WITHIN THE RUIN IS COLOUR

making with twenty-eight chromatic encounters

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Within the Ruin is Colour

Author’s Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Within the Ruin is Colour

Abstract

Through twenty-eight encounters, this thesis explores site history differently; colour becomes a lens of site analysis that traces social, economic, and environmental accounts of materials, while challenging the familiarity of linear narratives and the perception of time and space. Traces of colour are stripped from written, verbal, and spiritual histories of industrial ruins. Extracting this spectrum of pigments creates material ambiguity where constructed divisions between what is human versus what is natural, what is contaminated versus what is pure, and what is waste versus what is of value are abolished to enrich our understanding of place. In doing so, this research helps to better understand the role of colour in the alienation of land, animates colour as a primary architectural element and begins a journey towards land reciprocity with damaged industrial landscapes.

The core of this thesis lies in noticing colour. For a year, I catalogued a chromatic spectrum from foraged material in the ruin of Barber Paper Mill in Georgetown, Ontario. Red ochre in clay forms the earth that is carved into buildings. Yellow iron of fieldstones marks divisionary lines of settled territory. Green derived from chlorophyll allows the growth of black spruce delineating the paper industry of Canada. Blue patina of oxidized copper memorializes the development of hydro electricity and changing patterns of urbanism. Each hue is a unique story of entangled relationships between material agency and perception. Each story is a forensic exercise in noticing differently and liberating the ruin from abstracted obsolescence.

Within the Ruin is Colour reveals entangled connection between the ruin's physical matter, composition of the built environment, and resulting conditions of the land. These investigations contribute to the study of the perception of space—physical, phenomenological, cultural, and temporal. As encounters operate in the place between each of these individual spaces, focusing on the practice of making with colour explores the architect's role in preservation and erasure. Colour, as a site of investigation, illuminates how colours exist in space to animate invisible, lost, and erased histories of the land.

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I first would like to acknowledge that I have been fortunate to spend time doing research in the land, encountering the plentiful of colours they host. The earth, water, and sky have nourished the flora and fauna which make up the land and provide the many gifts used to build our worlds. Thank you, to the land and those who have been its stewards, for your nourishment, protection, restoration, and knowledge.

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This thesis is dedicated to the earth for all of her plentiful gifts,

and her critters, human and more than,

who revel in colourful places.

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Preface

Colour has always been a part of my life as wonderment and friction.

From a very young age, I spent hours on end observing how the sun's rays would reflect off objects, and how its angle would make something completely disappear. I did not have great vision—I was a child with a patch over one eye and glasses over the other. I remember laying in the grass staring up at the sky, and if I squinted to just the right degree, a rainbow would appear somewhere between my eyeball, glasses, and the sun.

When I was five years old, I moved overseas from one country to another. For the first time, I realized that colour, was more than sunshine and rainbows. It was more than the paint on the walls or the crayons in my bag. Colour was my skin. It was my language. It defined which classroom I sat in, which children befriended me and, more than anything, it determined how I was perceived by the world. Of course, I was only five at the time, so all I knew was my colour was different. It did not seem to belong anywhere. It was not until much later I could unpack all this stood with. So, I tried to let the awareness of my colour fade.

A decade passed, and colour formed anew again. Now, it was art. Anytime I tried to paint without colour, I was questioned and challenged. I was told "there is no such thing as a colourless tree... no, it was blue and red and yellow." So I sat, each day in period four, with my high school art teacher learning to use colour on a canvas. Points, lines, planes, and texture. Colour was structure. Colour was beauty. Colour was essential.

Then, more time passed. I got an education in architecture and wondered—wait! Maybe it's not essential. Maybe colour is the other? Maybe colour is excessive? Maybe it's ornamental? Maybe it's a quality of a thing not the thing itself? Maybe it's there to highlight? Maybe it should be replaced with more whitespace? Yes! More white space! That will make it better! At least, that is what I was taught.

Until now, I understood colour as a quality of a thing, not the thing itself. I learned to let it fade. Pretend it was not there. Let it be less than it was and defined by something else. Something "more important." It seemed unsubstantial, secondary, and foreign. And, so, I began this

research avoiding colour altogether, thinking it was too removed to discuss at all. I found myself being asked over and over, "is this research about the ruin or is it about colour? I felt embarrassed and scrambled for palatable answers to justify colour as more than "a fun art project" but connected to space. It was in this embarrassment that all my complicated and entangled connections to colour arose.

Why was colour so important to avoid?
Why was it so important to justify?

I stumbled upon a text about chromophobia by cultural critic and artist David Batchelor. In a reflection of a starkly white room, he comments that the complete white did not make him think more about white but instead about colour. He asks: "If colour is unimportant, I began to wonder, why is it so important to exclude it so forcefully? If colour doesn't matter, why does its abolition matter so much? [Colour] mattered because it got in the way. It still matters because it still does."[01] Colour is at the heart of understanding the difference between what is preserved and what is erased.

01.
Batchelor, David. "Chromophobia" in Chromophobia. (London, United Kingdom: Reaktion Books, 2000), 21

To tackle the topic of colour is loaded and extensive. There are endless fields it touches with a great deal of friction imbued between its many interpretations. I am a laywoman in all aspects of colour. I am no expert in physics, or phenomenology, or history, or culture. My understanding is spatial—the coming together of these fields: how colour exists at these wicked intersections, how it overlaps, touches, repels and joins. This research is my attempt to weave the fields together and find the points that connect. In many ways, this research is an entry point in understanding how colour exists in space. Temporal space. Physical space. Phenomenological space. Cultural space.

At the very least, what follows in this body of work is my journey of encountering colour, how I perceive it, and its enduring role in place. At best, it begins to unpack why colour is so often othered, erased and ignored. There are many holes and zero absolute. The encounters are intimately specific, and by no means universal. It was not a black and white, clean, linear process, but colourful, twisted, and dirty. Literally.

00. Chromatic erasure

"The destructive character knows only one watchword: make room. And only one activity: clearing away. His need for fresh air and open space is stronger than any hatred. The destructive character is young and cheerful. For destroying rejuvenates, because it clears away the traces of our own age; it cheers, because everything cleared away means to the destroyer a complete reduction, indeed a rooting out, out of his own condition."[01]

Walter Benjamin, Reflections, 301-303

Figure 0.01:

Photograph of Le Corbusier's *Pavillon de l'Esprit Nouveau* in Paris, France depicted with an emphasis on white. © FLC/ADAGP

When an object is white, it retains no visual energy. Wavelengths of energy in the visible spectrum begin at a light source and are absorbed by an object or reflected into the viewer's eyes. On a white object, all wavelengths are reflected. For an object to be white, its exterior must be non-porous. Calcite formations, polar bear fur and the bark of a birch tree, though technically white, are quite rare in nature compared to the plenitude of colour. It almost always requires force to be white; one must remove colour that already exists or apply a layer that repels it.

It is difficult to remove the image of white from the lasting perception of *purity*. To be white, a material quality or colour, is not harmful on its own. It is *pure-white*, the Western generalization of *whiteness*—a reduced and abstracted white susceptible to virtuous terminology such as *pure*—that destroys. It long predates the era of modernity and minimalism while it lingers in the dishonest restoration of marble antiquity.[02] This alignment evolves from the Age of Discovery.[03] As European explorers encountered Indigenous populations throughout Africa, there was a momentous shift in the etymology of white. The term once known for bright luminosity and a colour equal to all others becomes a symbol of moral purity and cleanliness in contrast to black and everything in between.[04] Purity rejects colour in a drive for dominance, an idea that embeds itselfs in the foundational culture of the colonized world. Colour, in this culture, is contamination. It is foreign. It is excess. And, so, to rid the world of disorder and corruption, colour is repelled, reduced, rooted out, and cleared away.

Through his writings on whitespace and chromophobia, artist and cultural theorist David Batchelor argues that it is not the absence of colour, but the failure to notice colour that projects the architect into whiteness. After all, Le Corbusier painted the *Pavillion de l'Esprit Nouveau* in almost a dozen colours before they were erased in discussion and the building became recognizable for its infamous white hue.[05] White walls. White furniture. White objects. White paintings. Batchelor insists that this "blindness to colour" in architecture derives from the manifesto of purism rather than white architecture itself.[06] The manifesto from 1920 draws connection between painting and the "purified" architecture.[07] It authors colour as a 'perilous agent' which disrupts the principles of rationality.

01.

Benjamin, Walter. Reflections : Essays, Aphorisms, Autobiographical Writings. 1st ed. (New York, United States: Harcourt Brace Jovanovich, 1978), 301-303

02.

Talbot, Margaret. "The Myth of Whiteness in Classical Sculpture," New Yorker, Oct 22, 2018, https://www.newyorker.com/magazine/2018/10/29/the-myth-of-whiteness-in-classical-sculpture.

03.

Zimring, Carl A. Clean and White: A History of Environmental Racism in the United States. (New York, United States: NYU Press, 2015).

04.

Douglas, Mary. Purity and Danger : An Analysis of Concepts of Pollution and Taboo. (New York, United States: Routledge & Kegan Paul Ltd, 1970).

05.

Le Corbusier. Essential Le Corbusier : L'esprit nouveau articles. (Oxford, United Kingdom: Architectural Press, 1998).

06.

Batchelor, David. Chromophobia. London, (London, United Kingdom: Reaktion Books, 2000), 47-49.

To contain disorder, colour is categorized into three scales: major scale, dynamic scale, and transitional scale. These scales place colour into a subordinate hierarchy, not to define space itself, but to contrast and elevate white. Removing colour, in comparison, makes white whiter.

Modern architecture of both the twentieth and twenty-first century emerges from this circumstance of chromatic erasure. Traces of colour, both objects and people, are stripped from the written, verbal, and spiritual histories of land to make space for a purified place. The original place, the American industrial landscape, was the epitome of "modernity and architectural probity."[08] In his famous work, *A Concrete Atlantis*, Reyner Banham identifies American industrial architecture as "honest expressions" of function and use. He theorizes that Le Corbusier circulates images of factories and grain elevators as elements that could be adapted to non-industrial architecture in Europe. Banham states that because these architectures were designed and built by engineers rather than architects or academics, they hold an "architectural virtue" powerful enough to become the precedents underpinning this modern aesthetic.[09] With it, there is a reduction from its context that justifies structure, a production priority that roots out architecture from the lands, and virtuous construction methods that clear away colour.

Through processes of stripping away colour from culture, the American industrial landscape falls into whiteness, and with it the architect, the settler, the land, and the culture become what philosopher and cultural critical Walter Benjamin describes as the *destructive character*—one who is nourished by an insensitivity to the complex and the specific. In this research, the destructive character is one with an insensitivity to colour.

Promise and ruin

Between the seventeenth and nineteenth century, as settlers berthed the shores of Turtle Island, they employed the ideology of a *tabula rasa* to overtake the land.[10] Diverse forests were cleared to build a succession of

07.

Le Corbusier, Ozenfant, Amédée. Apres le cubisme. (Torino, Italy: Bottega d'Erasmo, 1975).

08.

Banham, Reyner. A Concrete Atlantis : U.S. Industrial Building and European Modern Architecture, 1900-1925. (Cambridge, United States: MIT Press, 1986), 6-18.

09.

Banham, A Concrete Atlantis, 15.

Figure 0.02:

Aerial view depicting the industrial ruin of Barber Paper Mill in Georgetown, Ontario. The abandoned mill sits along the bank of the Credit River and is now severed from the growing urban fabric by roadways and fencing.

homogenous structures along waterways and trade routes. Indigenous populations were killed and displaced to make room for growing European communities. Monoculture plantations exploited resource and labour control. The lands and waters were modified into ordered systems for constant progress. There was a drive for purity, and in the promise of industry, was the destruction of an existing relationship with land.

Mills, foundries, and shops were built in the cleared away spaces. These industrial buildings, together known as *the works*, were sequenced along the banks of waterways, and became the nucleus of growing European settlements. Following rapid technological advances and a changing global economy, these buildings fell out of use and into obsolescence. Today, these

10.

Tabula Rasa is a tool of oppression that has whitened architecture as a whole: a heritage building with patina removed and restored to white marble, a drawing emphasized on a white piece of paper, the principles of most firms, and professors in classrooms.

landscapes remain abandoned architectural artifacts of urban decay and chromatic erasure scattered across Southwestern Ontario.

This erasure of colour stems from the settler colonialist ideals of a built modern world. For centuries, lost and existing Indigenous culture has and continues to be dispossessed, erased, and overwritten with narratives of progress and colonial history. In these narratives, colour culture is not removed completely. Instead, it is told in opposition to progress. It is broken and unwoven from the built fabric of industrial promise; traces of its presence are left to allude to a time before and after modernity.

The design, construction, abandonment, and preservation of industrial architecture exists in isolation from entangled surroundings and context. It speaks to development and urbanism while ignoring vernacular eradication. In its silence and denial of a time before or what was removed to build, a condition of whiteness prevents, fades, and erases colour.[11] Just as an object would, the landscape is primed to repel the visible spectrum, refracting energy to make space for an industrial culture deprived of context and adamant about purity.

11. Batchelor, Chromophobia, 83-87.

Now facing an ecological crisis, the story of industrialization is the epic of human intervention. The industrial ruin gives note to a greater narrative of the architect's role in discard culture. As each booming industry fails, landscapes of factories, housing and supporting communities are left as architectural waste. Architect Ignasi de Sola-Morales depicts the paradoxical contradiction of empty, yet occupiable space using the French term *terrain vague*.[12] It is often used to describe the ruin of industry and forges a dialogue between wavering boundaries of land and uncertain qualifications of program; it negotiates an absence of connection to the urban fabric and potential common use for surrounding context.

12. de Sola-Morales, Ignasi. "Terrain Vague." In Terrain Vague : Interstices at the Edge of the Pale, edited by Barron, Patrick and Manuela Mariani. (New York, United States: Routledge, 2014), 24-30.

When the traction between architecture and its industry fades, it becomes terrain vague, decaying into the ruin of a romanticized but trivial image of the past. The perception of constructed space uninhabited by humans is that of waste.[13] This perception renders post-industrial matter as the backdrop to human history. The ruin becomes a vision of other times, and as such, is viewed as a void to the present. Architectures are

13. Di Palma, Vittoria. Wasteland : A History. (New Haven, United States: Yale University Press, 2014).

Figure 0.03:

Photographs from Robert Smithson's, *A Tour of the Monuments of Passaic, New Jersey* depicting industrial objects as monuments in space. The short photo-essay was originally published in "Artforum" magazine.

left for abandonment. They are boarded from the landscape and remain as a stigmatized other that ignores the highly temporal nature of their seemingly stagnant ecologies.

Many contemporary artists use discarded matter to acknowledge the present voids left by industry through conceptualizations of the ruin. In Robert Smithson's, *A Tour of the Monuments of Passaic, New Jersey (1967)*, the use of deadpan photographs captures the residual structures of failed industry. These images capture the attention and focus of photographers, now known as urban explorers, who forage the urban fabric in search of documenting the ruin. Documentation through photography captures isolated moments that manipulate a "mirror image" of the ruin.[14] Through framed manipulation, the artist instils a subjective reality of the ruin as waste structures, provoking a singular narrative to surface in each still.

The Western image of the ruin is one of architectural waste. These sites render interpretations of past societal structures that inspire designers, authors, and historians.[15] Though implications of decay were rooted in physical and cultural atrophy, lust toward the ruin terminated understanding of the economic, political and environmental failures of once thriving industries.[16] In this, motivation towards preservation and redevelopment are obstructed and the landscape, for many, remains a glimpse into imagined pasts of promise and futures of ruin. It is evidence

14.

Robert Smithson's, A Tour of the Monuments of Passaic, New Jersey, United States (1967).

15.

Leary, John Patrick. "Detroitism." Guernica (2011). https://www.guernicamag.com/leary_1_15_11/.

16.

Lyons, Siobhan. "What 'Ruin Porn' Tells Us about Ruins -- and Porn." CNN Style (2015). https://www.cnn.com/style/article/what-ruin-porn-tells-us-about-ruins-and-porn/index.html.

that matter, though designed and constructed, does not succumb to an anthropocentric timeline.[17]

The ruin, then, is a visual confrontation between the human intention and the nonhuman agency to outlive designed function. In adversity, the architecture is abandoned, and the discard structure becomes an anecdotal aesthetic. The ruin becomes trivial, enabling the remains of architecture to lose attraction within the urban fabric itself.[18] The ruin is isolated. The ruin is neglected. The ruin is dull. The ruin is a perception without human habitation. What is left of industry fades away to an all-encompassing grey. In romanticizing the aesthetic of the ruin, architecture forfeits resilience in its ecosystem and falls victim to the process of material discard; it becomes decay, waste, or garbage.

In the 1970's, American artist Gordon Matta Clark celebrated the making of art from waste as a form of public activism. His early project, *Garbage Wall*, was a protest to the state of New York. After observing the vast amount of litter in the streets, he engaged pedestrians passing by to participate in the gathering of trash. From a collective effort, he buildt a rectangular slab—a representation of potential shelter for the homeless.[19] This effort engaged the afterlife potential of thrown away material that serves no purpose, but could. He celebrated the precarity and enduring animacy of material embraced by contemporary post-humanist and new-materialist movements.

Figure 0.04:

Photograph of artist Gordon Matta-Clark collecting trash from the streets to freate his piece, *Garbage Wall,* under the Brooklyn Bridge in 1970.

17.

de Silve, Shayari. "Beyond Ruin Porn: What's Behind our Obsession with Decay?" ArchDaily (2014). http://www.archdaily.com/537712/beyond-ruin-porn-what-s-behind-our-obsession-with-decay/.

18.

Trigg, Dylan. The Aesthetics of Decay : Nothingness, Nostalgia, and the Absence of Reason. New York, United States: Peter Lang, 2006.

19.

Matta-Clark, Gordon's, Garbage Wall, Brooklyn, United States (1970).

Movements upholding anti-hierarchical structures between human and non-human inhabitants of space tend to emphasize the interconnectedness and network of *material bodies*. Political theorist Jane Bennett describes the significance of bodies of matter as they exist in connection through the concept of *thing-power*. All things, she argues, have agency. They are not independent but operate within everchanging arrangements known *assemblages* to animate non-human agents.[20] Bennett suggests that everything is alive, connected, plural and has a capacity to influence. For instance, the nonhuman, such as trash, bacteria, metals, and plants, are critical agents in the ecosystem because they are connected in evolving interactions that provoke further encounters of vitality and agency.

Anthropologist Anna Tsing engages this generative capability of matter through the practice she refers to as the arts of noticing.[21] In her book, *Mushroom at the End of the World*, Tsing traces the supply chain of matsutake mushrooms to explore what remains in the capitalist ruin. Her ethnographic investigation dismantles industrial narratives of a "forward march of progress" which she replaces with stories of "precarity," "interspecies entanglements" and "polyphonic assemblages."[22] Tsing's research brings forth the awareness of human and non-human relations as a critical approach to contextualizing a site.

While contextualizing site is often a quick and passive step of design in urban planning, architecture and landscape design, the interconnected entanglements of site can rarely be wholistically understood through remote investigation. Architect Martin Hogue advocates for the intimate approach of site research Anna Tsing participates in. He suggests that active engagement in site helps prevent "formulaic responses to passively received data."[23]

Incorporating the art of noticing is a critical approach to exploring the site of industrial ruin; it allows designers to perceive and account for the "impressive, dynamic, incalculable, awesome and awful" materialities of physical matter in site described by Bennett.[24] Through encountering and working with matter in site—displacing, organizing and flattening—Hogue illuminates the endless possibilities that arise in precarity and transience.

The industrial site oscillates between the promise and ruin of human

20.

Bennett, Jane. Vibrant Matter : A Political Ecology of Things. (Durham, United States: Duke University Press, 2010), 1-38.

21.

Tsing, Anna Lowenhaupt. The Mushroom at the End of the World : On the Possibility of Life in Capitalist Ruins. (Princeton, United States: Princeton University Press, 2017), 17-25.

22.

Tsing, Mushroom at the End of the World, 21-23.

23.

Hogue, Martin. "Matter Displaced, Organized, Flattened : Recording the Landscape" Landscript no. 5 (2017), 175-192.

24.

Jane Bennett described by Martin hogue Hogue, Martin. "Matter Displaced, Organized, Flattened : Recording the Landscape" Landscript no. 5 (2017), 176.

exceptionalism. The perception of both is dependent on the ability to see the present and active relations occurring within. Eco-feminist scholar Donna Haraway calls for us as humans in a multispecies world to stay with the trouble. She speaks of inextricable connectiveness and relations between humans and non-human that is essential to foster reciprocal relations with the earth and its inhabitants:

> *"Staying with the trouble does not require such a relationship to times called the future. In fact, staying with the trouble requires learning to be truly present, not as a vanishing pivot between awful or edenic pasts or apocalyptic or salvific futures, but as mortal critters entwined in myriad unfinished configurations of places, times, matters, meanings."*[25]

25. Haraway, Donna Jeanne. Staying with the Trouble : Making Kin in the Chthulucene. (Durham, United States: Duke University Press, 2016), 1.

This research founds itself on Haraway's rejection of *anthropocentrism*—a belief that the value of human beings is superior to that of other beings, Tsing's call to revel in precarity and Hogue's method to displace, organize and flatten. I have agonized over how finding colour is part of *staying with the trouble* of industrial ruins, how colour can animate thing-power, and how it can embrace a site's potential of transformation and change.

Colour, in its material ambiguity, abolishes entrenched divisions between what is human and what is natural, what is contamination and what is pure, what is waste and what is of value. It becomes an intimate encounter of the land to both unlearn and relearn site history in a non-linear understanding. Colour is a lens to trace the social, economic, and environmental accounts of material animacy, challenging normative practices of site analysis and allowing for reciprocal *re-worlding* of post-industrial land.

The place between

The primary objective of this thesis is threefold; to better understand the role of colour in the alienation of land, to animate colour as a primary architectural element and to begin a journey towards land reciprocity with damaged industrial landscapes. To do so, I linger in the present, the

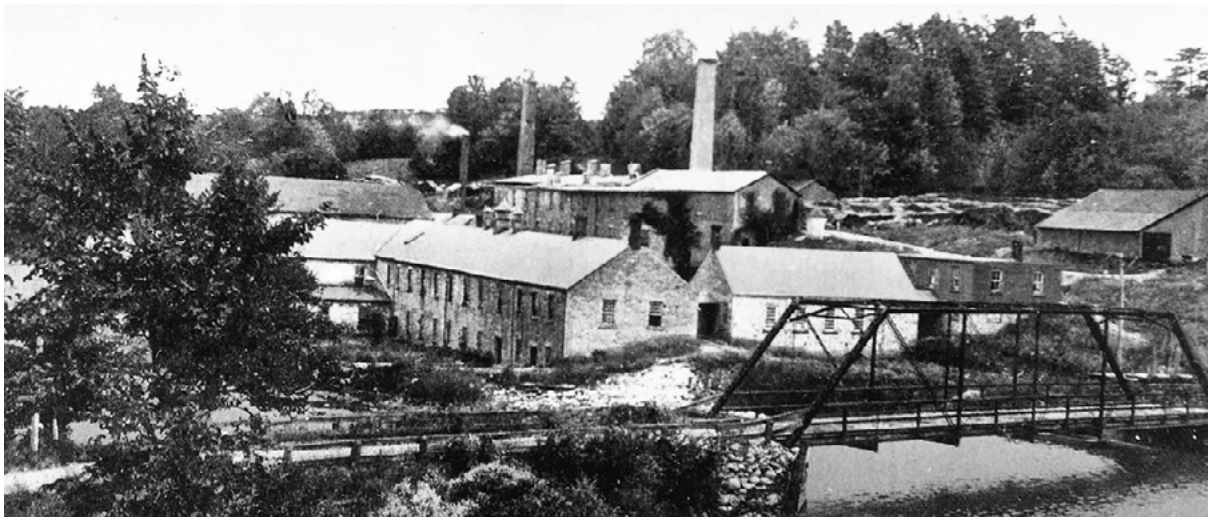


Figure 0.05:

Photograph depicting Barber Brothers Paper Mills in 1908. This image is taken on the north side of the Credit River looking toward the south-east facades.

precarious place between promise and ruin.

Over the span of a year, I undertook biweekly visits to the ruin of Barber Paper Mill in Georgetown, Ontario. I spent time walking, sitting, drawing, singing, dancing, crying, and talking amongst its colourful inhabitants. As with anything in life, the act of spending time forges intimacy and a relationship of noticing. I argue that the act of noticing is crucial to the process of design. Without noticing, the architect becomes wilfully blind to the damage architecture causes. I investigate what stories of colour were so important to hide and how, if at all, they can resurface.

On a larger scale, this research began with questioning the role of architecture in response to ecological crisis. The ruin, an artifact of architectural waste, is full of post-industrial matter. This thesis contributes to the dialogue between architecture, waste and ecology:

What happens after a building is abandoned?
Who unbuilds it?
How?
Like children in a playground,
how do we—spatial designers—clean up our mess?
Can we even see the mess at all?

The answers to these questions require the united attention of multiple entwined professions such as spatial designers, environmentalists, scientists, anthropologists and historians. These questions are wicked and remain open ended. Colour becomes a tool to weave some tangled answers.

Arranged into three chapters, this thesis traces the physical, phenomenological, and cultural space of twenty-eight encounters with colour. At the core of each is an attempt to make visible lost and hidden colour. Chapter by chapter, I reframe the role of colour, into the foreground of multi-species interactions to perceive the land in an alternate way.

Chapter One, **What is Colour?**, introduces the thesis in four imaginings of colour: a history, a container, a non-site, and a thing. These reflections speak to orientation and space; colour is caught in time and entwined in sympoiesistic relations.

Chapter Two, **Making With**, describes both the theoretic and the methodological lens the research operates within. I begin by stating my position in working with colour and outline the procedures by which I observe, forage, extract, and record colour in the ruin. Each challenges the pedagogical framework for this study of encounters.

Chapter Three, **A Different Lens**, offers a catalogue of encounters. Each pigment is paired with an intimate reflection from field notes of my observing, foraging, extracting, and recording. The short notes animate colour through intimate exchanges and foster a sense of mutual interaction between the human presence and the colour surrounding it. They do not follow a chronological timeline based on the order of introductions between me and the colour in site but are instead woven together through an analogous transition of chroma.

There are four extended narratives dispersed between colour encounters. For each, I weave cultural, historical, scientific, phenomenological, and theoretical knowledge in attempt to understand the site differently. Ochre red of fired clay acts as an introduction to the industrial complex in

the north American landscape and the perils of human enlightenment. Rusty yellow of weathered fieldstone addresses the erasure and alienation caused through land commodification brought on by early colonization. Photosynthesizing green of spruce comments on the role of standardization and purity through the development of the paper industry. Energized blue of oxidized copper reflects on monstrous land modification as a direct result of electrification and industrial expansion. The expanded narrative on colour strings a web of relations - how is colour connected to material, how is material connected to site, how is site connected to industry and how does industry tie back to colour. They each addresses a different way the land is alienated to fit the demands of human comfort without reciprocal consideration.

This thesis advocates that perception of colour is critical to the analysis, design and use of ruined landscapes. Though reduced, rooted out, and cleared away, colour remains a lens to trace lasting social, economic and environmental accounts of materials. The research challenges normative practices and scales of site analysis that uphold whiteness. It is an exploration of material ambiguity and its diversifying histories that enrich an understanding of place. In challenging how we—as spatial designers, and more importantly as humans on the brink of ecological crisis—perceive colour and its role in reciprocal futures of industrial ruin.

01. What is colour?

"Here, colour is active; it is alive. Colour project; it is not a passive coating of an inert object; light appears to shine from within; colour seems to have its own power source. Perhaps this is why gems often stand for colour-in-general. They represent the point at which colour becomes independent and assertive - or disruptive and excessive."[01]

David Batchelor, Chromophobia, 74

Figure 1.01:

Engraving depicting Sir Isaac Newton demonstrating the dispersion of white light by a prism in an optics experiment, circa 1870.

A colourful object retains visible energy. Wavelengths of energy, between 380 to 750 nanometres (nm), begin at a light source and are either absorbed by the object or reflected into the viewer's eyes. On a colourful object, there is always a mixture of wavelengths being both absorbed and reflected. What light is reflected determines colour: red is 750 to 620 nm, orange is 620 to 590 nm, yellow is 590 to 570 nm, green is 570 to 495 nm, blue is 495 to 450 nm and violet is 450 to 380 nm.[02]

The study of colour offers a site of spatial and perceptive exploration. It exists on, in, above, around and throughout matter and is an essential component of material. In architecture, colour often determines the authenticity of material. Very rarely is colour perceived independently. It is thought of as a specification either additively applied or subtractive as a by-product: the steel railing is coated with matt black paint or the Corten detail leaks red effluent. In many ways, colour has yet to break free of the purist oppression of the built modern world. This research considers colour as a primary architectural element and an enduring tool of forensics. More importantly, it widens the idea of site and how one reads it as a weaving together of the complexities between people and place.

A history

During the 1660's, Isaac Newton's discoveries of the visible spectrum entrenched a scientific understanding of how physical matter is optically perceived through the study of colour.[03] Within the context of the ruin, this framework suggests that colour is a physiological interaction; as wavelengths of light hit a material surface, a specific *hue* radiates off an object. The contrast of hues, *brightness*, and *saturation* differentiate material and depth giving a spatial definition to matter. This theory is later expanded on by Johann Wolfgang von Goethe, who explored the nature of colours and their relationships to humans. He theorizes the sentient nature of colour as it pertains to subjective perception; colour is more than a physiological phenomenon. It also influences psychological reactions between light, matter, and the viewer.[04]

01.

Batchelor, David. Chromophobia. (London, United Kingdom: Reaktion Books, 2000), 74

02.

Lluch, Juan Serra. Color for Architects. First ed. (New York, United States: Princeton Architectural Press, 2019).

03.

The fundamental nature of light is tested through refraction of light with prisms and lenses.

Newton, Isaac. Opticks : or, a treatise of the reflections, refractions, inflections and colours of light. (New York, United States: Dover Publications, 1952).

04.

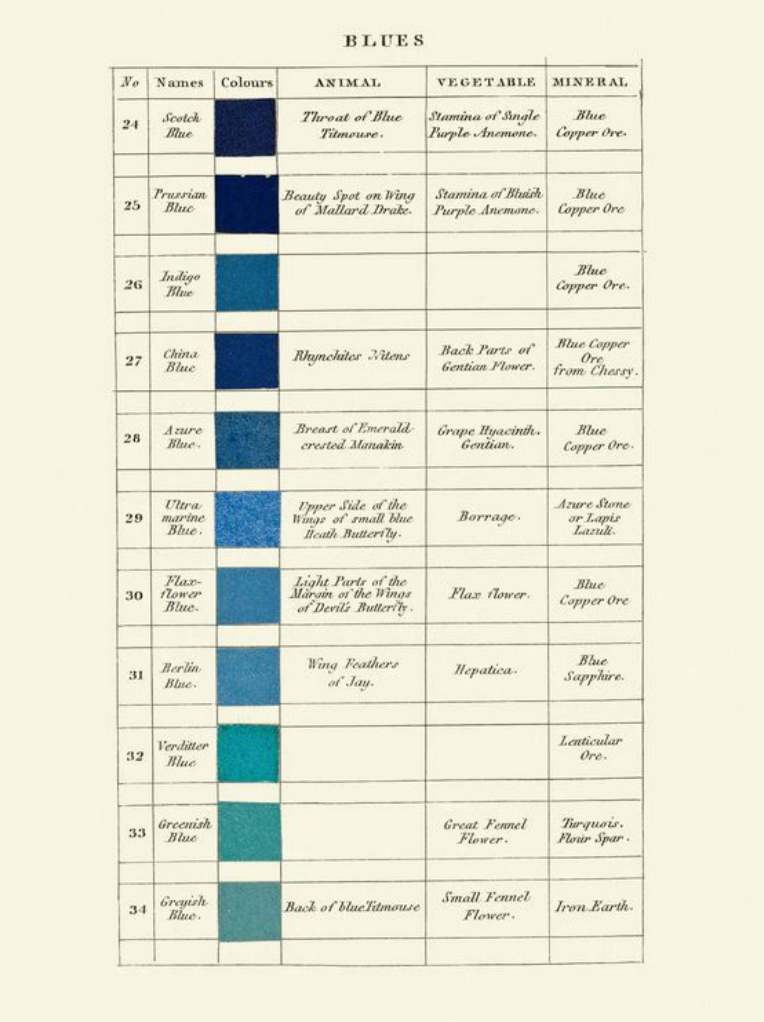
Goethe conducts a systematic study on the physiological effects of color in Theory of Colours. Though his findings are controversial amidst the scientific community, the sensuality of colours he describes is inherent to an understanding of colour speciality for many artists and designers.

Goethe, Johann Wolfgang von. Theory of colours. (Cambridge, United States: M.I.T. Press, 1970).

Figure 1.02:

A page from Werner's Nomenclature of Colour depicting the categorizaton of blues. The book was first published in 1814 as a taxonomic guide to identify colours of the natural world.

Image courtesy of Smithsonian Books



BLUES

No	Names	Colours	ANIMAL	VEGETABLE	MINERAL
24	Scotch Blue		Throat of Blue Titmouse.	Stamina of Single Purple Anemone.	Blue Copper Ore.
25	Prussian Blue		Beauty Spot on Wing of Mallard Drake.	Stamina of Bluish Purple Anemone.	Blue Copper Ore
26	Indigo Blue				Blue Copper Ore.
27	China Blue		Rhynchites Nitens	Back Parts of Gentian Flower.	Blue Copper Ore from Chessy.
28	Azure Blue.		Breast of Emerald crested Manakin	Grape Hyacinth. Gentian.	Blue Copper Ore.
29	Ultra marine Blue.		Upper Side of the Wings of small blue Heath Butterfly.	Borrage.	Azure Stone or Lapis Lazuli.
30	Flax-flower Blue.		Light Parts of the Margin of the Wings of Devils Butterfly.	Flax flower.	Blue Copper Ore
31	Berlin Blue.		Wing Feathers of Jay.	Hepatica.	Blue Sapphire.
32	Verditter Blue				Lenticular Ore.
33	Greenish Blue			Great Fennel Flower.	Turquois. Fluor Spar.
34	Greyish Blue.		Back of blue Titmouse	Small Fennel Flower.	Iron Earth.

05.

Syme, Patrick. Werner's Nomenclature of Colours. (New York, United States: Smithsonian Books, 2018).

Phenomenon of colour, how we perceive it, pivots the aesthetic familiarization and interaction with post-industrial matter. Within the ruin, material discard is perceived as either growing dull with decay, ecological stagnation or vibrantly coloured with history and knowledge. For centuries, new geographies have been familiarized using specific vocabulary to describe colour. *Werner's Nomenclature of Colour* was used by Darwin as a tool to describe his new findings and adventures;[05] colour is a universal language to convey and contextualize information.

Altering psychological notions by discovering, introducing, and

extracting colour discourages the Western tendency to view ruination as stagnant decay, but instead acknowledges existing material agency in a space and time.

This research uses colour as an entrypoint to not only raise questions of land value, occupaction and use, but also captures the environment, economy, and culture of the industrial ruin. Each hue contextualizes and explores enduring agency in residual architectural matter.

A container

Throughout history, colour has been used as a tool of communication. It depicts realities of the world and culture through drawings or words, yet drawings and words continuously fail to communicate the totality of colour. Art historian John Gage argues that much of the discrepancy between colour theory and practice is the "failure to look at colour comprehensively."[06] To Gage, language and symbols are tools used to divide and contain colour. They are needed because colour is fluid and singular, with no inner or outer definition or division. To describe colour, one must describe the things it inhibits, touches, attracts, and repels. Thus, colour is forcibly placed into culturally constructed containers to be ordered and confined in pieces. This is seen when Newton confines colour to geometric shapes which can then be described with words. Bachelor suggest that through the application of division and containing, "colour becomes *colours*."[07]

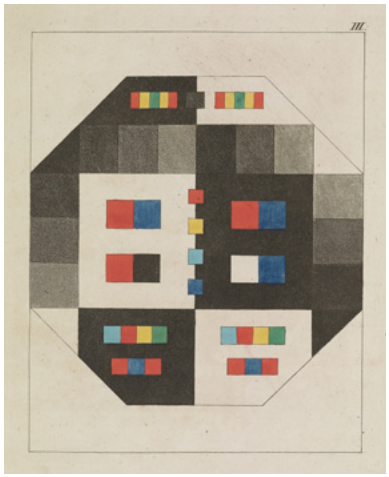
Colour is commonly divided into *colours* through verbal categorization. In 1969, anthropologist Brent Berlin and linguist Paul Kay identified eleven basic colour terms that exist throughout all cultures. They argue that as languages evolves, cultures learn to recognize increasing number of terms starting with black and white, followed by red, yellow, and/or green, blue, brown, purple, pink, orange and grey.[08]

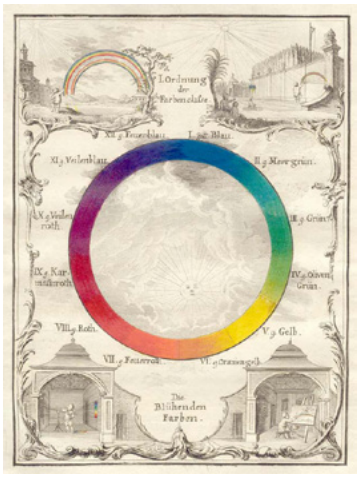
While basic colour terms and categorizations illuminate the universality between language and colour, literary critic and semiotician Umberto Eco argues that the linguistics of naming colour is semiotic and

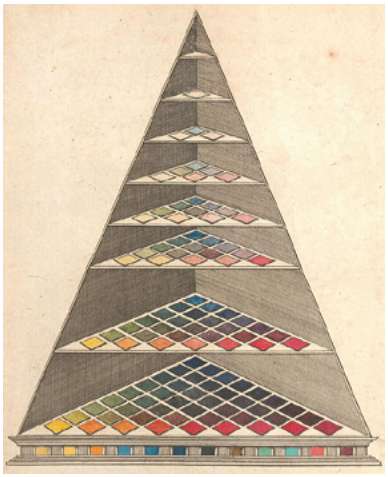
06. Gage, John. Colour and Culture : Practice and Meaning from Antiquity to Abstraction. (London, United Kingdom: Thames and Hudson Ltd., 1999), 7.

07. Batchelor, David. Chromophobia. (London, United Kingdom: Reaktion Books, 2000), 86.

08. Berlin, Brant and Kay, Paul. Basic Color Terms: Their Universality and Evolution. (Berkley, United States: University of California Press, 1969).







highly prescriptive to culture. He describes that one can only perceive colour in the culture and language they are part of. In naming colour, colour is divided into different categories which can then be defined and understood. Colour becomes red, or rouge, or mabi:ru.[09]

This work extracts colours to contain and then fill with cultural and temporal content, connection and meaning in site; they can shape infinite understandings of space from geometric shapes and hierarchies to tentacular strings weaving organic site histories together.

09.

One can only understand colour through the language(s) they can understand and describe the world through. Thus, if one knows Hanunoo, they wil percieve the colour "mabi:ru" while an english speaker will not. Batchelor, Chromophobia, 91-93.

A non-site

The plurality of the container is spatially understood through Robert Smithson's work with *non-site*. In 1968, Smithson created a sculptural series of minimal metal containers to hold material collected from industrial sites in New Jersey, United States. The work was paired with photographs of the site as well as a map of where the material came from. These pieces were critical to his art because they enhanced a sense of displacement through a "dialectic" condition.[10] The site is scattered and bound to the changes of time while the non-site is an organized and rejects the passage of time. Art historian Robert Hobbs suggests that because Smithson began working at a point by which the conception of real space was being critiqued for its

10.

Robert Smithson, "The Spiral Jetty," in Arts of the Environment, ed. György Kepes (New York: G. Braziller, 1972). Reprinted in Holt, The Writings of Robert Smithson, 115.

Figure 1.03 (opposite left):

Plate III of Johann Wolfgang von Goethe's, Theory of Colours, 1810

Figure 1.04 (opposite center):

Plate I of Ignaz Schiffermüller's Versuch eines Farbensystems, 1772

Figure 1.05 (opposite right):

Plate of Johann Heinrich Lambert's "Farbenpyramide" tetrahedron, 1772

Figure 1.06:

Photograph of Robert Smithson's, *A Nonsite, Franklin, New Jersey,* 1968 depicting painted wooden bins containing limestone and an aerial map of the site, 1968

Image courtesy of John Weber Gallery

two-dimensionality and objecthood. As such, Smithson found inspiration in artists Tony Smith's use of sculpture to bring forth "voids that displace the solidity of space."[11] The non-site series is a result of depicting the three-dimensional space of a two-dimensional map: the distance material travels between the site and the non-site.

Colour, in this research is a non-site. It is displaced from the ruin, contained in a delicate box, and exhibited with the dialectic matter that connects back to its original site. The colour shown never stands on its own; it is part of a hundred years of history and culture, displaced over temporal time and space.

11.

Hobbs, Robert. Robert Smithson: Sculpture. (Ithaca, United States: Cornell University Press, 1981), 24.

A thing

To truly understand colour, one must first understand the difference between an *object* and a *thing*. In his acclaimed essay, *Thing Theory*, cultural theorist Bill Brown insists the difference lies in the relationship between subjects and inanimate purpose. While "we look *through* objects (to see what they disclose about history, society, nature, or culture – above all, what they disclose about us), we only catch a glimpse of things."[12] Objects are a result of the human while things exist beyond and are independent. This distinction originates from philosopher Martin Heidegger, who suggests that an object becomes a thing when it no longer functions the way it was intended.[13] For example, colour as paint is an object, however, once extracted from the material it was once applied and refined into pigment, it becomes a thing—free from human assigned functions and intentions.

There are few architects who design with colour as a thing rather than object. This practice requires the designer to accommodate for dynamism without assigning colour to a container. In fact, the significance of colour should not exist as a hue of a space but rather give light to notions of time, culture, and environment. To this light, I view the work of Dutch garden designer Piet Oudolf to be rather exemplary. Oudolf does not prioritize the ornamentation of colour in his landscape designs.[14] He focusses on the seasonal forms of plants and allows for the fluidity of evolving individual plants changing at different rates. Because of this, the landscape designer's

Figure 1.07:

Photograph depicting Piet Oudolf's Field at Hauser & Wirth in Somerset

12.

Brown, Bill. "Thing Theory." Critical Inquiry 28, no. 1 (2001).

13.

Heidegger, Martin. What is a Thing?. A Gateway edition ed. (Chicago, United States: Henry Regnery Company, 1970), 26-31.

14.

Dusoir, Rory, Jason Ingram, and Piet Oudolf. Planting the Oudolf Gardens at Hauser & Wirth Somerset. (Bath, United Kingdom: Filbert Press, 2019).

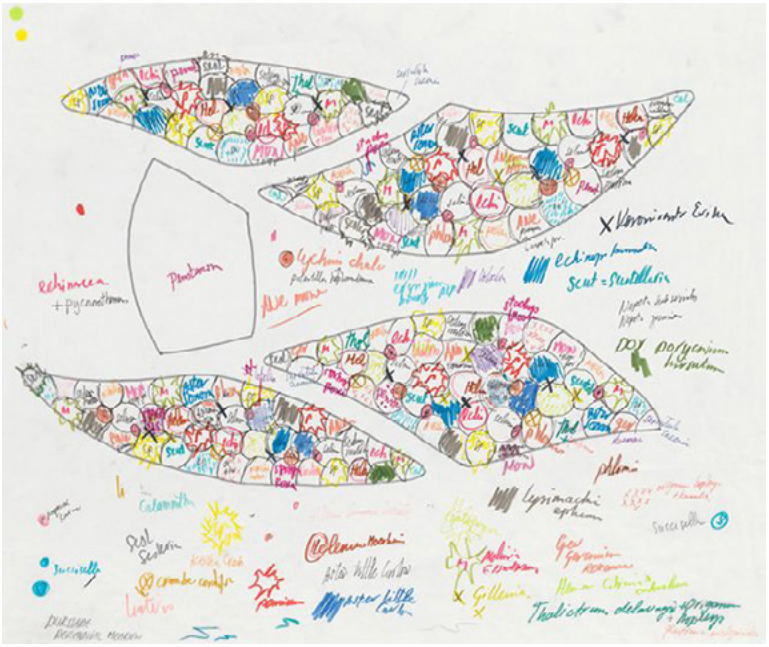


Figure 1.08:

Planting plan detail depicting Piet Oudolf's design for a meadow garden at Durslade Farm.

gardens are optimal year-round. Through balance, varying hues partake in a harmonious dance and are free from the confines of stagnant form and containment.

It is hard to identify colour as a thing when it is so often attached to designated objects: the red car, the blue bin, the black cat, the grey screw. The object does not need colour to retain its ontological function; a car remains a car whether red or not. Likewise, colour cannot be defined be defined by an object; the paintjob of a car cannot encompass the emotions evoked by red or the changing cultural significance. While colour occupies space by distinguishing forms of objects, objects and things are used to describe binary aspects of colour rather than capture its multiplicities.

As described in Jane Bennet *thing-power*, colour is too big and fluid to be constrained to objects. As I encounter colour and make with colours, it appears as a thing, evoking thoughts, actions, and feelings. It is connected to the interconnectedness of site, plural and has a capacity to influence to perception of space.

15.

Bennett, Jane." The power of things" in Vibrant Matter : A Political Ecology of Things. (Durham, United States: Duke University Press, 2010).

16.

Deleuze, Gilles and Félix Guattari. A Thousand Plateaus : Capitalism and Schizophrenia. (London, United Kingdom: Athlone Press, 1988).

Within the Ruin is Colour

02. Making with

"It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with; it matters what knots knot knots, what thoughts think thoughts, what descriptions describe descriptions, what ties tie ties. It matters what stories make worlds, what worlds make stories."[01]

Donna J. Haraway, Staying with the Trouble, 541

Figure 2.01:

Photograph of dipicting green pigments extracted from spruce needles in site. The pigment is ground using a granite pestle and mortar.

This work explores how colour exists in space and animates invisible, lost, and erased histories of the land. I use colour as a lens to investigate how connection to the land went from intimate to alienated and how industry went from promise to ruin. Through observing, foraging, extracting, and recording an intimate encounter of the ruin is discovered through the investigation of its physical matter. These investigations call into question the perception of space—physical, phenomenological, cultural, and temporal. This thesis operates in the place between these individual spaces. *What colour exists? Where does it come from? What evidence of industrial process made it?*

Captured in a series of pigments, reflections, narratives, and drawings, I work with and between in the place of noticing, of encountering, of weaving. This way of working draws on a non-linear, non-hierarchical structure of analysis. Though presented in a specified sequence, the many explorations occurred hand in hand, drawing off each other in an iterative process. Philosopher and psychoanalyst, Gilles Deleuze and Felix Guattari define this precarious place of connection as *lines of flight.*[02] They "always tie back to each other" defining finite points with infinite paths between.[03] This method of thinking embraces the cross-disciplinary, cross-scale, and ever-changing multiplicity that colour exists within. In a way, I use colour as a lens to investigate how connection to the land went from intimate to alienated and how industry went from promise to ruin.

Donna Haraway argues that everything exists in entangled networks and thus is best understood through *tentacular thinking*—"life lived along the lines."[04] Nothing exists or comes to be in isolation. Haraway defines this interconnectedness as a *sym-poiesis* or *making with.*[05] As this work developed, I relinquished the constant desire for concrete solutions and a linear sense of progress. There was no step or procedure that exists in isolation. Without one element, the rest falls apart. There was constant uncertainty. The answers, I have found, unravel into a revisioning of the ruin. My revisioning is neither ultimate nor additive. It is a rearrangement of what is already present. A reframing of existing matter and the relations that occur between. A re-orientation of space across multiple physical and temporal scales.

01.

Haraway, Donna Jeanne. Staying with the Trouble : Making Kin in the Chthulucene. (Durham, United States: Duke University Press, 2016), 541.

02.

Lines of flight are wha allw assemblages to change. Their multiplicity and connectedness is used to decribe rhizomes.

Deleuze, Gilles and Félix Guattari. A thousand plateaus : capitalism and schizophrenia. (London, United Kingdom: Athlone Press, 1988), 3-25.

03.

Deleuze and Guattari. A thousand plateaus, 9.

04.

Haraway, Donna Jeanne. Staying with the Trouble : Making Kin in the Chthulucene. (Durham, United States: Duke University Press, 2016), 30-43

05

Haraway, Staying with the Trouble, 58-67.

On Making

In the early 1900's, Charles-Edouard Jeanneret, commonly known as Le Corbusier, encountered colour along his, *Journey to the East*. The young architect spent seven months recorded his first travel towards central, southern, and eastern Europe. During this time, he comments on the naturally occurring "nuggets" *found* in the earth.[06] These "nuggets" he describes are precious stones full of colour, perhaps in its most authentic form. Though Le Corbusier evades speaking to colour directly, David Bachelor advocates the significance of language to which Le Corbusier records the encounter. Specifically, there is an emphasis on the word found as it implies a void of "skill or human spirit."[07]

Colour, to Le Corbusier, is not human made. It is born from the earth and therefore the lack of craft needed to bring it to existence is tied to a lack of cultural value. These beliefs are continued in his purism manifesto published within a decade. Co-authored with Amédée Ozenfant, they state:

> *"Purism does not intend to be a scientific art, which it is in no sense. Cubism has become a decorative art of romantic ornamentism. There is a hierarchy in the arts: decorative art is at the base, the human figure at the summit. Painting is as good as the intrinsic qualities of its plastic elements, not their representative or narrative possibilities. Purism wants to conceive clearly, execute loyally, exactly without deceits; it abandons troubled conceptions, summary or bristling executions. A serious art must banish all techniques not faithful to the real value of the conception. Art consists in the conception before anything else. Technique is only a tool, humbly at the service of the conception. Purism fears the bizarre and the original. It seeks the pure element in order to reconstruct organized paintings that seem to be facts from nature herself. The method must be sure enough not to hinder the conception. Purism does not believe that returning to nature signifies the copying of nature. It admits all deformation is justified by the search for the invariant. All liberties are accepted in art except those that are unclear."*[08]

06.
Le Corbusier and Ivan Žaknic. Journey to the East. (Cambridge, United Kingdom: MIT Press, 1987), 138.

07.
Batchelor, David. "Hanunoo" in Chromophobia. London, United Kingdom: Reaktion Books, 2000. 72-95.

08.
Le Corbusier, Ozenfant, Amédée. Apres Le Cubisme. (Torino, Italy: Bottega d'Erasmo, 1975).

Figure 2.02:

Photograph depicting found and semi-refined elderberry pigment. Colour exists in multiple forms. It is both found and made through both natural and human processes.

The purist movement forged lasting changes that devalue colour in the built modern world; with the human figure at the summit, colour found in the earth is of less value than that made from man; colour found in the earth is not conceived clearly; colour found in the earth is not a pure element to reconstruct. Colour becomes perceived as excessively indulgent which is looked down upon both morally and culturally.

The making of colour becomes essential in revoking its purist devaluation. Despite this perception of colour being solely found, through anthropology and art it is evident that without the human colour does not exist. It is dependent on the viewer to observe. Once observed, while colour physically exists, it is up to the observer to reconstruct through language and culture. In fact, humans do craft colours physically which is a skill exhibiting human spirit. From cave paintings to canvas, have sought out material with colour to refine into pigment and mix it into paint before applying to a surface to communicate facts from nature. This is a skill developed over decades and millennia which is used to determine value and culture of different regions and eras. This rejection of colour dismisses the fundamentals of hylomorphism in Aristotle's conception of being. The Greek philosopher argues that perception of form is reliant on its relativity to matter.[09] The two revolve and evolve with each other.

Perhaps purism had it wrong altogether. It is craft of observing,

09.

Aristotle and Hugh Lawson-Tancred. De anima (on the soul). (Harmondsworth, United Kingdom: Penguin, 1986).

Figure 2.03:

Photograph depicting a forage that took place in June of 2020.

foraging, extracting and recording impurity that one can answer the following question: is it colour that is dependent on matter to exist or does matter depend on colour to be seen at all Perhaps purism had it wrong altogether. It is craft of observing, foraging, extracting and recording impurity that one can answer the following question: is it colour that is dependent on matter to exist or does matter depend on colour to be seen at all?

Perhaps the two are equally dependent on each other. Perhaps its their connectedness and impurity that empowers them both. In making with colour, matter, and the impurities between, this work explores how colour exists in space and animates invisible, lost, and erased histories of the land.

On Observing

Observing colour is a vast search for cyclical and changing relationships. It is an exploration of the time and interactions that form and deform place. It is a process of repeated unravelling. What is found one day, is not always found the other. A colour that is found year-round oscillates in forms, and each form tells a different story. The land teaches through intimate encounters. The more time spent listening to and learning from the land, the more there is to encounter. Observing colour required a willingness to wander, wander and wander again. My findings are often retrospective and rarely do results match my anticipations.

Draw

As a designer, drawing is a dominant method of analysis. Through it I can understand the spatial relationships that exist to make colour, how colour inhabits material and what form it takes. Over the summer, I worked with Quebec based artist Angela Marsh who advocates the importance of

Figure 2.04 (left):

Photograph depicting sketches of colour as encountered in site. They locate colour in site as well as animate the forms that colour defines.

Figure 2.05 (right):

Photograph depicting notes and paper made from colour encounters. Field notes were taken in the ruin, dry lab and wet lab to document the process of making.

spending the time to draw slowly in-situ. She suggests that drawing is a way of creating intimate relation.[10] Its value is not about reproducing something in its entirety or exactify, but instead observing an aspect of its form or function. With each observation I sketch colour how I notice it—its form, where it resides and its entangled relations. These sketches are more about capturing the environment than a mirror representation.

10.

Marsh, Angela. "In Wilderness it the Preservation of the World." In Land Marks. (Cambridge, Canada: Bridge Centre for Architecture and Design, 2020).

Write

I am, however, no master artist and more often than not, I resort to words. I refer to these notes as what Indigenous scholar Vanessa Watts calls place-thought. Place-thought is the united space between the physical land and the thinking. She expresses that the way humans think and how they feel is directly related to place.[11] By putting my body in relationship to material, I recognize the patters and agency of the land. I jot down the experiences I cannot yet meaningfully articulate: the sounds surrounding, the weather and temperature, the time of day, the disjointed observations, and ongoing curiosities.

11.

"It is "based upon the premise that land is alive and thinking and that humans and non-humans derive agency through the extensions of these thoughts"

Watts, Vanessa. "Indigenous Place-Thought & Agency Amongst Humans and Non-Humans (First Woman and Sky Woman Go on a European World Tour!)." Chap. 1, In (Decolonization: Indigeneity, Education and Society. Vol. 2, 2034, 2013), 20-34.

Identify

Through my drawings and writing I can identify enough characteristics to link colour to specific material in the land. It is an ongoing investigation that typically happens when I leave site. Over the span of a year, I have become familiar with almost a hundred new creatures in the land. Previously, I had no idea how to identify material that is not a direct creation of humans. Despite this, by observing their time cycles, which other creatures they interact with, their individual characteristics, I piece together enough information to learn common traits. Plant become recognizable by their atomical structure, minerals are distinguished by their hardness and lustre, and metals rust differently.

On Foraging

Foraging for the colour involves all things and critters. In respect to the more-than-human inhabitants, I very early on decided to only extract

colour that would not excessively disrupt the current ecosystem. A result, I focus solely on colour extraction in minerals and plants. As a new forager, I was quick to extract as much material as possible. I thought the more I had, the more I could experiment. This was so intrinsic to how I viewed the world around me. Once it is gone, it's gone, so get it while you can. This mentality comes from being raised in a human enlightened society. Despite this, working wiht the land has taught me about abundance. I now air toward a practice of what ecologist and indigenous biologist Robin Wall Kimmerer, tells about the Honourable Harvest:

> *Ask permission of the ones whose lives you seek. Abide by the answer. Never take the first. Never take the last. Harvest in a way that minimizes harm. Take only what you need and leave some for others. Use everything that you take. Take only that which is given to you. Share it, as the Earth has shared with you. Be grateful. Reciprocate the gift. Sustain the ones who sustain you, and the Earth will last forever.*[12]

12.

Kimmerer, Robin Wall. Braiding Sweetgrass. (Minneapolis, Unitted States: Milkweed Editions, 2013).

Figure 2.06 (left):

Photograph depicting foraged wild strawberries.

Figure 2.07 (right):

Photograph depicting foraged common daisies.

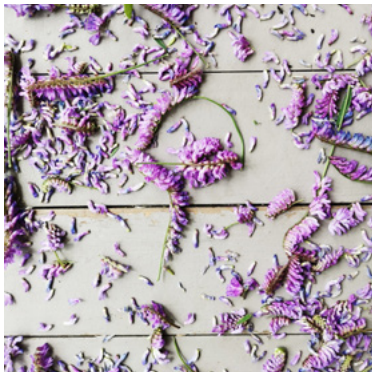


Figure 2.08 (left):

Photograph depicting foraged bladder campion buds.

Figure 2.09 (right):

Photograph depicting foraged tufted vetch.

Figure 2.10:

Photograph depicting an impromptu forage that took place in October of 2020. The author is travelling along the Barber Dynamo Trail through the forest that once covered the Barber Paper Mill ruin.

First, I search.

I begin every forage by packing a bag full of scavenging tools. The list includes but is not limited to: protective gloves (gardening or latex), small bags (biodegradable or reusable), a sharp blade (for clean cut extraction or potential protection), a small notebook (or sketchbook), a pen (or pencil), tape (for labels), first aid kit (bandage and sanitizer), a water bottle (hot or cold), and weatherproof clothing (for precipitation and temperature). Despite preparing for the natural elements the day might succumb to, I can never fully predict what situation I will find myself in. Because I am a (relatively) small female, there are supplemental disadvantages to foraging alone. I sometimes find myself scared, vulnerable to the dangers of seclusion in the isolated site. With a heightened sense of caution, I search for colour.

Second, I acquaint.

Most days, I seek out the colour I anticipate to be there. Other days, I visit inquisitorially, welcoming colour to present itself. To forage, I become a guest to the land, and I try to respect the ecological structures that already exist. When I walk, I try to follow paths that already exist—whether human or more than and be mindful of the impressions I leave behind. For me, this means more than leaving minimal footprint, but also respecting the animacy of material encountered. I introduce myself just as I would meeting someone for the first time. I am mindful that I am entering someone else's

territory. It is not my world. I am simply a visitor.

Third, I request.

I struggle with the notion that I have no authority when I enter a site. I am trained to believe that my parti or vision of space overrules existing conditions of place. If I (or more realistically clients) want, I can dig, break, build or plant. The dirt, rocks and flora and fauna hold no agency in the process of design. Recently, however, I see the role of a designer as a mediator of being. To make changes in the land, I must first request to make such change. My job is not to play god but to respect other beings as I would another human.

I learned this practice from Anishinaabeg educator, Dr. Andrew Judge in the summer of 2020. During his lecture on Indigenous Sustainable Land-Practice, Judge advocates the importance of consent in Traditional Ecological Knowledge.[13] He addresses the land as an animate being that chooses to provide for us—human beings. Before I take any material, I look for signs that I have permission. *Does the paint easily peel off? Does the earth resist my trowel? Does the mortar latch on to the brick?*

13.

Judge, Andrew. "Lecture xx." In Sustainable Indigenous Land Practice. (Cambridge, Canada: University of Waterloo, 2020).

If the material resists, the answer is probably no. So, I move on to the next, or I try again next time. Over the span of a year, the land gifted me twenty-eight colours. There were much more, up to fifty-seven and counting, but the rest were not mine to take.

Fourth, I reciprocate.

When engaging in a respectful forage, the ability to take is crowded by a guilt to give back. The land continues to give me what I search, but what can I meaningfully return? I sometimes share my water with withering, dry plants. On occasion, I feed seeds and fruit to the animals who live there. Neither feel impactful nor remotely enough and it took me half a year to feel I could properly give back. It was not until I knew the land that I felt an obligation to it. I began to see it as I would a friend, and so could also challenge how I give back to friends.

I tend to show my gratitude with acts of service. Knowing this, I made a pact to myself: I do not need to give the land something, but instead I will do something for the land. I reciprocate my gift of colour by removing approximately the same amount of trash as the material I forage out of the site and dispose of it properly. There is so much litter in industrial ruins. Beer bottles, shattered glass, torn clothing, empty spray cans, food wrappers and more. Perhaps part of the reason abandoned sites are so often viewed with the stigma of a wasteland is because of the overwhelming presence of waste within them. How could I see brilliant rowan berries if I am too distracted by a rather dull Timmies cup tumbling in the wind? Maybe the best solution is not always one of addition. Sometimes, its better to subtract what no longer benefits the land.

On Extracting

As an amateur alchemist, limited to the restrictions of a global pandemic, I extract colour in the confines of my house. My shared kitchen doubles as my wet lab and a coffee table in the dining room is dedicated to crafts. The workspace is small, flexible. and leaves minimal traces of experiments: a rack of drying matter, a few earthy scents, a couple dozen jars of muck and a bowl of fresh rainwater.

Extracting pigment is an iterative design process. Through trial and error, I test and retest, making slight, or sometimes large, changes to perfect each recipe. The trick, I have learned, is accepting that no recipe is perfect, and no pigment can be replicated exactly. Despite this, I have condensed each recipe into a general framework of four to six steps.

Step one: prepare

Different material types are separated and cleaned differently. Rocks, minerals, and metals are rinsed in water and then dusted once dry to remove unwanted debris. Flowers, leaves and other biological matter is separated based on what anatomy part is being processed. For flowers, I often pick petals. For fruit I remove pits. For leaves I remove stems and branches.

Figure 2.11:

Photograph depicting material being separated and indexed before extraction. These materials were foraged during the author's first visit to site in October 2019. The material (from left to right) are: shale from roof shingles, clay from drainage tiles, fieldstone from building walls, new england aster from the meadow, staghorn sumac berries, and asphalt. Shale, aster and asphalt were not included in the final encounters due to failure of initial extration experiments. For example, the aster was reduced to yellows and browns before finding the correct recipe. At that point, the season for asters had passes and there was no more material to forage and extract from.

Wet and harmless material is then left to soak in rainwater (melted snow in winter) for twelve to forty-eight hours.[14] Dry and hazardous material can skip to step five or the nonheated alternate of step two. There are many colour alteration techniques for metals, but an outdoor or well vented lab is heavily recommended for safety.

Step two: enhance

A range of hues can be extracted from a singular material. I always begin attempting to capture the hue of material at moment of forage. For the most part, this is extremely hard to maintain. Most wet matter is brought to a boil for about fifteen minutes then reduced to a simmer for one to six hours. Once colour is released into to water, I add in potassium alum.

14.

Rainwater or melted snow is used because it has a different mineral content than tap or bottled water. The acidity and content determine different textures and hues of piment. Jason Logan articulates that "where you collet your water is as important as where you collect your plants and minerals."

Logan, Jason. Make ink : a forager's guide to natural ink making. (New York, United States: Harry N. Abrams, 2018), 54.

Figure 2.12:

Photograph depicting jars and vials of pigment in different stages of extraction. The vials contain refined and bottled pigments. The blue jar to the right contains copper during the process of oxidation. The middle front jar contains a pigment in the process of dehydration.

Alum is a powder that is used as a fixative to stabilize colour. A ratio of one tablespoon per cup of mixture is my baseline but ratios can vary substantially.[15] Mix thoroughly until powder is dissolved.

Tip: I have found that reds and greens often fade into yellows and browns. Keeping a low heat and shorter simmer tends to prevent this from happening.

Alternate: I have found that a mixture of vinegar and salt accelerate and alter acidity, which then changes hue. I tend to separate my brew into two pots when I wish to experiment this way. I jot down notes of how long it takes to transition colour, what temperature the mixture is boiling at, how much of what additives are added. Colour swatches can be a good indication. I cut out small rectangles from watercolour paper and dip the end into the brew at different intervals.

Step three: refine

At this point, colour is relatively stable within the water and I strain out any solid matter using a fine metal colander. The water should be saved in a bowl (that is where the pigment is!). The filtered organics can either be saved for an additional pigment or composted.

15.

Michaela Schmid's, Make pigment from flower petals!, she references using approximately one teaspoon of alum per 250ml of mixture. I have used her tutorial as a starting point when developing a recipe for botanical matter. I found many of my pigments burned, moulded, required excess energy use, or altered hue more than desired. Regardless, I am very grateful for the informal guide for beginners such as myself.

Make Pigment from Flower Petals!. Video. Directed by Schmid, Michaela. Youtube, 2019

Tip: Toronto artist and ink maker Jason Logan suggests that for extra filtration, pour mixture through a coffee filter to capture miniscule debris.[16] In his book, Make Ink, Logan outlines the science and history of making natural ink from urban environments. His work was greatly influential in the beginning of my research; I began extracting colour through ink before distilling the medium to pigment. Through testing many of Logan's basic recipes, I gained a broader understanding of how to experiment with pigment and colour, how to search for extractable colour in unexpecting material and basic laws of alchemy.

16.

Logan, Jason. Make Ink : A Forager's Guide to Natural Ink Making. (New York, United States: Harry N. Abrams, 2018).

Step four: dehydrate

Each material has a water content that needs to evaporate. Once prepared, enhanced, and refined, set the material aside to dehydrate. This will take anywhere from one day to several weeks depending on water content, humidity, and temperature. For liquid mixtures, stir twice a day. For solid material, flip daily. Changing the surface exposed to more air helps moderate drying time. Likewise, increasing the surface area of pigment to air will decrease the time needed to dry.

Tip: For faster evaporation, I sometimes bake material between 100-200 degrees Fahrenheit. This method tends to darken colour and is difficult to achieve consistency.

Step five: grind

Once dry, I grind the pigment in one sitting to the finest powder I can manage using a granite mortar and pestle. Pigment is placed into the mortar which I grip with my left hand. I take up the pestle with my right and slowly use the rounded edge to drag along the material. Slow. Careful to not spill or simply displace material, I trace a cyclical motion. Over and over and over, until finally an attraction builds between the granite and the pigment.

The repetition slowly wears away the existing form of material. As material breaks down, there is more control and I increase speed and pressure.

Figure 2.13:

Photograph depicting the author grinding pigment.

I attune my body to the tools. I rest the mortar between my legs and stomach, distributing force among a larger body area making it easier to both stabilize the bowl as well as my arm.

This step of grinding is the point at which pigments becomes what feminist scholar, Sara Ahmed, refers to as "bodies doing things" in space.[17] She argues that things, in this case pigment, takes form by both my labour acting onto it, as well as the labour it does onto me. There is once again a reciprocal relationship I engage in. As I apply force, the material pushes back. My arm tires, my hand cramps, my fingers gain calluses and my

17.

Ahmed, Sara. "On orientation : ontology, agency, and politics." In New materialisms, edited by Coole, Diane and Samantha Frost. (Durham, United States: Duke University Press, 2010), 244-248.

shoulders sore. Over time, I notice my body more equipped to grind and resulting in more fine and homogeneous powder. Making pigment makes me a better pigment maker.

Step six: bottle
At last, pigment takes a stable, (relatively) homogenous form. I use a funnel to guide the material into a one-ounce glass vial. And extra is stored in reusable glass jars I can find around the house. I write out a label including the pigment material and date of creation and let the pigment rest until I am ready to record.

On Recording

Though this thesis presents colour as stable and permanent, it is important to note that the act of recording is inherently paradoxical in nature. Colour is always evolving, and its perception depends on ever changing conditions such as the viewer's eyes and light. Documenting colour is always a challenge. Instead of recording a singular moment, this thesis aims to capture temporalities and a network of relations that allow for the specific moment captured and recorded.

First, frame.
Each model begins with paper. The blank page is easy to overlook. Architects often refer to these areas of recession as "whitespace." Watercolour paper is selected for its absorptive textures. Pigment can more easily adhere to the surface and seep into its fibres. Sheets are measured and cut into 4.5 by 6-inch rectangles. Each page is uniformly covered with painters' tape along the perimeter to create a border or whitespace for comparison.

Second, rub.
Ten millilitres of pigment are sprinkled onto the page and rubbed in with the hand. There is an intimacy imbued in the repetitive motion. The hand engages the pigment which engages the paper. Fine particles bind with the page and begin to colour the fibres of the page.

Figure 2.14:

Photograph depicting the author framing paper to create a container for colour.

Figure 2.15:

Photograph depicting the author rubbing pigmint into the paper.

Figure 2.16:

Photograph depicting the author removing tape border after the pigment rubbing and spray is complete.

Third, spray.
The remaining particles are sprinkled on top. The give indication of the impurities and inconsistencies between materials. Not every material is refined to the same level. Some pigments contain a variety of hues and saturation. There is an unavoidable heterogeneity and texture that becomes conceivable.

Fourth, scan.
A photo scanner ensures consistent lighting. A blank watercolour sheet is used in the background. The layering casts shadows which capture a depth in the model.

Fifth, edit
Each scan is edited in Photoshop. Colour matching is based off two analog views. The first is a close up of the pigment in direct midday sunlight and the second is a far sight of the pigment in indirect light. These two perceptions can be mimicked digitally to achieve a realistic range of colour perception.

When I first noticed colour, I recognised it as a quality of material rather than non-hierarchical. However, working with colour it came into its own, as significant as all others it connects and depends on. During the last year, I practiced making with my intimate encounters. It became a habit to inventory and challenge both my *environment* and *surroundings*.[18] Surroundings are everything around—weather, temperature, objects, actions, intentions, relations, colour. Environment is what is left after a filter. It is a specific interpretation of the land, a singular and subjective imagining. Through the stages of observing, foraging, extracting, and recording colour changes my environment. It becomes a new lens to see place. My perception changes by doing the work. The work I do changes by my applied perception of place.

In many ways, this methodology became a protest against the purity and linearity so heavily tied to industrialization and progress. At every

18.
Ponte, Alessandra. "Atmospheres : The Ambience of Matter." in Representing ambience today: tracing the materiality of virtual objects symposium. (Cambridge, Canada: University of Waterloo, 2016).

Figure 2.17:

Photograph depicting the colour of dandelion in multiple stages. The top is pigment after ground. The middle is danelions after being foraged. The bottom depicts "niggets" of refined and dehydrated pigment before it is ground down into powder.

stage, instructions were uniquely adapted to differing pigments and encounters with the same colours changed every time. The work took roots in impurities. The pieces that fell out of standard and homogeneity were the elements I could use to investigate. In this, each colour became a site of investigation. They could stand alone as specific explorations, as well fall back together in a larger understanding of colour.

Through observing, foraging, extracting, and recording an intimate encounter of the ruin is discovered through the investigation of its physical matter. These investigations call into question the perception of space—

Figure 2.18:

Photograph depicting a dozen of bottled pigments as well as jars of pigment in multiple stages of extraction.

physical, phenomenological, cultural, and temporal. This thesis operates in the place between these individual spaces.

What colour exists?
Where does it come from?
What evidence of industrial process made it?
What taces of history does it capture?

Making with colour is a way to see industrial lands differently.

Figure 2.19:

Drawing depicting the author's web of making with colour. The drawing diagrams making methodology of foraged materials. The process of making each pigment overlaps previous experiments.

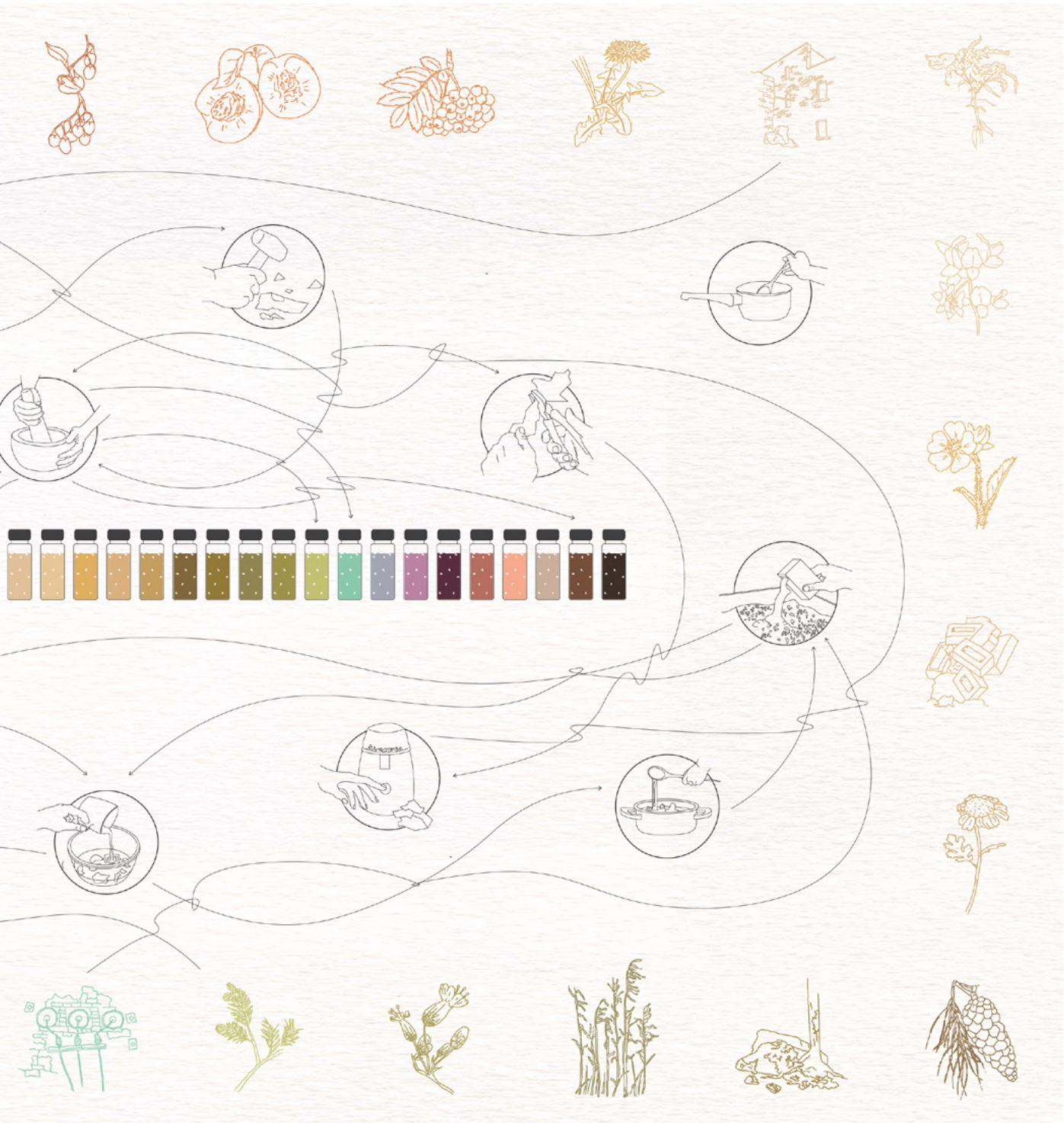


Figure 2.20:

Diagram of the making timeline the author followed to forage and extract pigment.

● forage

○ extract

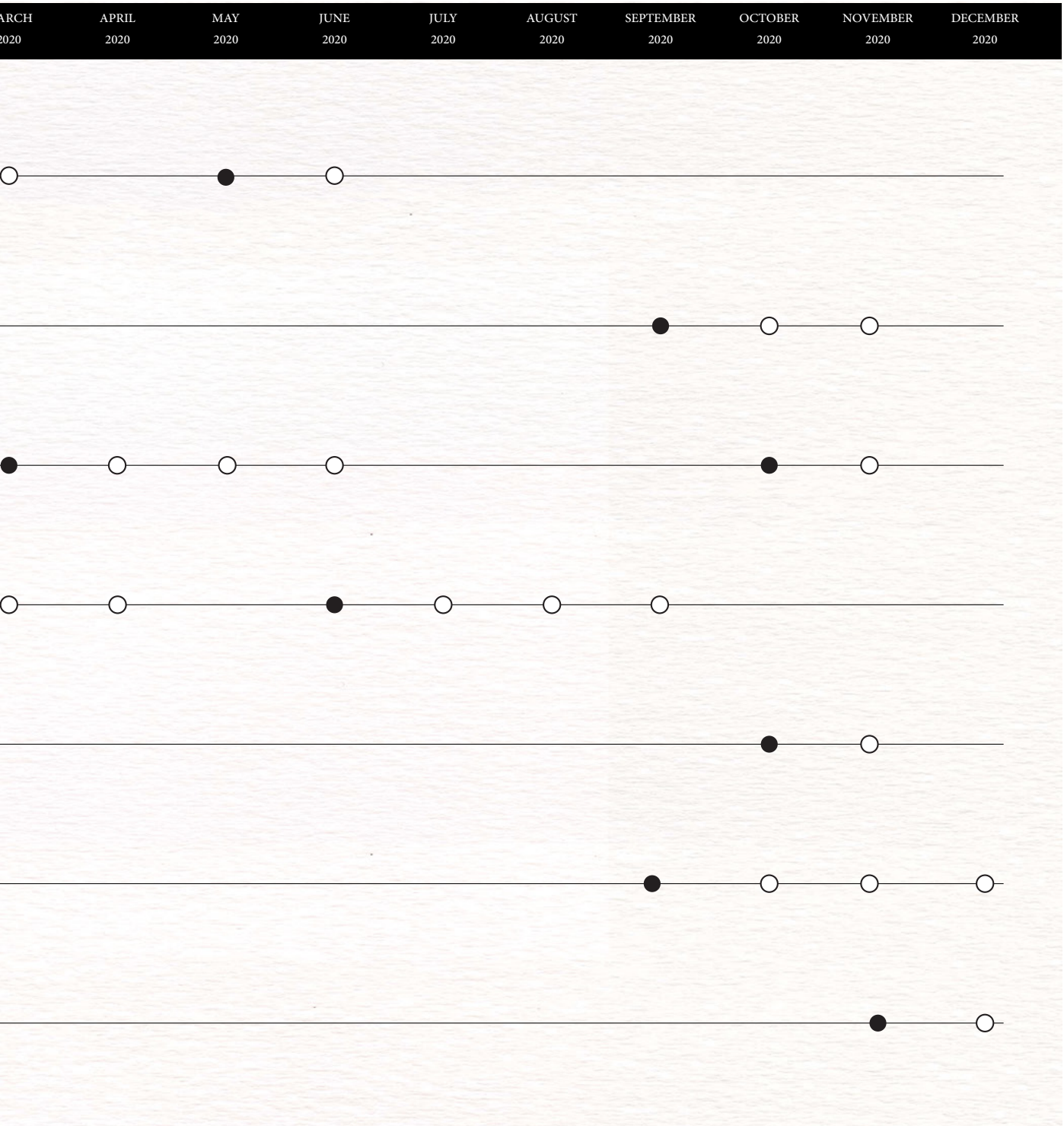

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Figure 2.20 (continued):

Diagram of the making timeline the author followed to forage and extract pigment.

● forage

○ extract

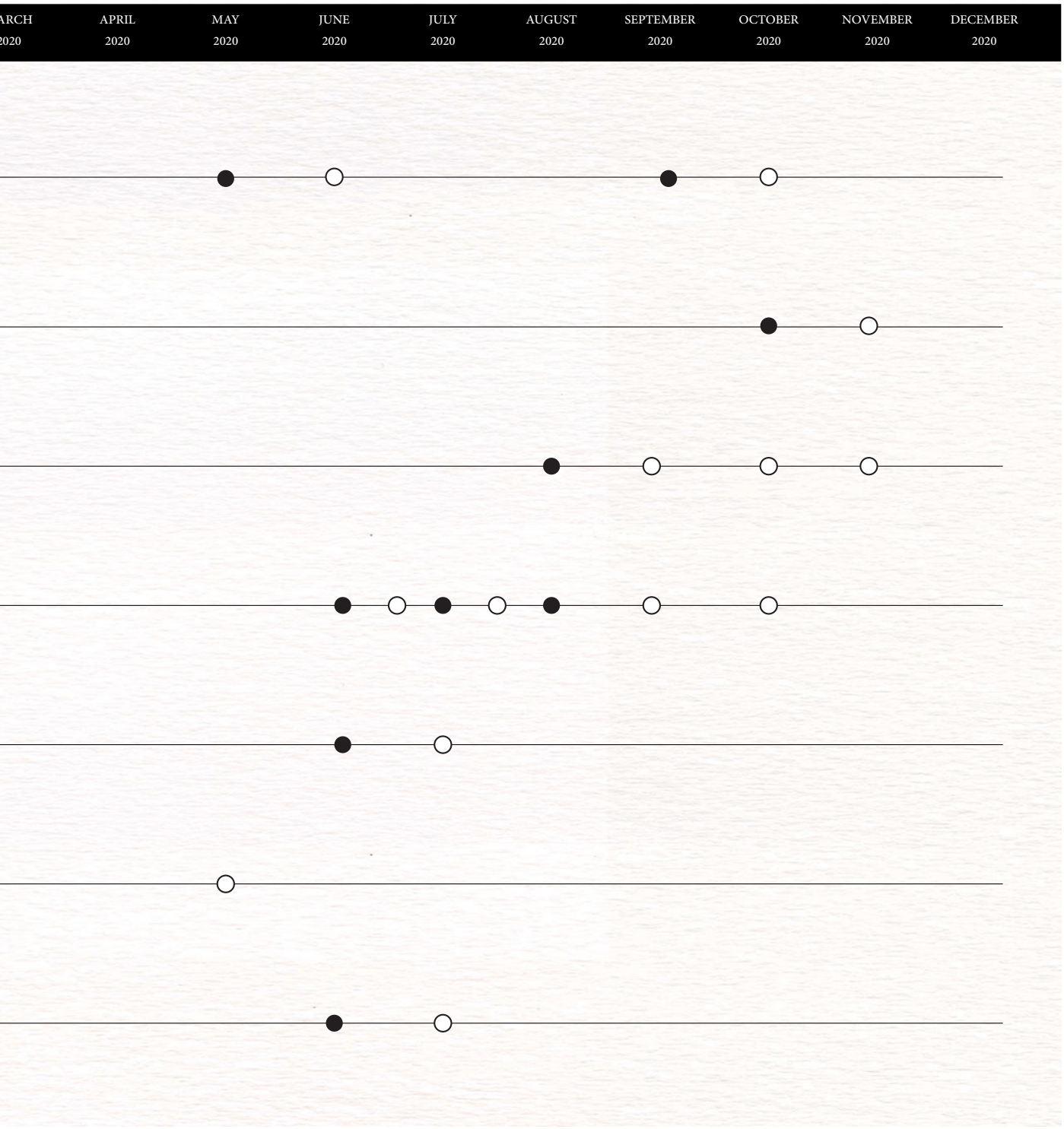
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Figure 2.20 (continued):

Diagram of the making timeline the author followed to forage and extract pigment.

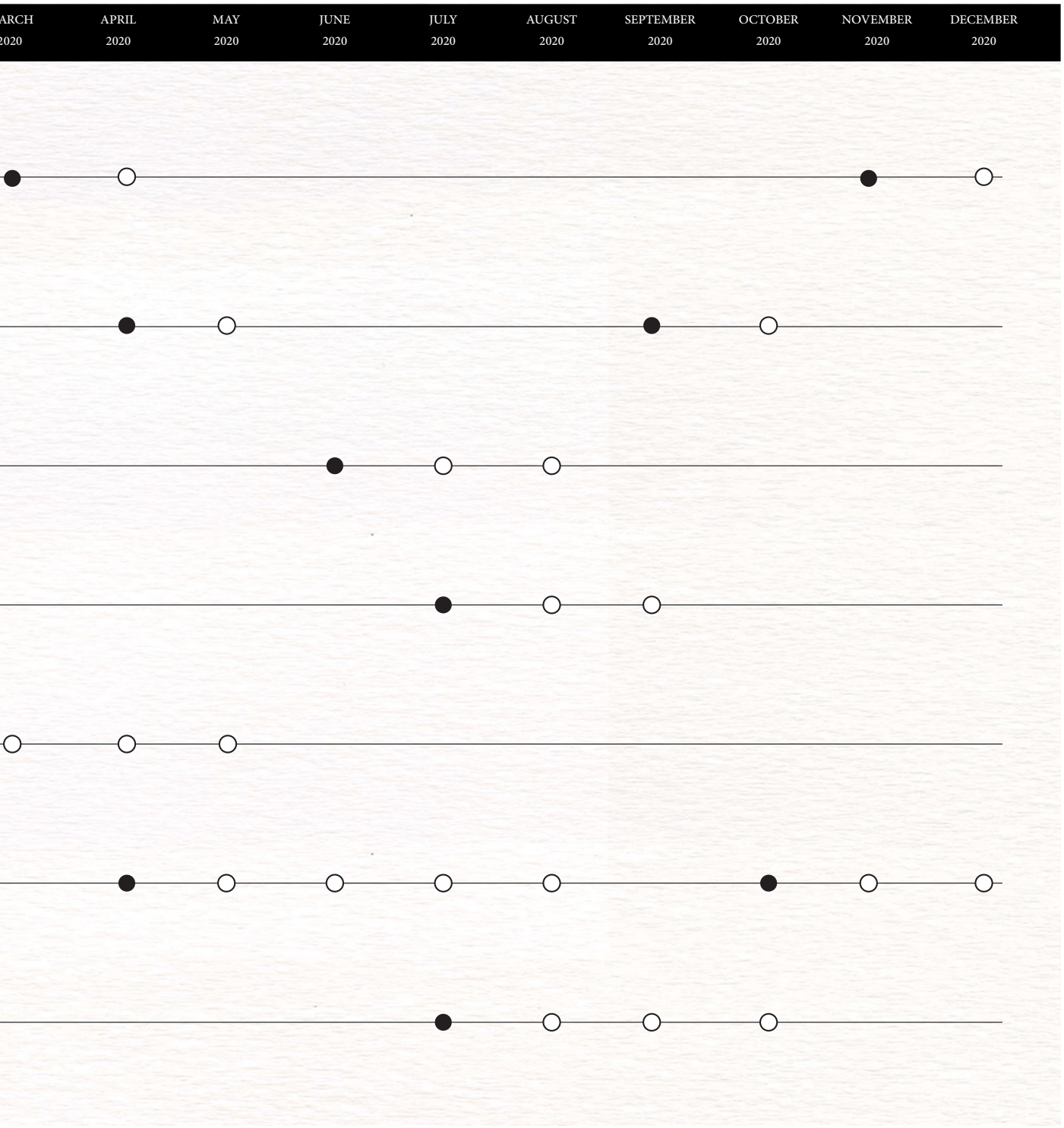
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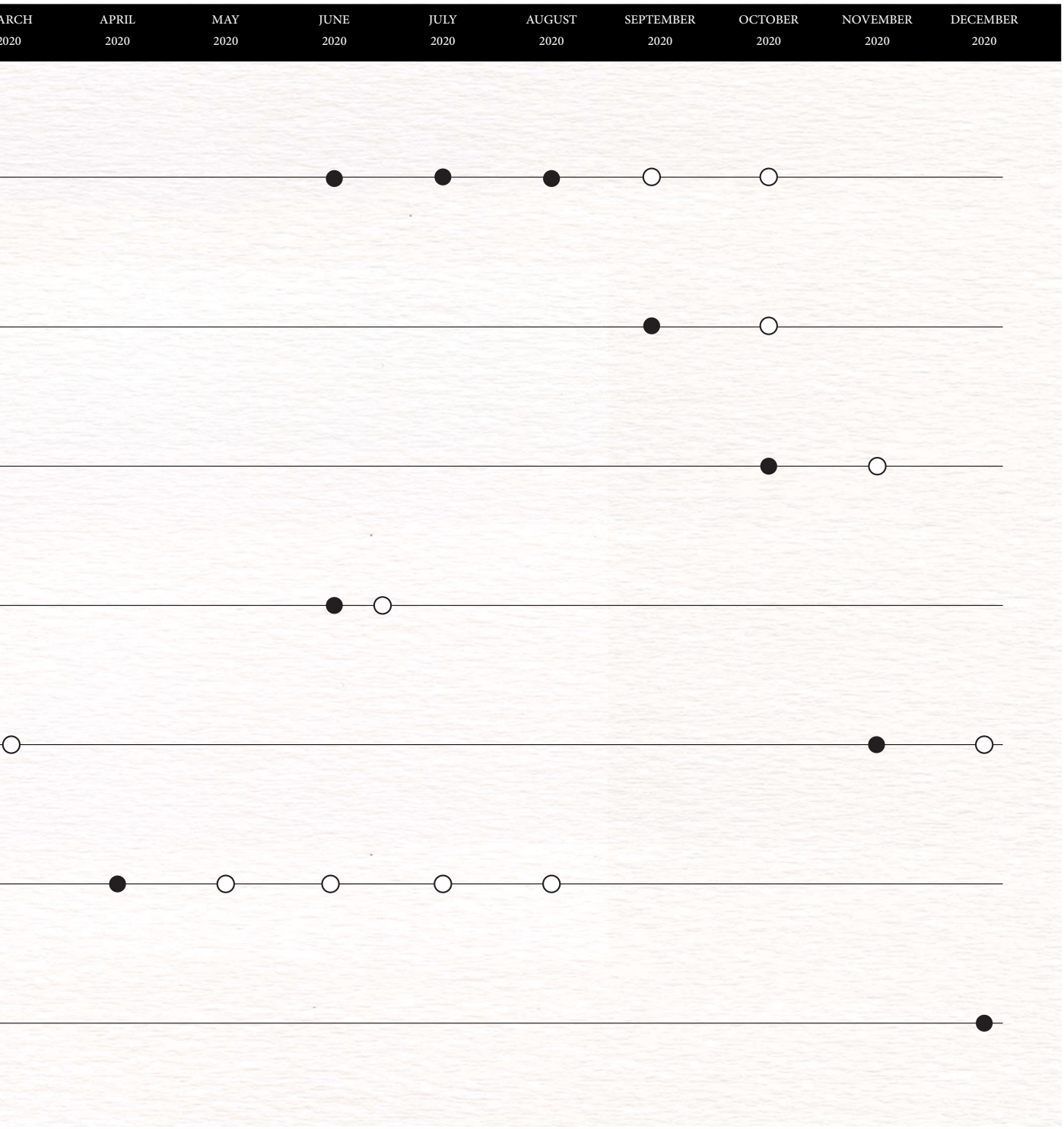
Figure 2.20 (continued):

Diagram of the making timeline the author followed to forage and extract pigment.

● forage

○ extract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Colour Palette:

Drawing depicting the monthly colour palettes of Barber Paper Mill based on when each material was observed in site.

The following photgraphs document colour in site. The colour, or lack of, guides movement. It establishes surfaces that enclose, attracted and repel the spectator in space. Colour outlines form and constructs a visible field of reference for me to exist and move within. Each photograph is paired with pigments and drawings of colour that was encountered in the field of view captured during at least one site visit.

SITE VISITS OF COLOUR OBSERVATION
04 Oct 2019
06 October 2019
12 October 2019
24 October 2019
02 December 2019
11 January 2020
30 January 2020
17 February 2020
01 March 2020
24 March 2020
14 April 2020
30 April 2020
12 May 2020
26 May 2020
02 June 2020
15 June 2020
24 June 2020
25 June 2020
08 July 2020
09 July 2020
17 July 2020
22 August 2020
30 August 2020
02 September 2020
17 September 2020
22 September 2020
08 October 2020
26 October 2020
30 October 2020
08 November 2020
18 November 2020
09 December 2020

january

may

september

february

march

april

june

july

august

october

november

december

Within the Ruin is Colour

03. A different lens

"This is a story we need to know. Industrial transformation turned out to be a bubble of promise followed by lost livelihoods and damaged landscapes. And yet: such documents are not enough. If we end the story with decay, we abandon all hope – or turn our attention to other sites of promise and ruin, promise and ruin."[01]

Anna Tsing, The Mushroom at the End of the World, 541

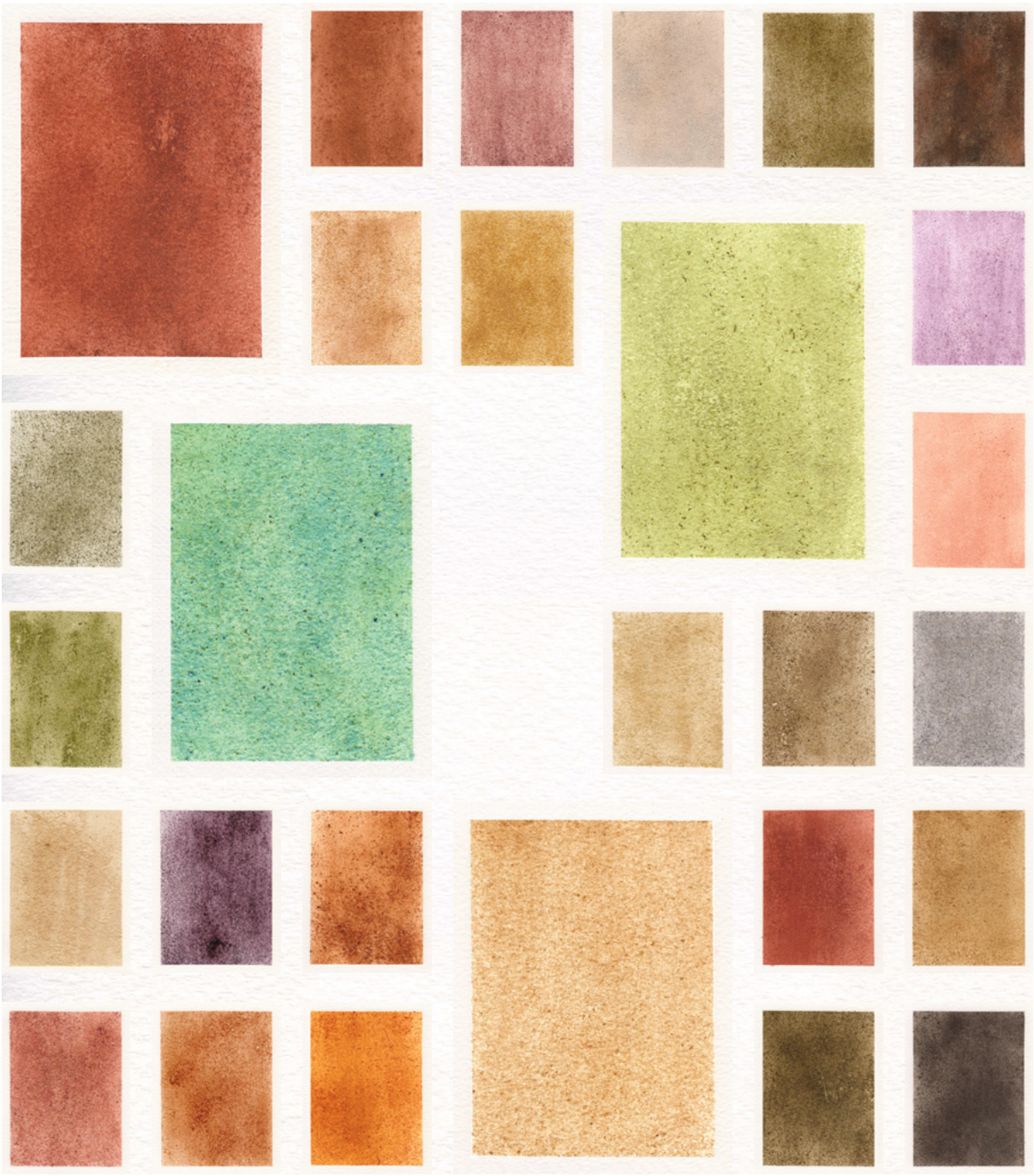


Figure 3.01:

Image of twenty eight pigments depicted in the order (left to right) of encounters. The enlaged pigments represent extended narratives.

The outskirts of urban Ontario are littered with landscapes of industrial ruin. Undervalued, overlooked, and growing dull, these neglected spaces are physical scars on the terrain, evidence of exploitative processes. They are typically colonized, disturbed, occupied, extracted, contaminated, and then abandoned, leaving an altered landscape of post-industrial matter in the wake. I set out to the remains of Barber Paper Mill, a pre-confederate ruin on the outskirts of Georgetown, Ontario, to investigate what might remain in a damaged and vacant landscape. The mill, now in ruin, was built in the 1850's and a site of investigation for alterations of the built environment due to early Canadian industrialization.

Lingering in the discard was a spectrum of colour that shone through the mass of material chaos: red terra cotta tile peeking through faded graffiti and covered ground, yellow limestone blocks crumbling into rubble, corroded copper wire shimmering in a patina of blue, and the plentiful needles of a lonely, growing spruce. The site's colour palette is evidence of transformations from industrial promise to ruination, a transformation that tells stories of progress and shaped physical compositions of the site.

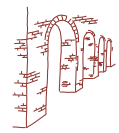
Over the span of a year, I spent time amongst the land of Barber Paper Mill learning from its colourful agents, during which I forged an intimacy with the land and a relationship of noticing what I could not encounter from afar. I foraged samples of the different minerals, plants, and synthetics I encountered to extract a chromatic index of the site in order to document erased, ignored and hidden realities.

What follows is a catalogue of twenty-eight encounters with colour. Each pigment is paired with a reflection from my field notes, animating colour found in site through intimate exchanges of observing, foraging, extracting, and recording while fostering a sense of mutual interaction between human presence and the colour surrounding it.

The catalogue is a chromatic order and transition of encounters. Dispersed throughout, there are four extended narratives that expand upon the site's history. Extended narratives exemplify how colour acts as an entry point in understanding the site through a different lens and weave together cultural, historical, scientific, phenomenological, and theoretical realities of place.

A note on references:

Due to the nature of completing this thesis during the coronavirus pandemic, gaining access to archived information was prohibited. As a result, much of my site history details comes from secondary sources instead of primary sources. To verify validity of information when providing these secondary accounts, I have cross referenced information among at least three other documents, including at least one town document that sources one of the following: primary interviews, Georgetown minute-books, by-laws, probate records, heritage brochures, historic atlases, newpaper articles, or government reports.



01

Pigment I
Encounter one
Fired Clay

02

Pigment II
Encounter twenty-one
Cracked Spraypaint

03

Pigment III
Encounter twenty-four
Burnt Staghorn Sumac

04

Pigment IV
Encounter two
Rusted Steel

05

Pigment V
Encounter twenty-five
Dried Nightshade Berries

06

Pigment VI
Encounter twenty
Rotting Apricot Flesh

07

Pigment VII
Encounter twenty-six
Shrivelled Rowan Berries

08

Pigment VIII
Encounter eight
Dandelion Petals

09

Pigment IX
Encounter twenty-two
Weathered Fieldstone

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Pigment X
Encounter eighteen
Enduring Goldenrod Flower

11

Pigment XI
Encounter fifteen
Refined Birdfoot Trefoil

12

Pigment XII
Encounter ten
Sulfur Cinqfoil Flower

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Pigment XIII
Encounter twenty-four
Cheltenham Brick

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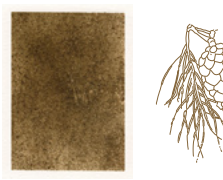
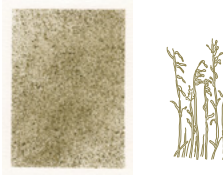
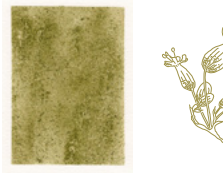
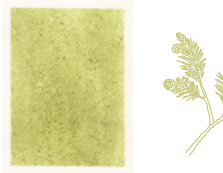
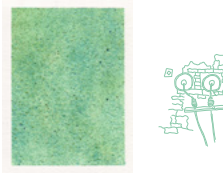
Pigment XIV
Encounter sixteen
Common Daisy

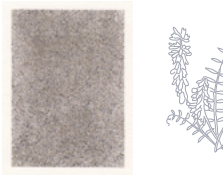












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Pigment XV
Encounter twenty-seven
Pine Needles

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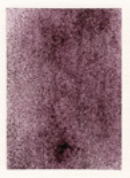
Pigment XXII
Encounter eleven
Dried Flowering Raspberry

16

Pigment XVI
Encounter six
Dehydrated Moss



23

Pigment XXIII
Encounter nineteen
Weltering Elderberry

17

Pigment XVII
Encounter twelve
River Grass

24

Pigment XXIV
Encounter three
Simmered Rosehip

18

Pigment XVIII
Encounter fourteen
Bladder Campion Buds

25

Pigment XXV
Encounter thirteen
Ripe Wild Strawberry

19

Pigment XIX
Encounter four
Spruce Needles

26

Pigment XXVI
Encounter five
Cracked Concrete

20

Pigment XX
Encounter nine
Oxidated Copper

27

Pigment XVII
Encounter seven
Cast Iron

21

Pigment XXI
Encounter seventeen
Tufted Vetch

28

Pigment XVIII
Encounter twenty-eight
Dusty Dirt

Figure 3.02:

Index depicting the catalogue of material encountered in Barber Paper Mill and made into pigments.

Figure 3.03:
Drawing depicting the location of twenty-eight colours observed in site as encountered by the author over the span of a year.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I

Encounter one
Fired Clay
04 October 2019

I walked lightly on the damp red earth as it drew me down a steep, rugged trail. Around fences, I traced the perimeter, away from the busy vehicular road, into a quiet, abandoned, and secluded territory. The trail soon halted and I came to a stop. I found myself at the threshold of three defining land features. To my left sat the ruin of a nineteenth century building. To my right grew the canopy of an old growth forest. In front of me flowed the water of a human dammed and channelized river. As I stood at the intersection of these separate zones, I noticed the ground conformed to its surroundings and captured imprints of its interactions with each. More impressively, the earth connected all three zones. The smooth, hard, desaturated blanket of red earth sprawled across space, under the yellow stones of the ruin, under the green trees of the forest, and under the blue water of the river. It continued as far as I could see and was uninterrupted in the landscape.

I looked to the ground suddenly hyperaware of the soles of my shoes pressing against the earth. This was the moment I first touched the land. Landscape architect Christoph Girot defines this moment as *landing*—the beginning of my journey to understand this site in "a lengthy process of discovery."[01] Girot argues that landing is one of the most important moments to a designer. It is the point at which intimate encounter occurs and preconceived notions are abolished and replaced with curiosity and openness to the precarity of a place.[02] I took a deep breath and slowly bent down to press my hands to the earth. I wanted to feel the connection between my body and the land. My palms grasped at the smooth, cool surface while I took a moment to feel the exchange of energy between my skin and the earth. I put aside any assumptions and doubts about what colour I might or might not find and built up a sense of wonder. When I

Figure 3.04:
Plan drawing depicting where fired clay was encountered in site.

01.
Girot, Christoph. "Four Trace Concepts in Landscape Architecture." In Recovering Landscape: Essays in Contemporary Landscape Architecture, edited by Corner, James. (Princeton, United States: Princeton Architectural Press, 2009), 61.

02.
Girot, Four Trace Concepts in Landscape Architecture, 62.

felt myself ready, I gently released my grip. My hands were painted, chalked in a dust of red clay.

Clays is red because of a pigment known as ochre. Ochre is found in earths and minerals, and it plentiful in Southern Ontario, where inorganic iron oxides, known as ferric oxides, react with vast deposits of sand and clay which span the region. Within ochre, hematite, a compound of dehydrated iron oxide, determines hue: hydrated hematite makes clay yellow and dehydrated it makes clay red.[03] These deposits of hematite rich, dehydrated ferric oxide form all along the Clay Belt—a natural landform of Southwestern Ontario leftover from the Glacial Lake Ojibway.[04]

This vast natural expanse of clay in Southern Ontario had significant impacts on shaping landscapes of production throughout the nineteenth century. Initially, clay was perceived as a perilous feature to settler colonies. For centuries, the land was cleared of forests and farmed for agricultural production.[05] These extensive farmlands demanded efficient drainage capacity, which was not provided by clay—a material composed of fine particles and inorganic matter that neither absorbs water nor allows it to pass through easily.[06] Many farms failed due to these qualities of the ground and abandoned agrarian pursuits.

Instead of conforming land use to the existing properties of the earth, settler colonies labelled the land useless due to their inability to grow crops for immediate profit, leaving clay rich fields as leftover spaces. Architectural historian Vittoria Di Palma describes this space as the *wasteland*.[07] She theorizes that the wasteland is space that cannot be used for its intended function and "defined not by what it is or what it has, but by what it lacks."[08] Much of the clay ground was labelled as waste due to its inability to provide profitable agricultural space.

Devoid of agricultural production, the earth quickly turned into landscapes of industry. While clay was not efficient to farm on, it was profitable to extract for resource production. In a geological survey, the Ontario Ministry of Natural Resources states that the ceramic properties of local clay have led to a prolifieration of brick and tile yards across southwestern Ontario.[09] Beginning in the 1800's, mass volumes of clay were

03.

Thomas, Anne. Colors from the Earth. New York, United States: Van Nostrand Reinhold, 1980.

04.

Kent, Jon. "Agriculture in the Clay Belt of Northern Ontario." Canadian Geographer 2, no. 10 (1966): 117–126.

05.

Irwin, R. and V. Spencer. "The Clay Drain Tile Industry in Southern Ontario." Canadian Agricultual Engineering 12, no. 2 (1970): 107-109.

06.

Guillet, G. Clay and Shale Deposits of Ontario : Ontario Geological Survey. (Toronto, Canada: Ontario Ministry of Natural Resource, 1977).

07.

Di Palma, Vittoria. Wasteland : A History. (New Haven, United States: Yale University Press, 2014).

08.

Di Palma, Wasteland, 3-4.

09.

Guillet, G. Clay and Shale Deposits of Ontario : Ontario Geological Survey. (Toronto, Canada: Ontario Ministry of Natural Resource, 1977), 71-80.

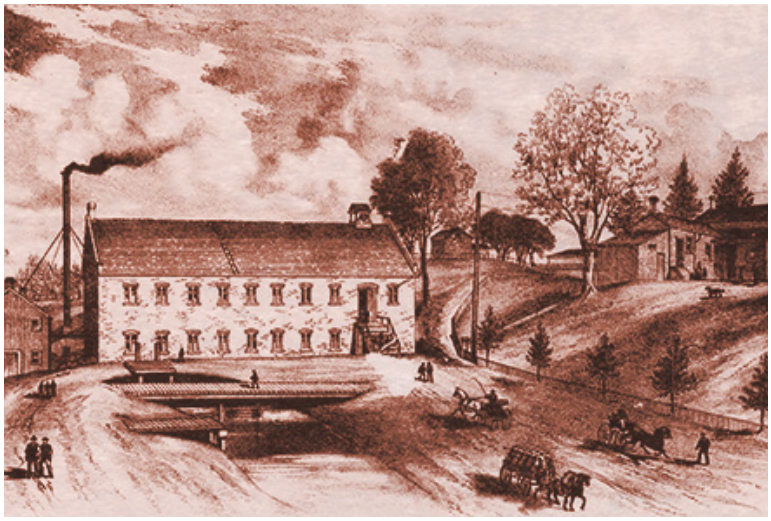


Figure 3.05:

Drawing depicting a productive landscape and early mill in the region of HaltonHills during the 1800's.

Figure 3.06:

Drawing depicting the current boundary of the town of Georgetown in relation to Barber Paper Mill. There are four neighbouring industrial ruins.

quarried from the land to make drainage tiles and bricks.[10] This process formed a series of industrial complexes with large structures built to house extraction and manufacturing operations.[11] The red clay, reimagined through landscapes of industrial production, once again became a valuable resource for farmland albeit in a new form. Foundries, mills, lofts and shops became important nodes around which colonial settlement grew; as demand for tiles and bricks grew to support agrarian landscapes, wastelands transformed into built complexes of industrial production.

10.

Guillet, Clay and Shale Deposits of Ontario, 71-80.

11.

Bradley, Betsy H. The Works: The Industrial Architecture of the United State. (New York, United States: Oxford University Press, 1998).

Figure 3.07 (left):

Photograph depicting an arrangement of clay in site. Here bricks are built into a firepit for transient occupants.

Figure 3.08 (right):

Photograph depicting an arrangement of clay in site. Here drainage tiles are placed alonf the floors, bottom third of walls and sill of windows.

Figure 3.09 (left):

Photograph depicting an arrangement of clay in site. Here clay banks the Credit River on both sides.

Figure 3.10 (right):

Photograph depicting an arrangement of clay in site. Here bricks are used to construct arched walls and silos on the lower floor.

Figure 3.11 (left):

Photograph depicting an arrangement of clay in site. Here clay bricks are used to construct a quarterpipe for skaterboarders and cycliists.

Figure 3.12 (right):

Photograph depicting an arrangement of clay in site. Here clay is broken down after demolition of buildings.

Along the bank of the Credit River in Georgetown, Ontario, remains the ruin of one of these early industrial complexes. The material is scattered throughout the mill site, taking on various forms and occupations: thin square tiles finishing the lower walls and floors to allow for proper drainage,

fired rectangular bricks built on the interior of stone to create fire resistant walls and makeshift objects such as ramps and firepits to house transient human occupants. Each arrangement is a human intervention of land and creates a three-dimensional mark of how humans use and occupy land.

Noticable interventions were first made during the 1820's when founding member of Georgetown, Charles Kennedy built a woollen mill in place of agricultural farm.[12] About fifteen years later, he sold the mill to the Barber family.[13] The Barbers were leading industrialists in Canada at the time. They had experience operating the woolen mill and had learned about the paper industry from prior engagements.[14] With a growing English colony, and increasing demand for paper, the Barber bothers replaced the woolen mill with Barber Paper Mill in 1854.[15] In 1888, hydro-electric power was introduced to the complex, allowing operations to expand.[16] With its advancements and additions, the mill was a thriving and a nucleus of colonial settlement in a developing Ontario town.

Industry, however, is as finite as the ideological vision that creates it. With every major technological shift, the industry transitioned, and by the early twentieth century, Barber Paper Mill was replaced with larger industrial operations. The complex was closed and abandoned in 1948 once its productive value was lost.[16]

Designated under the Ontario Heritage Act in 2008, this industrial site is one of many in Southwestern Ontario that documents industrial transformation through the arrangement of clay. Clay composition exists as physical scars on the earth of industrial endeavours, and a painting of land alienation and industry for future generations.

The use of red clay as a communication tool has occupied the cross-disciplinary, cross-cultural study of many artists, geologists, anthropologists, and historians. For approximately one-hundred-thousand years the pigment has been used to track the traces of humans on the land and has left fragments of evolving societies. In the Lascaux cave in France, Palaeolithic paintings animate the faces of animals alongside featureless stick men and handprints pressed along the rock.

Since this prehistoric time, the arrangement of clay is evidence of

12.

See second narrative for more information.

13.

Royal, Robert. "Barber, John Roaf." Dictionary of Canadian Biography 14, (1998). http://www.biographi.ca/en/bio/barber_john_roaf_14E.html.

14.

See third narrative for more information.

15.

See fourth narrative for more information

16.

Royal, Barber, John Roaf, http://www.biographi.ca/en/bio/barber_john_roaf_14E.html.

17.

Wreschner, Ernst. "Red Ochre and Human Evolution : A Case for Discussion." Current Anthropology 21, no. 5 (1980): 631-642.

how humans use, value and occupy space.[17] Its colour requires intentional processing; ochre is mined and refined before it was mixed with a range of fixatives, then painted onto tools, walls, and bodies.[18] Anthropologist scholars such as James Calcagno and Agustin Fuentes, suggest that the mere position of ochre, engrained in clay and compact in the earth, suggest that the pigment found in archaeological sites, was not convenient but specifically sought out.[19] Anthropologist Ernest Wreschiner emphasizes that though it took time to develop the mental skill and capacity, red ochre has been used in attempt of establishing social connections since early hominids habitation hundreds of thousands of years ago. The material was separated from other colour, collected and brought into the home. This "capacity for colour categorization" indicates early traces of social structures and culture.

While ochre was used to depict humans modestly amongst other creatures in prehistoric times, the material now depicts human dominant societies, driven by ideals of progress and industry. Today, the arrangement of red clay in Barber Paper Mill is an illustration of human exceptionalism and a society driven by progress and purity. In an article exploring the the role of human nature in interspecies connectedness and ecological diversity, Anna Tsing, argues that "human exceptionalism blinds us."[20] Tsing considers scientific stories of autonomous and consistent human nature as a contradiction to species interdependence.[21] Instead of questioning the human impact on or control of nature, humans can be understood as entangled in domestic webs and dependent on the nonhuman agent. This critique of human exceptionalism challenges where humans exist in post-industrial rearrangements of the land.

At the ruin of Barber Paperl Mill, clay has been disturbed, extracted, rebuilt, and torn part; its arrangement draws a fragmented landscape that is damaged, abandoned and issolated from communities. This discard of space, and the nonhuman actants that occupy it, disrupts the urban fabric and built surroundings through unoccupiable and designated wasteland. These landscapes of fragmented clay exhibit the disregard of and sererance from domestic webs of multispecies dependency.

I observe the red clay, becoming increasingly aware that images being

17.

In South Africa's Blombos Cave, paint made of red ochre was coated tools and stored in abalone shells approximately one-hundred-thousand years ago. Australiea's Indigenous populations used red ochre for paintings and Pleistocene burials. Wilford, John. "In African Cave, Signs of an Ancient Paint Factory." The New York Times, 2011, New York.

18.

Wreschner, Red Ochre and Human Evolution, 631

19.

It occurred over generations of evolutionary developments of the mind before being used as a communicative tool.—along the same timeline as fire building and social structures. This mental capacity, the ability to categorize and manipulate clay, is tied to evidence and development of our "big brains" and Evolutionary anthropologists commonly identify three major feature that are used to position humans in ecological systems: upright bipeds, nimble hands, and big brains. Wreschner, Red Ochre and Human Evolution, 632.

20.

Tsing, Anna. "Unruly Edges: Mushrooms as Companion Species." Environmental Humanities 1, (2012): 141-154.

21.

Tsing, Unruly Edges, 144.

Figure 3.13:

Photograph depicting the use of clay as a communication tool. Here, ochre is used to paint animals in the Lascaux caves.

Image courtesy of SPL Lascaux International.

Figure 3.14:

Photograph depicting the use of clay as a communication tool. Here, ochre is used to paint human handprints.

©Alamy

drawn. As I consider the marks industry leaves on the earth and the image being painted of this time period for the future, I question the multispecies worlds and trajectories that evolve. Do these damaged landscapes have any hopeful future? Do the hold any more value? If humans "ruined" the land, can we also be the ones to fix it? What are the agents already working to reworld productive lands? What is left?

II

Encounter twenty-one
Cracked Spraypaint
22 September 2020

Every wall was dressed in a veil of organic drwaings and a patchwork of text that easily vanished into a disordered background. This sprayed-on colour left traces of a population—assumed outcasts, vandals, artists, and transients—who utilized the large surfaces in the ruin as a canvas. Its presence was both plentiful and scattered, creating consistency across the landscape.

Up until this point, I was most familiar acquainting myself with a new landscape using vision. This sense dominated my perception and tied me to preconceived notions, especially that of the spray paint in a site. So, I closed my eyes and traced my hands along the thin layer to experience it in a new way.

The paint was not consistent, and I could feel the jagged edges where the layer began to peel. Heterogeneous textures of wood, brick and iron emerged from beneath. Allowing myself to experience colour with other senses, I became more attuned to the small-scale spatial qualities. The paint was not a deface to material, but instead formed an additive veneer.

The more there was, the more it absorbed fading forces from the environment and the easier it became to extract. In abundance, the colour peeled away from each sublayer and cast a depth of shadow at the margins of each irregular crack. Its depth indicated a veneer of protection; the colour was acting as a shield, preserving sublayers from the deterioration of elements which endured the lightening of direct sunlight and blemishes of impact.

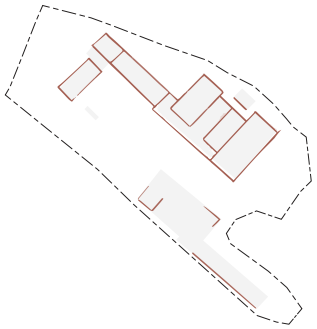


Figure 3.15:
Plan drawing depicting where cracked spraypaint was encountered in site.

III

Encounter twenty-four
Burnt Staghorn Sumac Berries
26 October 2020

I found difficulty extracting and maintaining the integrity of red staghorn ssumac berries. In the process of breaking down the material composition, I altered the hue and saturation of pigment. It was often a process of trial and error when I learned to work with different colours. I failed many times to extract red from this plant turning it brown and yellow.

After a year, the fuzzy berry cluster I needed had come back into season and I collected enough samples for two experiments: the first was a natural dehydration and the second was to make a soak bath. I had already gone through many extraction experiments to preserve the vibrancy this material had while alive. Each time, I learned more about how the material reacted; it did not like extreme heat, after three hours of soaking, the hue would change substantially, and there were too many impurities to dehydrate and grind. After dehydrating, I picked apart the small, fuzzy beads and they crumbled to brown dust.

Despite everything I did, I could not avoid the brown this faded to. The brown however clung to material. It was used to die many different cloths. Here, transition was unavoidable, and I was reminded that colour was not stagnant. I remembered back to the cones of fuzzy balls that persisted through the seasons. In the winter months they brought intrigue, and, in the summer, month were overtaken by leaves. There were so many red plants I could not extract red from. Maintaining natural vibrancy proved to be a huge challenge.

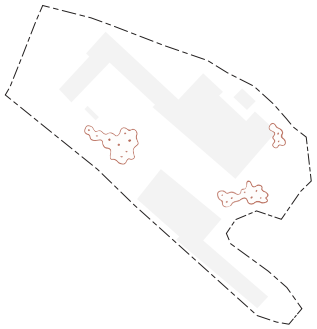
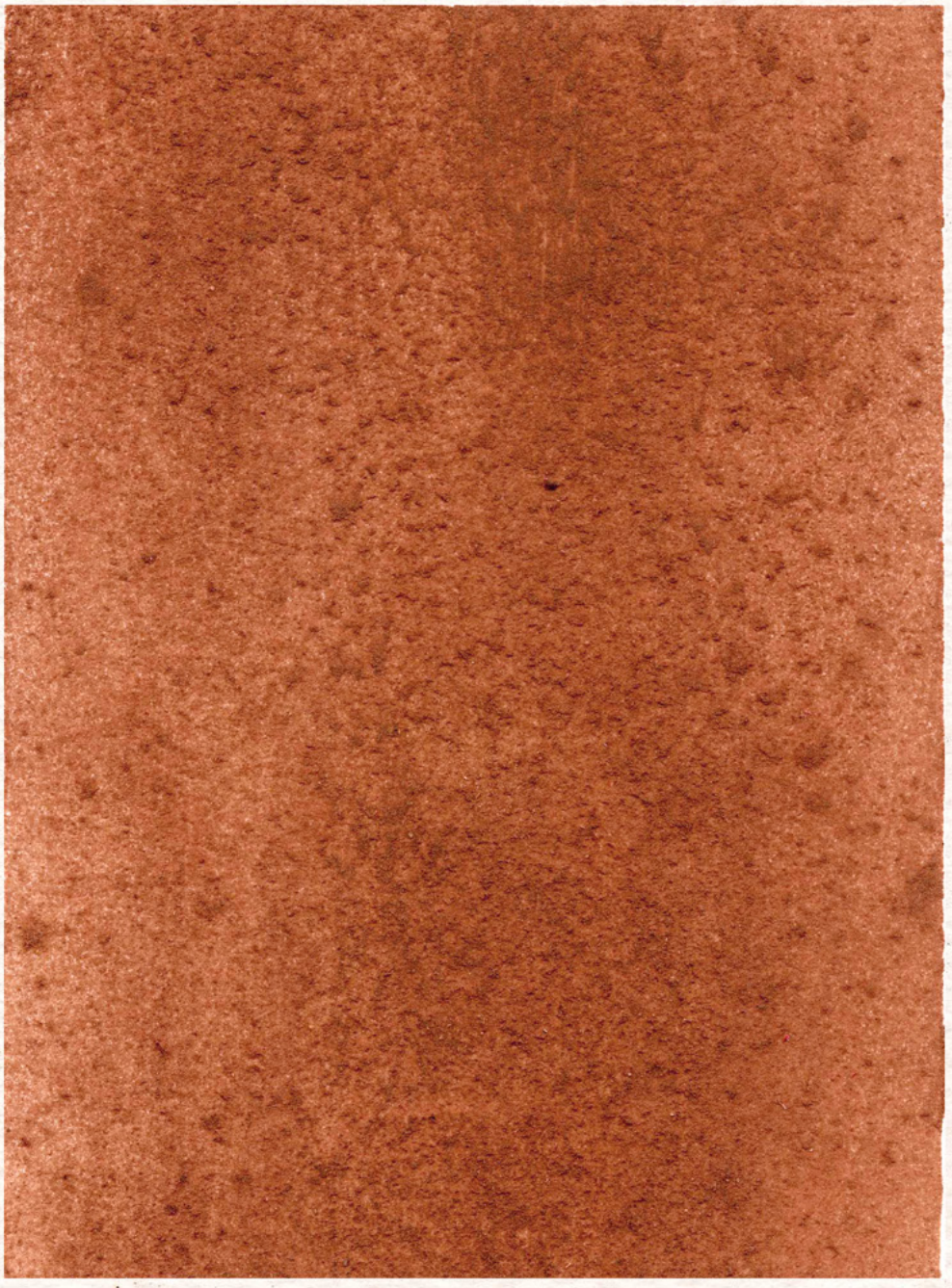


Figure 3.16:

Plan drawing depicting where staghorn sumac berries were encountered in site.

Additional notes:

1. Stovetops should not be above 120 degrees c (lowest setting) and ovens should stay below 200 degrees c. The staghorn will turn yellow, then green then brown then red.



IV

Encounter two
Rusted Steel
06 October 2019

A grid of steel bordered the property line beginning and ending at the river. It stood two meters tall with three horizontal lines of barbed wire overhung at the top. It was a clear sign of danger, discouraging those passing by to not trespass. For those who negated the barrier, there were multiple points of entry carved out.

The first was a half meter hole at the base of the front gate. The second was a vertical slit closest to the hydro dam. The third was a ninety-degree rotation of the fence along the property line that opened to the river. Along the base, the fence was raised, or the ground was dug out leaving trace of more than human life entering and exiting site.

I never thought twice about crossing this grey threshold until the day I stumbled over the rusted barber edge. It sliced right through my jeans, my shorts, and the flesh of my leg in just a split second. Looking down at the blood that was seeping through my pants, I could not help but relate the physical removal of my flesh to the violence intrinsic to land privatization.

I was flooded with confusion and shame that I had never questioned the role of a fence before – a physical boundary that is placed to actively harm those who trespass. To trespass is to 'intentionally and wrongfully' enter someone's property or land without permission. This implies a legal ownership, possession and privatization of land. Tresspassing reminds me of the many layers of hierarchical power of space.

Figure 3.17:
Plan drawing depicting where srusted steel was encountered in site.

V

Encounter twenty-five
Dried Nightshade Berries
30 October 2020

I climbed the uneven pile of rubble that once formed buildings which then fell to the foundations of a demolished structure. My body wobbled when I stepped onto each unstable rock, and my eyes darted towards my feet in attempt to find solid ground.

Throughout the compilation of rebar, concrete, dirt, stone, and clay grew short, feeble vines. From them hung little, round lantern shaped jewels of colour. It looked as if these hard bulbs were filled with fresh blood and reflected the faint traces of a setting sun.

Though the colour immediately drew me, I fought the urge to avoid these poisonous berries. It was an instinct of flight that was ingrained in my knowledge of the land as a child; though sweet at first bite, consumption of two nightshade berries could kill a child.

This time, I did not avoid them. I scoured the hill for more. I collected two handfuls until the sun set and it was time to go.

When I got home, I put on gloves, cut open each ovular berry, and crushed them. Spreading the seed filled paste along a dish increased the surface area to air and decreased the time required to naturally dehydrate. I kept it out of sunlight, hesitant to bleach the colour with ultraviolet exposure. It took a week to thoroughly dry before I could manually ground into pigment.

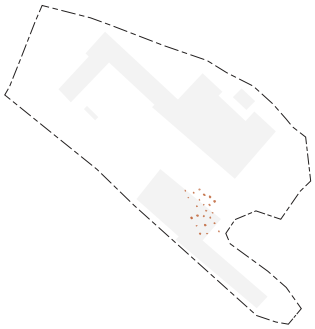


Figure 3.18

Plan drawing depicting where nightshade berries were encountered in site.

VI

Encounter twenty
Rotting Apricot Flesh
17 September 2020

Dependant on weather, most Southwestern Ontario harvest begins in early June and ends in late September. I did not expect to find and living fruitful signs of colour. It was a month passed the Harvest Moon, nine degrees Celsius and most of the leaves were turning from orange and yellow to analogous browns.

It was because of this change, that I was able to spot a pair of orange jewelled fruits dangling from a leaf-less tree. They contrasted against the grey sky and browning landscape, and to my disbelief, there were dozen.

The fruits were attached through a thin inch stem and the branch was burgundy and grey with white dashes. At first, I had no idea what fruit I had found; crab apples were larger, peaches were softer, and berries grew on bushes. They were hard, just under and inch and had a smooth yellow-orange skin.

Beginning to rot with block spots, I decided to cut one open. The inside was translucent and fibrous with a one-centimetre pit—it must be a stone fruit! The air filled with the soft, fruity fragrance similar to that of a peach.

I thought how strange it was that I was unable to identify the fruit on site when I knew its smell, taste, look and feel. Should I not immediately know the few stonefruits that live in my region? How did I become so disconnected to the land that I was unfamiliar with the inhabitants of the site at different times of the year?

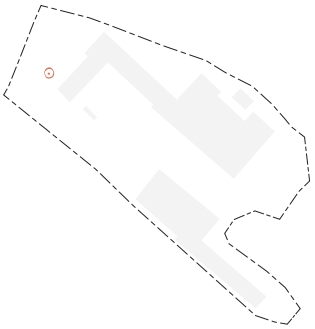


Figure 3.19:
Plan drawing depicting where apricot was encountered in site.

VII

Encounter twenty-six
Shrivelled Rowan Berries
08 November 2020

As I rounded the corner from the loading bay, my eyes were caught by luminous bunches of red. Sixty-three smooth spheres with a seven-millimetre diameter and a black five-point star base beckoned from a lonely, wooded sapling.

From afar, the individual spheres merged into an unavoidable focal point against the muted stone wall. It appeared to be passed optimal season as a quarter of the spheres shrivelled to a soft, darkened form. This atrophic state was paralleled in the plant's serrated pinnate leaves that changed colour with the season.

I picked one sphere from its long, slender stem and broke it open. Only the exterior skin was vibrant. The interior flesh was much lighter and defined by three seeds evenly dispersed around the nucleus.

To maintain its hue and saturation, I would need to separate the skins from the flesh and seeds to dry out and process alone. This required an extraction of far more than I was taught: never take more than half. So, I settled for a fifth of the berries, including mostly the shrivelled and rotting spheres—careful not to waste a meal for resident birds and small mammals preparing to bulk for the winter—and left knowing that my pigment would be somewhere in between red and yellow, but significantly more ethical.

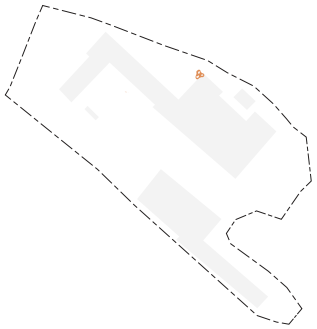


Figure 3.20:
Plan drawing depicting where rowan berries were encountered in site.

VIII

Encounter eight
Dandelion Petals
12 May 2020

I never understood why this colour was not wanted in the monogamous green of suburban lawns. Did it not add both beauty and practicality to an otherwise clinical front yard?

Here, round balls of ripe dandelions were scattered in the sun filled meadow that edged the forest and river. I had seen them before, an indication of a soon coming summer. I found myself as an adult, mimicking a time when I would run through the grasses to gather bouquets for my mother.

I sat for hours with this old friend, dissecting it limb by limb: one hundred and eighty-seven ray florets (give or take a few). Each floret was a slender rectangular shape with longitudinal concavities. At the base was a recessed seed.

It was foreign to pluck the seeds while the colour was present. In the past, I had waited for it to turn white before wishing upon the round puffs. This time sensitivity of colour provoked a sense of memory and nostalgia. Those bursts of yellow came every summer; it was a reminder of the cyclical notions of time. It marked both the beginning and end of a school year, the summer harvests, trips to the park and time in the garden.

Every year, I took off my socks and shoes to run through the yellow fields. There I was, once again, happy in the land, bundling the round balls of colour to share with a loved one.

Figure 3.21:
Plan drawing depicting where dandelions were encountered in site.

IX

Encounter twenty-two
Weathered Fieldstone
08 October 2020

It is late morning in early October and the changing leaves of autumn are contrasted on the faded stone structures in site. Cleft, rectangular blocks stack upon each other and the irregular spaces between are filled with a meager amount of recessed mortar. Each stone has a differing form as if they had each been sanded flat manually. Patched together, they form the walls of a nineteenth century industrial mill. While the majority of the building remains, the roof is gone, leaving the structure susceptible to top loaded lateral force. There is a diagonal trail that gravity traces down stone while the mortar fails and blocks crumble downward. They peel away, one by one, and split into pieces on the ground.

As I approach each wall, I notice the grey and beige stones are saturated with veins of deep yellow. The colour is inconsistent. Faces that are sheltered from elements and exposure appear dull. They maintain a white to grey complexion that is analogous throughout the material while exposed faces exhibit vast traces of yellow and brown. The coloured veins originate on the surface where rainwater has pooled and seeped into heterogeneous particles that make up the fieldstone. Here, yellow is an indication of natural iron deposits.[01] These highly soluble deposits are part of the sedimentary rock composition and used has been a source of natural pigment for hundreds of years.[02] When worn away from weathering and erosion, and exposed to prolonged moisture, the iron content oxidizes and develops stains of yellow rust which overtake the fieldstone.

Fieldstone is a geologically occurring material in site. During the last glacial period (in North America), migration of the Laurentide Ice Sheet deposited an array of minerals and sediment across southwestern Ontario.[03] The layers of rich glacial sediments cemented and formed fieldstone—sedimentary rock consisting of limestone, sandstone, and

Figure 3.22:
Plan drawing depicting where fieldstone was encountered in site.

01.
Mackay, A. "B-Ferric Oxyhydroxide." Mineralogical Magazine and Journal of the Mineralogical Society 32, no. 250 (1960): 545-557.

02.
Mackay, B-Ferric Oxyhydroxide, 545-557.

03.
Dyke, S. and Victor Pres. "Late Wisconsinan and Holocene History of the Laurentide Ice Sheet." Géographie Physique Et Quaternair 41, no. 2 (1987): 237-263.

granite in the surface layers of the ground. The yellow of fieldstone has been a consistent colour in site before evidence of human occupation.[05] Both the durability and deterioration outlive any individual or generation, giving the fieldstones "almost natural environmental features" whether they take natural or man-made forms.[06]

Fieldstones on site were first dug up and removed from the ground when the British government purchased land from the Mississauga Nation in the late eighteenth century. The parcels bought were part of the area ceded in Treaty 19.[07] At this moment, the site became a commodity by which could exploited. Much of the vast canopy of the Carolinian forest that was nurtured by the rich sediment and minerals was quickly cleared to make space for agriculture and productive landscapes.[08] In the process, fieldstones were no longer desired as a nourishing member of the diverse Carolinian floor. Farmers instead wanted homogeneity and control; they conditioned the ground for monoculture farming, optimizing parallel rows of single crop growth within cultivable land. Farm equipment often broke upon collision with large fieldstones in the surface soils, rendering the natural material an impediment to farmers' production.[09] The stones were extracted and placed along the edges of the property.

Early settlers scattered these dull, weathered yellow fieldstones along the periphery of bare, uninhabited ground. Once the forests were cleared in 1819, the Crown employed a British surveyor named Charles Kennedy to divide the land into parcels of property. He established an orthogonal grid in axis with Lake Ontario.[10] These grid parcels endorsed privatization of land by establishing property lines, along which fieldstones would eventually form borders.[11] Fieldstones identified the lines of separation and governed who could do what in each space. To occupy space, parcels needed to be purchased. Critical theorist and law scholar Brenna Bhandar argues that the discrepancy between settler colonial ideologies and indigenous ideologies of land use and ownership characterizes contradicting systems of value of both land and people.[12] The contrasting use of land was a tool of racial segregation between First Nations and settler colonies; those who were not "tethered or fixed geographically" were criminalized and rendered

05.

Chapple, Nina Perkins. A Heritage of Stone : Buildings of the Niagara Peninsula, Fergus and Elora, Guelph, Region of Waterloo, Cambridge, Paris, Ancaster-Dundas-Flamborough, Hamilton and St. Marys. (Toronto, Canada: James Lorimer & Company, Ltd, 2006), 9-27.

06.

McGrath, Jason. "Apocalypse, Or, the Logic of Late Anthroposcene Ruins." Cross-Currents no. 10 (2014): 113-119

07.

Government of Canada : Indigenous and Northern Affairs. "Treaties in Ontario : Upper Canada Land Surrenders." Accessed 05 August, 2020. https://www.rcaanc-cirnac.gc.ca/eng/1370372152585/1581293792285#ucls17.

08.

Dalton, Kaytee and Darin Wybenga. The Mississaguas of the New Credit First Nation : Past and Present. (Hangersville, Canada: Mississaugas of the New Credit First Nation Administration, 2018).

09.

During bad winters, the stones would be front-churned into surface soils. This became a problem for agriculture that came with settlers.

10.

Esquesing Historical Society. Kennedy Family of Georgetown.

Figure 3.23 (left):

Photograph depicting fieldstone set between mortar in 1854 wall constriction.

Figure 3.24 (right):

Photograph of residual fieldstone once again piled in a line along the property border after an early 2000's demolition.

inferior.[13] The legal status determines how one occupies and moves through space. While further promoting the dispossession of land, property lines have and continue to eliminate mobility and seasonal occupation.

This moment of drawing lines out of fieldstone demonstrates a larger cultural shift in the value of land. It marks what ecologist Robin Wall Kimmerer articulates as a transition from a "gift economy" to one of commodity.[14] Kimmerer states the value of gifts derive from the social relationship they extend and that commodity economies promote accumulation and scarcity rather than sharing and abundance.[15] The arrangement of yellow stones is reminiscent of the differing relationships humans have to the land. While the Mississauga of the Credit believe the land is not theirs to own yet affords sustenance, the Crown sought to gain territory. Relationships of reciprocal and care were replaced by profit friven relationships unhindered by environmental and social consequences.[16] The perception of stone changes from being the foundational building blocks which make up the ground of the nurturing Carolinian forest, to a hinderance of agrarian culture in need of rearrangement and structure, as to not disrupt settler colonial ways of life.

Beyond property borders, fieldstone continues to impact the arrangement of settler communities on the land. During the nineteenth century, especially the period of the 1850's to 1870's, architects and engineers moved away from wood construction, and adopted methods of building

Esquesing Historical Society. 2017. http://esquesinghistoricalsociety.com/2017/03/04/test-post/

11.

Thorson, Robert. Stone by Stone : The Magnificent History in New England's Stone Walls. (London, United Kingdom: Walker Books, 2004).

12.

Bhandar, Brenna. Colonial Lives of Property : Land, Law and Racial Regimes of Ownership. Global and Insurgent Legalities. (Durham, United States: Duke University Press, 2018), 34 -38.

13.

Banhar, Colonial Lives of Property, 37.

14.

Kimmerer, Robin Wall. Braiding Sweetgrass. (Minneapolis, United States: Milkweed Editions, 2013).

Figure 3.25:

Drawing depicting a historic view of Barber Paper Mill. The image overlooks the Credit River and shows the industrial site in relation to surrounding agricultural land.

Figure 3.26:

Drawing depicting Georgetown, Ontario. Thiis is a zoom in from the Township of Esquesing North Map and illustrated the grid division of property with designated owners.

with stone. In a study of one-hundred-and-fourteen stone buildings, heritage planner and conservationist Nina Chapple affirms that colonial settlements were built and developed in proximity to quarries.[17] Because the material was heavy and difficult to transport, stone structures arose near waterways and major transportation routes becoming aspirational monuments of colonial settler communities.

In 1854, the Barber Brothers bought property along the Credit River in Hungry Hollow, originally gifted to Charles Kennedy for his service of surveying the land.[18] On his property, Kennedy built a sawmill, gristmill and foundry which the Barber brothers developed to start a new industry. They used the discarded fieldstones along the periphery, a free building material, to construct the walls of the paper mill. Over multiple phases, thirteen buildings were constructed of stone: finishing room (1888); upper machine room (1888); 30HP engine room (1861); middle machine room (1861 replaced by trucking ramp in 1930's or 40's); engine and wheel room (1854); finishing room and storage (1858); power building (1858 steam, 1888 electric); lower machine room (pre 1877 replaced 1922-1948); bleacher room; washer room and storage (1869); bleacher room (1869); machine room and shop (undetermined); 15HP engine room (1869); evaporator (somewhere between 1877-1908).[19]

These stone buildings, now isolated to the periphery of Georgetown Ontario, were once the nucleus of gathering and building community. Pre settlement, the Mississaugua used the spaces composed by stones as ground for huunting, social and spiritual purposes.[20] During settlement, the stones formed not only the industrial buildings that drew in stoneworkers, quarriers and craftsmen, but also the labourers and families that worked in the mill. Chapple states that fieldstone is the enduring image of nineteenth century settlement. It was used to construct retaining walls, railway viaducts, farmhouses, shops and industrial buildings. These major rearrangements of the land allowed for further use and transportation of stone and people throughout Southwestern Ontario and across Canada.

Today, Georgetown continues to grow around the scattered stone landscapes. Old farmhouses and the ruined industrial building fall to the periphery of the rapidly developing downtown. While the yellow of

15.

Kimmerer, Robin Wall. "The Serviceberry: An Economy of Abundance." Emergence Magazine, 2020, https://emergencemagazine.org/essay/the-serviceberry/.

16.

The Wyandotte Nation. The Native Peoples. The Wyandotte Nation : Preserving the Future of our Past! 1999. https://www.wyandotte-nation.org/culture/history/published/native-peoples/. and
Schmalz, Peter. The Ojibwa of Southern Ontario. (Toronto, Canada: University of Toronto Press, 1991).

17.

Chapple, A Heritage of Stone, 9-27

18.

Royal, Robert. "Barber, John Roaf." Dictionary of Canadian Biography 14, (1998). http://www.biographi.ca/en/bio/barber_john_roaf_14E.html.

19.

Town of Halton Hills Planning Department. The Barber Mill: Cultural Heritage Impact Statement. (Halton Hills, Canada: Town of Halton Hills Planning Department, 2010).

20.

Dalton and Wybenga. The Mississaguas of the New Credit First Nation, 2-4,

fieldstone memorializes a history of European settlers conquering the land, the popularly taught beginnings of urban settlement in Ontario, it also archives follies of colonization and the ruptured relationships it instilled.

Over centuries of erosion, the buildings crumble while preservationists and historians scramble to protect what is left of its materiality.[21] To many, the remaining yellow structures proliferate urban exploration and engagement.[22] The material is a reminder of the past and most commonly elicits a sense of proud nostalgia for the beginnings of an industrialized world.[23] Unsurprisingly, this pride derives from settler colonial narratives. These stories glorify the commodification, privatization, and dispossession of land with little to no mention of cultures that were lost in the process. Indigenous cultural heritage is erased in the remnants of stone composition while the site remains private, abandoned, and fenced off from communities.

For a year, I experienced the same weathered yellow, in the same arrangement, in the same place. It was not until the twenty-third forage that I realized the yellow of fieldstone is a constant datum to mark the passing of time and change in site. As the plants and trees grow and intensify, contaminants shrink and disappear. The stone walls remain relatively stagnant contrasting with growth and decay, promise and ruin. And yet, in a sequence of unseen moments through time (of sediments, fieldstones, plants and peoples), yellow measures the changing value, use, and form of the land.

I consider my personal encounters with the stone monuments in the ruined landscape and the changing impressions instilled by yellow. As I enter the site once more, I pass three yellow signs that indicate the value of what I will find. “For Sale: Commercial and Retail Zoning” lets me know that the land is a commodity to be sold and purchased for more selling and purchasing. “No Trespassing” lets me know the land is private and dispossessed. “John R. Barber and the Credit River Dynamo” is the declaration of heritage prioritizing the settler colonial agenda. I realize each time I enter the site, I am conditioned to find scarcity in the land—space not worth purchase, repair or development. However, after uncovering the complexities of yellow fieldstone, I leave nourished with abundance of colours—each one an enduring gift from the land. I pause to consider

21.

Town of Halton Hills Planning Department. The Barber Mill: Cultural Heritage Impact Statement. (Halton Hills, Canada: Town of Halton Hills Planning Department, 2010).

22.

Lyons, Siobhan. “What ‘Ruin Porn’ Tells Us about Ruins -- and Porn.” Cnn (2015). https://www.cnn.com/style/article/what-ruin-porn-tells-us-about-ruins-and-porn/index.html.

23.

Whitehouse, Tanya. How Ruins Acquire Aesthetic Value : Modern Ruins, Ruin Porn, and the Ruin Tradition. (Cham, Switzerland: Springer Nature Switzerland AG, 2018).

24.

Missinnihe is the indigenous (Mississaugas if the Credit) name for the Credit River which translates to “Trusting Creek”. This river was originally used for “hunting, fishing, gathering, healing and spiritual purposes.”

Dalton, Kaytee and Darin Wybenga. The Mississaguas of the New Credit First Nation : Past and Present. (Hangersville, Canada: Mississaugas of the New Credit First Nation Administration, 2018), 2-3.

Figure 3.27:

Photograph of Barber Paper Mill from the southeast. The view overlooks a demolished building to the 1854 fieldstone structure.

Figure 3.28:

Photograph depicting the sale sign of the thirteen achre property.

Figure 3.29:

Photograph depicting one of many no tresspassing signs along the fenced off property.

Figure 3.30:

Photograph depicting the now removed heritage sign for Barber Paper Mill.

questions of preservation: what is the goal of preservation; what of the built environment preserves what of culture; whose culture is being preserved; which cultures are being cleared away in the process? Should these signs not declare: “For Sale: $49 Million for 12+ Acres (For Further Exploitation Only) “No Trespassing (On Ceded Land that Now No One Can Live On or Eat From)”, and “The Missinnihe and All People She Nourished.”[24]

X

Encounter eighteen
Enduring Goldenrod Flower
30 August 2020

A soft gust of wind quickly interrupted my daydream and swept the flowering feather of a tall, hairy plant across my thigh. I stood at the base of a mound of discarded matter tracing the feathers of bright yellow colour. Such a brilliant, golden colour! Where did it come from? Was it native to the land? This landscape was not specific to a single stagnant palette. It changed and evolved over time with the different actants that entered and left its system. It was easy to forget the origins of the land when colour is cleared away for the making of site. Colour grounds me in place and orients me to familiar locations. I recognize different zones and provinces by the colour combination of their landscapes. Beside offramps, the highway is lined with overgrown bushes of yellow goldenrod mixed with purple vetch, white queen anne's lace and brown milkweed. At the urban loading laneways where sidewalks meet cracked asphalt goldenrod grows with dandelions and dame's rocket. They are absent in the forest where tall yellow aspen shades green ferns and mosses. Though often pushed away from maintained fields towards the grown over corners of the built environment, this yellow goldenrod has persevered through centuries of landscape transitions and remained as a reminder of what the native land was.

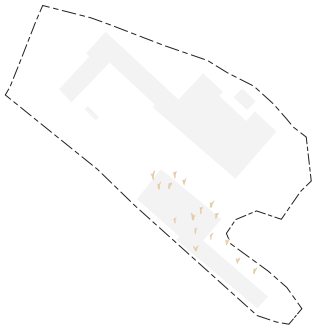


Figure 3.31 :
Plan drawing depicting where goldenrod flowers were encountered in site.

XI

Encounter fifteen
Refined Birdfoot Trefoil
09 July 2020

I brushed three moons of the same colour onto a semi textured paper. The first was an application of the stewing colour mixture. The second was a swatch of the pigment taken off from a simmer and mixed with a fixture. The third was a stroke of the refined pigment once made into paint. They all expressed different moment in the process of making colour.

This was the first time my pigment looked as if I knew what I was doing; there was a progression of vibrancy, the textures felt believable, the time lime was achievable.

Excited, I quickly scribbled down some notes for 'the perfect recipe'—use soda ash and rainwater to increase saturation, soak for three days not one, boil on high for twenty minutes with no cover, simmer for two and a half hours with a cover, add a quarter cup silica while boiling, stir in a third cup alum after cooked to get a peanut butter texture that will dry in two weeks… oh and add a whole clove to prevent molding.

It turned out the, so called, perfect recipe only worked for this colour and was much more effective when wet. The process of making colour varied dependant on the type of material, temperature, and time of year. It was a form of alchemy and every colour needed its own magical spell.

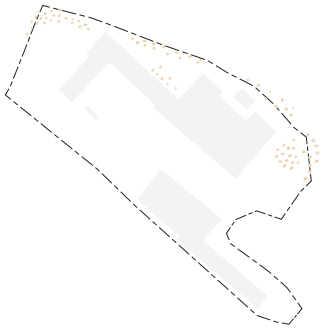


Figure 3.32:
Plan drawing depicting where birdfoot trefoil was encountered in site.

XII

Encounter ten
Sulfur Cinqfoil Flower
02 June 2020

On each flower, I picked off five pale heart shaped petals. Every time I tried to boil them, they turned into a murky brown. Most of the flowers did. I had tested many recipes to get varying hues of the same material. Some were much less saturated, and some mixtures created a pastel tone.

To extract pigment, I needed another material for the colour to transfer to. I used silica. The more silica added, the less intense the colour. I used soda ash to bond pigment to silica which I created by baking baking soda in the oven at two hundred degrees Fahrenheit for two hours. This evaporated the carbon dioxide and water and turned sodium bicarbonate into sodium carbonate.

Soda ash is used to change the pH levels of actants. Essentially, when I added a fixative to the solution, soda ash acted as a fixative to help form a permanent bond between the pigment and the silica.

As I moved through the steps of a recipe, the colour becomes both more pure and more abstract. It is removed from its filter material and placed upon another.

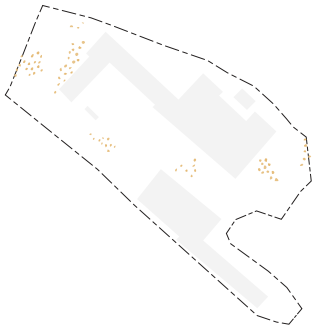


Figure 3.33:
Plan drawing depicting where sulfur cinqfoil flowers were encountered in site.

XIII

Encounter twenty-four
Cheltenham Brick
24 October 2019

There was a stack of yellow bricks made from medina shale in a sheltered room. I traced the signature that was imprinted into each brick back to the Cheltemham Brickyard in a neighbouring town, previously known as Interprovincial Brick. Colour became a landmark and moment of identity people can relate to. I scoured the internet to find information on the old brickyard. I came across blog page called, Inside Caledon, Ontario. On 01 ay, 2011, a short paragraph description was posted with four images. While the post itself was relatively insignificant, what followed was pure gold. Over a dozen different families commented below sharing different stories of their encounter with the brickyard and brick. Some families unknowingly overlapped with grandparents working together. Some remember grandparents working in the brick works, some remember truck hauling brick to construction site, some remember raising families in the worker housing and some remember playing games on the property. This colour brought together many families through worker housing and nostalgia. Each person with unique experiences was part of a collective memory. They were joined in a web of relations.

Figure 3.34:
Plan drawing depicting where cheltenham bricks were encountered in site.

XIV

Encounter 12
Common Daisy
17 July 2020

The act of making is an intimate moment. It is a manifestation; I set intentions to rearrange the material structure and embody the energy that enabled that change. It was important for me the be mindful in those moments.

To do that, I established a ritual. On sunny mornings (and sunny mornings only), I sat in the direct eastern light with my mortar, pestle and plenitude of vials and ground down the daily selected material.

My hands strongly gripped the smooth surface of the pestle. The circular motion created a force of torsion which separated the disk, florets, and stem. Eventually, the individual parts broke down into a uniform mixture of inconsistent texture and then to this homogeneous powder.

With each round, the colour became more vibrant and consistent. The pestle scratched the sides of the mortar and the mortar flattened rounded edges of the pestle. My right arm grew stronger and my fingers developed a light classis.

With each pigment, it became more and more clear the physical changes that occurred from making colour. Every act of manual intervention left traces of the work on the material, the tools, and the labourer.

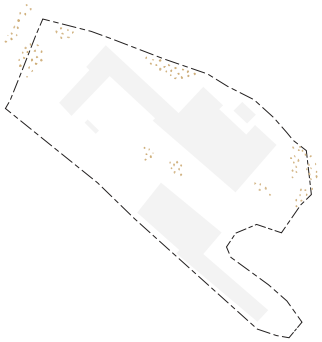


Figure 3.35:
Plan drawing depicting where common daisies were encountered in site.

XV

Encounter twenty-seven
Pine Needles
18 November 2020

Clouds shaped canopies of pine branches stretch from tall, vertical lines that framed the forest trail. They guided my eyes away from the ground and toward the sprawled landscape. Under my feet were the fallen needles and I could smell its aroma in the crisp autumn air.

The green of pine created perspectie. It occupied the foreground, midground and background of my field of vision and frames my position in space. I could understand scale by comparing my height to the height of the tree. It was about twenty times taller.

My position was framed by the encompassing green that extended into the vastness of the forest. There were three scales I immediately experienced: my body in relation to the pine needles I stood on, my body in relation a single mature tree, and my body in relation to the forest of pines. As the scales grew, my perspective widened; there was a greater field of vision.

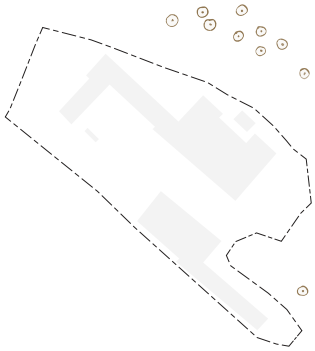


Figure 3.36:
Plan drawing depicting where pine needles were encountered in site.

XVI

Encounter six
Dehydrated Moss
14 April 2020

At the base of the forest, this colour traces the movement and presence of moisture; the network of lines down shaded tree trunks diverged into a planted mat atop rocks and stumps. It covered the landscape in a comforting softness that indicated directionality and axis to the river and sunlight.

I followed this trail of colour towards a set of covered boulders. Its impressions and absence imprinted the trails of where other humans before me had travelled and the animals of the forest crossed. It was so easy to not recognise or appreciate the musky green as it blended into the background.

This colour was essential to the water and nutrient cycles of the forest. I notice more saplings, and new growths near its presence. I took a sample from an older tree trunk. The cover peeled off with light resistance–sticking more at the intersection of bark grooves. Once lifted, I saw it was held together by a thin layer of mud.

Soaking the mud off was tricky. I followed the impressions to the river and bathed the moss in a fine net bag. As the mud disintegrated, the colour dispersed into tiny fragments of floating matter, no longer stuck in a dirty foundation. Each fragment swelled up with water like tiny sponges I needed to wring. The water drained and each fragment settled back together.

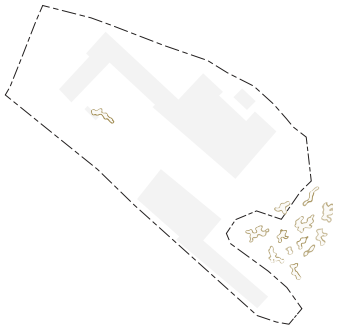


Figure 3.37:
Plan drawing depicting where moss was encountered in site.

XVII

Encounter twelve
River grass
24 June 2020

Colour is only brought into existence with light. It cannot be thought of in isolation. What falls in the shadow? How does light touch it?

During most months and times of day, the Credit River looked grey or brown, reflecting the muddy and rocky base below or trucks of trees and steep eroding banks. This time, however, the water was green. The sun glistened on the body of flowing water, illuminating the dancing strands of green that sat just below.

As I puled up each blade, the roots untangled and created a small perimeter of brown sludge which then settled back to the floor. The grasses grew along the banks of the river where the water was shallow. The more blades I foraged, the more I noticed fry and tadpoles dispersing in the water.

I realized I was removing an essential member of the aquatic ecosystem. I sat on the bank and waited for the sun to set. As it disappeared from the sky, so did all colour.

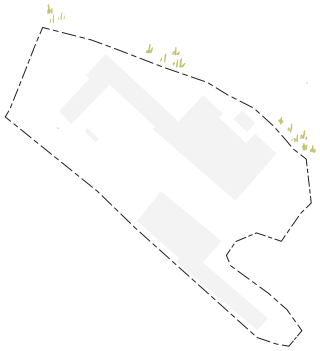


Figure 3.38:
Plan drawing depicting where river grass was encountered in site.

XVIII

Encounter fourteen
Bladder Campion Buds
08 July 2020

I often worried how to best capture and represent the colour of site. Every material was in constant flux in ever changing environmental settings. As a designer, I could not help but anticipate the fractious ways by which colour will be seen; one day between forages was the difference between material ending on opposite sides of the spectrum; when pigments were made, the lighting while photographed changed the brightness and saturation, and different printers or screens would alter the vibrancy and hue; and once documented and presented, different eyes would see different colours.

I knew no one but myself would notice. For the curious reader who does, this colour, like everything else, was neither singular nor stagnant. It was picked days before its blossoms turned pink and baked at a temperature that darkened it. I did not change the acidity level to alter the hue. I took the picture on a photograph scanner using a watercolour page as a backdrop. I set the hue a little warmer and slightly decreased the saturation. I held the real pigment in direct and indirect light to match the digital version.

There are small indescrepencies. My eyes are not perfect, but they are exposed to the sunlight everyday. I imagined yours would be too.

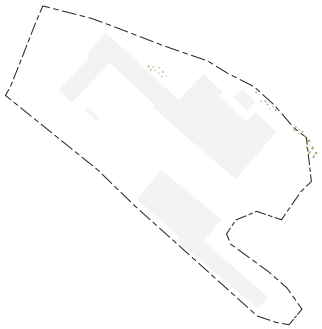


Figure 3.39:
Plan drawing depicting where bladder campion buds were encountered in site.

V

Encounter four
Spruce Needles
17 February 2020

It was ten o'clock on a winter morning as I drove to the ruin, passing snow covered canopies of evergreen forests. I was not going to search for anything in particular, but I wanted to know what the site looked like in the dead of winter. Upon arrival, I followed the worn trail by the bridge down toward the river where before me laid two paths. The first was a set of human footsteps; the indents of two boots were sloppy and meddlesome, carving disruptive lines through the fresh ground with upturned vegetation and mud along side it. The second was a set of rabbit prints; four small paws gracefully weaved around existing matter, remaining elevated by the finishing layer of snow. I followed the rabbit in attempt to be less obstructive. I walked up from the river, through the plier cut fence, across a set of dead bushes, and pausing at a woody, rough trunk. I found myself at the base of a lively spruce, with branches blanketed in February snow and swaying gently in the wind under a partly cloudy sky.

What struck my attention was not the volumetric form of the tree, but rather the incredible wealth of green: waxy sage needles, deep emerald bark, weeping sticky resin and lime shoots that were torn and broken. Green pigment built the foundation of spruce material; the spectrum I saw was evidence of an encounter between the light, myself, and the spruce's chemical makeup.[01] Often invisible internal funtions and relations were made evident by external colour. In a discussion of naiveté and thing-power, Jane Bennett tells of a "strange and incomplete commonality with the out-side."[02] The out-side colour, as she describes, affects humans by piquing curiosity and exuding force beyond human agency. Functionally, as light meets the spruce, all but a set of wavelengths within the visual spectrum of green is absorbed by the relationship between finite, diverse elements within the tree, scattering the remaining wavelengths to which

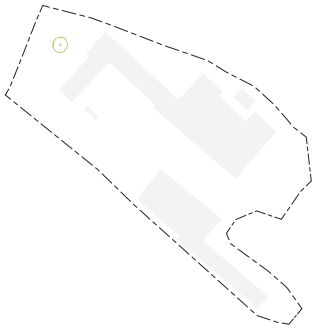


Figure 3.40:
Plan drawing depicting where spruce needles were encountered in site.

01.
Lluch, Juan Serra. Color for Architects. First ed. (New York, United States: Princeton Architectural Press, 2019), 11-12.

02.
Bennett, Jane. Vibrant Matter : A Political Ecology of Things. (Durham, United States: Duke University Press, 2010), 17-19

tinted the tree various greens.[03] These greens are clues of *vital materiality* and the *incalculable agency* within matter itself.

To see green requires a dependency on internal and external conditions.Internally, it requires the presence of organic molecules known as chlorophyll. Chlorophyll is imperative to the process of photosynthesis,—creating single and double bonds between carbon, hydrogen, and oxygen—and is found in large quantities within the cells of the tree's needles.[04] These molecules absorbs radiation to transform sugar into an energy source used to build cellulose fibres and the spruce cell wall.[05] In the case of the spruce, the colour green is visual evidence of individual parts that work both independently and together in a larger, complex system to grow and sustain the tree.

Rather than perceiving the spruce as a union of its parts, I can understand it through its conditional and operative *assemblages*. The way I view assemblage lies in Deleuze and Guattari's word *agencements* meaning an "arrangement, fitting or fixing."[06] In *A Thousand Plateaus*, a focus emerges not on the connection of things (when translated in English to assemblage) but the arrangement of the collection. In this, there is a spatial composition that weaves dynamic relations between colour, matter, and land. When I see green, it is important to remember that colour is inherently connected to the spruce and determines how humans collect and arrange the land.

Iconic to Ontario, the black spruce is a staple of Canada's Boreal forest. It prevails as one of the most common species of conifer due to an ability to grow in a wide variety of conditions. In natural, dry forests, heat from wildfires unravel small egg-shaped cones, which enable their propagation through a plenitude of suddenly released seeds.[07] However, at Barber Paper Mill, sitting close to the river and rooted in wet soil, this spruce propagates through a process called layering.[08] Its plant tissue, xylem, is encompassed in a resin channel that penetrates through the rough outer bark. With it begins a secondary system of growth: the roots venture away from its parent trunk and are nourished in the damp, covered soil.

Hidden beneath this surface is a network of sprawling assemblages that connect the unseen functions of growth to the physical matter those

03.

Wax, coats the surface of needles in a dull, white lens, scattersing shorter wavelengths and protecting supplies of chlorophyll from ultraviolet radiation. This tints needles blue.

04.

Lee, David. Natures Palette : The Science of Plant Color. (Chicago, United States: The University of Chicago Press, 2007), 61.

05.

It is important to remember that without chlorophyll there would be no pigment and small cells would have no energy to produce or sustain fibres and organs that familiarize the object we encounter.

06.

Phillips, John. "Agencement/ Assemblage." Theory Culture and Society 23, no. 2-3 (2006).

07.

Ministry of Natural Resources and Forestry, "The Tree Atlas: Black Spruce," accessed Oct 28, 2019, https://www.ontario.ca/page/black-spruce.

08.

Stanek, Walter. "Natural Layering of black spruce in northern Ontario," The Forestry Chronicle 37, no. 3 (1961): 245-258.

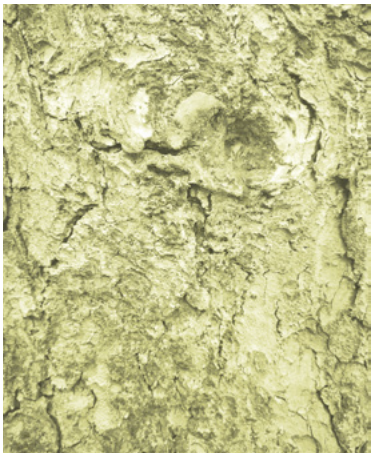


Figure 3.41 (left):

Photograph depicting the various forms of green in the spruce tree. Here is the bark and sap.

Figure 3.42 (rght):

Photograph depicting the various forms of green in the spruce tree. Here is the spruce in the property

Figure 3.43 (left):

Photograph depicting the various forms of green in the spruce tree. Here is the needles.

Figure 3.44 (rght):

Photograph depicting the various forms of green in the spruce tree. Here is a torn branch.

functions create.[09] New spruces sprout and in turn support the growth and persistence of a diverse forest that once covered the site, connecting various species in "ad hoc groupings of diverse elements, of vibrant materials of all sorts."[10] Though currently only one spruce remains, due to the colonial clearing of forests, the ruin embodies the significance of planting, harvesting and processing spruce in the history of paper making and industry in Canada.

During the nineteenth century, Canada's nascent paper industry relied on cheap resources that were accessible: water for power and production, cotton and linen rags for product, and local labour and distribution.[11] As such, the Barber Paper Mill was built in place of an existing mill on the

09.

Deleuze, Gilles and Félix Guattari. A Thousand Plateaus : Capitalism and Schizophrenia. (London, United Kingdom: Athlone Press, 1988).

10.

Bennett, Vibrant Matter, 23

11.

Kuhlber, Mark. "An Accomplished History, an Uncertain Future: Canada's

Credit River where growing colonies resided. The mill became the nuclei of community development; it acted as a closed loop ecology of labour and resource that defined the identity of Hungry Hollow—the small township that developed into Georgetown.[12] Chiffonniers, also known as rag pickers or rag and bone men, would collect waste cloth from the settlement and sell it to the mill. David Carruthers, a Canadian paper maker, scholar and expert, states that these old rags were then sorted by women and refined in Hollander beaters.[13] The process was both resource intensive and expensive, resulting in brown paper newsprint that was sold back to the local community as newspaper, wrapping paper, and books.

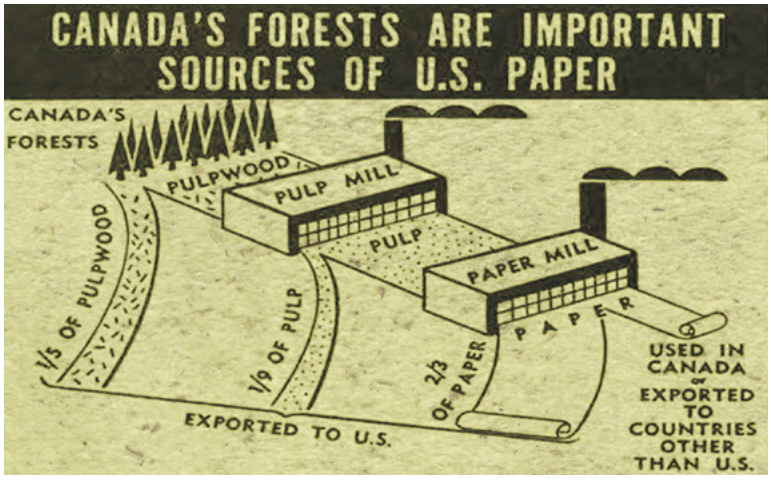


Figure 3.45:

Drawing depicting the flow of spruce from resource to product. Canada's forests were cleared to produce pulpwood for paper and then shipped throughout Canada and the United States.

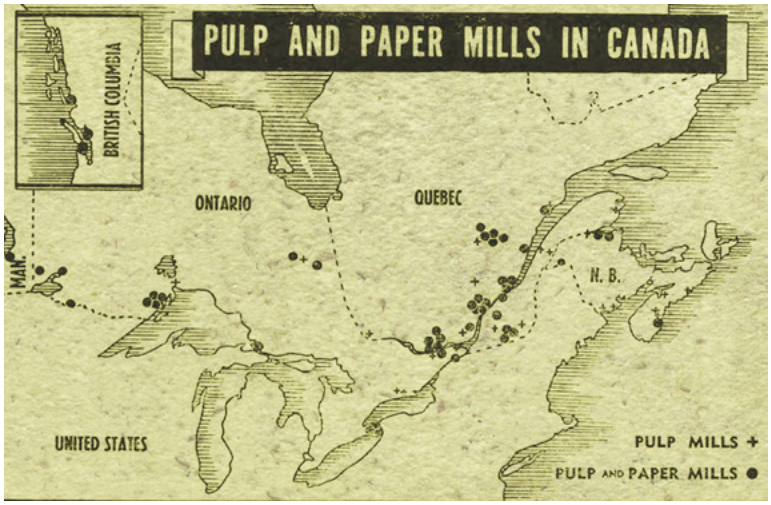


Figure 3.46:

Drawing depicting the location of major paper mills in Canada in the early 1900's.

Pulp and Paper Industry since the Early 1800'S." In The Evolution of Global Paper Industry 1800¬2050. (Dordrecht, Netherlands: Springer, 2012).

12.

Turner, Silvie. Which Paper? : a review of fine papers for artists, craftspeople and designers. (London, United Kingdom: Estamp, 1991).

Forestry consultant and scholar Mark Kuhlberg states that as populations continued to migrate from Europe, so did a tradition of literacy and politics. The Barber brothers had experience in the paper industry and capitalized on the increased demand for newsprint and books that arose with the "highly politicized" bourgeoisie population.[14] Paper proprietors were encouraged by the government to supply local newspaper to the nearby communities; they leveraged development with patriotic obligation, social inclusion, and financial prosperity.[15] Despite this, the supply of recycled rag could not meet the demand of the growing township.

With an increase in the demand of paper for educational, political and leisure use, Ontario, formerly known as the province of Upper Canada, was amid a revolution. The province was moving away from Crown chauvinism and toward state independence. Colonies gained ownership of land opening access to the forest as resource; fibres required for papermaking could be sourced from wood rather than textiles. The spruce was desired for its extremely high yield and plenitude in forests; it was logged, ground by stones into wood chips, until long cellulose fibres were all that remained to be chemically bleached and lightened.[16] Rags were replaced with spruce wood pulp delineating the pulp and paper industry of Canada. This new process was both decentralizing and alienating; the mill, emancipated from its dependency on local resource, supply, and workers, no longer needs to be located near urban centre. As such, its ties to community identity unravel along with a sense of cultural value with that of another.

Over night, the seemingly ordinary spruce tree became a *Cinderella species* for its promising economic value.[17] Woodworker and designer David Pye discusses this perceived value as an ontological quandary of "good material."[18] To Pye, "good material" comes into being through the workmanship and shaping of a material. Though its potential use is and always has been unchanging, the spruce is only perceived as a Cinderella species once it is crafted into a desired form—pulp and then paper.

Craft, however, takes a substantial turn during the industrialization of paper. Though highly efficient, the Barber Paper Mill, eliminates traces of both the workman and material. Workers are replaced by machines, and traces of human craftmanship due inconsistency and environment are

13.

Carruthers, George. Paper in the Making : Mills of the Don Valley. (Toronto, Canada: Garden City Press Cooperative, 1947).

14.

Kuhlber, Evolution of Global Paper Industry, 102.

15.

Blyth, J. A. "The Development Old the Parer Industry in Old Ontario, 1824-1867." Ontario Historical Society 62, (1970): 119-133

16.

Roach, Thomas. Newsprint: Canadian Supply and American Demand. (Durham, United States: Forest History Society, 1994).

17.

Pasiecznik, Nick. "Cinderella Species and what Happens After Midnight?" 2004.

18.

Pye, David. The Nature and Art of Workmanship. (Cambridge, United Kingdom: Cambridge University Press, 1968), 17-19.

replaced with standardization and homogeneity.[19] During the process of making paper, cellulose fibers are stripped from all other matter to rid the product of colour. Green from chlorophyl fades to the brown of supporting structures such as lignin.[20] Lignin is then unwoven from the cellulose fibre structure to remove remaining presence of brown.[21] Industrialization eliminates all traces of craft; fragments of the once green tree and the workers who made paper are erased in a drive toward standardized practice and the prevailing product of white, homogeneous paper.

This chromatic erasure and standardization speak to the developing culture of purity and is echoed in the alteration of the far away forests of northern Canada. Vast swaths of bio-diverse land are replaced with monoculture plantations of spruce.[22] In *Arts of Living on a Damaged Planet*, editors Anna Tsing, Heather Swanson, Elaine Gan and Nils Bubandt argue that *ecological simplification* is so harmful because it creates undesired *monsters* (organisms dependent on entanglement with other organisms) which are "threats to livability."[23] In a report by the Ontario Ministry of Natural Resources, several insect pests and diseases emerge in monoculture spruce plantations including yellow headed spruce sawfly, spruce budworm, dwarf mistletoe, tomentosus root rot, armillaria root rot and velvet top fungus. In areas that lack biodiversity, these health conditions emerge and leave the spruce susceptible to death and spread to other growths. Singularity is damaging and contrarian; all organisms depend on other organisms to thrive, and by eliminating the original webs of relation, new and often unpredictable, uncontrollable, and harmful relations emerge.

The standardization of paper domesticates and purifies the spruce; paper industrialization reduces the sprawling biodiverse forests of Canada from a plurality of green to the singular. Tsing suggests that the domestication of nonhuman agents divides human from wild and denies the "complex relations of dependency" all beings exist within.[24] The white page is deceptive; it appears as if one is starting from scratch but, in reality, there is a series of extractions and erasures of colours, matters and actants that no longer appear. White and removed, the story of spruce to paper becomes a site to analyse extraction. Extraction, of both resource and colour, is a process that speaks to the greater narrative of the industrial

19.

Bradley, Betsy H. The Works: The Industrial Architecture of the United State. (New York, United States: Oxford University Press, 1998).

20.

Bajpai, Pratima. "Overview of Pulp and Papermaking Processes." In Environmentally Friendly Production of Pulp and Paper. (Hoboken, United States: John Wiley and Sons, 2010), 8-43.

21.

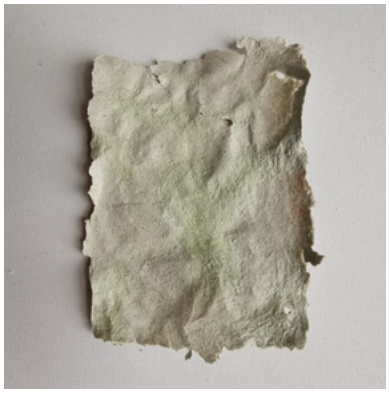
Lignin is a complex organic polymer that makes plant walls rigid and woody. It is removed from cellulose fibres in the process of papermaking as it contains colour that is not desired.

22.

Tsing, Anna. Arts of Living on a Damaged Planet. (Minneapolis: University of Minnesota Press, 2017), 6.

23.

Tsing, Anna. "Unruly Edges: Mushrooms as Companion Species." Environmental Humanities 1, (2012): 141-154.



era. The process confronts the paradoxical discrepancy between the impure structure that forms each material and the inherent bias toward purity that the commodification of material depends on. Extraction, of both resource and colour, is an act of rearranging space. One element is removed from its origin, separated from its impurities, and refined to an elemental state of desired good. Extraction, of both resource and colour, is a method of perceiving time. It highlights the changes made to the land. *What was removed? Where did it go? What was it replaced with?*

I reflect on the process of making green pigment as a reflection of making paper. After carefully separating needles from the branch, they are placed in a water bath for twenty-one hours. They probably do not need that long, but I am curious to note any and all impurities that arise before heating the needles to a boil. Much like the heat chambers softening wood chips, the batch is left to steep for four hours. With thorough and frequent stirs, the needles break down to mush and are removed to dehydrate for two weeks. I need to wait for the water to evaporate and leave me with a dry rock of colour. When dry, I grind the pigment round my mortar and pestle. I think of the beaters slowly breaking down fibres. The smaller particles become, the light they appear. As I spread green pigment across my even white page, I notice the unavoidable traces of spruce. Chlorophyl seeps into the divots of paper and fibers arise to the top. Perhaps the green of spruce is a conscious reminder of the many ways the colour, material, industry, and the land depend on impurities. Perhaps design should reflect this.

Figure 3.47 (left):
Photograph depicting and experiment of extracting grwwn colour from paper. The author experiments with different spruce material and refinement processes to understand the removal of colour. Spruce branches transformed into long fibres.

Figure 3.48 (center):
Photograph depicting and experiment of extracting grwwn colour from paper. The author experiments with different spruce material and refinement processes to understand the removal of colour. Spruce sap is mented and mixed with broken down bark.

Figure 3.49 (right):
Photograph depicting and experiment of extracting grwwn colour from paper. The author experiments with different spruce material and refinement processes to understand the removal of colour. Needles are dried ground.

XX

Encounter nine
Oxidated Copper
26 May 2020

I have been visiting the site for a year now. During this time, I tally the increasing inventory of hues that occupy the land, each expanding my understanding of site and attuning me to the precarity of colour. I learn that colour perception is extensively dependent on the changing environment—precipitation darkens and creates contrast, sunlight lightens and saturates, temperatures change hues, and the web of relations amongst more-than-human beings establishes a degree of vibrancy. I notice as the seasons transition, there are shifts in monthly palettes: the spring brings blossoms of greens and yellows that are replaced by the pinks and purples of summer that turn into autumn reds and oranges which fade into the browns and blues of a clear winter day.

The colour blue appears most precarious in transient forms: the clear sky on a sunny day, the river reflection during the coldest days of winter, and speckles of matter in patches of dirt. The sky and river look blue as a result of light phenomena.[01] Though the matter blue affiliates with is relatively stable in form, the environment that determines colour is not. Because of this, I have had no way of extracting the hues into tangible pigment. So, I continued to observe the ground for faint traces of blue occasionally captured by sunlight. I travelled past the stone-built power building—a two story rectangular room ornamented with machinery at the top of its walls. Beneath it, I caught a glimpse of blue crystals. Its presence was subtle. Tiny flakes of encrusted metal spread along the topsoil and tinted a puddle that pooled underneath. The metal was an orange-red and formed green-blue crystals on its surface.

From previous experiments, I knew that acidity often alters the hue of metals by changing its chemical makeup. Iron turns yellow. Steel turns orange. Copper, as I was witnessing, turns blue.

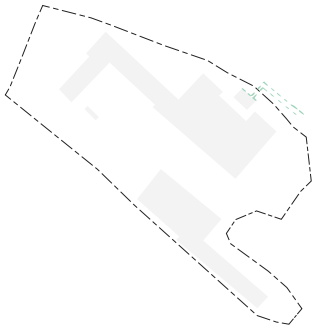


Figure 3.50:

Plan drawing depicting where copper was encountered in site.

01.

Rayleigh, Lord. "XXXIV. on the Transmission of Light through an Atmosphere Containing Small Particles in Suspension, and on the Origin of the Blue of the Sky." The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science 41, no. 271 (1899): 107-120.

On industrial sites, like the one I encountered, the ground is typically polluted with contaminants such as heavy metals, acids, and toxins. These chemical compounds establish the acidity needed to change the colour of copper. During the process of oxidation, the orange-red metal is exposed to humidity, acids, and salts. In this exposure, there is a chemical reaction and a new inorganic compound known as copper(II) sulphate forms.[02] Copper reacts with oxygen that is in the air, resulting in copper dioxide. The copper dioxide then reacts with more oxygen to form copper oxide.[03] A patina forms and produces a new colour—blue.

In 1888, John Roaf Barber, proprietor of the mill, introduced the metal to site through the form of two wires.[04] The two copper wires transmitted hydro-electric power to the paper mill from a newly constructed dynamo three kilometres upstream. Copper, at the time, was a material new to the energy industry and was sought out by Barber for its high conductivity and ductility; he saw potential for electricity to travel over long distances which enabled the production and use of copper to become a major industry in and of itself.[05] Charles Brush, an early manufacturer of dynamo equipment in Ohio, created two units to generate electricity from turbines with each attached to a copper wire.[06] The first turbine powered a one hundred horsepower unit that supplied electricity to machinery in the mill. The second turbine powered a sixty-horsepower unit that supplied electricity for lighting. These wires were long and thin, spanning across great distances and varying terrain from the dynamo to the power building.

Before the application of electricity, engineers and proprietors spearheaded the design of industrial buildings. Mill forms were driven by "pragmatism and functional beauty."[07] Buildings were placed next to water for a direct source of water, the amount of sunlight that could enter through windows determined the depth of each building, and the length of a room was determined by the size of operation, the limitation of mechanical power distribution and the amount of area that could be effectively supervised.[08] Workers and benches were placed next to windows and machinery was attached to large millwork that ran along the ceiling.[09] As a result, industrial space conformed to the limitations of natural cycles of sunlight and proximity to natural features of the earth such as water.

02.

Haynes, William. CRC Handbook of Chemistry and Physics. 93. ed., ed. 2012 ed. (Boca Raton, United States: CRC Press, 2012).

03.

Grambart, Ryan. How Copper Develops Patina. Copper Patina Guide. Copper Smith, 2016.

04.

Sinclair, Gloria. Barber Paper Mills – Georgetown. Hiking the GTA. 2015. https://hikingthegta.com/2015/06/09/barber-paper-mills-georgetown/.

05.

To make wires, the metal underwent an extractive process where miners collect copper sulfide ores from the earth, grind ores into pulp, separate and liquify pulp to then be formed into wires.

06.

Royal, Robert. "Barber, John Roaf." Dictionary of Canadian Biography 14, (1998). http://www.biographi.ca/en/bio/barber_john_roaf_14E.html.

07.

Bradley, Betsy H. The Works: The Industrial Architecture of the United State. (New York, United States: Oxford University Press, 1998), 3.

Figure 3.51:

Photograph depicting the turbine and generator connection of copper wires in the power building of Barber Paper Mill.

The onset of long transmission hydro electric power emancipated Barber Paper Mill and following industry from natural cycles of the earth; both the form and function of the mill was no longer dependant on the constraints of its immediate landscape. Prior to 1888, powering the Barber Paper Mill was geographically bound to the waterflow of the Credit River.[10] Though waterwheels generated enough power for a small village, the growing population and paper demand outgrew it extent of operations. Moving from waterwheels to hydro lines decentralized powered and changed the spatial configuration of industry; buildings were constructed along the roadside far away from the river, windows lengthened with the removal of millwork, and building footprints grew as a result to lighting and worker stations.[11] The mill reorganized to accommodate electric-

08.

These engines were located near the centre of the mill so power could be evenly distributed.

Bradley, The Works, 32.

09.

Bradley, The Works, 25-29.

10.

Buildings were constructed on the water's edge. Meters away, water dropped from a manmade dame and the force created turned a wheel powering attached machinery engines. Lighting is no longer dependent on cycles of the sun. Millwork needs not run along the ceilings. Buildings do not need to connect to water wheels and rivers.

powered machinery and lighting. Not only did the footprint and height of buildings grow, but the operations inside could expand as well; artificial light and ventilation replaced large millwork and workers began to work two shifts—day and night.

Through electricity, the mill becomes what architectural historian and historic preservationist Betsey Bradley calls "powered for profit."[12] Electricity, to Bradley, illuminates labour as a form of power. She reflects that the factory (or in this case mill) located, configured, and operated in relation to power generation, becomes "a master machine," more efficiently run by technology than human.[13] Because the introduction of electricity decentralizes both energy sources and labour, the network of operations

Figure 3.52:

Photograph depicting major direct energy transmission lines that cut through forests in Ontario creating highways of electricity.

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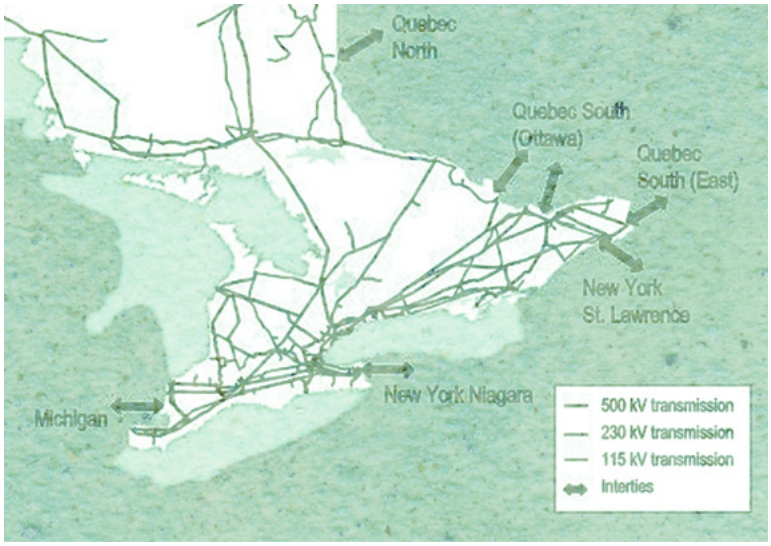


Figure 3.53:

Drawing depicting the major flow of electrical highways throughout Ontario connecting and powering cities and urban development.

https://magazine.appro.org/?option=com_content&view=article&id=4047&redirected=1

becomes easily scalable. As the scale of operations increases, multiple armatures of manufacturing can function and grow independently.

Barber Paper Mill expands the operation of paper manufacturing substantially. New buildings are constructed to house increasing operations and quantities of product, forming in industrial complex. This complex, defined by Bradley as *the works* is extended further away from the river and toward built and developing communities. These industrial buildings were built along access roads and transportaion lines, prioritizing street fronts of production and mass expansion.

While Barber Paper Mill generated enough electricity to benefit from increasing economies of scale, the adoption of this productive model throughout North America established a culture of landscape destruction in trade of of scalability. Anna Tsing defines scalability as "the ability to expand without distorting the framework."[14] In an article theorizing supply chain capitalism, Tsing argues that scalability ignores indeterminant factors such as cultural diversity and ecological changes. In fact, the non-scalable demonstrates how much effort and mess scalability necessitates. Scaling the use and operation of long-distance electric transmission for industrial production relies on tremendous destruction and maintenance of the land. Electric corridors are cut out of valleys, mountains and fields disrupting local ecologies and migratory paths, perpetuating modified landscapes of alienation; the copper wire, now powering grids of cities with electricity, veils both the presence and origin of how the modern world is powered.

At Barber Paper Mill, the blue of copper is remnants of the origin of industrial electrification. Through my research, I traced the blue lines of energy back to the alienated site and alienation of landscape. In architecture, it is a priority to separate indoor and outdoor worlds—designers draw lines that create division between the human and non-human world. However, the threshold between the two is not an easy division; the outdoor rivers and power protrude inside through long copper wires that power a house, a shop, a street, and an industry. Electricity flows continuously one way through concealed and overlooked wires. The blue line of energy allows me to confront the paradoxical nature of a line. What is divided when a line is drawn to connect? What is connected when a line is drawn to divide? In

11.

Town of Halton Hills Planning Department. The Barber Mill: Cultural Heritage Impact Statement. (Halton Hills, Canada: Town of Halton HIlls Planning Department, 2010).

12.

Bradley, The Works, 87-108.

13.

Bradley, The Works, 87.

14.

Tsing, Ana Lowenhaupt. "On Scalability : The Living World is Not Amendable to Precision-Nested Scales." Common Knowledge 3, no. 18 (2012), 505–24.

site, the wires physically connected two places geographically, yet alienated people from the land.

As I stared up at where the missing wires once ran, I felt an urge to follow their path. On the opposite side of the river was a hiking trail to the dynamo. The trail paralleled the path of the wires, following the course of credit river. I left the site and crossed a vehicular bridge to the west. After a quick right down a gravel path, I arrived at a wooden sign that marks the entrance. Big blue words on a flat blue background read: "Credit Valley Footpath. A side trail from the Bruce Trail at Terra Cotta Conservation Area to Barber Dynamo ruins (7.4 km) and ending at 10th Line Georgetown. USE AT YOUR OWN RISK." I moved excitedly, eager to reach the place that transformed much of the modern world. There were noticeable changes in the landscape as the path, marked by blue blazes, wound between three topologies. I began at the river, hiked up to the tall, woody forest, walked back down to the river, slogged up a steep muddy hill to the open grass field, trudged back down to the river, trekked up a stepped, forest floor that was crowded by roots of old trees, stumbled back down to the river. As I flowed through the rise and fall of valleys and peaks, my body became flush with heat. The motion of changing elevation created an intensification of energy, mimicking the movement and production of water and electricity.

The dynamo itself was rather underwhelming. In complete ruin, the building had once been a three story, fieldstone structure built for the first application of long-distance, hydro-electric infrastructure in North America. The first-floor housed turbines, the second housed dynamo equipment and the third was residence for the operator and caretaker. Water from the Credit River was dammed; it dropped 6.6 metres where it entered the dynamo from the west facade through a three-meter-deep intake channel. The energy created in the drop powered the turbines. At the base, a pool of water reflected traces of blue back at me. I sat there for the evening thinking of the myriad of changes to the built environment and contemporary culture of society embodied in blue copper wires.

I recorded the dynamism of blue, acknowledging the colour development as an evolving process. I left copper in jars of vinegar, water

Figure 3.54:

Photograph depicting the ruin of the Barber Dynamo three kilometres from the Barber Paper Mill.

and salt placed in different locations, intentionally extracting a range of colour. Within weeks, the metal took on new hues: oranges, blues, and greens. I wondered: how could I capture the multiplicities of colour?

Pigment extraction is just one specific moment of one specific experiment. If you look closely at the pigment, you can see the complexities and stages of copper oxidation. There are miniscule flecks of a deep dark blues, similar to that spotted on site while traces of orange and green appear hidden on edges of crystals. As I try to classify the pigment, I consider which basic colour term to use. Should I place in near the reds or the blues, or the greens? Is it natural or synthetic? In all its variation, I realize each pigment is a product of the earth removed to different degrees. The blue of copper becomes the most removed through each stage of processing and manipulation I apply.

XXI

Encounter seventeen
Tufted Vetch
22 August 2020

The colour entwined with the grasses creating a recognized flower medley associated with roadsides and wastelands. I walked along the disturbed edges of site where rows of this colour sprawled across uneven ground and climbed any surface available.

It was the end of season and the plenitude of organic chroma was beginning to shrivel and disappear. There was one dense raceme consisting of approximately thirty ovular surfaces that varied slightly in vibrancy and lightness.

A result of anthocyanin pigment, these intense moments of colour attracted small butterflies and other insects above the ground. It was what happened underground, however, that made this colour truly magnificent. As its root system held unstable earth together, it absorbed nitrogen from the air and turned it into nitrogen oxide that enriched the soil.

This colour created fertile ground. It was a stabilizer of many sorts. Its compounds attracted newness. I was curious how the composition of soil would change over decades.

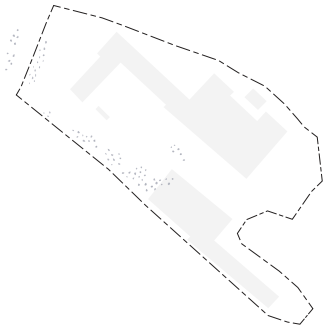


Figure 3.55:
Plan drawing depicting where tufted vetch was encountered in site.

XXII

Encounter eleven
Dried Flowering Raspberry
15 June 2020

I heard a loud shriek from across the landscape which was followed by laughter. Typically, hearing a voice here would put me on edge—nervous to encounter another human in the hidden corners of site.

This time, however, I recognized the voice, "Oh shit! Oh shit! Oh shit! Arghh!" My two friends had joined my afternoon forage in pursuit of this colour when an angry nest of fire ants emerged from the six-foot shrub and invaded one's boot.

A week prior, I was stung by a bee in the very same spot. The process of making this pigment was as painful as the forage. Though I could collect enough bags to experiment, the only method of extraction that worked was natural dehydration. It was the only way to maintain the intensity of colour.

When dehydrated, flowers shrunk substantially, and it was hard to forage enough to produce more than a dollop of pigment. So, I laid the flowers out to dry and patiently waited. After three weeks, each petal had shrunken to twenty percent its surface area.

Not much was left when I ground them into a powder. Great efforts were made to obtain the minimal quantity of this pigment.

Perhaps its scarcity is what made it compelling. Perhaps its vibrancy outshone the other. Perhaps it was the memories of the forage. For what ever reason, this pigment felt of highest value and was my most prized colour foraged.

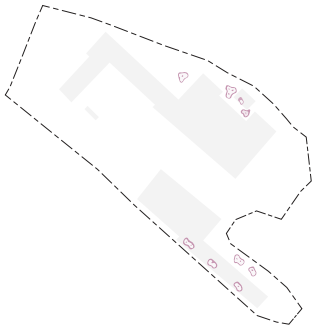
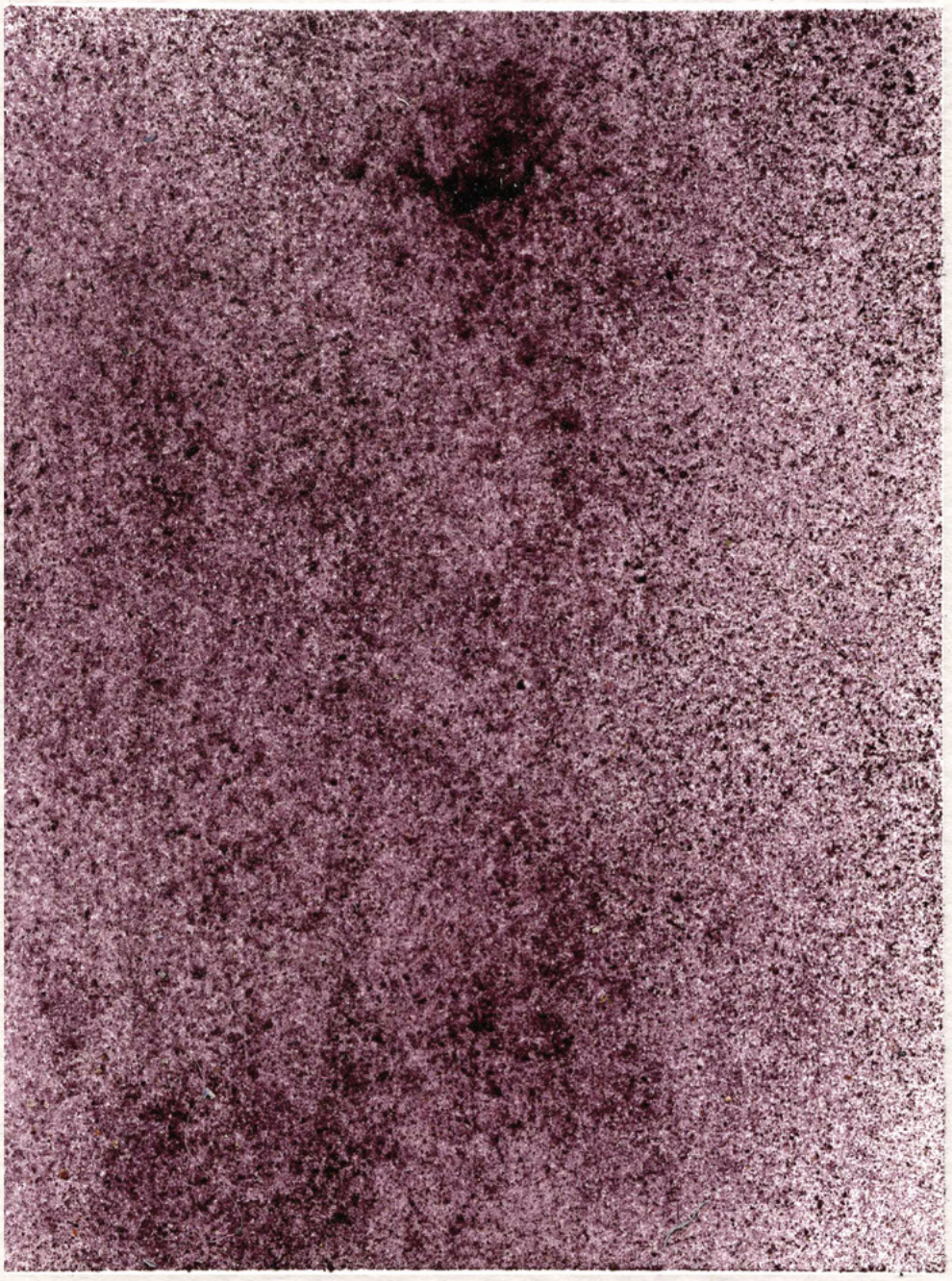


Figure 3.56:
Plan drawing depicting where flowering raspberry was encountered in site.



XXIII

Encounter nineteen
Weltering Elderberry
September 02 2020

There were barely any elderberries left, and I picked the shrivelled remainder to mush into a paste with water. Once baked, the pigment dried in uneven strips. It resembled the consistency and stickiness of a stretched out dried fruit leather.

Traditionally, the berry was used to make medicine, but grown in toxic soil became poison to ingest. I felt an overwhelming rage for the damage caused to the landscape. If the land were healthy, it could provide food security for thirteen to fifty-two people depending on their dietary constrictions.

I stopped processing pigment to reflect on all the ways humans depend on the land thrown away. If every contaminated industrial wasteland in Canada was turned into a community garden, would one in every seven Canadians still face food insecurity? If the land were healed, could we heal the people who live off it?

I looked down to the purple pigment—a sign of royalty, wealth, and regeneration—and wonder what medicine for the land would be. Does the land even need a medicine, or does it need its inhabitants to stop actively harming it?

As an architectural designer, I was trained that the goal of design was to build. To make a better environment, I needed to add something to it. But how, as a spatial designer, do I remove something to repair a healthy land. And, if removed, where does that toxic go?

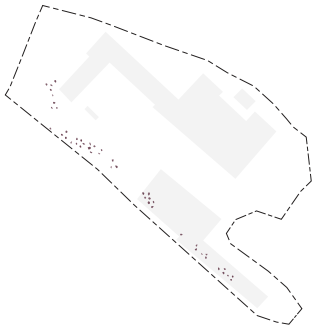


Figure 3.57:
Plan drawing depicting where weltering elderberries were encountered in site.

XXIV

Encounter three
Simmered Rosehip
12 October 2019

The recipes of a pigments held similarities to the specifications of a buildings. They were both the details of the artifact that meticulously outlined what it was made of and how it came into existence.

In tracing my recipes, I could peel back the material, step by step, to understand its layers and how colour formed within them. The first step was always removing as much impurities as possible. In the case of rosehip, I separated buds from stems and removed any remaining leaves. They were then left to soak in rainwater over night.

The next day, I brought the fruit to a boil, then left it to simmer for four and a half hours in a mixture of water, alum, and a sprinkle of silica. I watched the glossy skin wrinkle and peel off the squishy flesh and then melt into a viscous concentration of homogenous pigment.

The next step required dehydration; I placed the mixture in a container to airdry, making sure to stir for consistency at least twice a day. After a couple weeks, I ground the rocklike consistency into powder.

This colour recorded was the result of a meticulously specific set of operations and encounters. If one ingredient or step changed, so too would the hue and saturation.

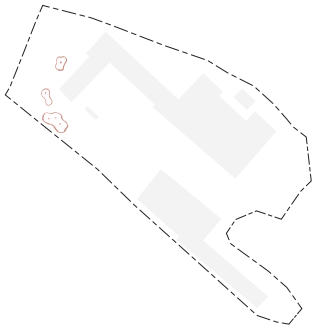


Figure 3.58:
Plan drawing depicting where rosehip was encountered in site.

XXV

Encounter thirteen
Ripe Wild Strawberry
25 June 2020

Colour only appeared if the line of visible light was not obstructed from the sun to the object to the viewer. Being a human, I saw the landscape from an upright perspective—a vanishing point of one hundred and forty-nine centimetres above any ground I stood on.

Anything below that point could be hidden by the canopy of matter on site. Hesitant to make a fool of myself, I crouched down to my hands and knees and crept along the ground to engage with an alternate horizon. I continued down to the river where small bunches of low growing bushes flanked the retaining wall.

The bushes had saw toothed, hairy leaflets with the beading colour of ripe wild strawberries underneath. I was very excited having never seen this form of colour before. They were about one centimetre in diameter with miniscule bumps along their surface.

Maturity defined the colour itself. The fruits initially grew white and became saturated with age. I was careful to only pick the ripe ones.

I would have never found this colour if it were not for crawling on my hands and knees. The human perspective, so highly validated, was confined to a limited field of vision the left gaps in what could be seen. It was only when the eyes moved position in space and molded to its surroundings, that new perspectives formed, and a range of spectrum could expand.

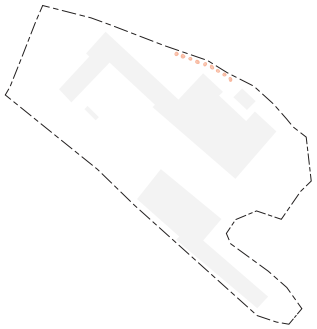


Figure 3.59:
Plan drawing depicting where wild strawberries were encountered in site.

XXVIII

Encounter five
Crumbled Concrete
17 February 2020

Colour is an indication of an enduring place. Often, when colour fades, it is the first sign of obsolescent life. In the fractured landscape, concrete was used to cap. Instead of dealing with the residual contamination, humans the toxic matter is isolated.

The head race and tail race are filled. This halts a process of land regeneration; the ruin cannot materialize into promise if the matter left over is captured in an inert state of isolation.

The site faded to grey with repeated encounter. Over time external forces decayed the molecular attraction between chromatic matter of context and the arrangement of site itself. There was a destabilization that occurred from this increased energy on impact; molecules became excited and the chromatic spectrum turned to grey. Grey space speaks to time which shapes the form of the site. It is the gradient and energetic threshold between promise and ruin.

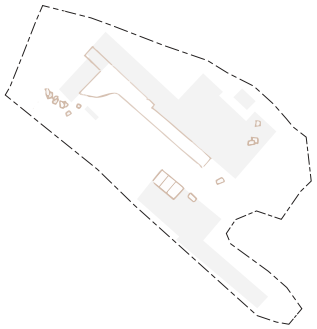


Figure 3.60:
Plan drawing depicting where concrete was encountered in site.

XXVI

Encounter seven
Cast Iron
30 April 2020

The pieces of machinery left on site are monuments and artifacts of a cultural moment in time. This colour holds spiritual capacity in the built environment. It is a visible reminder of the embodied energy and relations that occurred in and of the industrial landscape.

When I see the colour, I instantly imagine, steam engine locomotives, coal fired furnaces and beginning of other large-scale power machinery. There was a preservation of place captured in the metallic brown swatch. It was synonymous to an era of technological advances, mechanized systems, and industrial production.

This colour captures the dramatization of human capability, environmental disregard, and industrial progress. Unlike some of the other pigments, evidence of its impurities arose, and inconsistent patches of aged cast iron rubbed off on the paper as if I had directly peeled the colour from one object to another.

The vivid sense of material, time and place did not fade or disappear. The colour transcended a geographic site. It was rooted in a time and culture.

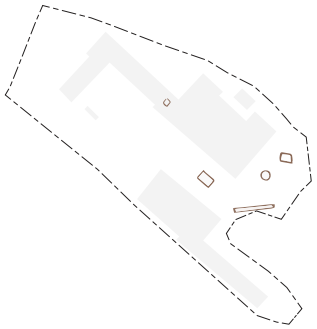


Figure 3.61:
Plan drawing depicting where cast iron was encountered in site.

XXVII

Encounter twenty-eight
Dusty Dirt
09 December 2020

When I put pigment on paper, it is an additive process that happens over three stages. At first, the pigment rested on top of the outermost layer of paper. As I rubbed the particles of pigment back and forth on the watercolour paper, the pigment found its way to through the grooved texture surface. I mixed a bit of adhesive to fasten the pigment down and hold onto another layer. This process was repeated two to three times creating a lamination of colour. The laminated layers did not sit evenly on top of each other. They interlocked between higher and lower densities of pigment. Spots that were less saturated held less pigment. The dry pigment was infused into the mixture that it solidified into the layers when dried leaving traces of which areas held higher amounts of pigment.

At a certain point, the pigment became tied to the paper. It could not be removed. The colour was completely transferred from one material to the other creating a non-site. It moved from one space, to another, carrying with it the sense of place. The same dirt covering the ground of the fractured landscape held a different presence when isolated from its origin site.

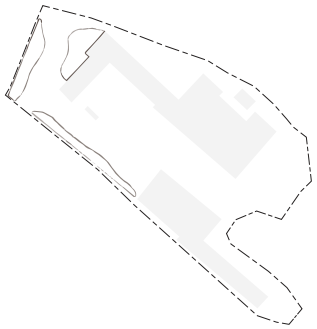


Figure 3.62:
Plan drawing depicting where dirt was encountered in site.

Conclusion

"Joanna Macy writes that until we can grieve for our planet we cannot love it—grieving is a sign of spiritual health. But it is not enough to weep for our lost landscapes; we have to put our hands in the earth to make ourselves whole again. Even a wounded world is feeding us. Even a wounded world holds us, giving us moments of wonder and joy. I choose joy over despair. Not because I have my head in the sand, but because joy is what the earth gives me daily and I must return the gift."[01]

Robin Wall Kimmerer, Braiding Sweetgrass, 326

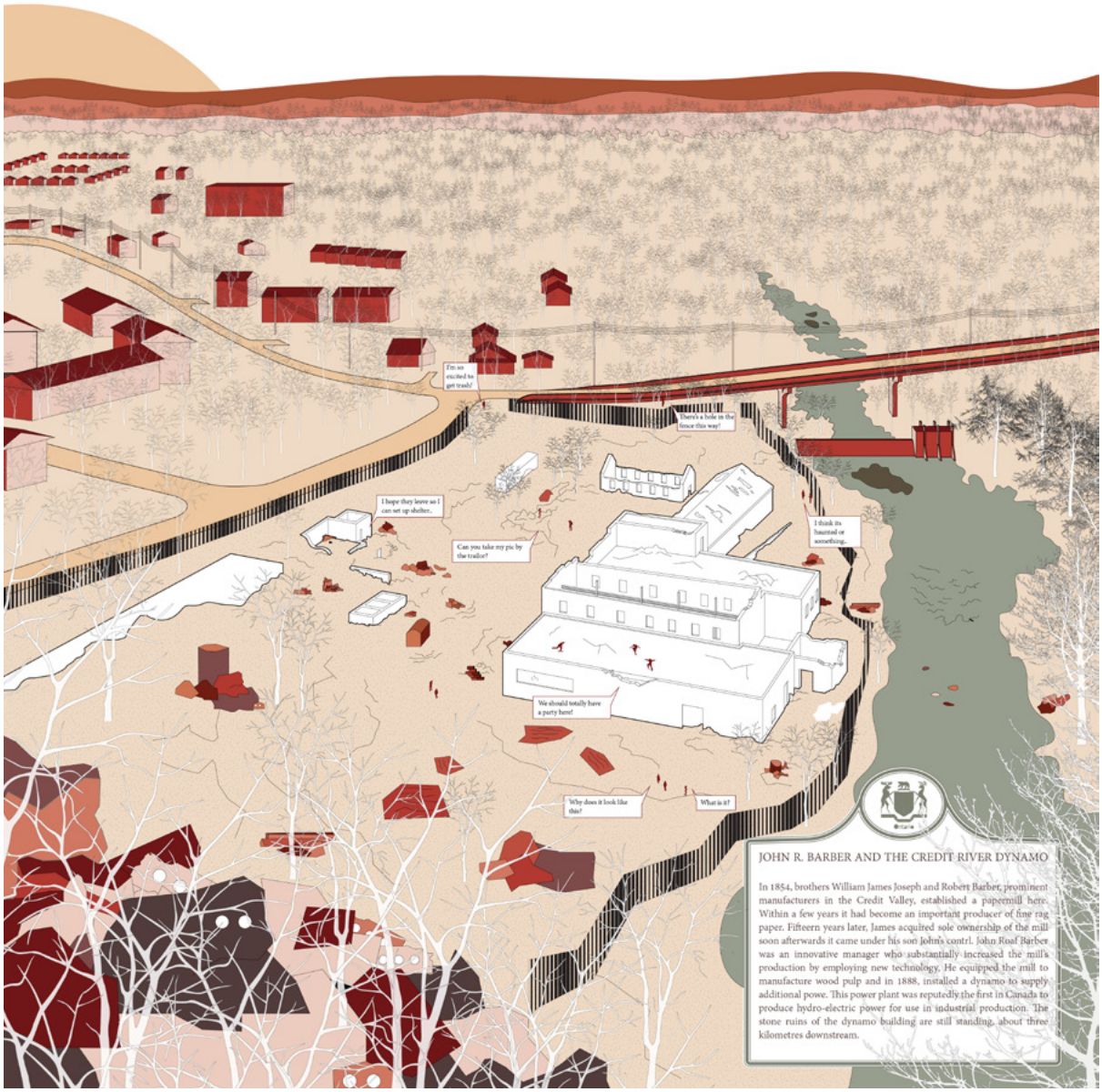


Figure 4.01:

Drawing depicting the site of Barber Paper Mill from the northwest. Highlighted are the material forms of encountered colour.

Colour within the ruin is an evolving site shaped through multiple encounters; interactions between human actants and post-industrial matter prescribe a relationship of interconnectedness and value of land. Architect and landscape architect Martin Hogue advocates that site is always changing:

> *"In design professions, the term "site" denotes a transient condition: the precise interval of time during which a work is first conceived (at which point it is referred to as the project site) and later built (the construction site). Once completed, the work performed may take on a more permanent designation—a field, a park, a garden—at which point it often ceases being known as a site altogether. Before this crucial period, however, the very same location exists merely as a place of unfocused attention because it has yet to command any specific meaning that is the result of design speculation."*[02]

It describes a specific moment of rearrangement of place before entering a phase of stability. While this thesis presents a series of pigments, reflections and drawings that ground colour and the ruin in a permanent form, the research affirms its position in this moment of rearrangement and steps away from presenting binary design solutions to ruined and damaged land. In reconnecting fragmented and erased pasts, colour begins to focus attention to existing realities in order to repair a relationship between people and place.

01.

Kimmerer, Robin Wall. *Braiding Sweetgrass*. (Minneapolis, Unitted States: Milkweed Editions, 2013), 326.

02.

Hogue, Martin. "Matter Displaced, Organized, Flattened : Recording the Landscape." *Landscript* no. 5 (2017).

Toward stewardship

As I conclude this research, colour, in the end, reminds me of the permanence of change and the ongoing relationship between the built environment and land. In her essay, "The Sacred and the Superfund," Robin Wall Kimmerer suggests that while restoration of land is what will heal the earth, reciprocity will sustain restoration.[03] She states that healing is dependent on the definition of land; how one thinks of the land, as capitol,

03.

Kimmerer, *Braiding Sweetgrass*, 310-340.

property, identity, pharmacy or self, changes the relationship of what is to be restored. While I settle into a practice of (re)defining land, I argue the call for restoration is rather harmful to healing. Restoration suggests that we, humans, have the power to simply undo the destruction and alienation already committed and controllably convert back to a previous state rather than building upon current site conditions and designing more informed and resilient futures.

This ideal for restoration negates the current happening and agencies already acting in the ruin. Instead of restoration, colour draws me to the role of architects in reciprocal land stewardship. Through site analysis, planning and design, the architect has the opportunity to organize, plan and manage the land in more caring and thoughtful ways. Stewardship encourages the designer to consider and interact with time—what happens after a building no longer functions as a building? How does it return to the land? Should it? The role of acknowledging colour in architecture is a call to remember the entangled histories and multispecies interdependencies of ruined industrial landscapes. To see colour within the ruin is to acknowledge the promise that already exists in damaged industrial land.

Call to return

Recalling the many ways colour continues to be erased, I reflect on the role of the architect in dismantling landscapes of whiteness. This research is not a proposal of a singular design solution, but a piece of exploration. It rearranges what already exists as to bring forth new environments, values, and possibilities. Noticing colour becomes a lens of site analysis that challenges the familiarity of physical and temporal materiality and the perception of space and time. I now see the ruin as a spectrum of pigments—the assemblage of colour transverses optic boundaries and begins on a molecular level that is intrinsically tied to a material's makeup. Extracting these hues abolishes some of the entrenched stigmas of the industrial ruin when reducing a material to pigment. It illuminates and expands an understanding of how a site came to be and the vast extension

of operations and effects that seemingly harmless or small design decisions can produce over unseen time and space.

Colour, then, is an entry point to challenging destructive design and a means to foster active and healing relationships with the land. Placed in vials, the pigments no longer provoke thoughts of ruination and instead tell stories of promise. In material ambiguity, they create an opportunity to see material and the land differently. Fired ochre acts as an introduction to the industrial complex and the perils of human exceptionalism. Weathered fieldstone addresses the erasure and alienation caused by land commodification of early colonization. Spruce comments on the role of standardization and purity through the development of the paper industry. Oxidized copper reflects on the dichotomic relation of industrial electrification. Each colour gives context to the changing occupation, use and value of land, preparing architects to design for more reciprocal rearrangements of space. It broadens an understanding of context and time, rejecting selective alienation and purity.

Establishing a reciprocal relationship and healing of the land calls upon us to not only grieve for all that is lost, but to return the gifts of wonder and joy that our lost and damaged landscapes still provide. Much like Kimmerer's call, this work often proceeds with the following question: how do you return colour back into the ruin? I am never quite satisfied with this question. Not because I have no answer, but because, I hope it is evident by now that colour does not need to return to the ruin. Like the red clay, yellow fieldstone, green spruce and blue copper that exists in, of, around and under many of our spaces, colour already exists there. It is our task, as designers and occupants of space, to see colour, for a blindness to it is destructive.

We

—

the colour-erasers, the colour-ignorers
the colour-dismissers , the colour-blind

—

must do the work of returning to colour.

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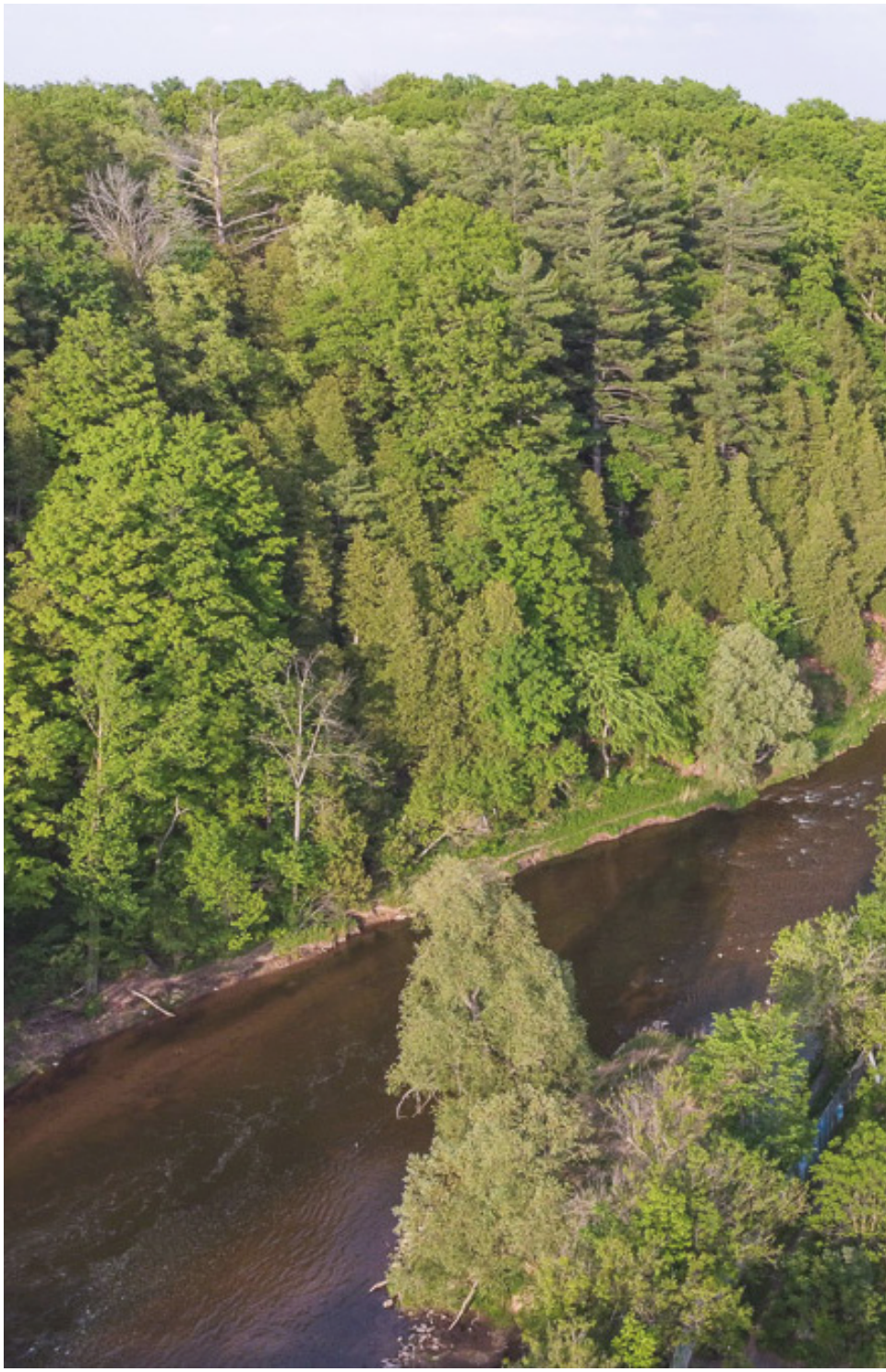
Appendix

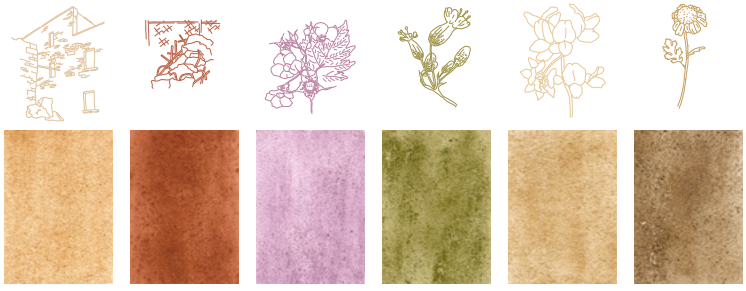
Colour Tour:

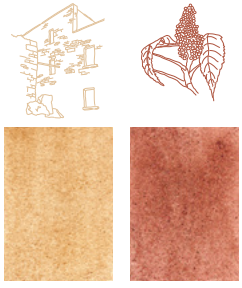
Photgraphs documenting colour in site. The colour, or lack of, guides movement. It establishes surfaces that enclose, attracted and repel the spectator in space. Colour outlines form and constructs a visible field of reference for me to exist and move within. Each photograph is paired with pigments and drawings of colour that was encountered in the field of view captured during at least one site visit.

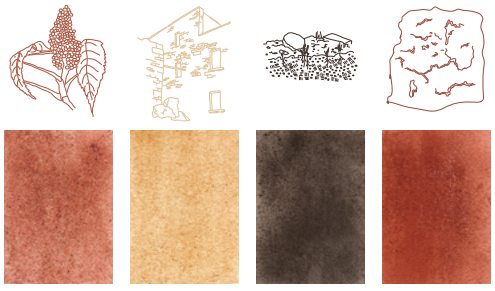


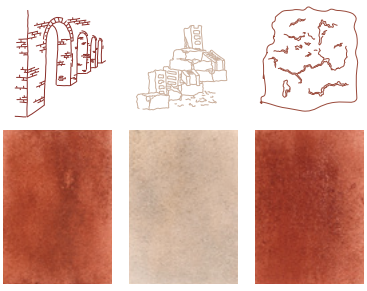
Photograph of Barber Paper Mill

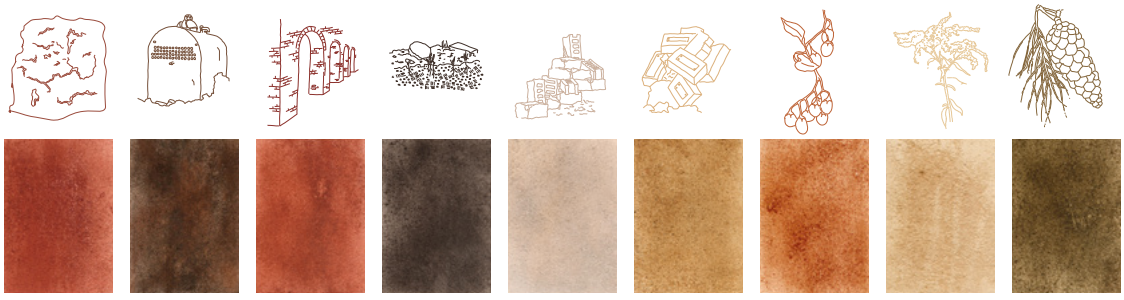
Within the Ruin is Colour











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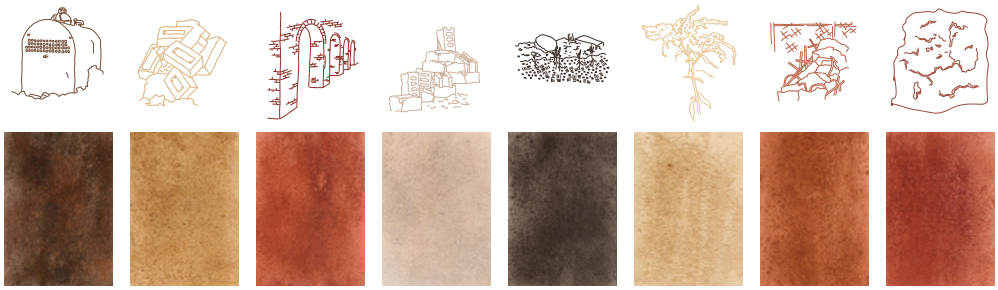





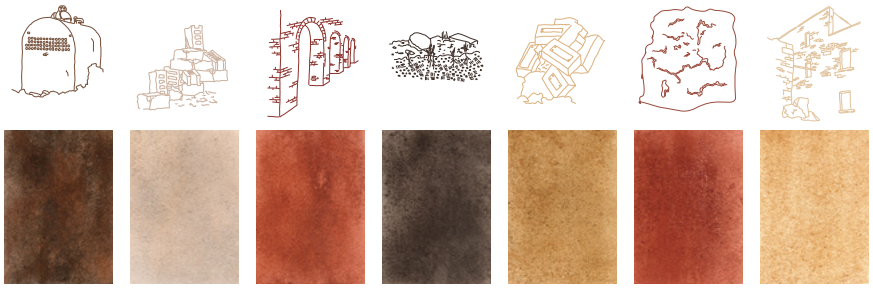

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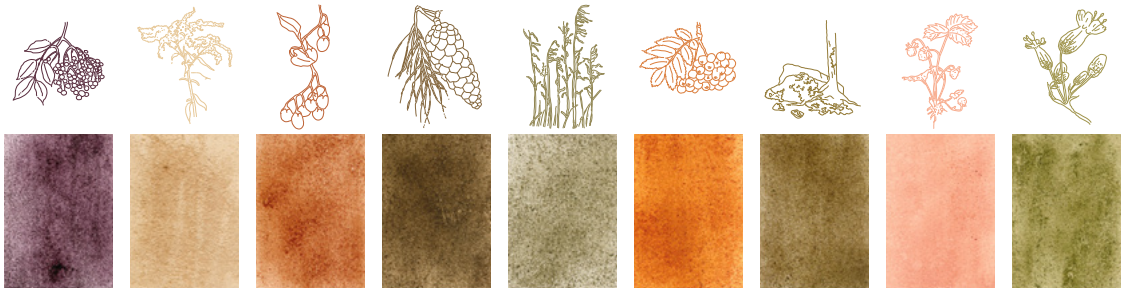

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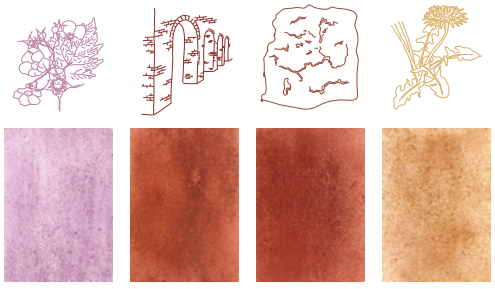

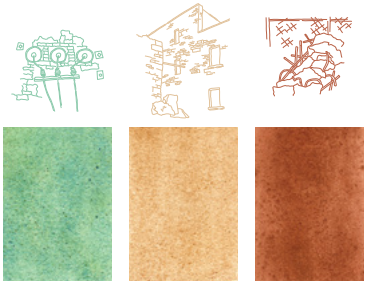

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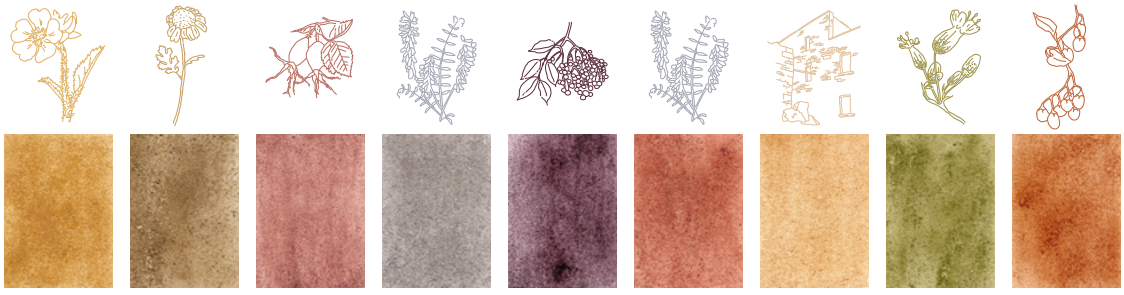
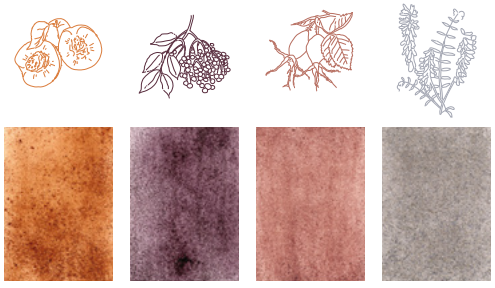
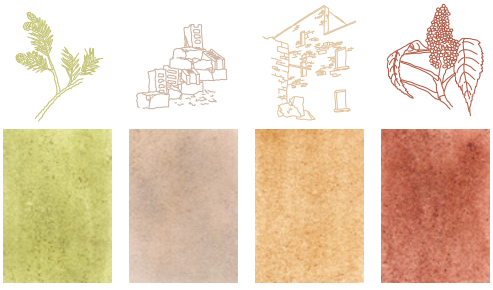
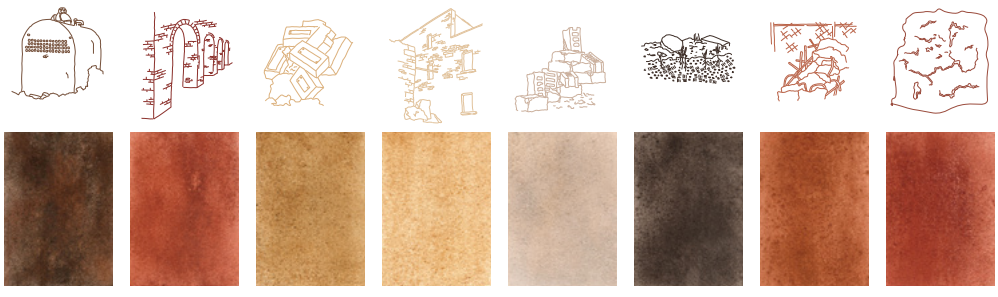


Within the Ruin is Colour







Glossary

aesthetic; originating from thr Greek word, aisthitikos, meaning perception by feeling, is the response of brain cognition to sentience; an objective biological response rather than subjective social construct

agrarian; originating from the transition to agriculture based society in the neolitic period; relating to the land, especially the use of the land for farming

anthropocentrism; the belief that human beings are above other creatures in worldly relations and everything can be regarded in terms of human relations and values

assemblage; no neccessary groupings of diverse elements, of vibrant materials of all sorts; not governed by any central head

brightness; the intensity of reflecting light in terms of the shading and lightness of colour

commons; originating from the traditional English legal term for common land; popularised in the modern sense as a shared resource

colour; the quality of matter with respect to light reflected by the object, usually determined visually by measurement of hue, saturation, and brightness of the reflected light

colours; colour diveded into human defined structures and containers such as red, yellow and blue

discard culture; also known as "throwaway culture" in which unwanted items are discarded as waste

discard studies; a critical framework that questions premises of what seems normal or given and analyzes the wider role of society and culture in relation to waste

ecological simplification; , the reduction of biodiversity and interconnected dependencies which often occur as a result of human intervention

ecology; coined by Ernst Haekel, the branch of biology that deals with the relations of organisms to one another and to their physical surroundings

environment; the lens to which one filters environment to percieve some but not all conditions of space

honourable harvest; an indigenous tradition of giving thanks and a convenant of reciprocity between humand and the land

hue; the attribute of a color by virtue of which it is discernible and which is dependent on its dominant wavelength and independent of intensity or lightness

incalculable agency; the dynamic and changing quality and capacy for things to act onto others in evolving relations and assemblages

industrial; of or relationg to a socety of factories and mass production; relating to people, goods, place etc. involved in indurstry

material; the matter and dynamic structure from which a thing is or can be made

matter; physical substance in general; that which occupies space and possesses rest mass

monster; an arrangement of reclaimed bodies pieced together and become through the process of eating or being eaten by other bodies

new materialism; an interdisciplinary, theoretical, and politically committed field of inquiry, emerging roughly at the millennium as part of what may be termed the post-constructionist, ontological, or material turn

orientation; relevance to objects being situated in time and space affected by both proximity and relativity as well as dependent on relation to other orientations; conisting of starting points, backgrounds and arrivals

non-site; an abstract containeran that holds displaced information and conditions of the originat site

object; a physical material in a specific form with an intended function placed upon by humans

pigment; the natural coloring matter of a material or the physical reduction of colour

pure-white; white as a religeous and political tool that seperated white from other colours and places holiness and cleansliness instead of luminousity

purity; freedom from adulteration or contamination of any type, often tied to morality and virtue

re-worlding; sociological reconstruction of the world, or attempt to see it differently

ruin; the remains of a building, typically an old one, that has suffered much damage or disintegration; the physical destruction or disintegration of something or the state of disintegrating or being destroyed

saturation; the intensity of a color, expressed as the degree to which it differs from white

shade; the intensity of reflecting light in terms of the shading and darkness of colour through the addition of black

surroundings; the entirety of conditions of space and everything that operates within it

tentacular thinking; an epistemology that explores new ways of thinking along strings, a breaking away from binary and linear structuring, a weaving of networks together

terrain vague; the dual concept of a plot of land defined by indeterminacy; that which has both a spatial and social connection

the works; the entirety of a the industrial complex with all its connected industrial buildings and operations

thing; an animate and fluid matter or idea thta is undefined by human implied function or intention

thing-power; the animacy of things to act onto others in a dynamic relation of networks and other things

tint; the intensity of reflecting light in terms of the shading and lightness of colour through the addition of white

traditional ecological knowledge; knowledge and practices pased dwn through generations of traditions in indigenoud communities

vital materiality; material energy that runs through and across bodies, both human and nonhuman

wasteland; an unused and unvalued area of land devounced for its lack of economic potential; originally used as commons

whiteness; the state of erasing, ignoring or demeaning colour so as to uphold white as pure and dominant