inks underscore the inaccessibility of time, never retaining their color, never appearing the same.