Ultraviolet Gardens

by
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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.

Abstract

We live in a world shrouded in greenness. A world made of places, of places made of sites, of sites which make the landscape. I speak to all current and latent gardeners; to all of those unaware, yet fascinated by green.

Ultraviolet Gardens invites you into a photographic garden; a reframing of how 'green' has been, can be, seen and rediscovered; to find greenness within plastic plants, fuzzy chlorophyll, and the illusions of green.

Within ultraviolet gardens, the banal and mundane are estranged, and as such made visible. With film and photo making, I share the strange dimensions of greenness that arise in familiar places. Central to the argument is that a rediscovery of green must happen first by estrangement of the body, of both the external optics of vision and the internal perceptions of the mind.

In the photographic process, an image is created when light reacts with a light sensitive surface. Silver halides are permanently converted to elemental silver, matter is changed by other non-human matter; put in contact they create the repository of images central to this thesis: *The Aesthetic of Contact*.

Not simply an image, the photograph, unlike painting or architectural drawing, shares more then just likeness to its subject; it is a part of, or an extension of its reality. I use camera-less and camera-using photography to curate a garden of images, not of 'others', but made in collaboration; autobiographies of the nonhuman. I seek through them an (un)representation of green that does not come from my sight, nor from architecture's primacy of vision; a way of seeing capable of awakening a fascination of greenness.

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Of violence:

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156 99. Buried film #2, scanned negative, 35mm film, 2024. By author.

156 100. Buried film #2, scanned negative, 35mm film, 2024. By author.

156 101. Buried film #2, scanned negative, 35mm film, 2024. By author.

157 102. Buried film #2, scanned negative, 35mm film, 2024. By author

157 103. Buried film #2, scanned negative, 35mm film, 2024. By author

157 104. Buried film #2, scanned negative, 35mm film, 2024. By author.

158 105. Souped film, negative scan, 35mm film, 2024. By author.

158 106. Souped film, negative scan, 35mm film, 2024. By author.

From part 3: Auto|Biographies

164-65 107. Stills (1-16). ambulatory cloud, digital video, 2024. By author.

168 108. Still.Camera cap on lens, digital video, 2024.

170 109. Stills (1-3) from 'The Colours of Green'. switchgrass, digital video, 2024. By author.

170 110. Stills (1-3) from 'The Colours of Green'. white pine, digital video, 2024. By author.

172 111. Stills (1-2) from 'The Colours of Green'. sedum, digital video, 2024. By author.

174-75 112. Stills (1-8). mushroom spores, digital video, 2024. By author.

176-77 113. Stills (1-4) from 'The Colours of Green'. switchgrass, digital video, 2024. By author.

178-79 114. Stills (1-3) from 'The Colours of Green'. dogwood, digital video, 2024. By author.

186-87 115. Stills (3-10). Tearing away the eye: sky and grass, 35mm film, 2024. By author.

186 116. Stills (1-3). Tearing away the eye: sky and grass, 35mm film, 2024. By author.

188 117. Still from L'Entre-objets. Tearing the eye away (13), 35mm film, 2024. By author.

189 118. Still from L'Entre-objets, Tearing the eye away (14), 35mm film, 2024. By author.

188 119. Stills (11-12). Tearing the eye away, 35mm film, 2024. By author.

190 120. Still from L'entre-objets. Tearing the eye away (15), 35mm film, 2024. By author.

190 121. Still from L'Entre-objets. Tearing the eye away (16), 35mm film, 2024. By author.

190 122. Still from L'Entre-objets. Tearing the eye away (17), 35mm film, 2024. By author.

192 123. Still from L'Entre-objets, Tearing the eye away (18), 35mm film, 2024. By author.

193 124. Still from L'Entre-objets, Tearing the eye away (19), 35mm film, 2024. By author.

193 125. Still from L'Entre-objets, Tearing the eye away (20), 35mm film, 2024. By author.

194 126. Still from L'Entre-objets, Tearing the eye away (21), 35mm film, 2024. By author.

194 127.Still from L'Entre-objets, Black (1), 2024. By author.

195 128. Still from L'Entre-objets, Black (2), 2024. By author.

197 129. Stills (1-8). Lumens with pine:making of, 35mm film, 2024. By author.

198 130. Still frame from l'Entre-objets. Lumen print #1, 2024. By author.

199 131. Still frame from l'Entre-objets. Lumen print #2, 2024. By author.

200 132. Still frame from l'Entre-objets. Lumen print #3, 2024. By author.

200 133. Still frame from l'Entre-objets. Lumen print #4, 2024. By author.

201 134. Still frame from l'Entre-objets. Lumen print #5, 2024. By author.

201 135. Still frame from l'Entre-objets. Lumen print #6, 2024. By author.

204 136. Still frame from 'The sex appeal of vegetal corpses'. Peonies #1, 2024. By author.

206 137. Still frame from 'The sex appeal of vegetal corpses'. Peonies #2, analog film photograph, layered negative scan, 2024. By author.

206 138. Still frame from 'The sex appeal of vegetal corpses'. Peonies #5, analog film photograph with digital manipulation, 2024. By author.

206 139. Still frame from 'The sex appeal of vegetal corpses'. Peonies #3, analog film photograph, layered negative scan, 2024. By author.

206 140. Still frame from 'The sex appeal of vegetal corpses'. Peonies #4, analog film photograph with digital manipulation, 2024. By author.

206 141. Still frame from 'The sex appeal of vegetal corpses'. Peonies #6, analog film photograph, layered negative scan, 2024. By author.

206-07 142. Still frame from ‘The sex appeal of vegetal corpses’. Peonies #7, analog film photograph with digital manipulation, 2024. By author.

208 143. Still frame from ‘The sex appeal of vegetal corpses’. Petals Contact #1, 2024. By author.

209 144. Still frame from ‘The sex appeal of vegetal corpses’. Contact #2, 2024. By author.

211 145. Still frame from ‘The sex appeal of vegetal corpses’. Phytogram transparencies (1), 2024. By author.

212-13 146. Still frames (2-10) from ‘The sex appeal of vegetal corpses’. Phytogram transparencies, 2024. By author.

214-15 147. Stills (10-13) from ‘The sex appeal of vegetal corpses’. phytogram transparencies, 2024. By author.

214 148. Still (1-4) from ‘The sex appeal of vegetal corpses’. phytogram negatives, 2024. By author.

216-17 149. Stills (1-16) from ‘The sex appeal of vegetal corpses’. Leaves and yarrow developper, 2024. By author.

218-19 150. Stills (1-12) from ‘The sex appeal of vegetal corpses’. Buried, 2024. By author.

220-21 151. Stills (1-3) from ‘The sex appeal of vegetal corpses’. Soil and guano, 2024. By author.

222-23 152. Stills (4-9) from ‘The sex appeal of vegetal corpses’. Soil and guano, 2024. By author.

224-25 153. Stills (10-16) from ‘The sex appeal of vegetal corpses’. Soil and guano, 2024. By author.

226-27 154. Still frame from ‘The sex appeal of vegetal corpses’. Soil and guano, 2024. By author.

228 155. Still from ‘The sex appeal of vegetal corpses’. Submerged (1), 2023. By author.

228 156. Still from ‘The sex appeal of vegetal corpses’. Submerged (2), 2023. By author.

229 157. Still from ‘The sex appeal of vegetal corpses’. Submerged (3), 2023. By author.

229 158. Still from ‘The sex appeal of vegetal corpses’. Submerged (4), 2023. By author.

Methods

It would have been easy to limit the title of this thesis "Ultraviolet Gardens", to a simple introductory metaphor, a pretty, but useful guiding phrase to the development of the work as a private collection of plant-artifacts.

The garden, after all is a persistent archetype of a specific type of relation, one of an ecological consciousness rooted "within a cultural mode of relating to nature"[1]. Likewise, metaphors as title, botanical and other, are common occurrence in film; they emerge in *Secret Gardens*[2], or as *Flowers of War*[3]. Typically, the metaphor is brief, and eventually falls apart; the human story is revealed from behind the botanical imagination.

The garden that is this thesis is not a metaphor. This thesis is not garden-like, or garden adjacent because it speaks of plants. It is a literal garden, composed of pieces of non-human life collected from many different places, the sites of this thesis, also gardens in their own rights. By necessity, I collected things from places. Sometimes they are picked up and placed back down within a day, to the same spot, perhaps 10 meters away. Sometimes they were ripped off, with a knife, with my hands.

Violence is necessary to gather and index plant matter, this is an unavoidable fact; however its avoidance is rooted in a cultural idea; that of a romantic and often human-exclusionary view of nature. When unacknowledged, this violence tends to perpetuate and "privilege ideas of harmony, mutuality, interconnectedness, and stability, while overlooking equally natural phenomena such as competition, exclusion, exploitation, disease, and species extinction."[4]

1 James Corner, *The Landscape Imagination: Collected Essays of James Corner*, 1990-2010, First edition. (New York: Princeton Architectural Press, 2014), 262.
2 *The Secret Garden,* directed by by Agnieszka Holland, (Warner Bros, 1993). Adapted from a novel by Frances Hodgson Burnett.
3 *The Flowers of War,* directed by Zhang Yimou, (Beijing New Picture Film 2011).
4 Corner, 267.



fig 1.1. Under UV light, parts of plants fluoresce. 2024 *[Image by author]*

Learning about Plants, & the Aesthetic Method

Oddly enough, I have not included much evidence of the depth of my *'botanical knowledge'* laid for view in my thesis. The somewhat unseen method of research for this work was part hobby-foraging, part serious botanical study of southern Ontarian ecosystems.

It is the kind of study that makes you aware of the limitations of the internet. Yes, blogs and AI and apps abound for plant identification, but ultimately the material reality of the plant in front of you is the only thing that can test your knowledge.

It is knowledge that is necessary to the type of film making I have embarked on. Knowledge permits identification, which is necessary to determine chemical composition, and prevents blind errantry while on the hunt. Moreover, it is knowledge that is impossible to not accumulate; it would be insensitive, perhaps, to film plants I do not know the name of.

My early attempts to make sense of my topic, *'how to emerge voices of the non-human?'*, inevitably resulted in attempts which would approximate methods from the botanical sciences into my work.

Initially, I was driven by a need to give my work more, or an idea of more, scientific credibility.[5] Yet as an aesthetic phenomenon, one which is concerned about perceptions, only so much of non-human life can be made evident by science. Instead, much of the argument needed to be rooted in a more arbitrary aesthetic discourse[6], one which is more in tune with the landscape as a cultural artifact, and hence also the garden.

5 Fred Truniger, *Filmic Mapping: Film and the Visual Culture of Landscape Architecture, Landscript 2* (Berlin: Jovis, 2013), 96.
6 Truniger, *Filmic Mapping*, 95.

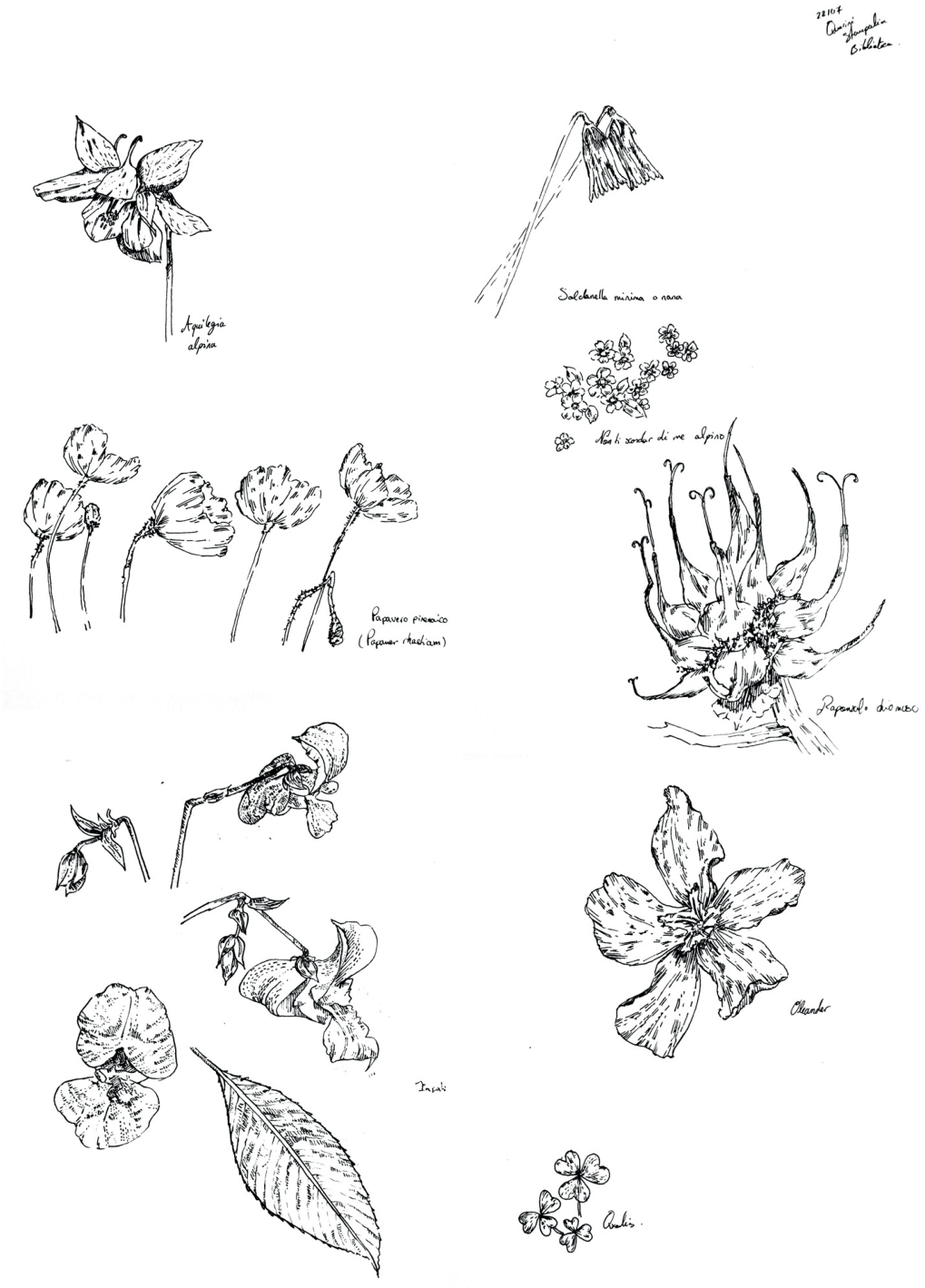


fig 1.2. Flowers from the Italian Alps, *Botanical Studies, July 2023. [Sketches by Author]*

These are not thesis artifacts.

Can static images showcase dynamic landscapes? Most filmic representations of plants not created by timelapse are, in a way, sequences of plant images. Because both the scale and time of plant life are much slower than that of the human eye, un-accelerated plant films tend to rely on successions of plant images to represent landscape dynamics.

Think of the landscape as containing series of clues, traces of what it was and what it will become.[7] Images just blossoming, just past decomposing, not quite yet emerged leaves, layered with future versions of themselves foreshadow movement.

I use a mix of digital, alternative camera-less and analog techniques. Many of them, employ long durational photography to create singular images of layered moments. In motion, they create a film of stills made from many stills.

Concealed behind the eye of my camera, *a lens "ground to achieve 19th century Western compositional perspective"*[8], is a secondary eye. The lens hides the eye of the viewer, an eye capable of imagining its own reality. I use film in response. As film is the singular medium capable of breaking the indexical reality of the photograph.

The illusion that the viewer has joined into the film is complete, the tempo of human breathing syncs up to 24 frames per second. The photograph is always an artifact of the past, it is remote from the viewer, and as such distant to the reality it represents, both temporally and spatially.[9] Film is no different, but its magic means we experience it as if it were in real time, concurrent to us.

7 Truniger, 48.
8 Stan Brakhage, *Metaphors on Vision* (New York: Anthology Film Archives, 2017), 115.
9 Susan Sontag, *On Photography*, Penguin Modern Classics (London; Penguin, 2008), 164.

The thesis, while split into three parts, is ordered into a gradual move towards *estrangement.*

Part 1 concerns all that which has shaped our understanding of *greenness*; these are familiar narratives, artifacts, artworks; familiar systems of classifications that drive inattentiveness. Yet in their own way they start to become estranging, as they rely on past and perhaps outdated truths of human knowledge.

Gradual Estrangement means that familiarity will fade as the book unfolds, to be replaced with increased strangeness. In this way, both the writing and the photographic resist order. Instead, they are left with space in between, just enough glimpses to understand the limitations of understanding.

The camera stands as the main tool of the thesis, an object for the translation of matter into image. All camera-shot images presented were shot with a 50mm f1.8 prime lens, a fixed lens incapable of zoom, on a Canon R8 mirorless camera. For the Macro shots, I used a set of 31mm, 21mm and 13mm extension tubes. By constraining the physical capabilities of the camera, I increase my awareness of its influence onto the photographic work.

Instead, zooming in is done through consciously approaching or distancing oneself from the subject. Unlike architectural drawing, which creates distance by moving away from the subject, the camera places itself between the subject and the photographer. And it is precisely in this gap that I position myself. Neither concerned with shaping what I record, nor with the recording of a place.

The camera is my structural map; it blurs into the mechanical optics of vision to set the framework for the gradual estrangement of the human eye across the thesis book.

Ultraviolet Gardens

***

I have nothing against lines. They exemplify their own wrongness. In maps, they pretend to be eternal. In drawing, they stand as pale reflections of the shape of things. They wrap things up, all edges and boundaries. Words are drawn from lines, drawings make words, pictorial representations legible to you and I. They create imagined plans that never come to life. But I do not want to imagine the living futures of others. I don't want the world from inside me.

***

And that's the trouble. Because it is a fool's errand. Every time I peak into the world that only exists when unseen, it can but only disappear. Yet I return to it, and like a voyeur, I intrude in it. To be clear, I am not seeking a view of the world devoid of human influence. I seek a representation of greenness that eclipses human vision.

The thing is, the world was not made for our eyes. Ultraviolet, just on the edge of violet light. Electromagnetic light with a wavelength of 40-400 nanometers[10], about 40 more nanometers than the entirety of the visible light spectrum. Around 7 percent of all flowers show floral patterns, nectar guides, which are not visible to the human eye, but appear under UV.[11]

10 Richard B. Primack, "Ultraviolet Patterns in Flowers, or Flowers as Viewed by Insects," *Arnoldia* 42, no. 3 (1982): 139.
11 Primack, 140.

Invisible to us, flowers and hummingbirds see each other in Ultraviolet.

The invisible flirts with the visible. I try to look past what I can see; I explore the mysteries of green plants. Green in ancient woods; greenness in polished wood; greenness in oil black-tar pits. I don't limit my writings to a singular place, to a singular time, to a singular plant. I resist order. I hope, rather, to illuminate a small part of a constellation of things. I seek the ultraviolet in greenness; I seek for shades of what is barely noticeable within abundant colour.

I was drawn to compromise. To acknowledge the inevitable violence of things. If my eye has to be present in the making of this work, then I will allow myself to be a curator. I collect things made by others, juxtapose them with things perceived by me. I strive not to translate, whether consciously or unconsciously.

Instead, I rely on photography, as the photograph, unlike a drawing, "is also a trace, something directly stenciled off the real (...) the registering of an emanation (light waves reflected by objects)—a material vestige of its subject"[12] A footprint, or an index.[13] But still an image, defined by the eye that took it.

Afterall, "nobody takes the same picture of the same thing, (...) photographs are evidence not only of what's there but of what an individual sees, not just a record but an evaluation of the world."[14] Unless, that is, that the eye of the photograph is the same as the eye of the subject, in which case the photograph becomes more than co-substantial, it becomes quasi-autobiographical.

12 Sontag, *On Photography*, 154.
13 Fernando de Toro and Carole Hubbard, *Theatre Semiotics: Text and Staging in Modern Theatre, Toronto Studies in Semiotics* (Toronto ; Buffalo: University of Toronto Press, 1995), 75. Learning from Charles Pierce concept of 'symbol, index, and icon'
14 Sontag, 88.

I collect photographs of living things, of their livingness, which also holds the promise of their death. I film them in their own time, their own scale. I am not concerned about making anything beautiful. Gardeners garden because they have been captivated by the living, and strive either for care, or domination.

The botanist Robin Wall Kimmerer compels us to approach the world with the untutored eye of a child who was never taught to not extend principles of self, intention and compassion onto plants and animals.[15] As Dawkins reminds us, "flowers use bees, and bees use flowers. Both sides of the partnership have been shaped by the other. Both sides, in a way, have been domesticated, cultivated, by the other. The ultraviolet garden is a two-way garden."[16]

I create my own ultraviolet garden.

15 Robin Wall Kimmerer, *Braiding Sweetgrass* (Minneapolis, Minnesota: Milkweed Editions, 2014), 69.
16 Paco Calvo, *Planta Sapiens: Unmasking Plant Intelligence* (London: The Bridge Street Press, 2022), 179. Originally stated by Richard Dawkins.

Greenness

"How many colours are there in a field of grass to the crawling bay unaware of "Green"? How many rainbows can light create for the untutored eye? How aware of variations in heat waves can that eye be? Imagine a world alive with incomprehensible gradations of colour. Imagine a world before the "beginning was the world."[17]

Stan Brackhage, *Metaphors on Vision*, 2017

17 Stan Brakhage, *Metaphors on Vision* (New York: Anthology Film Archives, 2017), 114.

We once knew wilderness.

Wilderness as *the natural* beyond understanding, beyond human touch. Where, in the words of Lynn Gumpert, "once climate and weather were the uncontested domain of the gods: they transcended any possible human influence. Zeus cast his lightning bolts as he wished, unconstrained by the pitiful power of humanity."[18]

We set the rules here, we understand the politics of this place. But over there, something else governs the flows of existence. It has not yet been conquered. Not yet been domesticated. Not yet been studied and analysed and categorised, as harmful, as friendly, as resource for extraction.

This wilderness was created and demolished by us.

As we moved apart from the woods, as their mystery was born and grew, as city walls rose to contain the territories, we marked them as being under our rule. We created wilderness. Borders were drawn to define *territory**, the city from the wild, our land from the barbarians.[19]To make sense of the world, we made up the rules of partition.

* *Territory, defined by Édouard Glissant in 'Poetics of Relations', as land which has been defined by limits, and in which filiation is legitimised.*

In this partitioning, humanity was put, by itself, in a class of its own, inhabitant of the planet bestowed with biblical status, as master of the world.[20] Eventually this partitioning was unfurled, made inside-out. The walls which isolated our cities curled outwards, becoming those which now encompass the largest museums in the world, the natural preserve.[21]

'Nature', which was once seen as inconceivably large, beyond grasp, beyond understanding and

18 Lynn Gumpert et al., *Landscapes after Ruskin: Redefining the Sublime* (Munich: Hirmer, 2018), 15.
19 Édouard Glissant, *Poetics of Relation* (Ann Arbor: University of Michigan Press, 1997), 151.
20 Gilles Clément, "In Praise of Vagabonds," *Qui Parle* 19, no. 2 (2011): 275–97, https://doi.org/10.5250/quiparle.19.2.0275.
21 Clément, 278.

evoker of the sublime, was charted, mapped, domesticated into a cultural resource,[22] and wilderness subsequently reduced to patches of forests, strips of forgotten land between manicured fields, or highway-lining thickets.
We simplified wilderness into the banality of 'greenness'.

"Millions of items . . . are present to my senses which never properly enter into my experience. Why? Because they have no interest for me. My experience is what I agree to attend to . . . Each of us literally chooses, by his ways of attending to things, what sort of a universe he shall appear to himself to inhabit." [23]

William James, from *Planta Sapiens* by Paco Calvo

For most of us, most of the time, our personal universe is one where photosynthetic life appears as a backdrop, a mutable green screen for the comings and goings of the animal (including human) world.[24] Ultimately, they are given much less *attention*[*]; visual cognition studies show that when paired with a secondary subject, plant life is much more likely to become background than animal life.[25]

[*] *Visual cognition studies use a tool called 'attentional blinks'. For example, a drop of water is shown in quick succession to an initial image (plant or animal). In front of a plant, the water is easier to notice, as they occupy less of our attention.*

Calvo, 27.

In this way we are plant-blind; some mush so that even the spontaneous variant of a well-known, cultivated and grocery store inhabiting plant is unrecognizable. Surely, delicious, bountiful, food doesn't just grow along swampy, gently littered parks?

'Food grows in fields, is harvested, and foraged from the well refrigerated aisles of Food Basics. This is the normal. This is safe.

Take care, Moonseed grows amongst the virtuous grapes.'

22 Corner, *The Landscape Imagination*, 272.
23 Calvo, Planta Sapiens, 25. Originally stated by the American psychologist William James, in *The Principles of Psychology* (London: McMillan, 1980).
24 Calvo, 25.
25 Calvo, 27.



fig 1.3. Moonseed, Menispermum canadense. *June 18th 2023, Cambride to Paris Trail, ON. [Image by Author]*

A woody vine roughly 8-20ft long, which climbs through vegetation by twining stems. Individual leaves are palmately lobed, with 3-7 shallow lobes which each end in a sharp pointed tip. The female flowers develop in clusters of 10 mm drupes, each containing a single globoid "moonshaped" seed. Mature fruits are bluish black with a whitish bloom. Their flavor is unpleasant.

A little bit of greenery here, a strip of forest, all edges. *The green of my grass is greener than yours.* The Latin word for green, *viridis,* became *verde* in Vulgar Latin which eventually became the root for words such as *verdant, viridescent*. In French *verde* became *verdure*, or *greenery*. In Italian it became *verdura*, meaning vegetable.

As I walk through *greenery*, I like to imagine each bush as an overgrown vegetable.

It is believed that Flora split off from animals roughly 1.547 billion years ago, whereas fungi split of from animals 1.538 billion years ago.[26] Unsurprisingly we have found ourselves so alienated from the non-human, specifically the floral and fungal. Fungus, although more animal than plant-like, is still commonly confused as flora. Afterall, neither possesses brains; *are they even animate?*

Slowly, I break away from this world of uniform greenery. It helps to have motivation. In 1784 Robert Marsham found his own in the signs of spring: emergent leaves, crocus blooms, and snowdrops.[27] For greenness, spring is arguably the most attention occupying season.

To me, this greenery eventually became something of a vegetable patch. The verdure became patches forgeables, garlic mustard and ail-des-bois, and wild strawberries. Among those who venture into finding kin within the wild, the fear of berries, second only to the fear of mushrooms, becomes a benchmark for literacy in this learning. To break that fear, with your first thoughtlessly plucked mulberry, is a moment of overlooked magic. A weird and wonderful magic. Of making kin. Of finding delight, and of knowing, from the best possible extent of your senses.

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26 "Discovery About Evolution Of Fungi Has Implications For Humans," *ScienceDaily,* accessed April 13, 2023, https://www.sciencedaily.com/releases/2006/10/061021115712.htm.

27 Hugh Aldersey-Williams, "From Snowdrop to Nightjar: Robert Marsham's 'Indications of Spring' (1789)," *The Public Domain Review*, accessed April 20, 2024, https://publicdomainreview.org/essay/from-snowdrop-to-nightjar/.



fig 1.4. "The Snowdrop", a plate from "The Temple of Flora", *the third and final part of Robert John Thornton's New Illustration of the Sexual System of Carolus von Linnaeus (1807). [The Public Domain Reviews]*

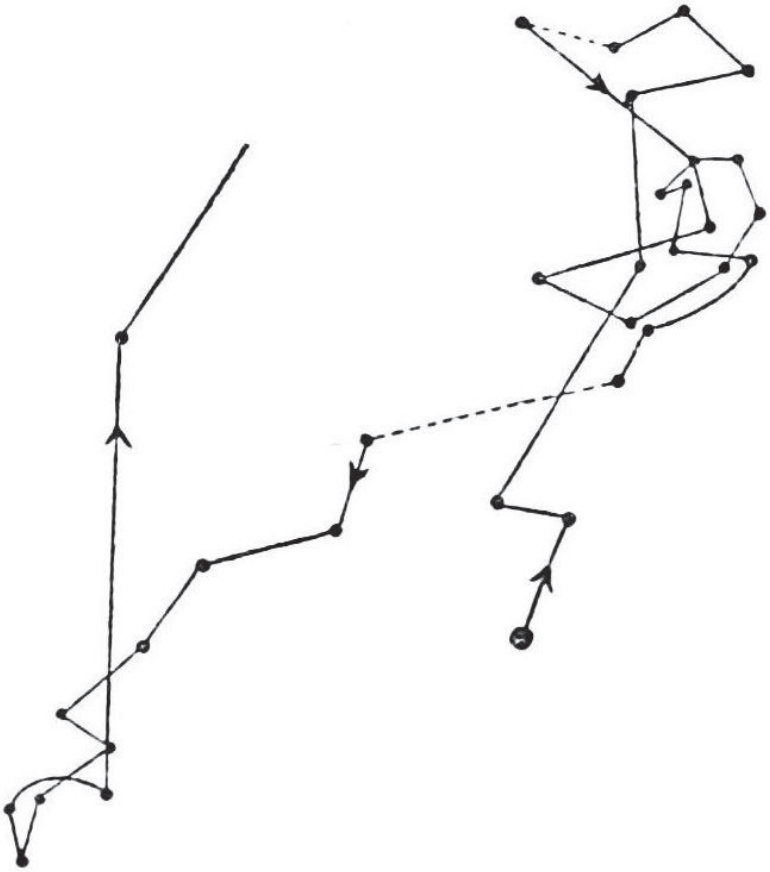


***fig 1.5. Movement of radicles**, from Darwin's "Power of movement in plants", 1890.*

Record. Look away. Record Again.
It takes looking away, a rupture in the time shared with a plant subject to notice its movement

"I am getting very much amused by my tendrils— it is just the sort of niggling work that suits me".[28] Confined to his home from a bout of eczema, Darwin was drawn to slow his observations to plant-time, creating the following records of their movement.[29]

28 Charles Darwin to J.D. Hooker, July 14, 1863, Darwin Correspondence Project, "Letter no. 4241".
29 Natalie Lawrence, "'Spontaneous Revolutions': Darwin's Diagrams of Plant Movement," *The Public Domain Review*, accessed May 26, 2024, https://publicdomainreview.org/essay/darwins-diagrams-of-plant-movement/.

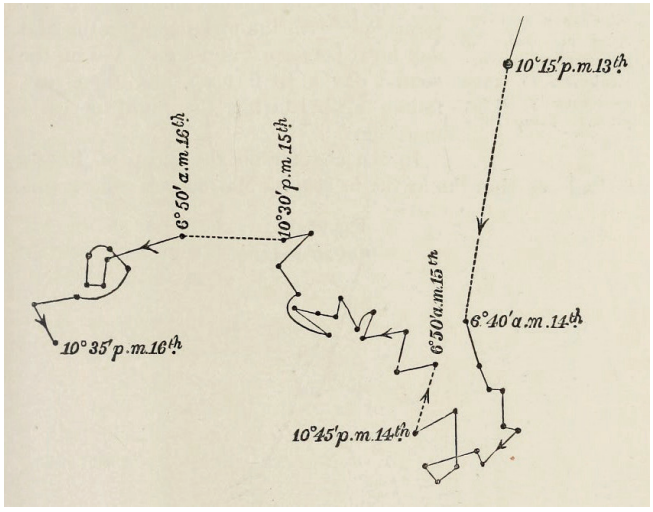


fig 1.6. The circumnutation of a young carnation leaf (Dianthus caryophyllus) across a three-day period in June, *as illustrated in Darwin's The Power of Movement in Plants, 1896. [The Public Domain Review]*

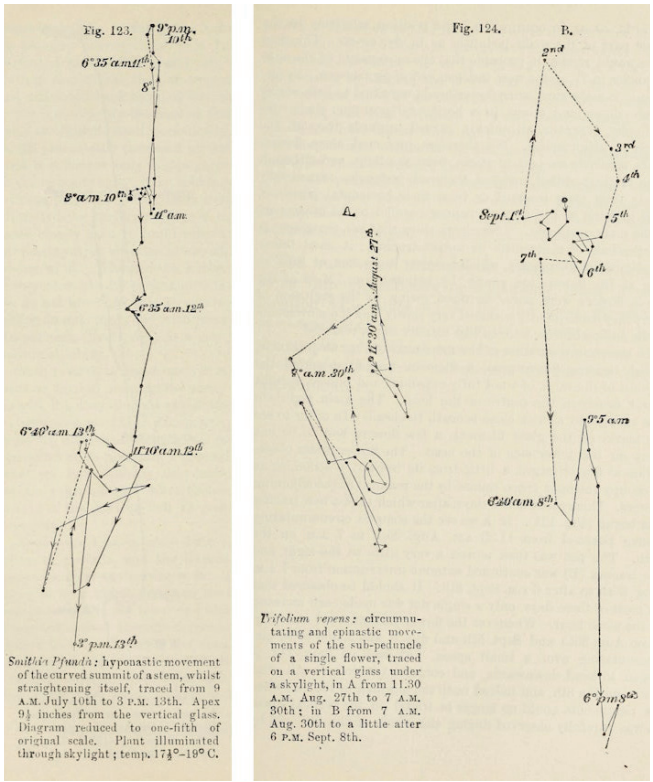


fig 1.7. Darwin's diagrams recording the movements of plants across several days in The Power of Movement in Plants, 1896. *Left to right: a species of Smithia, and white clover, Trifolium repens. [Public Domain Review]*

Part 1:

When Green Becomes Strange

A Glossary of Green

The Polysemic Notions of Greenness

1. Green: a colour obtained by mixing the primary colours blue and yellow. Wavelength 495–570 nm
2. To Green: to increase the apparent greenness of a place, either through increased vegetation or an appearance of ecological friendliness
3. Natural: which pertains to nature
4. Plantness: which pertains to plant as being
5. Alive: which has not yet gone through senescence
6. Livingness: present or past
7. Un-artificial: not-man made
8. Balance: understood as harmonious through a consistent cyclicality
9. Lushness of Vegetation: an excess of green flora of strong vibrancy, often contingent to frequent rainfall
10. Beauty
11. Botanical: that which pertains to the plant kingdom
12. *Bio;* and its related denominations
13. The Accumulation of Vegetation: Excessive quantities of Green
14. Chlorophyll: "The colouring matter of the leaves and other green parts of plants; found in the cells usually in the form of minute granules (chlorophyll-bodies or -corpuscles). Its chemical composition is uncertain. It forms the colouring matter also of various green water-animalcules, e.g. Hydra viridis"[30]
15. Chlorophyll a: C55H72O5N4Mg
16. Uranium, radioactive glow: the ore of which can be fluorescent, to a yellowish-greenish-blueish tone
17. Green Energy: sustainably produces energy, i.e. without the use of fossil fuels
18. E140, E141, E142
19. Greenbelt: a land-use zoning designation which restricts building in an area peripheral to a city
20. Sylvan
21. Green roof: a vegetated roofing system which is functionally integrated into an architectural

30 *Oxford English Dictionary. s.v.* "Chlorophyll, n. Meanings, Etymology and More " accessed May 20, 2024, https://www.oed.com/dictionary/chlorophyll_n.

structure
22. Greenwall: a vegetated system which is superficially integrated into an architectural structure
23. Greenscreens
24. #009933
25. PANTONE 354 C
26. 0, 177, 64
27. Greenwashing: to give the impression of sustainability; typ. Superficially
28. Green Politics
29. Greenhouse: a climatically regulate transparent structure, typ. Used to grow plants
30. Greenhouse Gas: CO2, MH4, HFC, SF6, NF3
31. Greenroom: back of house waiting room in a theater
32. Greenery: a generic of living plants
33. Verdure (fr): trans. greenery
34. Verdura (it): trans. Vegetable
35. Verdant: of resounding greenness
36. Green thumb: an instinct towards fruitful gardening
37. Envy: A Shakespearian twist on the meaning of a pallid complexion
38. New or Inexperienced
39. Unripe fruit: the state prior to the transition of an organism chloroplasts into chromoplasts (which contains carotenoids and anthocyanins)
40. A leafy vegetable: in contrast to botanically fruit type vegetables
41. Greens: plural form of 'leafy vegetable', raw or cooked for human consumption
42. Sustainable: environmentally friendly, or related to green energy
43. 'Good'
44. Biodiversity
45. Herbage or Herbaceous
46. Vigor: of good health and vitality
47. Of a golf course: the lawn which surrounds the flagpole
48. Freshness
49. Increased Air quality: More-then-usual greenness is assumed to provide this environmental service

50. Harmony
51. Good health
52. Vigorous: full of vigor
53. Oxygenated: the waste product of photosynthesis. Breeeathe in
54. Tree: a term of common parlance to describe a vegetal organism with a woody trunk, secondary branches, and leaves
55. Tree-ness: the ability of a tree to become individualised.
56. Natural Paradise
57. Abundance: plentiful greenness requires plentiful life-sustaining resources
58. Garden of Eden
59. Cyclical growth: as opposed to cumulative growth, possesses minor static-ness due to cyclical deterioration
60. Evergreen: denoting a plant which retains greenness in it's foliage across the calendar year or growing season
61. Pastoral: land which evokes that used for the grazing of sheep or cattle

***

Polysemic words, such as green, are words which hold several distinct meanings at once and are as such 'semantically ambiguous'. They take advantage of a linguistic quirk, which allows for lexical ambiguity in favor of contextual interpretation.[31]

Colour words are inherently, extremely plastic. They are not by nature fixed to objects or concepts outside of social realms, nor are they even material. A word like 'greenness', holds a depth of possible meanings so wide and contradictory, that it has become to be perceived as exceedingly shallow.

31 Ekaterini Klepousniotou and Shari R. Baum, "Disambiguating the Ambiguity Advantage Effect in Word Recognition: An Advantage for Polysemous but Not Homonymous Words," *Journal of Neurolinguistics* 20, no. 1 (January 1, 2007): 2, https://doi.org/10.1016/j.jneuroling.2006.02.001.

Introduction to Green

Dark red like crushed grapes, gold and black shimmers from candlelight. The colour of both wine and the sea does not lay static. It flows. It is thick. It is deep.

If wine was the colour of the sea, what was the colour of greenness?

In his treatise on colour (Farbenlehre), Goethe notes that Homer—in the Odyssey and Iliad—described the sea as 'wine-colored'[32]. Some theorized that the Ancient Greeks were colorblind;[33] but this vocabulary driven proof was soon debunked by architectural and sculptural studies which abundantly used, and named, vivid hues in art. Rather, the poetic nature of Homeric writings would have most likely influenced the choice of language. The sea may have been wine-dark, because light, rather than hue, was prioritized.[34]

The known chromatic lexicon of ancient Greek was composed of two key fields of colour: leukos (white), and melanos (black)[35] along with the third more uncertain erythros (reds).

32 Michel Pastoureau, *Green: The History of a Color* (Princeton: University Press, 2014)17.
33 Caroline Alexander, "A Winelike Sea," *Lapham's Quarterly*, 2013, https://www.laphamsquarterly.org/sea/winelike-sea. Posited by William Gladstone in *Studies on Homer and the Homeric Age.*
34 Alexander, "A Winelike Sea."
35 Pastoureau, 14.

While these three shades do not line up with any of the primary triad of color we understand today, neither RGB, CMYK or the painters' primaries, it does align with Paul Kay and Brent Berlin's 1969 study, Basic Colour Terms,[36] in which they claim white, black and red as the first three colours a language will name, before then naming yellow or green, blue, brown and then the secondary colours of pink, gray, purple and orange, ultimately capping at these 11 universal categories of colour.[37]

But not having a name for a colour does not necessarily indicate a lack in perception.[38] Perhaps instead, there was no need to name the colours of nature, for they vacillated and morphed with the daylight. A cerulean sea could morph from azurin to wine-colored in the sunset to inky black in the moonlight.

Notably, Kay and Berlin's studies of colour omitted factors of brilliance and transparency, wetness and dryness, etc., which whilst separate from colour in the English language, are not universally considered so.[39] More recent evolutionary schemes of colour posits that the 'first stage' of colour categorization in language is one in which chromatic information is recognized as 'object color', for example leaf-colour, or bark-colour, at which point colour is not yet sperate from other material nature of an object.[40]

When did colour shift from the world of things to the world of words?

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36 Brent Berlin, *University and Evolution of Basic Color Terms*, University of California, Berkeley. Laboratory for Language-Behavior Research. Working Paper ; No.1 (Berkeley: University of California, 1968).
37 Berlin.
38 Alexander, "A Winelike Sea."
39 John A. Lucy, "The Linguistics of 'Color,'" in *Color Categories in Thought and Language*, ed. C. L. Hardin and Luisa Maffi (Cambridge: Cambridge University Press, 1997), 331, https://doi.org/10.1017/CBO9780511519819.015.
40 Andrew Jones and Gavin MacGregor, *Colouring the Past: The Significance of Colour in Archaeological Research* (Oxford ; Berg, 2002), 45.

True color, to the Greeks, did not belong to the natural world, but was the manufactured color of dyes, and resided in fabrics, clothing, and paints.[41]

Extracted Color.

And if anything, it might be possible to theorize that 'greenness' as we know it today, a synonym for 'nature', did not yet exist.[42]

The duality of 'colour':

'Color':
as a semiotic marker, as symbol and means of direct communication. [43]

'Colour':
as pure perception. [44]

I will use the American variant of *'color'*, to distinguish between the two. Both because of its strangeness, and also because its orthographic loss aptly mirrors the loss born from over-defining a thing.

41 Pastoureau, Green, 16.
42 Pastoureau, 58.
43 This is the color which is perceived and analyzed as a marker of 'deeper' meaning. Color is secondary to thought, secondary to form, to the object. #81D8D0 becomes both color and synonymous with luxury jewelry, Pantone 219C is not only owned by a corporation, but also an icon of 21st century feminism.
44 The perception that touches one step further into the unconscious mind, behind the superficial unconscious which houses the habitual reactions of the mind. To bring out colour requires evoking an almost Brechtian estrangement between subject and object of colour.

Colour = calor

If sunlight emanates from the sun, then colour, born from the sun, is born from fire.

In his work, *"What color is sacred"* Micheal Taussig introduces the aforementioned equation made by 7th century savant Isidore de Seville to highlight a way of seeing, or making connection, that has largely been forsaken in both scientific study and common thought.[45] A way of seeing that pertains to myth, to magic, to the sacred, to wonder. One which harkens to before *"the language of alchemy had been displaced by that of the chemist"*.[46]

To equate 'calor', Latin for 'heat', to colour takes us through a logical dance, or a jazz ballad, if you will, bereft of both order or predictable rhythm. Heat, is of course, derived from the sun as sunlight, source of all earth-bound heat. Sunlight creates all colour, for without light there would be darkness, and lastly, they are equal as they are etymologically similar, and as such heat and colour are the same.

And as preposterous of an argument, I agree with it. Because this logic of unfurling the power of colour allows me to look at the rainbow iridescence of dark, dark, tar pits and see greenness. It allows looking at neon green plastic plants, bright in the dead of winter, and seeing the chloroplasts of Mesozoic cyanobacteria whose greenness now fuels the world.

And if the ordering and classification of color extracted from light by Newton into a septenary *rainbow spectrum* are solidly inscribed in the imagination of the modern person, perhaps something of the alchemist colours also remains in the subconscious.

45 Michael T. Taussig, *What Color Is the Sacred?* (Chicago: University of Chicago Press, 2009), 6.
46 Taussig, *What Color Is the Sacred?*, 6.

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In the early 19th century, at the time Goethe wrote his treatise on colour, both men and women, 'of refinement', were disinclined to colour.[47] Vivid colours were to be avoided, both in dress as well as in the objects which surround oneself. Such colours were of great fondness to children, 'uncivilized nations', 'uneducated people', southern European women and "Men in the state of nature" (Indigenous populations of the Americas).[48]

Definitely something of the other. Fascinatingly 'exotic', yet the monochrome ruled superior.

Moments of mass chromophilia are, more often than not, quickly categorized as flickers of exceptionalism, of revolt, or of queerness. The multicolour scribbles of a young child are tolerated, pinned on the fridge by equally colorful magnets. The controlled, restrained and properly 'framed' addition of colour to tasteful white or gray walls is permitted, like an adventurous foray of the civilized man in the world of the artist.

How queer, they say, how daring. But even the art world itself has weathered the waves of chromophobia.

Attraction, and repulsion.

The work of the fauvists or Rothko originally evoked visceral reactions from the art world. Rejection of their overly bright tones, unharmonious pairings, and the lack of realism in the depictions of the subjects. Blazing colors, carefully presented in ways which are, curiously, capable of convincing even a 'colour' blind, person that somehow, colour is alive.

This is the necessary disruption of expected colour harmony that is key to remind the psyche of the power of colour.

47 Taussig, 3.
48 Ibid.



fig 1.8. The Orchard, Maurice de Vlaminck, *1905 (Oil on canvas), Private Collection. [Public Domain, courtesy of WikiArt]*

Much earlier in the century, the impressionist set the ground for 'new' ways of seeing. One which would focus on form obtained "not through line-drawing, but through the vibration of colour itself".[49] *Jules Laforgue speaks of the impressionist eye as able to see a 'polyphony of colour' and that "what the Impressionist sees is based on a thousand nuances of tone and effect, by shifts in appearance in keeping with the nature of things, which is not fixed, but ever-changing."*[50]

Fauvism disturbed even further, creating a new palette for landscape paintings.[51] *In part inspired by the post impressionists, themselves inspired by the tropical landscapes of La Martinique.*[52]

Colour is always more vibrant away from home.

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49 Laforgue, Jules. 'L'Impressionnisme'. 1883. Translated by Tina Kover for *All Keyboards are Legitimate: Versions of Jules Laforgue* (Guillemot Press, 2023).

50 Laforgue, Jules. 'L'Impressionnisme'. 1883.

51 Jonathan Phillips, "The Fauve Landscape: Metropolitan Museum of Art, New York; Traveling Exhibit," *American Artist* 55, no. 590 (September 1991): 48.

52 Phillips, 48.



fig 1.9. Untitled (Green on Blue) *Mark Rothko, 1968. [Fair Use, courtesy of WikiArt]*
In his many untitled works, Rothko painted fuzzy colour as light, etherealised paint itself, to produce a luminosity which reifies light as "colour dissolved in light, or light tinted and suffused with color".[53] *The image in its entirety, vibrates as colour.*

53 Max Kozloff, "the problem of color-light in mark rothko," *Artforum* (blog), September 1, 1965, https://www.artforum.com/features/the-problem-of-color-light-in-mark-rothko-211841/.

Green was the color of the 'other', brought from foreign lands where fabrics such as silk and more advanced mordant and dyeing technologies allowed for the production of brighter, longer lasting greens. In the time of the Roman Republic, bright colors, including greens, were scorned by moralist, considered as *'floridi'* (florid) and *'inhonesti'* (dishonest), unlike the morally upright browns, whites, yellows, reds, and ochres.[54] Green was much too barbaric (German), much too Islamic.[55]

Roman greens were produced for the eccentric, for ephemeral gowns which would be replaced before one noticed the delicate greenness of it transform into a muddy brownish-grayish yellow.[56] Before the widespread use of longer lasting dyes for green, before the discovery that yellow and blue could be layered to produce green, un-mordanted plant dyes were most common.

Unlike the Greeks, the Romans had no difficulty with naming green. Words for green were rooted primarily in *viridis,* and etymologically related to words which evoke growth and vigor: *virere* (to be green, to be vigorous), *vis* (strength), *ver* (spring) etc. Less commonly, words for green emerged as relational to plants, such as *prasinus* (green like leeks), *herbeus* (green like grass). A largely 'nature' driven lexicon.

Were the colors of the living scorned and rejected from the realm of man-made, man-worn things?

Green would continue to make its way into dyestuff: woad mixed with indigo and turmeric, buckthorn and alum, all worked together to create new ranges of green. Later, dyes made from arsenic spurred into fashion brilliant emerald tones. Fortunately, poisonous fabrics do not often stay fashionable for long. But a new semiotic

54 Pastoureau, Green, 24.
55 Pastoureau, 25.
56 Pastoureau, 24.

meaning of green which split it from the natural world, was born.

In the shift to the production of color via artificial means, coal tar derived aniline[57] was the base chemical which produced the synthetic dyes that would flood the world with an abundance of new colors. Mauves and fuchsias, teals and neons.

These new colors adorned the vision and psyche of western society with object and nature unbound shades that expanded the 11 'Basic colors' to an infinity of individual colors.[58] Newtons rainbow prism materialized itself in the color swatch walls of HomeDepot. As man marched to conquer nature, so too was colour.

In a sense, this immaterial, unbound notion of color might seem closer to the notion of 'Colour'. It exists by itself, unbound by form, not-yet lost to semiotics. Yet it is not 'colour'. It does not morph; it is bound by a six-digit code. It is hyper categorized. Color is 'colour' which has lost its materiality.

Conquered and commodified, color is in most applications a joyless reflection of colour, whose attributes excite only vision, and no other sense.[59]

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Greenness—that is the visually omnipresence of chlorophyll containing plants—was 'othered' by same sterilization of the realm of human made things which othered colour from it. Messy ecosystems are put in orderly frames, or else they are expulsed, re-ordered, tamed into square hedges and boxy street trees.

Once green had solidly become the 'color' of nature, it seemed almost second nature to ignore it; to let it fade into the background, where it provided the ideal backdrop for vibrantly colored flowers and hiding places for mystical beasts.

57 Taussig, 43.
58 Taussig, 154.
59 Taussig, 42. Originally stated by Francois Delamare and Bernard Guineau in *Colors: The Story of Dyes and Pigments*, New York: H.N. Abrams, 2000, 125.

Green is backdrop. In spite of the eye having evolved to be extremely sensitive to variations in green[60], most of us have now lost the ability to perceive any depth in vegetal greenness, to see beyond fuzzy.

Greenness is palimpsest: an old growth forest, palimpsest of cycle of successions, decayed logs, weedy saplings growing out of rotten stumps, torn roots, windswept, reburied elsewhere, a new start. Ephemeral stagings of succession or burnt understories.

Greenness exists primarily in living things. A palimpsest now, smudged history and ephemeral thens, layered on top of each. Fuzzy because greenness evokes the tremors of chlorophyll processing dancing light into energy, into plant cells pushing upwards reaching for more light. More *calor*.

Greenness lingers from past existences, in the artificial green of objects such as plastic plants. But this greenness is artificial, grown as a replica of it, semiotically green, but shaped to possess a portion of the blurriness with which it can traverse into the realm of greenness as colour. An imitation with a difference.[61]

Greenness is the newness of spring, a constant newness which makes deep time almost invisible. Green cloaked land homogenizes the landscape; this is the illusion of green.

Perhaps greenness is too common to amaze. The light of a red sunset painting evergreens in purple, is enough of a disturbance to amaze, but for greenness itself to evoke 'Colour' with such strength, the mind must need a whirlwind, maybe even the fever driven madness of a soul close to death.[62]

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60 James P. Higham, "All the Colors That Human Vision Neglects," *The Atlantic* (blog), February 7, 2018, https://www.theatlantic.com/science/archive/2018/02/seeing-red/552473/.

61 Taussig, *What Color Is the Sacred?*, 192.

62 Taussig, *What Color Is the Sacred?,* 86.

The Estrangement of Green

"Methods become exhausted; stimuli no longer work. New problems appear and demand new methods. Reality changes: in order to represent it, modes of representation must also change. Nothing comes from nothing; the new comes from the old, but that is why it is new."[63]

Bertolt Brecht, *Popularity and Realism*, 1938.

Verfremdungeffekt, the effect of distanciation, of alienation, or of estrangement, was used in theater by Brecht to distance the audience from the play. This estrangement aimed to make what was familiar, strange, what was emotional, distant. In these clashes the spectator would be denied the comfort of forgetting that they were watching a play.

Of course, it would not be theater if the audience was not entertained. A fully estranged theater go-er would walk out of the door before the intermission.

Its rationale seeks to unveil the voice which tells the story, to blind the eyes which see the image, and to break the mind which creates within itself the world beyond the stage.

And so, I turn my garden into a stage, and invite you to see the strangeness of green.

63 Bertolt Brecht, "Popularity and Realism," in *Modern Art And Modernism* (Routledge, 1982).

"These ambiguities, redundances, and deficiencies recall those attributed by Dr. Franz Kuhn to a certain Chinese encyclopedia entitled Celestial Emporium of Benevolent Knowledge. On those remote pages it is written that animals are divided into (a) those that belong to the Emperor, (b) embalmed ones, (c) those that are trained, (d) suckling pigs, I mermaids, (f) fabulous ones, (g) stray dogs, (h) those that are included in this classification, (i) those that tremble as if they were mad, (j) innumerable ones, (k) those drawn with a very fine camel's hair brush, (I) others, (m) those that have just broken a flower vase, (n) those that resemble flies from a distance."[64]

Luis Borges, "The Analytical Language of John Wilkins" 1942

64 Jorge Luis Borges, "The Analytical Language of John Wilkins," *Borges: A Reader*, 3, accessed April 16, 2023, https://www.academia.edu/70273906/The_analytical_language_of_John_Wilkins. Originally published in La Nacion, and subsequently Otras Inquisiciones (1937-1952).

The late 18th century was swept by a new hunger of the unknown,[65] a *"quantifying spirit"**. Starting with the Linnean classification[66] of the natural world, and expanding into meteorology, geodesy, cartography, chemistry, weights and measures, economy and even language[67]. Scientists sought to conquer knowledge through systematisation.

* Originally theorised by Tore Frängsmyr, J.L. Heilbron, and Robin E. Rider, in their publication "The Quantifying Spirit of the Eighteenth Century", Shannon Mattern present the early 18th century as the first 'Information age', in which an overabundance of knowledge, and surely, the boredom of increasingly comfortable life, transformed natural history, it's analysis and classification, into a leisurely pursuit.

The Encyclopédie is compared by D'Alembert to a world map, a both totalising and simplified representation of the relations between elements of the territory of knowledge* Within this map, categories of knowledge would be organised and have their own map onto which subcategories of knowledge could be mapped.[68]

* The first edition of Linnaeus Systema naturæ was published in , and would be frequently amended thereafter. Linnaeus split the natural world in to three kingdoms, Plant, Animal and Mineral, which were further divided into classes, genera, and finally species. Each species was given a binomial name, composed of genus and specie name.

Ex: The honeybee Apis(genera) mellifera (species).

But do not be fooled, the map is not the territory.[69] For a map to even start approaching becoming territory, it would have to become a 1:1 scale representation of territory, layered upon that territory itself.[70] That, however, would prove to be a pointless exercise: one which would undoubtedly result in failure. How can a 1:1 map become the territory if parts of the territory are invisible/unnameable/unrepresentable?

The field, unlike the land, defined by James Corner, contains only the conditions of site defined by and intervened in by the designer, and is curated to his needs. I do not, however, believe in usefulness as sole metric for organisation.

'Will this benefit us?'
Must it?

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65 Shannon Mattern, "Cloud and Field," *Places Journal*, August 2, 2016, https://doi.org/10.22269/160802.
66 Marta Paterlini, "There Shall Be Order. The Legacy of Linnaeus in the Age of Molecular Biology," *EMBO Reports* 8, no. 9 (September 2007): 814–16, https://doi.org/10.1038/sj.embor.7401061.
67 Thomas L. Hankins, review of *Review of The Quantifying Spirit in the Eighteenth Century,* by Tore Frängsmyr, J. L. Heilbron, and Robin E. Rider, Isis 83, no. 1 (1992): 138–40.
68 Chad Wellmon, "Touching Books: Diderot, Novalis, and the Encyclopedia of the Future," *Representations,* no. 114 (2011): 68, https://doi.org/10.1525/rep.2011.114.1.65.
69 Michael Batty, "A Map Is Not the Territory, or Is It?," *Environment and Planning B: Urban Analytics and City Science* 46, no. 4 (May 1, 2019): 599–602, https://doi.org/10.1177/2399808319850652.
70 Jorge Luis Borges, *Collected Fictions* (New York, New York: Penguin Books, 1998), 325.

"In the land of Tartary toward high Inde and Bacharye in the country of the Grand Can there growth a manner of plant that is strange and wonderful indeed. This, which they call Barometz, meaning the lamb, grows from the earth in the likeness of a real lamb having head, eyes, feet and is attached at the navel to a root or stem. Its covering is an exceedingly soft wool. In height it is half a cubit and according to those who tell of this wondrous thing its taste is agreeable and its blood is sweet. It lives as long as there is herbage within reach of the stem to which it is tethered and from which it derives its life."[71]

Henry Lee, *The Vegetable Lamb of Tartary*, 1887

71 Henry Lee, *The Vegetable Lamb of Tartary: A Curious Fable of the Cotton Plant, To Which Is Added a Sketch of the History of Cotton and the Cotton Trade* (S. Low, Marston, Searle, & Rivington, 1887).

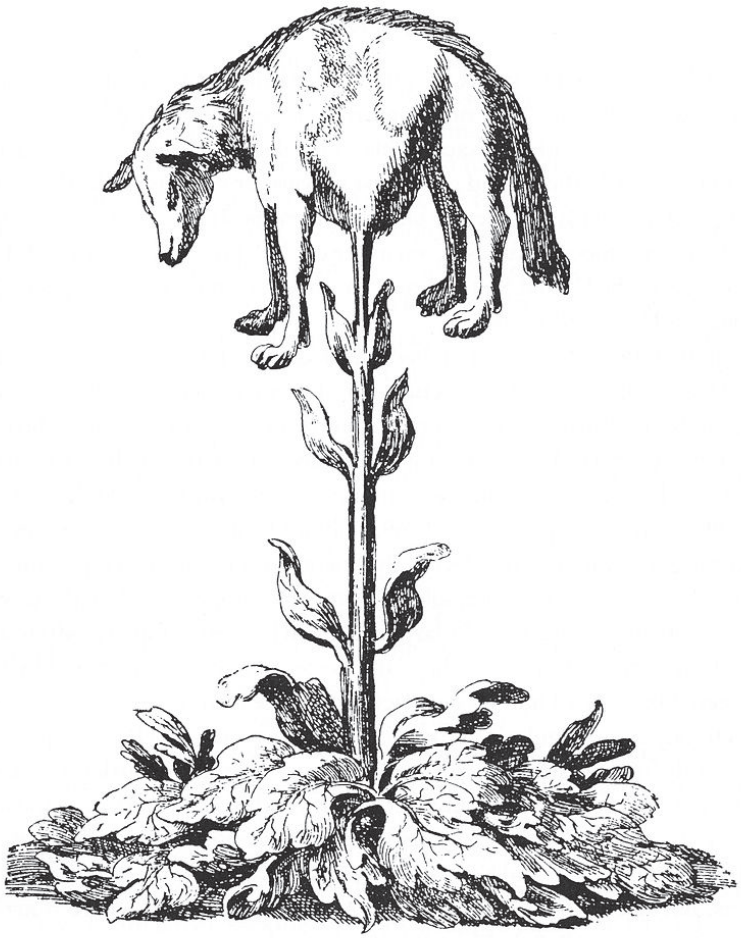


fig 1.10. The Vegetable lamb of Tartary. *From 'A Curious Fable of the Cotton Plant'. By Henry Lee, 1887.[Wiki Commons, Public Domain]*

"Other monsters are made up by combining various kinds of animals; the Barometz is a union of animal and vegetable kingdoms."[72]

72 Jorge Luis Borges, *The Book of Imaginary Beings* (New York, 1970).

The Hero who returns from his daring and mysterious journey to the field, to the unknown elsewhere, brings back with his data and collected knowledge, an understanding that his findings will be truth until proven wrong. In the mid 14th century, the *problematic** Sir John Mandeville wrote of his travels to Tartary, in which he describes the cotton plant as being*:*

**'Problematic', to quote Borges, In 'The book of Imaginary beings", in reference to the dubious nature of Mandeville's travel accounts.*

*"That strange plant-animal or vegetable Lamb of Tartary, which Wolves delight to feed on, which hath the shape of a Lamb, affordeth a bloody juyce upon breaking, and liveth while the plants be consumed about it."**[73]

**From Pseudodoxia Epidemica, by Sir Thomas Browne*

Now we known, of course, that such a plant does not exist, and that most of Sir Mandeville's travels were most likely fabricated. I wonder what motivated such lies; was it fame, fortune? Or perhaps pressure from more accomplished peers? Today, as we are well into the *ethnographic turn**—in which fieldwork has once again become imperative and in which reductive field guides and physical artifacts are produced—we once again romanticise the fieldworker, and his colonialist drive.[74]

** The ethnographic puts emphasis on inter-subjectivity, where-in the anthropologist, or field-working researcher is included within the mapping of relationships being studied.*

Although the lamb of Tartary was soon relegated to myth, debates on the classification of species as *Zoophytes**, plant-like-animals and animal-like-plants, continued until the 19th century. The name itself was a contradiction, a sort of unsolvable glitch between two very certain categorisations of beings. Even Darwin, who would later spearhead classification through evolutionary relationships, would use the term.

** Zoophytes were categoried by George Cuvier (1817) in Le Règne Animal, as Animalia radiata, and included sea sponges, corals, jellyfish and sea anemones.*

In thinking of non-humans in relation to architecture, or in theorizing on ways of representing non-humans as beings on an equal standing to humans, there exist a strong zoo-centric bias,

73 Jorge Luis Borges, *The Book of Imaginary Beings*, 28.

74 Mattern, "Cloud and Field."
In fields such as Archeology, this is marked by both colonialist ideologies in which 'staking claim also equals transgression', and gendered ideologies, wherein the fieldworker is portrayed as heroic, macho, endurant in the face of the 'wild' or the unknown.

which often omits both plant and fungi.[75] The first affront being the common association of fungi with flora as a singular category of living things, despite the current *six kingdom** consensus.[76]

***** *The consensus today is that all living organisms are classified into one of six kingdoms: Archaebacteria, Eubacteria, Protista, Fungi, Plantae, or Animalia.*

In his writing on plant intelligence, Paco Calvo, breaks down *The Great Chain of Being*, or *La scala naturæ*, the pre-Darwinian conception of the hierarchy of living things. Organised vertically, it placed God at the top, followed by Man, descending through smaller and smaller animals until it reached insects, and just one rung above mineral, were placed any life which was immobile, plant, coral etc.[77] Trees occupy an unusual position is this diagram, elevated above all other flora. Tree history and human history have often intermingled. Individual trees have embodied ideals of knowledge and enlightenment in the Buddha and Newton, or even been personified through legal protection.[78]

Tree thinking in classification harkens back to at least the third century BCE, where the philosopher Porphyry created Arbor Porphyriana, an organizing tree of the 'scale of being', and is the ancestor of the modern decision tree.[79] In the previously mentioned Encyclopédie by Diderot and D'Alembert, the map of the universe was visualized information in a conceptual map intitled "figurative system of human knowledge", organised as a hierarchical tree.

Eventually, Darwin would organize evolution through a tree of life.[80] This thesis focuses on flora, the most ignored non-human kingdom.

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75 John Ryan, "Writing the Lives of Plants: Phytography and the Botanical Imagination," *A/b: Auto/Biography Studies* 35 (January 2, 2020): 101, https://doi.org/10.1080/08989575.2020.1720181.
76 Thomas Cavalier-Smith, "Only Six Kingdoms of Life," *Proceedings of the Royal Society of London. Series B: Biological Science*s 271, no. 1545 (June 22, 2004): 1251–62, https://doi.org/10.1098/rspb.2004.2705.
77 Calvo, *Planta Sapiens*, 30.
78 Shannon Mattern, "Tree Thinking," *Places Journal*, September 21, 2021, https://doi.org/10.22269/210921.
79 Mattern.
80 Mattern.



fig 1.11. From a ca. 1505 edition of Arbor Scientiae, *by Ramon Llull. [Wikimedia, Public domain]*
An Encyclopedia, organised in 16 trees of 'universal knowledge': elemental, vegetal, sensual, imaginal, human, moral, imperial, apostolic, celestial, angelic, "eviternal", maternal, divine and human (pertaining to Jesus), and divine trees.[81]

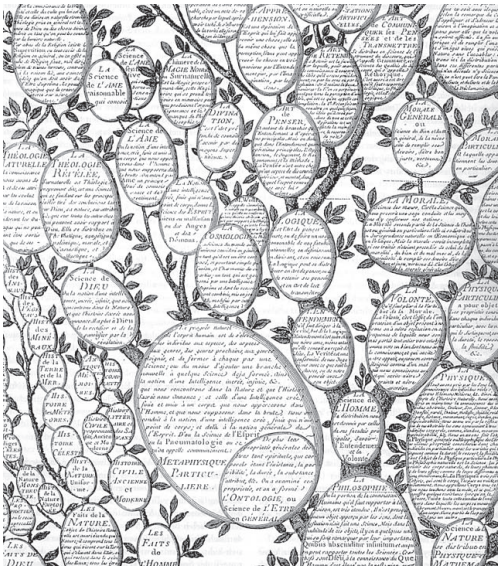


fig 1.12. Visualizations of the "Figurative System of Human Knowledge," *by Denis Diderot and Jean le Rond d'Alembert, from Encyclopédie, 1750. [Wikimedia, Public domain]*

81 Anthony Bonner, "The Structure of the Arbor Scientiae," in Arbor Scientiae. Der Baum Des Wissens von Ramon Llull, ed. F. Domínguez Reboiras, P. Villalba - Varneda, and P. Walter, vol. 42, *Instrumenta Patristica et Mediaevalia* (Turnhout: Brepols Publishers, 2002), 21–34, https://doi.org/10.1484/M.IPM-EB.3.1763.

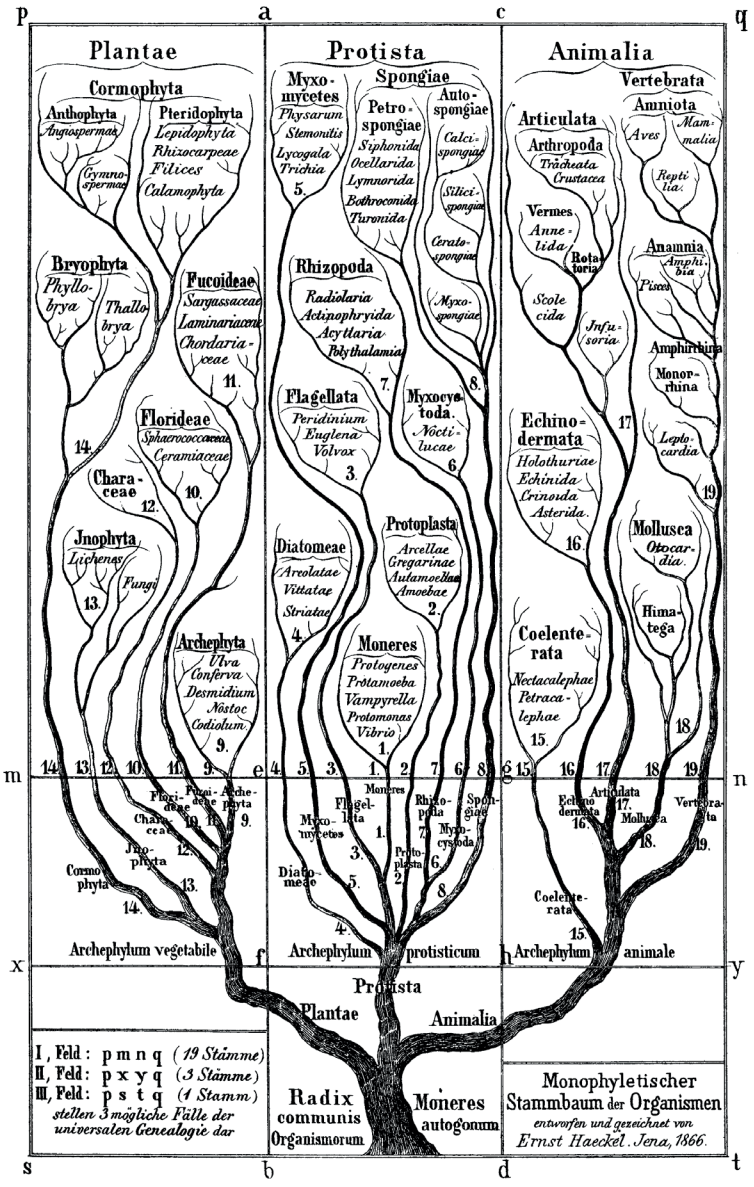


fig 1.13. Ernst Haeckel's original conception of the three kingdoms of life, *1866. [Wiki Commons, Public Domain]*
Notice the inclusion of the cyanobacterium Nostoc with plants. Note the inclusion of lichens and fungi in the kingdom 'plantae'. Following Linnaeus, Haeckel would split the living even further, adding the third kingdom Protista to the previously thought two (Animalia and Plantae).





fig 1.15. The Great Chain of Being (Scala Naturae), *from Retorica Christiana, by Didacus Valades (Diego Valdes), 1579. [Wikimedia, Public Domain]*

fig 1.14. Chain of being, *by Charles Bonnet, 'Traité d'insectologie', 1745. [Wikimedia, Public Domain]*

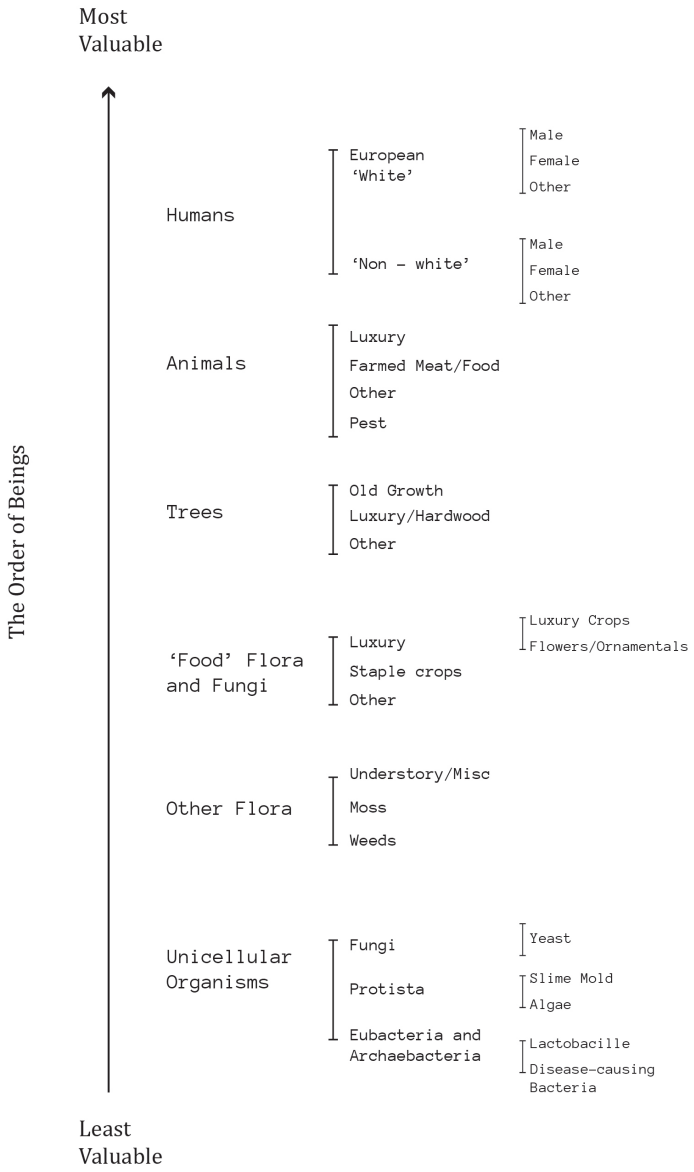


fig 1.16. The Order of Things. *2023 [Diagram by Author]*

The above is an imagined, modern hierarchical map of the perception of living things. Beings with the most human like characteristics or the ability to display human-like intelligence are given the most care. Coupled with perceptions of similitudes, are perceptions of usefulness; majestic wildlife rank higher than cattle and food stock, which in turn rank above urban pests, rats, racoons and so on.

Trees, notably old growth or particularly culturally sensitive species like Sakura and Gingko, rank above food producing flora and fungi, which are seen as both mysteriously dangerous, mystical healers, and gourmet delicacies. On the bottom rung of flora: underbrush plants, grass and 'weeds', the counter-useful flora. Least mentioned are Protists and (two) Bacteria Kingdoms.

"Territory is the basis for conquest. Territory requires that filiation be planted and legitimated. Territory is defined by its limits, and they must be expanded. A land henceforth has no limits. That is the reason it is worth defending against every form of alienation." [82]

Edouard Glissant, *Poetics of Relations,* 1997

The Map is not the Territory.[83]
The Territory is not the Land.
The Drawing is not the Tree.

The goal is not to map, nor is it to find territory. It is not to produce drawings, nor to understand tree.

Rather this thesis seeks to populate the space in between these two things. What of place is not shown on the map, and what is forgotten when land is thought of as territory, defined by its limits, limits drawn and maintained through human relations.[84]

This gap between the territory and the map is understood, as the gap between real and model of representation. Perhaps a model may emphasise a specific geographic element, tree density, topography, and etc., from another.

Perhaps however it is not just the subject or objects present on the 'territory' which are omitted, but rather the act of translation from eye onto paper, which distorts *the real.*[85] What is then, the forgotten which lies not between the map and the real*, but between the real and the eye?

** The real, defined by Lacan as that which escapes the symbolic and imaginary. It exists beyond reach, hidden behind an 'image-screen', a conceptualisation of what can be seen which exists at the intersection of the perceptions and imagination of the observer with the real.*

82 Glissant, *Poetics of Relation,* 163.
83 Alfred Korzybski, *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics,* 5. ed., 3. print (Brooklyn, N.Y: Inst. of General Semantics, 2005).
84 Glissant, *Poetics of Relation,* 151.
85 K. Michael Hays, *Architecture's Desire: Reading the Late Avant-Garde,* Writing Architecture Series (Cambridge, Mass: MIT Press, 2010), 99.

The goal then, is to learn how to *see through the eyes of another.*

A paradoxical feat, one whose futility has become increasingly apparent since the publication of Jacob Von Uexküll, *A Foray into the Worlds of Animals and Humans* originally published in 1934. Afterall, we "cannot be nor fully understand the non-human—we are, finally, stuck with ourselves".[86]

The work of Von Uexküll was motivated by a will to criticize the biology of his day, and condemned its application of objectifying perspectives onto non-human animals.[87] He argues all animals had to be understood as the subject of their surroundings, the *Umwelt,* an individual metaphorical bubble of their own time and space, which prevents them from being able to directly perceive the subjective world of other animals, humans included.

The evolution of the Spider, its web and the Fly are bound together, just as Oak leaves and rain droplets. They do this whilst simultaneously participating in a polyphonic like world making, where entities exist not as pre-established, but 'beings-in-the making', constantly shifting and made through their relations.[88]

They blur the edges.

Stan Brackhage urges for visual representation which transcends the visual reality of the human eye, but instead come to "inherit worlds of eyes".[89] Of course, plants do not possess literal eyes. But within their Umwelt, they inscribe their own stories into matter; *autobiographies of greenness*.

86 Gregory Zinman, «Echoes of the Earth: Handmade Film Ecologies», in *Process Cinema: Handmade Film in the Digital Age* (Montreal ; McGill-Queen's University Press, 2019), 111.
87 Sara Asu Schroer, "Jakob von Uexküll: The Concept of Umwelt and Its Potentials for an Anthropology Beyond the Human," *Ethnos* 86, no. 1 (2021): 132–52, https://doi.org/10.1080/00141844.2019.1606841.
88 Schroer.
89 Brakhage, *Metaphors on Vision*, 125.

Part 2:

Between the Eye and the Image

The Eye

Imagine the opening shot of a documentary film on plants: slowed-down video footage, of leaves bending under glimmering water droplets and light-searching vines moving with the sun. Time-lapse technology was first introduced in film with the 1910 release of '*The Birth of a Flower*',[90] in which 10 varieties of flower were photographed over 1h to 3 days and spliced into 30 film segments.[91]

Key here, is that this new technological media was able to reveal a never-yet-seen-before dimension of plant life, one in which would be perceived as agential and animate, and elevate it from its place as the bottom rung of the scale of life. [92]

90 *The Birth of a Flower ,* directed by Percy Smith (Kineto Films, 1910).

91 Kyle Murdock, "Green Screens, or Watching Flowers at the Cinema: Realism, Fantasy, and Modernism in Early Time-Lapse Film," *Modernism/Modernity Print Plus,* January 20, 2021, https://www.modernismmodernity.org/forums/posts/murdock-green-screens.

92 Murdock.



fig 2.1. Still taken from 'The Birth of a Flower' *by Percy Smith, 1910. Roses over 3 days. [Courtesy of Kineto films]*



fig 2.2. Still taken from 'The Birth of a Flower' *by Percy Smith, 1910. Snowdrops over 3 days. [Courtesy of Kineto films]*



fig 2.3. Still taken from 'The Birth of a Flower' *by Percy Smith, 1910. Daylilies over 3 days.[Courtesy of Kineto films]*

The time-lapse had the power to show what was previously thought of as unseeable, by slowing the movement of the plant from 'plant-time' to that of human perception. In a way it estranges, and defamiliarizes, but simultaneously to its 'making strange', it also makes familiar, by bringing the plant subject closer to our own perception through media technological manipulation.

The film, sits somewhere between reality and fiction. It touches the real in what it represents, but borders fantasy, or magic making, in the power of the time-lapse to produce wonderment through its editing.[93] The conundrum present here, as with all forms of representation that strive to showcase non-human perspectives, is that any observation of the non-human world involves and entangles the human in the representation.

In the digital age, where time-lapses and digital cameras have become omnipresent, macro photography and the microscope have become the new agents of defamiliarization. Optical microscopes amplify up to 1000 times, electro microscopes up to 10,000,000,[94] increasing the scale of the smallest living thing to be visible to the human eye, and macro photography has partially replaced vegetal corpses in the hands of hobbyist.

93 Murdock.

94 "Introduction to the Electron Microscope," *ThoughtCo*, accessed April 21, 2024, https://www.thoughtco.com/electron-microscope-introduction-4140636.

"For the pure fire within us is akin to this, and they caused it to flow through the eyes, making the whole fabric of the eye-ball, and especially the central part (the pupil), smooth and close in texture, so as to let nothing pass that is of coarser stuff, but only fire of this description to filter through pure by itself. Accordingly, whenever there is daylight round about, the visual current issues forth, like to like, and coalesces with it [i.e., daylight] and is formed into a single homogeneous body in a direct line with the eyes, in whatever quarter the stream issuing from within strikes upon any object it encounters outside. So the whole, because of its homogeneity, is similarly affected and passes on the motions of anything it comes in contact with or that comes into contact with it, throughout the whole body, to the soul, and thus causes the sensation we call seeing."[95]

Plato, *Timaeus*. From David C. Lindberg, *Theories of Vision from Al-Kindi to Kepler, 1976.*

95 David C. Lindberg, *Theories of Vision from Al-Kindi to Kepler*. (Chicago : University of Chicago Press, 1976: Chicago : University of Chicago Press., n.d.), 5.

In the Platonian theory of vision, light emanates from the eye, merges with daylight, and subsequently reaches the subject. Once contact is established between eye and subject, light serves as the material intermediary of sight.[96]

Modern theories on vision understand that the eye is simply a lens and a sensor. At the back of the eye is the retina. Akin to a camera's sensor, it receives the image, which is transmitted to the brain via the optic nerve. The point at which the optic nerve connects is the blind-spot, a gap in the retina, which receives no visual information.[97]

And in the spot where it is blind, the eye must fill in the blanks. It cuts the world into images which are projected and stitched back into a movie like flow. "With this idea, we arrive at the concept of perception as active, or even world-making, rather than just secondary and responsive"[98] Professor Joanna Zylinska affirms.

If all that is seen by the eye is constructed, and this construction is what is conceptualised as perception, everything the eye presents is either solely optical truth, or solely optical illusions. In either scenario, vision is a wholly subjective phenomenon.

***

"It has been known for at least two thousand years that when light passes through a small hole into a dark, enclosed interior, an inverted image will appear on the wall opposite the hole."[99]

The camera obscura was known to thinkers such as Euclid, Aristotle, Da Vinci and Kepler, and was long theorized as possibly analogous to the functioning of human vision.[100]

96 Lindberg, 5.
97 Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century (*Cambridge, Mass: MIT Press, 1991), 75.
98 Joanna Zylinska, *Nonhuman Photography* (The MIT Press, 2017), https://doi.org/10.7551/mitpress/10938.001.0001.
99 Crary, *Techniques of the Observer*, 27.
100 Crary, 27.

In the model of the camera obscura, the mechanics of vision occur separately from the human observer; the observer is in, or outside of the darkroom itself.

In Goethe's theory on colour, he presents the 'afterimage' as physiological colours that belong to the human observer, created solely by the eye without the need for light.[101] Key here is an added dimension of the mechanics of vision that extends beyond the eye and into human perception, into human subjectivity.

The eyeball, the body, the mind, in the way of their weird material and corporeal nature, are physical realities of flesh and nerves, and conscious effort; vision through the eye, unlike in the model of the camera, requires strain.[102] Plato, in a way, was not too far off; the most optically truthful image is shaped in the soul.

***

In this way, an estrangement from greenness rooted in the photographic will have to happen on two levels; first through a manipulation of external optics, and second through the manipulation of human perception which is internal to the body and mind.

101 Crary, 2.
102 Crary, 72.

The Aesthetic of Contact

"The point, observes Lefrant, 'is to reach the extreme of realistic representation by way of an abstract image'. This is precisely the paradox of the aesthetic of contact—in its refusal to conform to the conventions of visual recognition it opens up the spectrum of cinematic realism to incorporate the traces of matter."[103]

Kim Knowles, *Experimental Film and Photochemical Practices,* 2020

The advent of photography opened the world to a completely new relation to the image. No longer was the creation of the image a laborious and creatively demanding process, now, the image could be produced near instantly, and with more fidelity to the world than ever before.[104]

This rapidity meant that images of all and everything could be produced, without prior contemplation. A moment of beauty, a fleeting urge to capture something, and later discover it is beautiful. Because photographs record the livingness of things and immortalize them for future contemplation.

The Aesthetic of Contact does just that; it reveals the beautiful in unmediated interactions between subject, light and matter.

103 Kim Knowles, *Experimental Film and Photochemical Practices, Experimental Film and Artists' Moving Image* (Cham, Switzerland: Palgrave Macmillan, 2020), 81.
104 Sontag, *On Photography,* 164.



1: 5 Scale *500 mm*
30s Exposure

1.
Yarrow No. 1, digital photograph, 2023.

2.
Yarrow No. 2, B&W silver gelatin print, 2023.



1:1 Scale *Achillae Millefolium* 0 mm

DISTANCE , PHOTOGRAPHIC

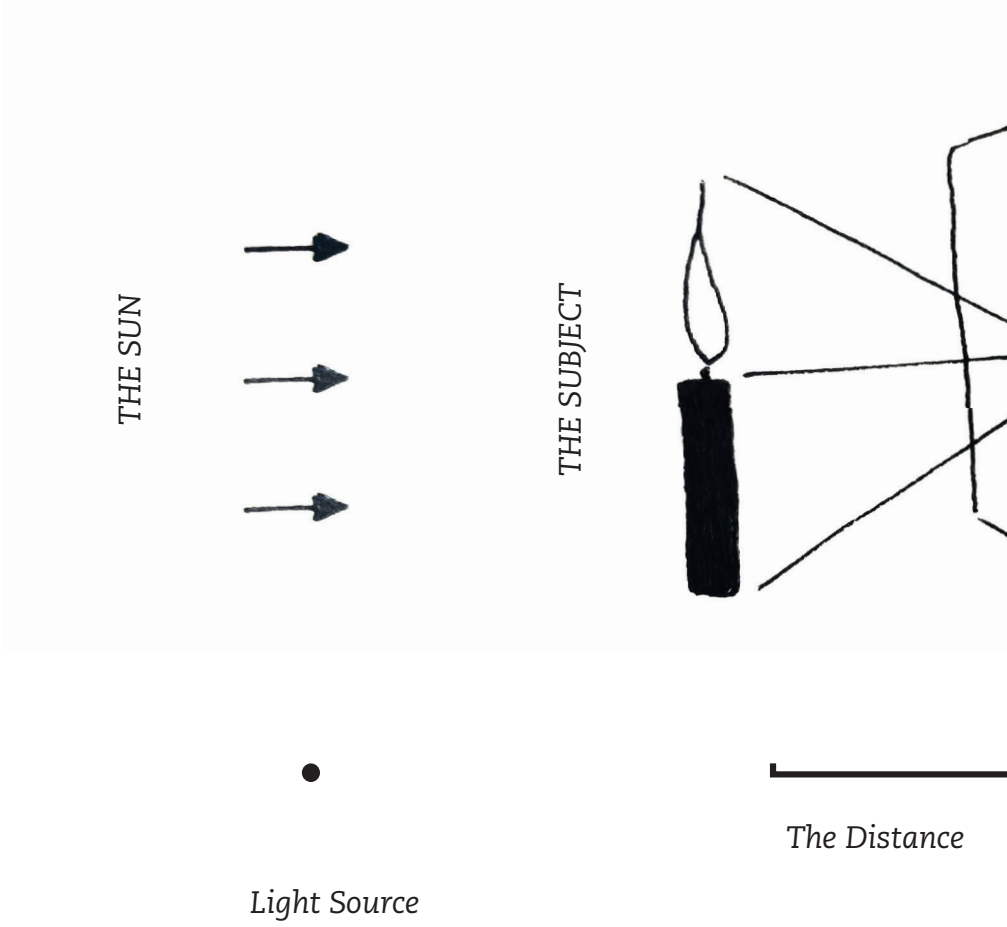
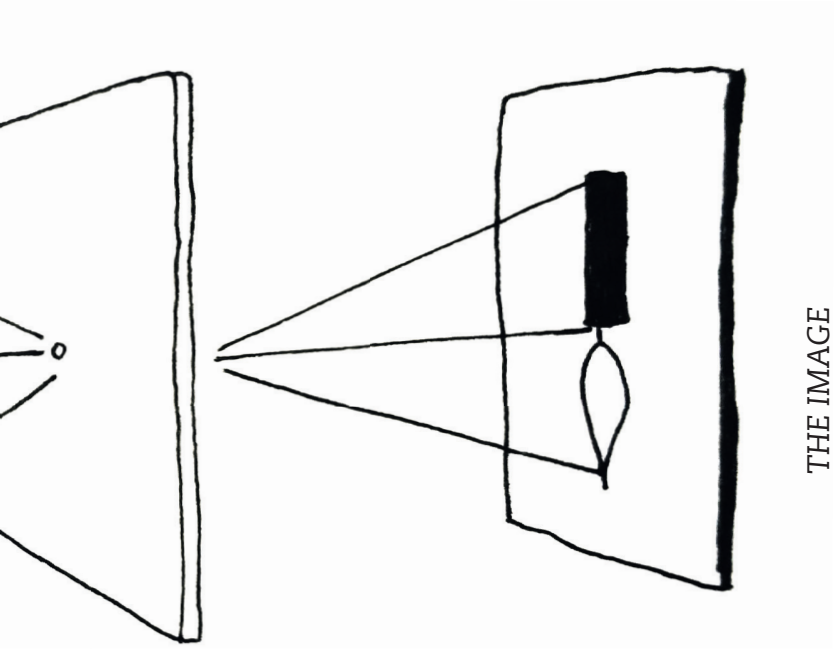


fig 2.4. The mechanics of vision, 2023. *[Sketch by Author]*

THE EYE & THE IMAGE



*The Distance**

The Eye

The photographic medium



3.
Cloud. digital photograph, 2023.



2 s

1 918 000 000 mm

In 1997, David Gatten unspooled rolls of 16mm film, threw them into crab cages, and submerged them into the Atlantic Ocean off the coast of South Carolina. The resulting film was not developed, letting the work of saltwater, sand rocks, crab and fish stand on their own.[105]

The resulting film captured the movement and happenings of the ocean without the translation of the human eye and hand onto paper. The film becomes an interstitial canvas, capable of merging natural phenomena and cultural, man-made artifact.

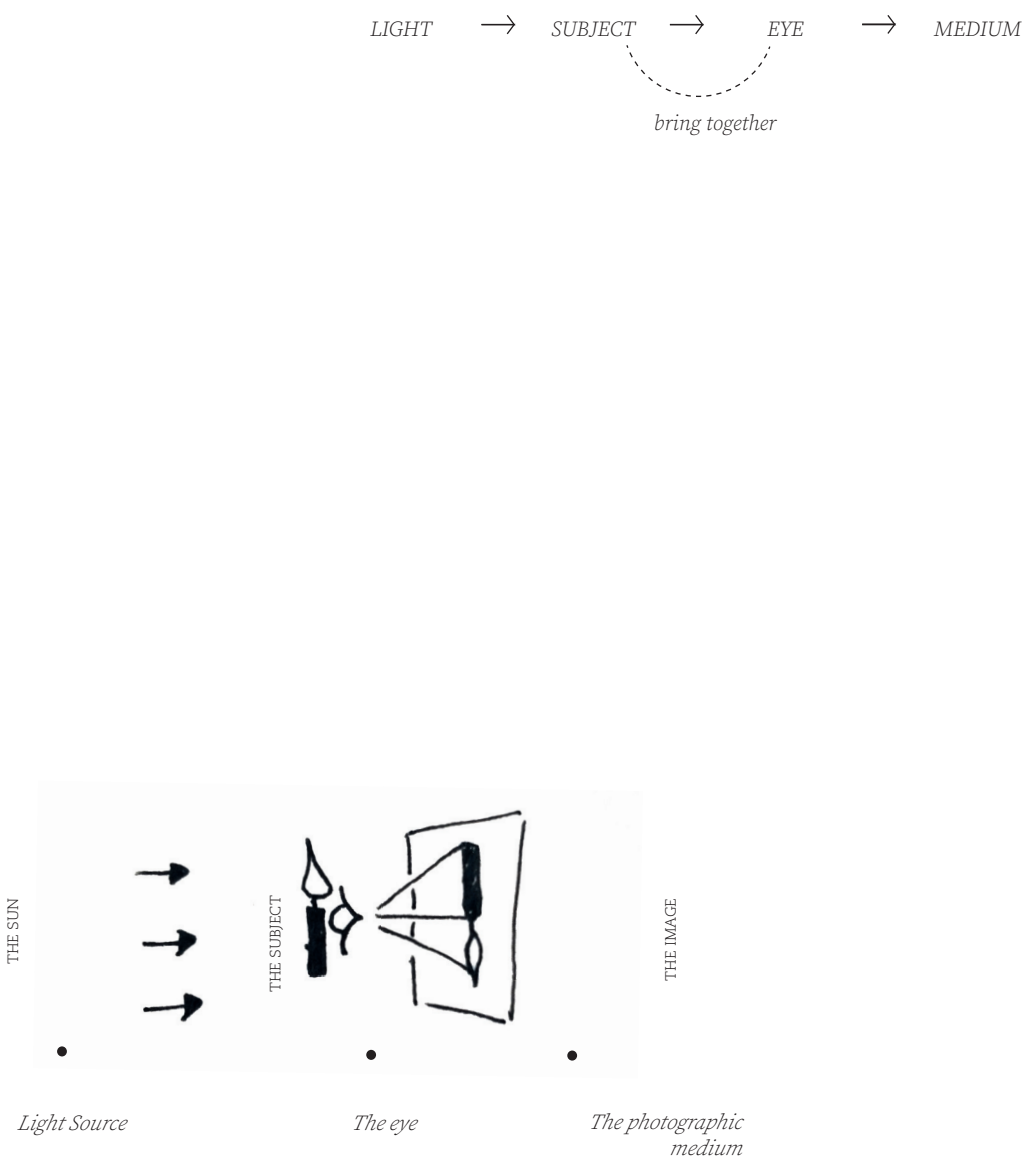
It is a spontaneous form of filmmaking, where aberrations which would traditionally be considered mistakes, are embraced for their unpredictability. Precisely because they cannot be planned, cannot be controlled, and because chance holds the possibility of discovery. In this way of representing, of showing shadows, footprints and windblown leaves, these photographic objects are created by the site, on the site, through the process of the site. Their existences become intermeshed, they become pieces of site.

This mode of representing betrays a surrealist impulse—a reality freed from the limitations of the human senses and disciplined mind.[106] "All that is left is the "savage state" of the eye, giving primacy to the powers of the visual: the viewer is left with only what [they] sees in an almost primal fashion."[107] When the photograph is made in such an entangled way, the only disciplined eye is that of the observer of the image. The image becomes more non-human than human, a little bit closer to a non-anthropomorphising, yet not anthropocentric, non-human perspective of a site.

105 MacKenzie and Marchessault, *Process Cinema*, 111.
106 Jeanne Willette, "Surrealism and Freudian Theory" *Art History Unstuffed*, accessed March 24, 2023, https://arthistoryunstuffed.com/surrealism-freudian-theory/.
107 Willette.



5.
Macro #1: Bedstraw, digital photograph, 2023.



1.

Closing the Distance

fig 2.5. The mechanics of vision: removing the distance, 2023. *[Sketch by Author]*

DISTANCE
250 mm

DEVELOPED IN
N/A

DURATION OF EXPOSURE
1/100 s





6.
Macro #1, digital photograph, 2019.

7.
Macro #2, digital photograph, 2019.





8.
Macro #3, digital photograph, 2019.

9.
Macro #4, digital photograph, 2019.

DURATION OF EXPOSURE
1/8 s

DEVELOPED IN
N/A

DISTANCE
20 mm



10.
Macro #5, Yarrow, digital photograph, 2023.



DISTANCE
100mm - 0 mm

DEVELOPED IN
N/A

DURATION OF EXPOSURE
1/8 s



100 mm

11.
Macro #6, Nasturtium, 100mm, digital photograph.



30 mm

12.
Macro #7, Nasturtium,30mm, digital photograph.



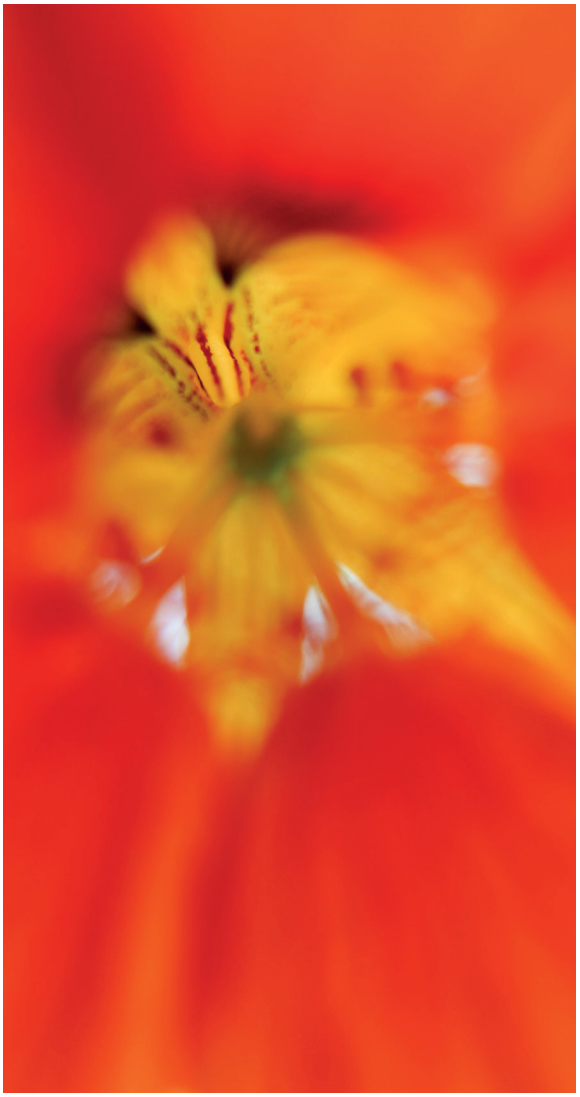
13.
Macro #8 Nasturtium, 10mm, digital photograph.



10 mm



1 mm



0 mm

14.
Macro #9 Nasturtium, 1mm, digital photograph.

15.
Macro #10 Nasturtium,0mm, digital photograph.

DISTANCE
50mm - 0 mm

DEVELOPED IN
N/A

DURATION OF EXPOSURE
1/8 s





16.
Macro #11 , Cactus, digital photograph, 2024.

17.
Macro #12, Cactus, digital photograph, 2024.





18.
Macro #13, Cactus, digital photograph, 2024.

19.
Macro #14, Cactus, digital photograph, 2024.

Canon R8 + 70mm Zoom +32 mm Extesion Tubes

"I long to have such a memorial of every being dear to me in the world. It is not merely the likeness which is precious—in such cases—but the association and the sense of nearness—involved in the thing...the fact of the very shadow of the person lying there fixed forever!"[108]

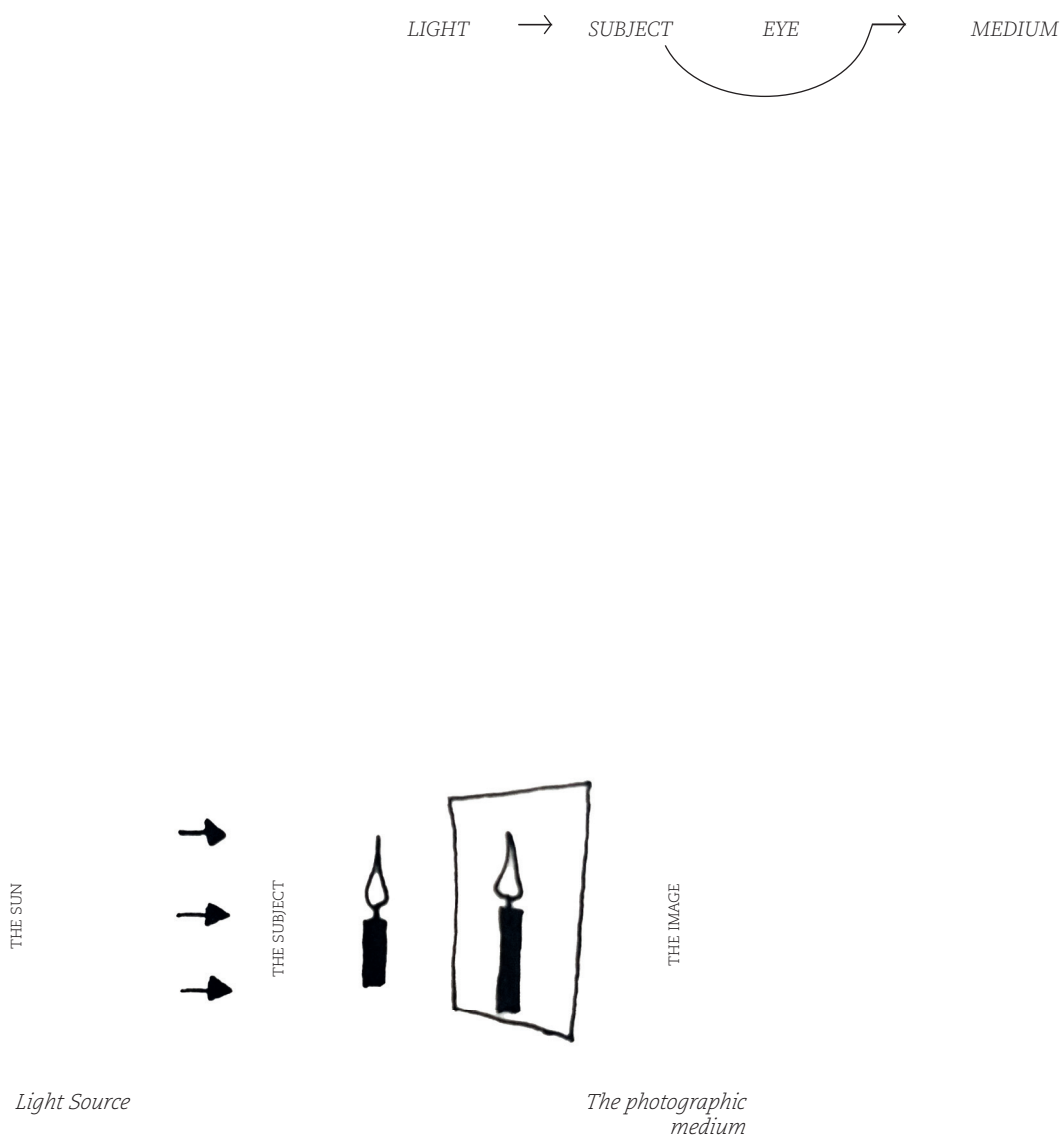
Elizabeth Barrett
(1843, letter to Mary Russell Mitford)

Pre-photography, modes of image production relied on two levels of translation. First, from the image to the eye, second from the eye to the hand, and by extension the medium. This second layer was made heavily subjective by the mutability of individual experience. The photograph requires only one level of translation, that of light bouncing of an object onto a photosensitive medium, and as such is independent from the image maker.[109] The 'shape' of the photographic subject within the photographic image is hence almost fully determined and created by an interaction between light and subject.

Akin to man using his body as paintbrush, the photograph captures light painted by shadows onto film (or digital sensors). This can be done at various levels of proximity, from full contact at 0 cm, to the many kilometers which separate a lens and clouds. The photograph is created in the space between the camera and the subject.

Photographic film, light sensitive silver paper, cyanotype, anthotype, digital sensors are each sensitive to different aspects of light. Red and amber 'safelights' can be used to handle paper, but will destroy film. Anthotypes and Cyanotypes react solely to Ultraviolet light, and while photographic paper is formulated to develop from visible white light exposure, bright colours emerge from paper exposed to ultraviolet light.

108 Sontag, On *Photography*, 183.
109 Sontag, 158.



2.

Removing the Eye

fig 2.6. The mechanics of vision - removing the eye, 2023. *[Sketch by Author]*

DISTANCE
0 mm

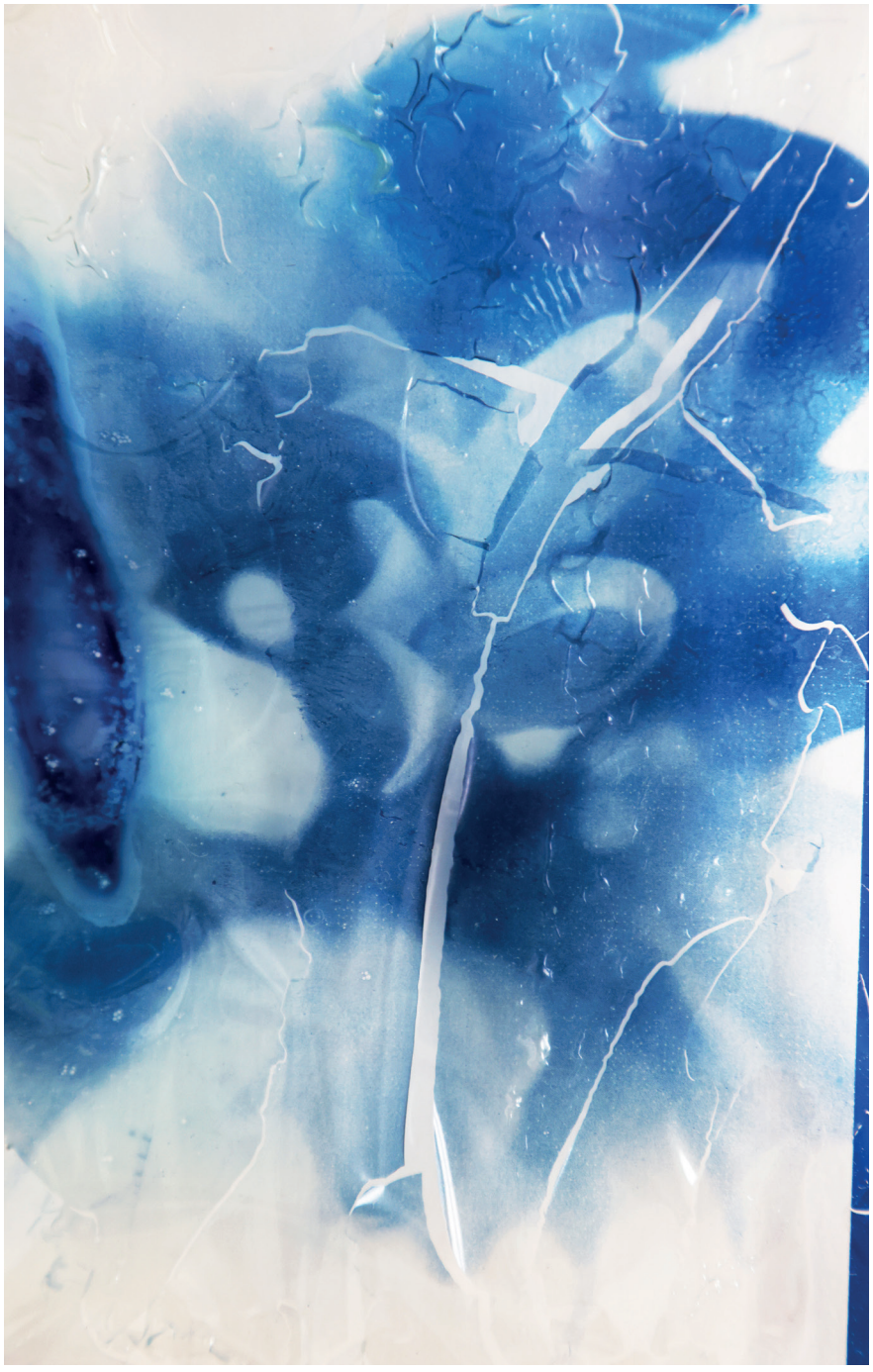
DEVELOPED IN
N/A

DURATION OF EXPOSURE
40 mins / 2400 s @ 30 cm



A print of a photograph
SCALE 1:1

20.
Common Vetch Negative,
Laser printed Acetate, 2024.



Photograph of print of the photograph
SCALE 1:1

21.
Commmon Vetch,
Cyanotype on Gelatin and
Acetate, 2024.

DISTANCE
0 mm

DEVELOPED IN
CAFFENOL

DURATION OF EXPOSURE
120 min / 7200 s



Laser-printed Acetate
SCALE 1:1

22.
Yarrow Negative, Laser printed Acetate, 2024.



Ilford Multigrade RC
SCALE 1:1

23.
Yarrow, silver gelatin print,
2024.

DISTANCE
0 -300 mm

DEVELOPED IN
N/A

DURATION OF EXPOSURE
180 mins / 10 800 s



SCALE 1:1

24.
Lumen #1, Grasses, silver gelatin print, 2023.



SCALE 1:1

25.
Lumen #2, Horsetail, silver gelatin print, 2023

DISTANCE
0 - 50 mm

Leave Undeveloped
Shadows emerge from the solar overexposure of silver



SCALE 1:1
Arista EDU RC Paper

DEVELOPED IN
N/A

DURATION OF EXPOSURE
90 mins / 5400 s

26.
Lumen #3, Cymbalaria muralis, silver gelatin print, 2023.

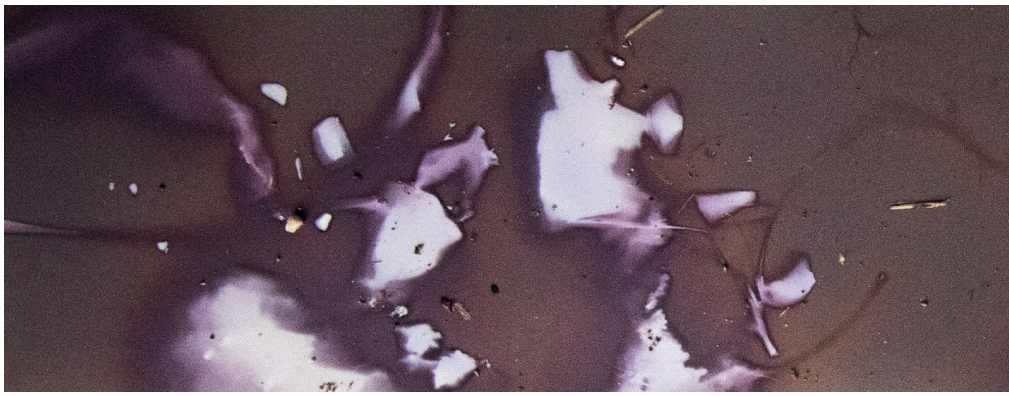


27.
Making of Lumen #3, Cymbalaria muralis, digital photograph, 2023.

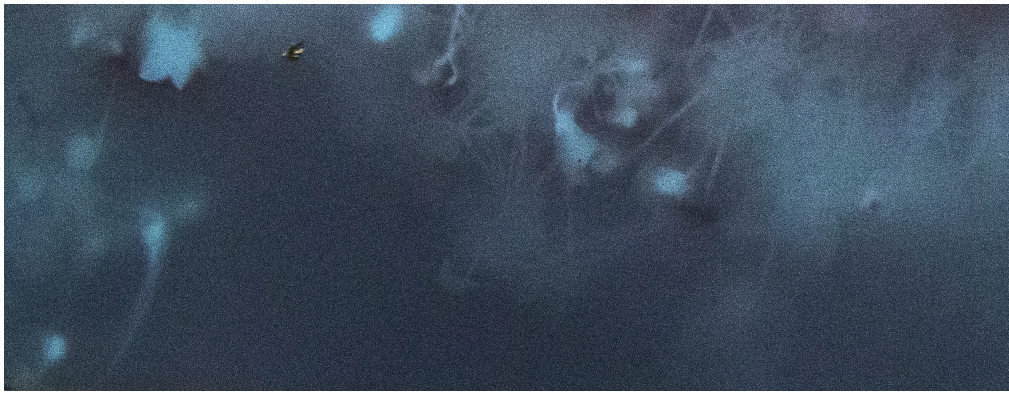
DISTANCE
0 - 50 mm

DEVELOPED IN
N/A

DURATION OF EXPOSURE
90 min / 5400 s



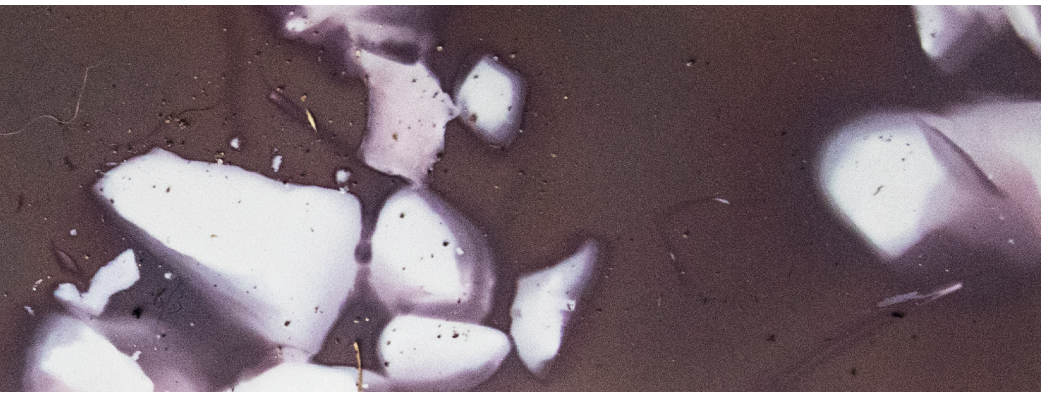




28.
Lumen #4, Soil and Pinecones, silver gelatin print, 2023.

29.
Lumen #5, Bedstraw, silver gelatin print, 2023.

30.
Lumen #6, Cymbalaria muralis, silver gelatin print, 2023.







Arista Edu RC VC Glossy B&W Paper
SCALE 1:1

DURATION OF EXPOSURE
120 mins/ 7200 s

DEVELOPED IN
N/A

DISTANCE
10mm - 0 mm









Ilford Multigrade RC
SCALE 1:1

31.
Lumen #7, petals, silver gelatin print, 2023.

32.
Lumen #8, petals, silver gelatin print, 2023.

33.
Lumen #9, eucalyptus, silver gelatin print, 2023.

DISTANCE
300mm - 0mm

DEVELOPED IN

DURATION OF EXPOSURE
30mins /1800s

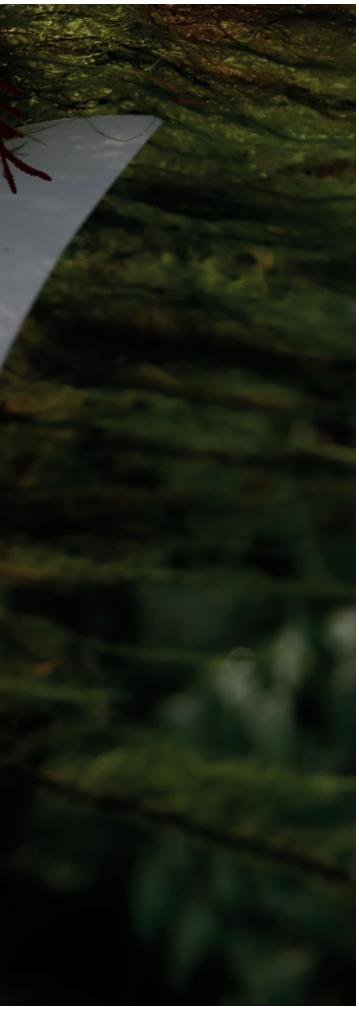




34.
Making of Lumen 10,
digital photograph, 2023.

35.
Making of Lumen 11,
digital photograph, 2023.

36.
Making of Lumen 12,
digital photograph, 2023.





DISTANCE
300mm - 0 mm

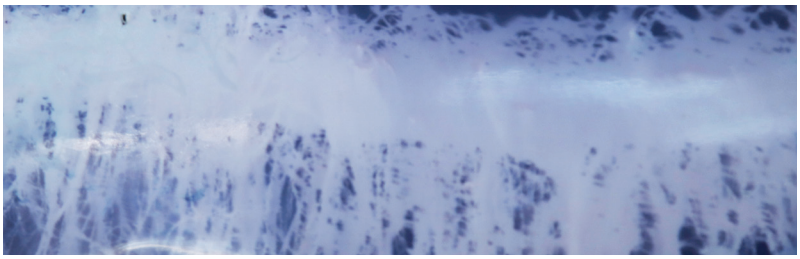
DEVELOPED IN
N/A

DURATION OF EXPOSURE
30 mins/ 1800s

37.
Lumen 11, silver gelatin print, 2023.

38.
Lumen 12, silver gelatin print, 2023.

39.
Lumen 10, silver gelatin print, 2023.





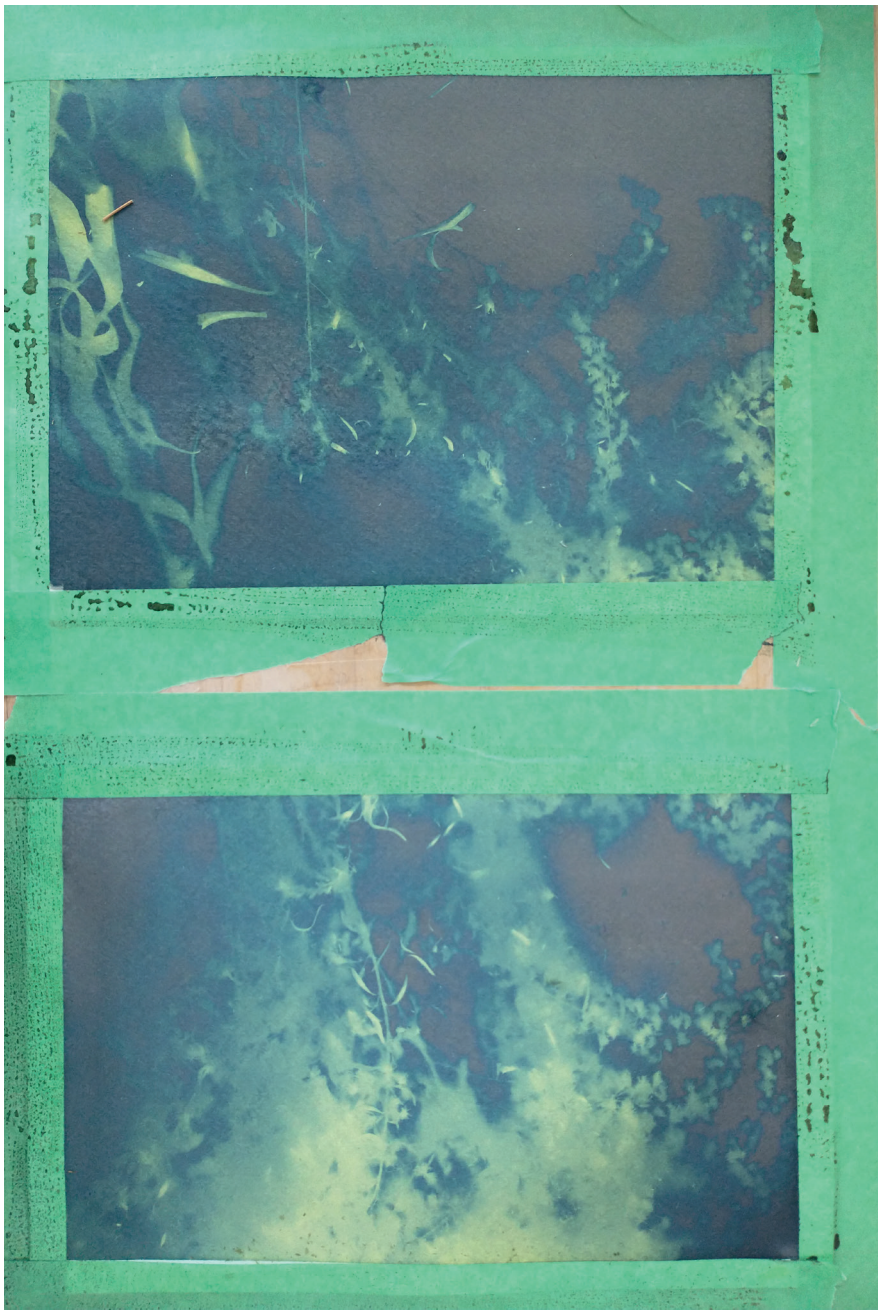


Arista Edu RC Paper B&W
SCALE 1:1

DISTANCE
0 mm

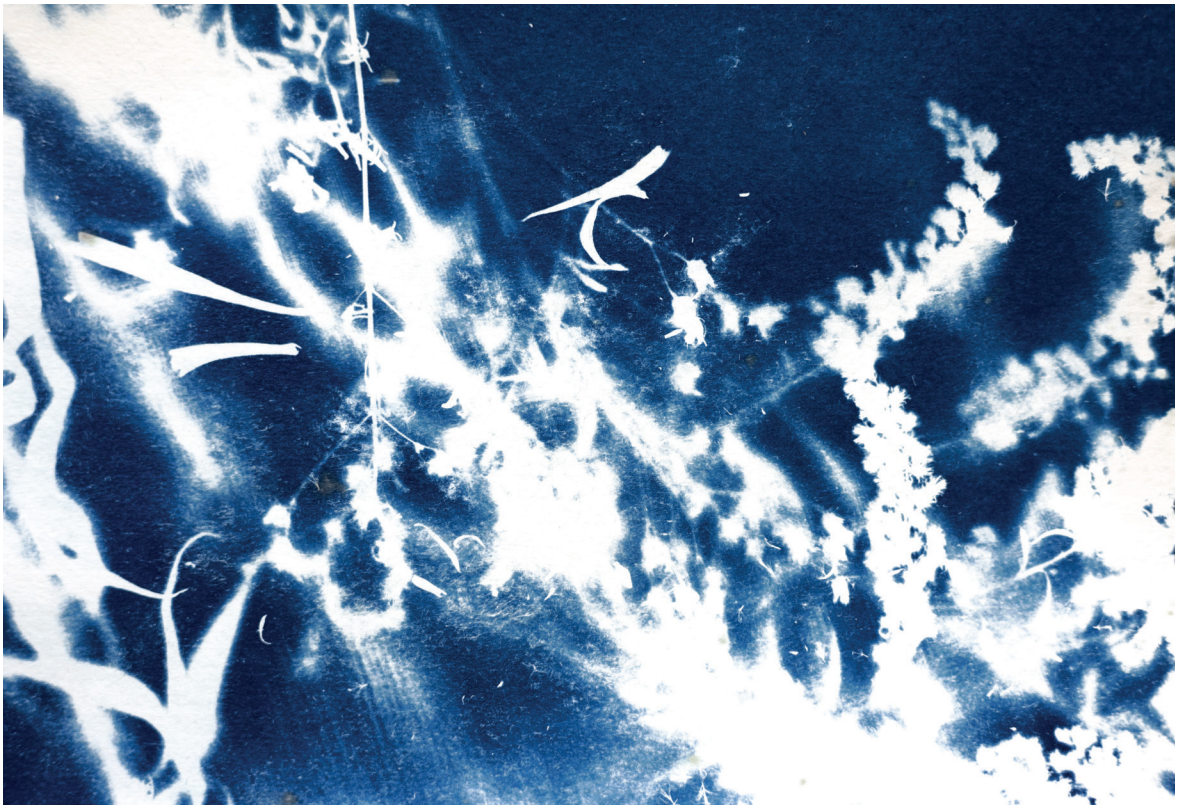
DEVELOPED IN
N/A

DURATION OF EXPOSURE
40 mins/2400s @ 40 cm



40.
Making of, Goldenrod, digital photograph, 2024.

41.
Goldenrod, Cyanotype on 300g/ms cotton paper, 2024.



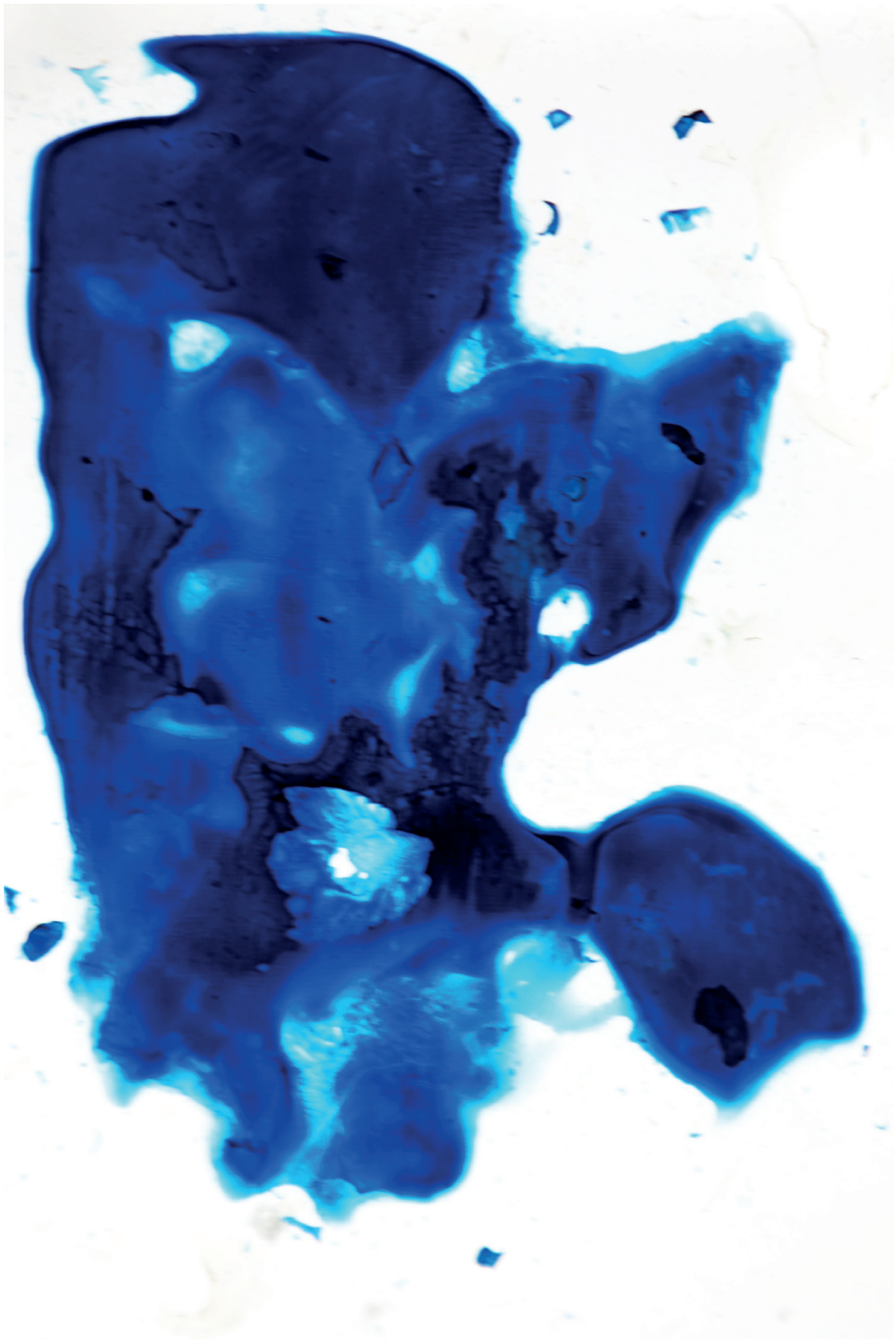


DURATION OF EXPOSURE
40 mins/2400s @40cm

DEVELOPED IN
N/A

DISTANCE
0 mm

42.
Common Vetch, Cyanotype on gelatin on glass plate, 2024.



In the photographic process, an image is created when light reacts with a light sensitive surface. Silver bromides are permanently converted to elemental silver, matter is changed by other non-human matter, and becomes evidence of the real. Not simply an image, but "an interpretation of the real; it is also a trace, something directly stenciled off the real, like a footprint or a death mask."[110] Key here, is that the photograph, unlike painting, which is purely representational, is "not only like its subject, a homage to the subject. It is part of, an extension of that subject".[111]

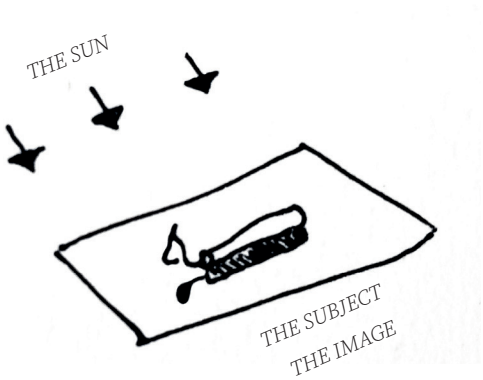
The Aesthetic of Contact collapses the space in which the image is made. The camera lens (the 'eye') is removed, subject and photographic medium are put in contact; the materiality of the subject and the materiality of the film strip are merged in the making of the image.

A *grazing* as opposed to gazing, is how Kim Knowles described the process of making macro photography.[112] Indeed, the camera lens needs to be brought frighteningly close to the subject, sometimes less than a centimeter. On a rainy day or early morning, dew might land on your lens as you try to calm your hands and tune the focus. It is a slow process, one that draws all of your focus onto the subject, as it blurs in and out of existence. Truly, the process is an exercise in seeing. Of seeing for the sake of seeing, with no presupposition of what is worth seeing.

And because photography supposes a material reality behind every image, a visually ambiguous photograph becomes estranging; that is only until the piece of the world that created it is revealed.[113] In the *Aesthetic of Contact*, there is no 'zooming in' to see in more detail, to gain knowledge, to understand better through this seeing. Rather proximity is used to invite the viewer to activate other senses— not to see better, but to see differently, to see otherwise.

110 Sontag, 154.
111 Sontag, 155.
112 Knowles, 152.
113 Sontag, 93.

Light Source



The photographic medium

3.

Merging Subject and Medium

fig 2.7. The mechanics of vision: merging subject and medium, 2023 *[Sketch by Author]*

DURATION OF EXPOSURE
1/8 s

DEVELOPED IN
N/A

DISTANCE
500 mm

TO UNDERSTAND



43.
Photographic Developer, digital photograph, 2023.



O YOU, I KILL YOU

DISTANCE
500 mm

DEVELOPED IN
N/A

DURATION OF EXPOSURE
1/8 s



44.
Photographic Developer, digital photograph, 2023.



DISTANCE
0 mm

DEVELOPED IN
BINDWEED

DURATION OF EXPOSURE
16 s



SCALE 1:1

45.
Columbine, gelatin silver print, 2023.



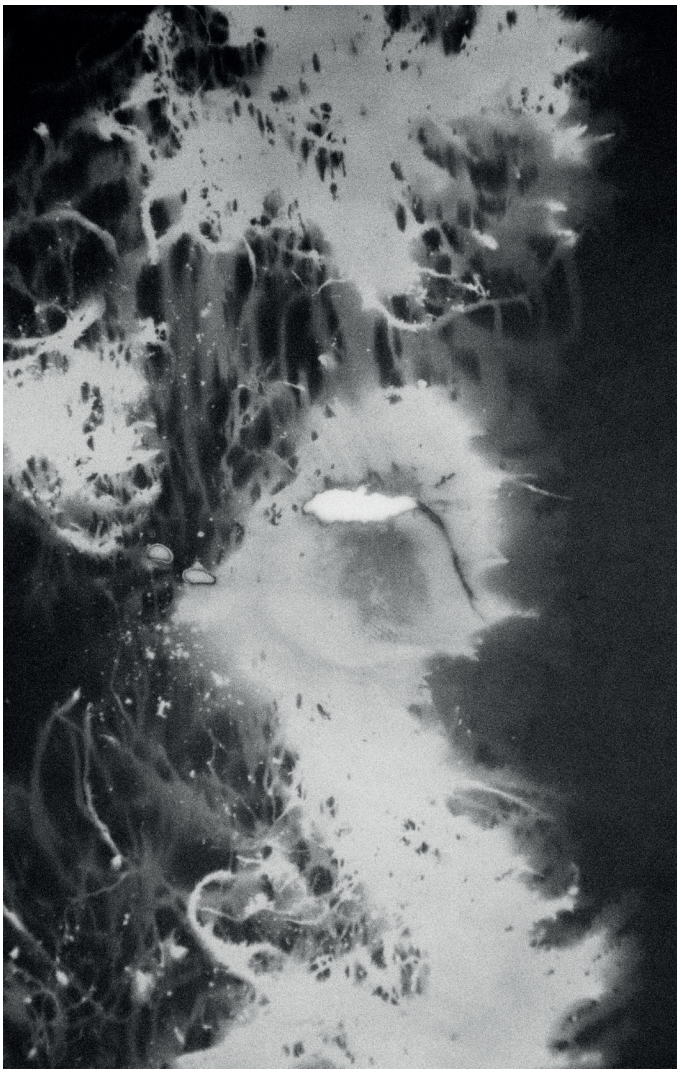
SCALE 2:1

46.
Columbine, digital photograph, 2023.

DISTANCE
0 mm - 1 mm

DEVELOPED IN
BINDWEED

DURATION OF EXPOSURE
10 s



SCALE 1:1

47.
Moss, gelatin silver print, 2023.



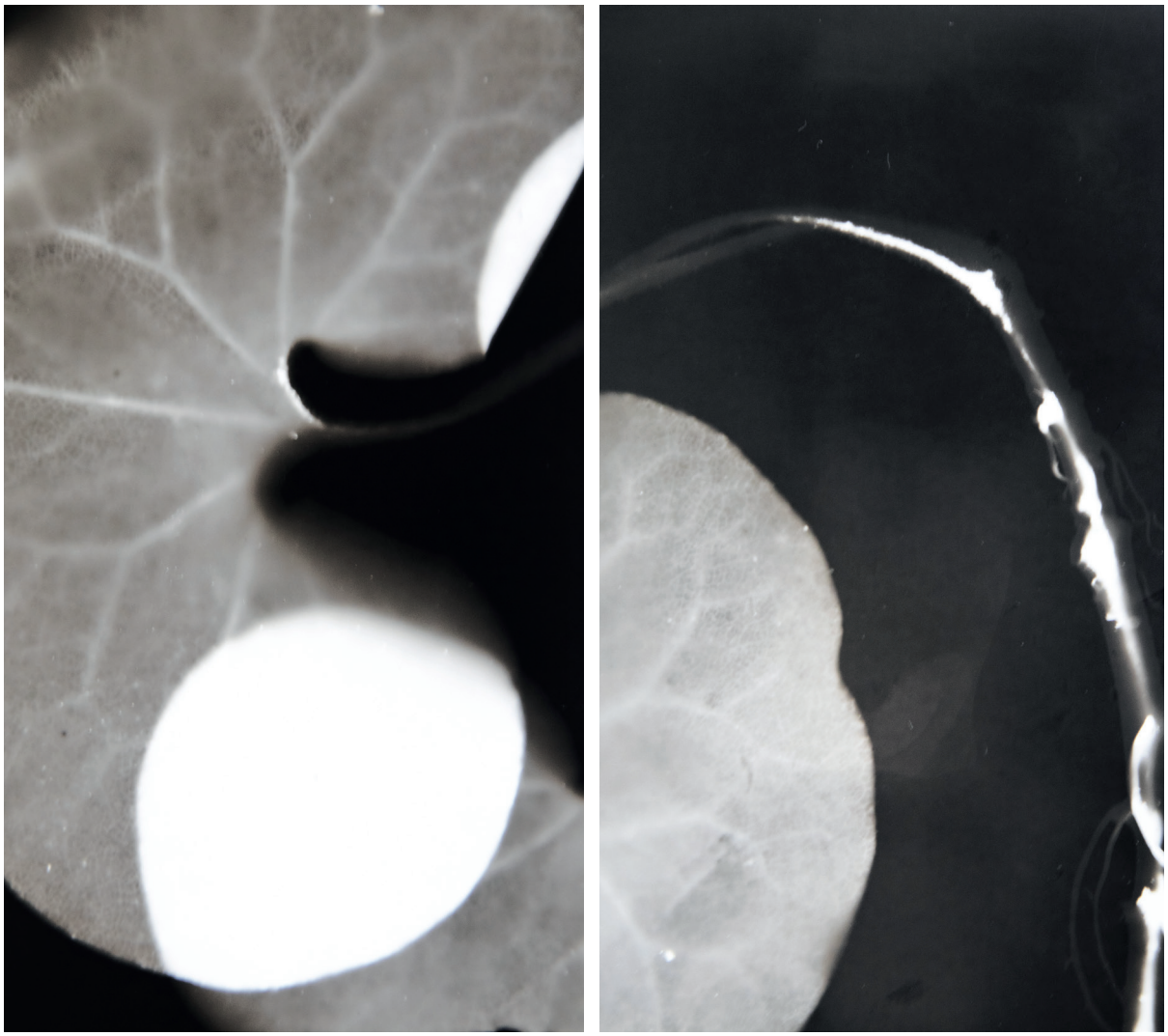
SCALE 2:1

48.
Moss, digital photograph, 2023.

DISTANCE
0 mm

DEVELOPED IN
WILD GINGER AND YARROW

DURATION OF EXPOSURE
10 s



SCALE 1:1

49.
Wild ginger, gelatin silver print, 2023.

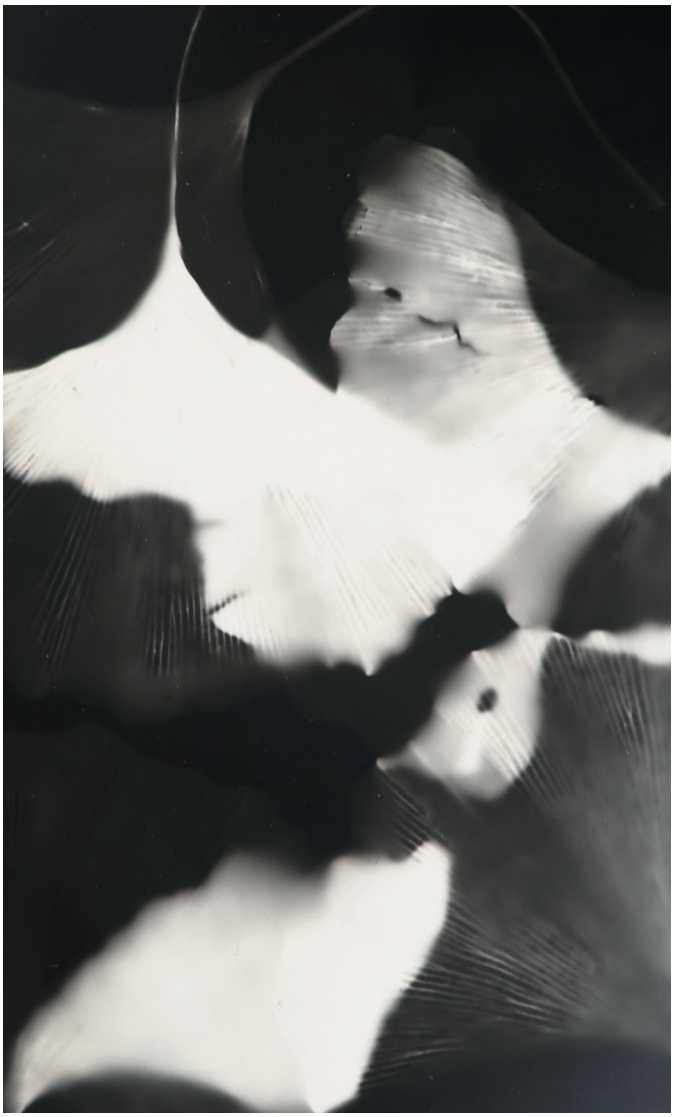


SCALE 2:1

50.
Wild ginger, digital photograph, 2023.

DISTANCE
0 mm

DEVELOPED IN
CAFFENOL



Exposure: 2 s
Development: 3 min

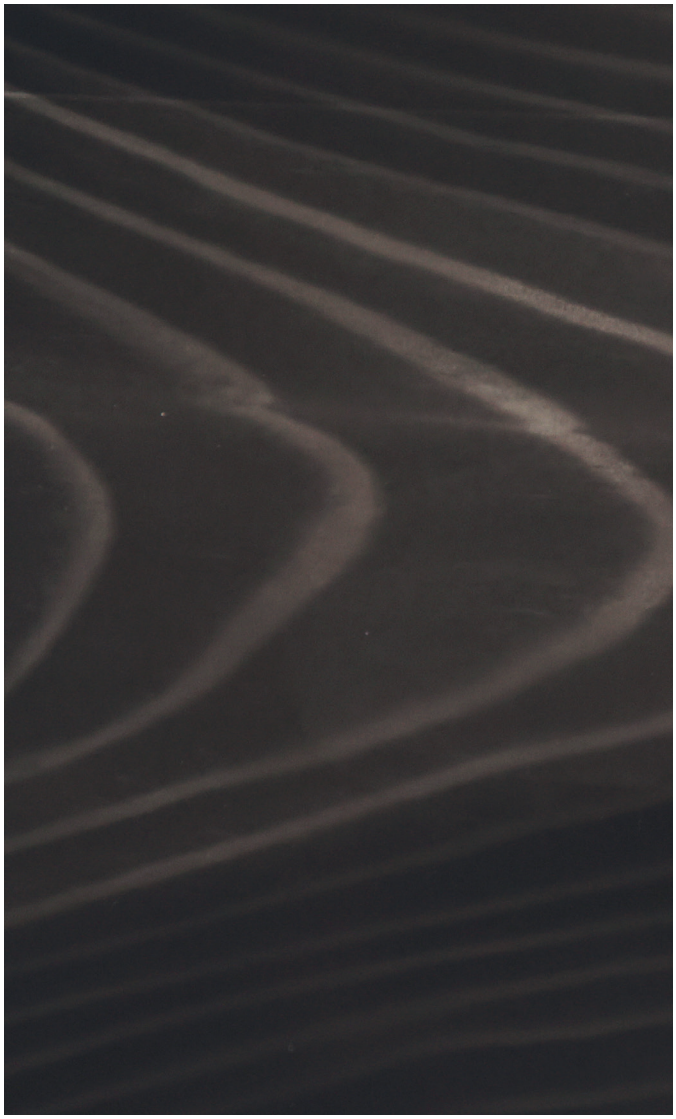


Exposure: 8 s
Development: 2:30 min

DURATION OF EXPOSURE
2s - 8s

51.
Gingko, gelatin silver print, 2023.

52.
Gingko, gelatin silver print, 2023.



Exposure: 1 s
Development: 3 min



Exposure: 1 s
Development: 3 min

53.
Wood paper, silver gelatin print, 2023.

54.
Eucalyptus, silver gelatin print, 2023.

Ilford Multigrade RC

SCALE 1:1

DURATION OF EXPOSURE
10 s

DEVELOPED IN
BINDWEED

DISTANCE
0 mm

55.
Nasturtium, gelatin silver print, 2023.





Ilford B&W RC Photo Paper

DISTANCE
0 - 65 mm

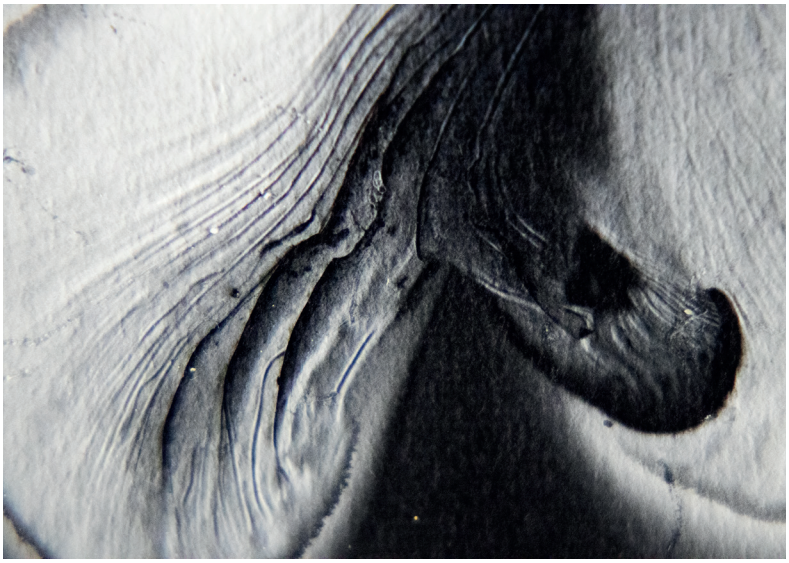
DEVELOPED IN
N/A

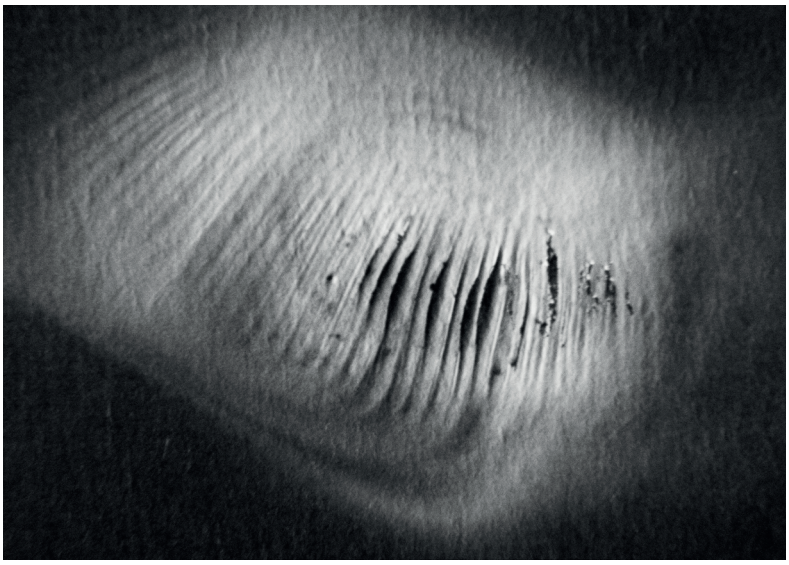
DURATION OF EXPOSURE
360 min / 21 600 s

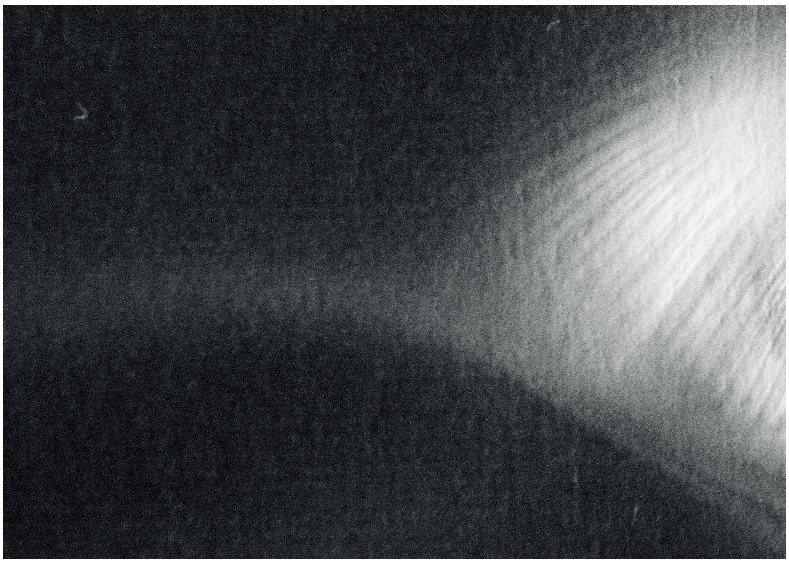
56.
Fungal spores (1), print on cardstock, 2023.

57.
Fungal spores (2), print on cardstock, 2023.

58.
Fungal spores (3), print on cardstock, 2023.







Mushroom Spores (unknown variety)

Black Cardstock

The process of surfacing an image on B&W photographic paper or photographic film is fascinatingly simple: expose to light, develop, fix, rinse, done. A film strip or paper are two of the same, a support, coated with an emulsion, comprised of silver halide crystals and gelatin. Traditionally, both the *developer** and the *fixer* are purchased, diluted, stored in light tight containers before being discarded.

***** *Common B&W developers are made using metol and hydroquinone, both classified as phenols and super-additive, as well as Dimezone-s.*

Replacing both the developer and fixer with homemade chemistry is surprisingly simple. Caffenol, first invented in the 90s and much later named, is a photographic developer invented at the Rochester Institute of Technology, by Dr. Williams's Technical Photography 1995 Class.[114] This process takes advantage of coffee's high concentration of phenols, which will here act as the developing agent. Mixed with washing soda to adjust the pH, and vitamin C, a super-additive, Caffenol becomes a very proficient developer.[115]

***** *Coffee contains 214mmg of polyphenols/100g. Other plants, such as cloves, contain up to 70 times more phenols at 15188mg/100g.*

Further experimentation has shown that any *phenol** containing plant can be used as a suitable developing agent. In 2020, The London Alternative Photography Collective created a 'photographic garden', in which plants (such as rose hips) are grown and used in developers for both their vitamin C and phenol content.[116] Easily accesible to the hobbyist photographer, many polyphenols are also flavonoids, chemicals responsible for the colour, taste, and fragrance characteristics of plants. Some of the most potent developing agents can be found in spice cupboards. Fixer is a bit trickier; I have had some success with a highly salinized bath (500ml/150g).

---

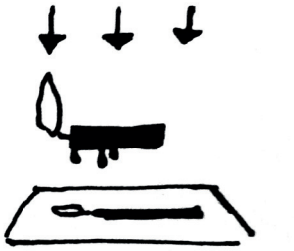
114 Imagesfrugales, "Who Invented Coffee Based Development?," *Caffenol* (blog), June 12, 2010, http://caffenol.blogspot.com/2010/06/who-invented-coffee-based-development.html.

115 Daniel Keating, "Polyphenol Developer Alternatives - A World Full of Options - By Daniel Keating," *35mmc,* August 18, 2020, https://www.35mmc.com/18/08/2020/polyphenol-developer-alternatives-a-world-full-of-options-by-daniel-keating/.

116 Edd Carr, "Sustainable Darkroom Launch UK's First 'Photographic Garden' - By Edd Carr," *35mmc*, September 24, 2021, https://www.35mmc.com/24/09/2021/sustainable-darkroom-launch-uks-first-photographic-garden-by-edd-carr/.

Light Source

THE SUN



THE SUBJECT
THE IMAGE

The photographic medium

4.

How is the invisible made visible?
(altering the subject)

fig 2.8. The mechanics of vision: altering the subject, 2023 *[Sketch by Author]*


IMPORTED
METRO BRANDS
MONTREAL QUEBEC
CERTIFIED HALAL BY CERTIFIED
HALAL AGENCY OF THE ISLAMIC

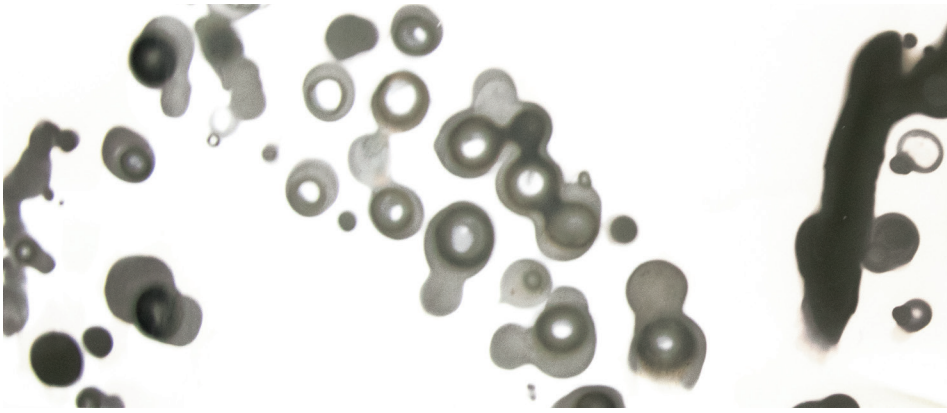
59.
Immature wild grape in developing solution, digital photograph, 2023.

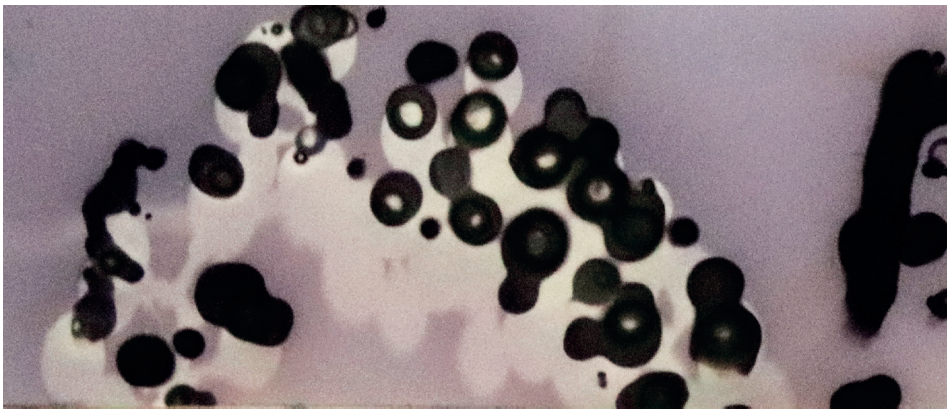
Contains:
42g Sodium carbonate decahydrate ($Na_2CO_3 \cdot 10H_2O$)
5g Ascorbic Acid
500 ml Water

DISTANCE
0 mm - 30 mm

DEVELOPED IN
GRAPE + Na_2CO_3 + Vit C

DURATION OF EXPOSURE
110 min / 6600 s





Exposed in Direct Sunlight
SCALE 1:1

Plant

Phenolic compounds:
Stilbenes
Hydroxybenzoic acid
Hydroxycinnamic acid
...

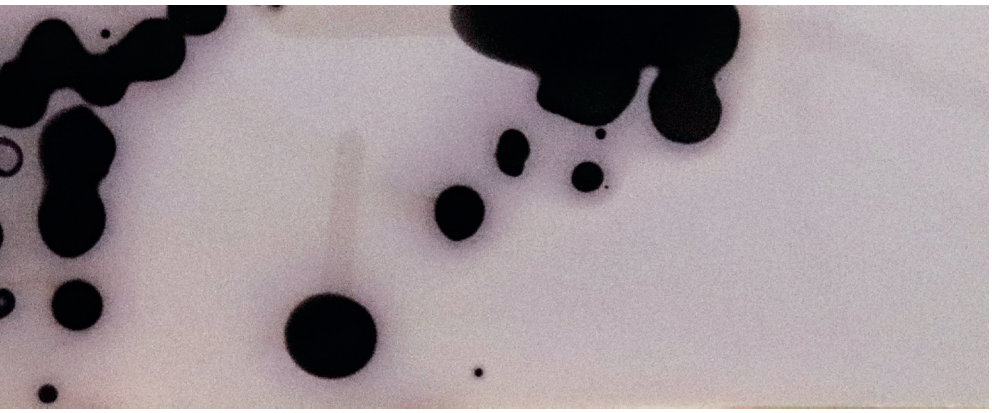
+

Add-ins

(42g) *Sodium carbonate decahydrate (Na2CO3·10H2O)*
(5g) *Ascorbic Acid*

Mix with





60.
Immature wild grape phytogram, gelatin silver print, 2023.

61.
Immature wild grape phytogram + lumens, gelatin silver print, 2023.

GRAPE + Na_2CO_3 + Vit C

Silver halides,
Silver chloride,
Silver bromides,
Gelatin,
Resin (polyethylene),
Cellulose

Paper

Arista Edu RC VC Glossy B&W Paper

DISTANCE
0 mm - 20 mm

Exposed in Low Light

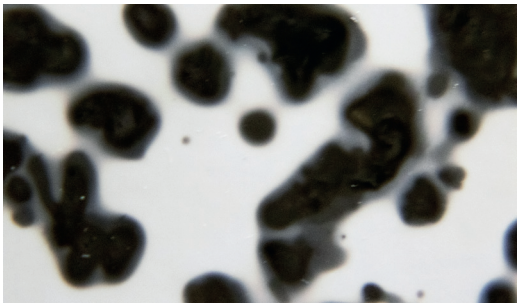
Only the caffenol (photographic developper) drenched leaves of the moss have left traces on the paper.

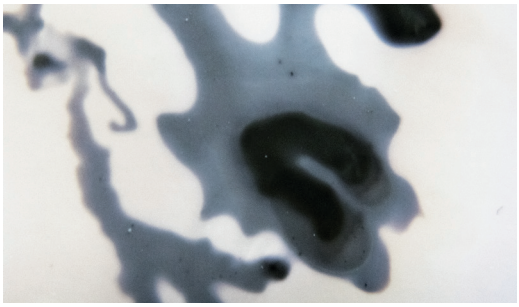
In Low light, the briefest exposure is enough to trigger a reaction, but not to alter the chemistry of the paper.

Here, irregularities in tones are a reflection of variances in pressure, caused by variance in weight and density of the moss.

DEVELOPED IN
CAFFENOL

DURATION OF EXPOSURE
182 min / 10 920 s





SCALE 1:1

62.
Moss phytogram #1, gelatin silver print, 2023.

63.
Moss phytogram #2, gelatin silver print, 2023.

Arista Edu RC VC Glossy B&W Paper

DISTANCE
0 mm - 1 mm

64.
Misc lumen print #1, made for galt. publication, gelatin silver print, 2023.

65.
Misc lumen print #2, made for galt. publication, gelatin silver print, 2023.

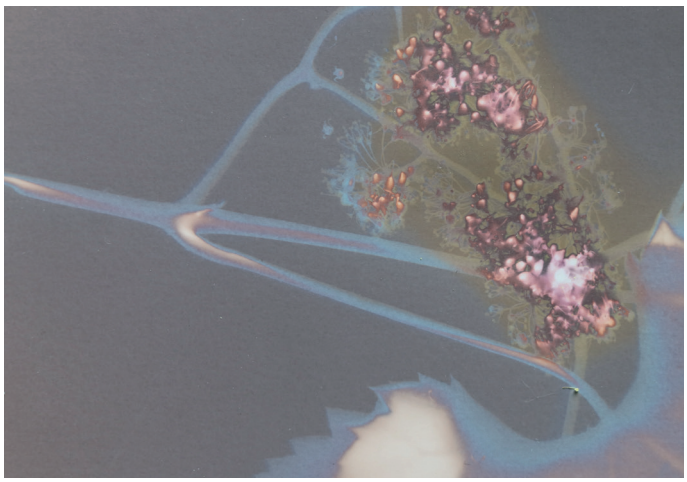
66.
Misc lumen print #3, made for galt. publication, gelatin silver print, 2023.

67.
Misc lumen print #4, made for galt. publication, gelatin silver print, 2023.

68.
Misc lumen print #5, made for galt. publication, gelatin silver print, 2023.

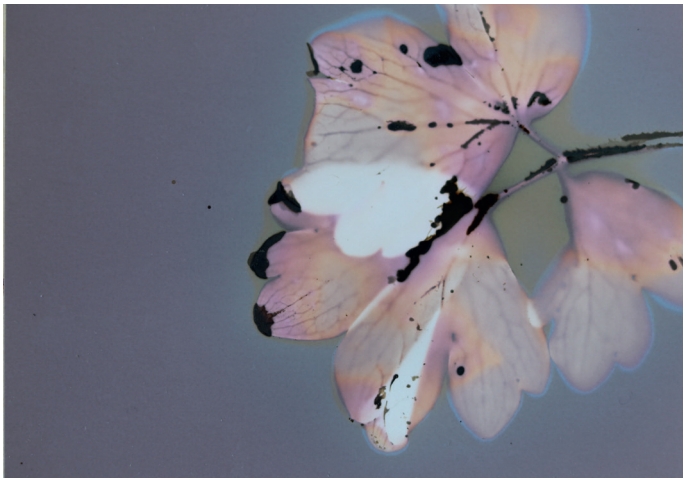
DEVELOPED IN
MISC+ Na_2CO_3 + Vit C

DURATION OF EXPOSURE
110 min / 6600 s



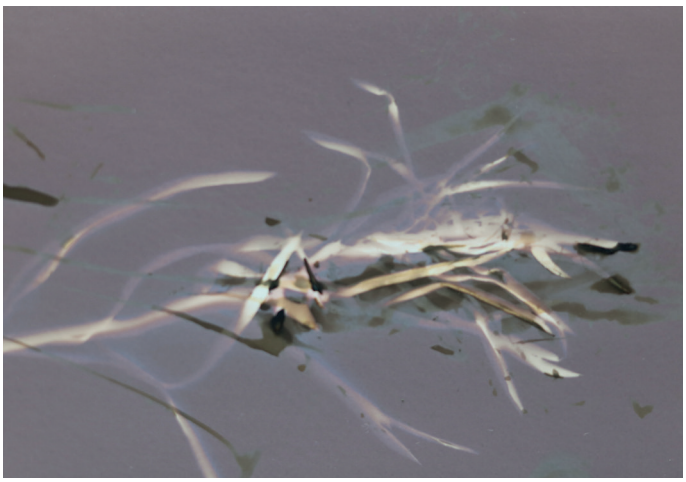


SCALE 1:1









Made in collaboration with galt. publication

DISTANCE
0 mm

DEVELOPED IN
YARROW

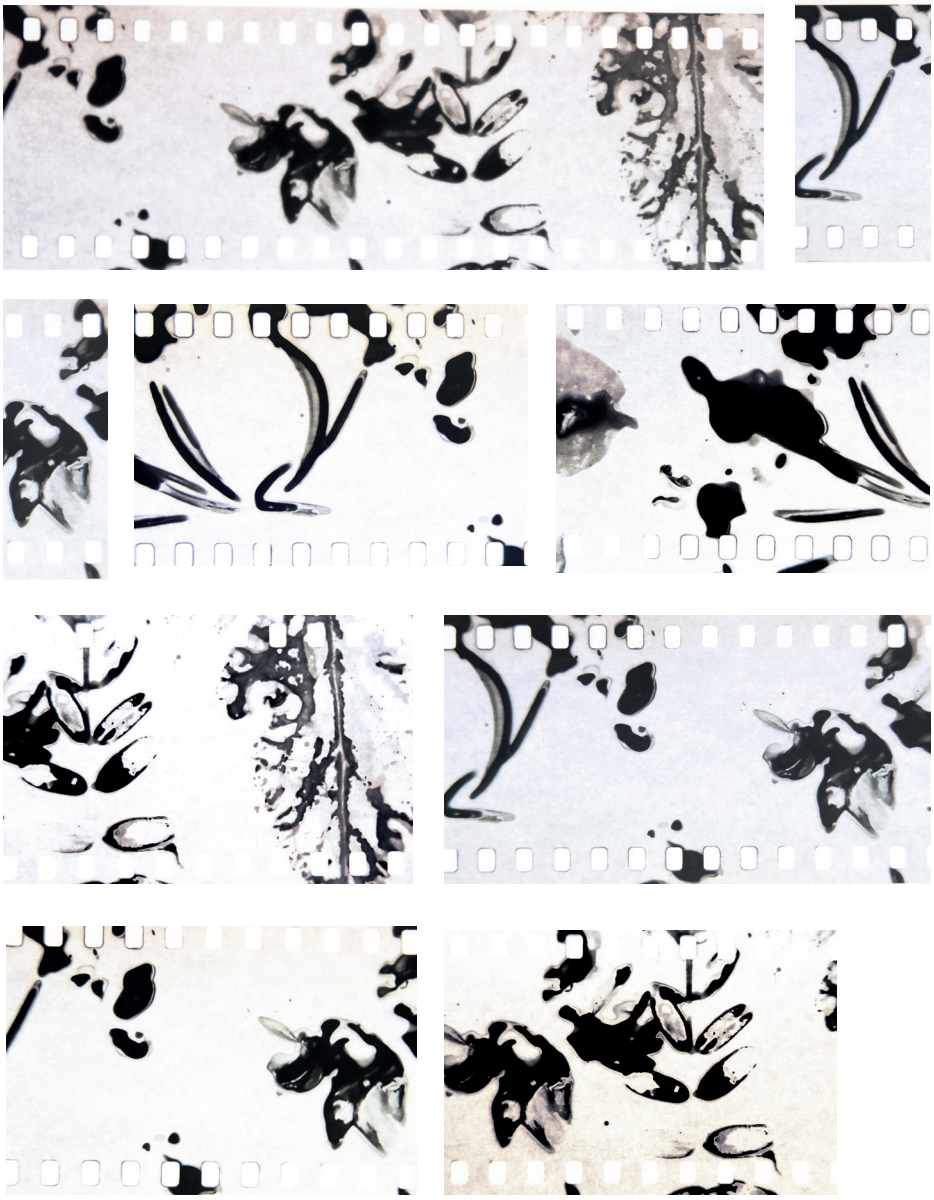
DURATION OF EXPOSURE
120 min / 7200 s





69.
Phytogram process #1,
digital photograph, 2023.

70.
Phytogram process #2,
digital photograph, 2023.



SCALE 1:1

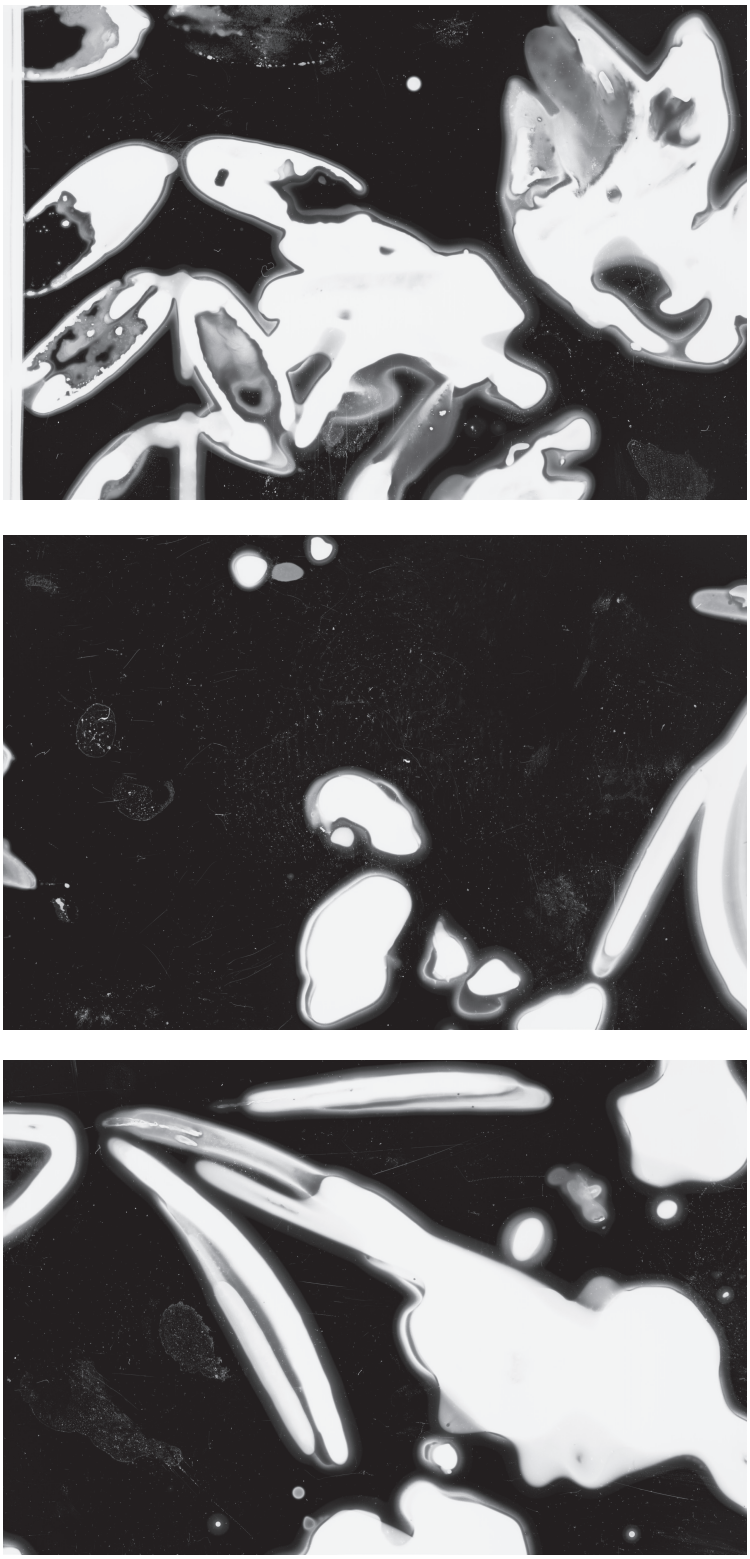
Arista 200 ISO B&W 35 mm

71.
Phytograms roll #1, digital photograph of 35mm film, 2023.

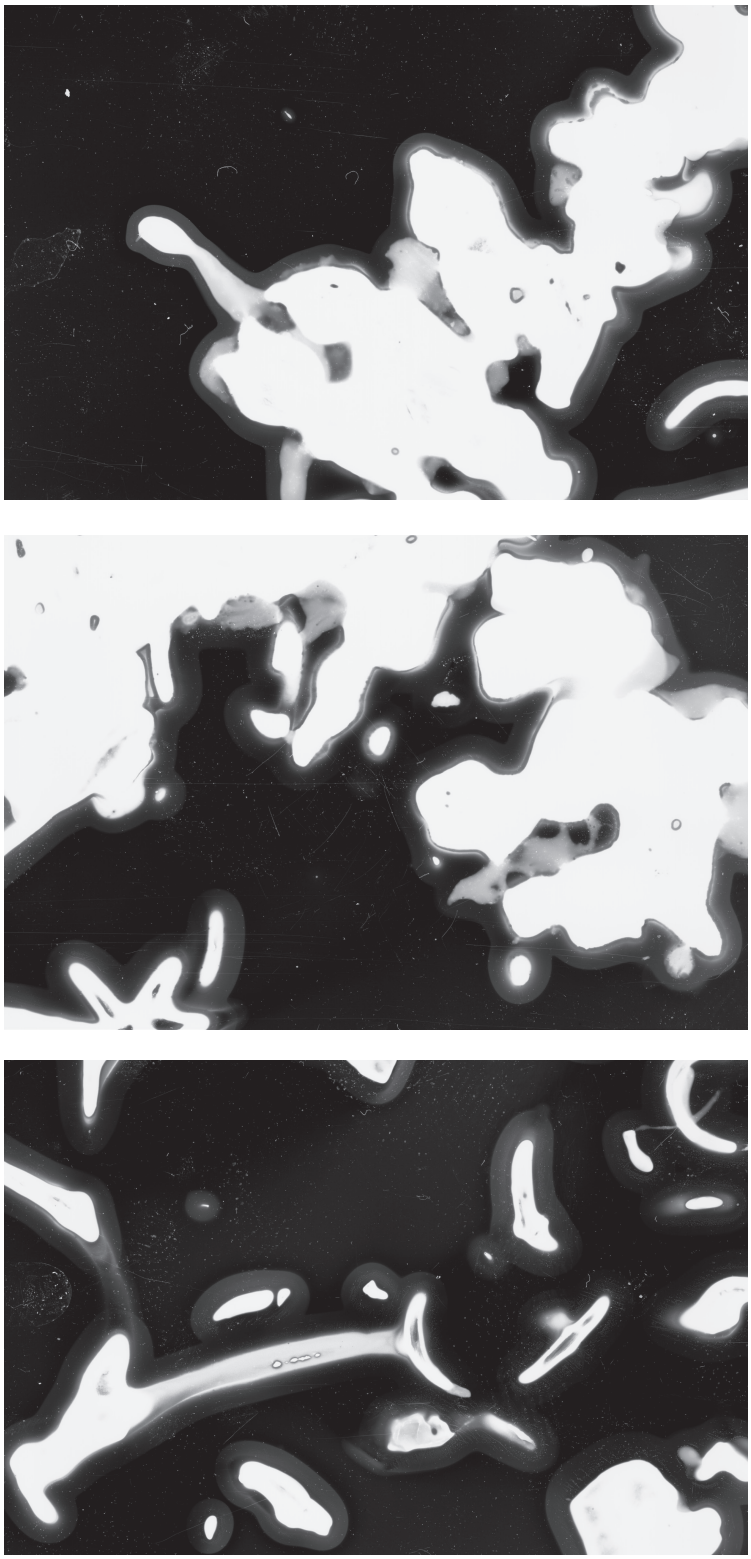
DISTANCE
0 mm

DEVELOPED IN
YARROW

DURATION OF EXPOSURE
120 min / 7200 s



72. —
73. —
74. —
Phytograms roll #1,
negative scan, 35mm film,

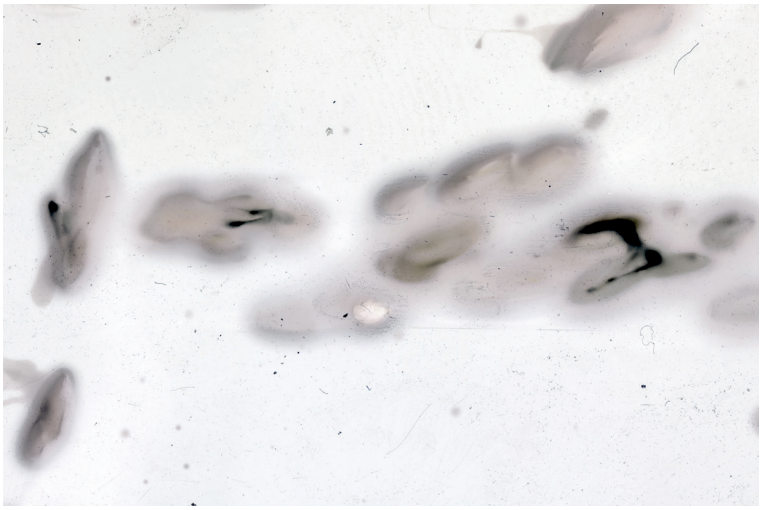


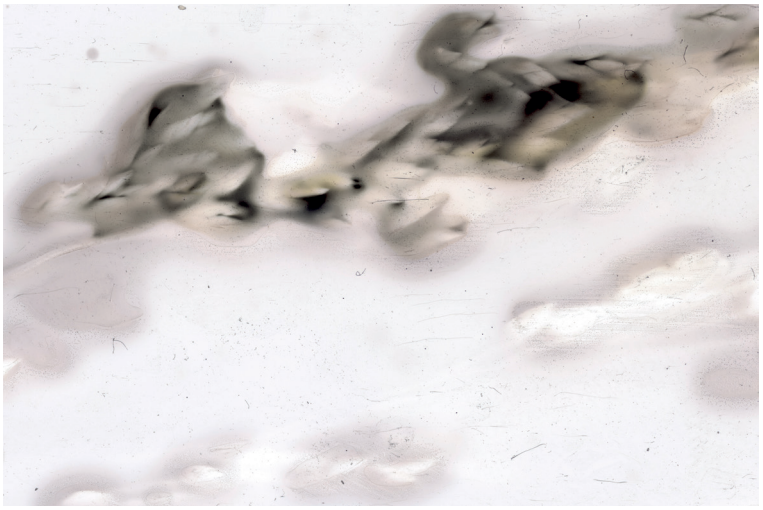
75. —
76. —
77. —
Phytograms roll #1,
negative scan, 35mm film,

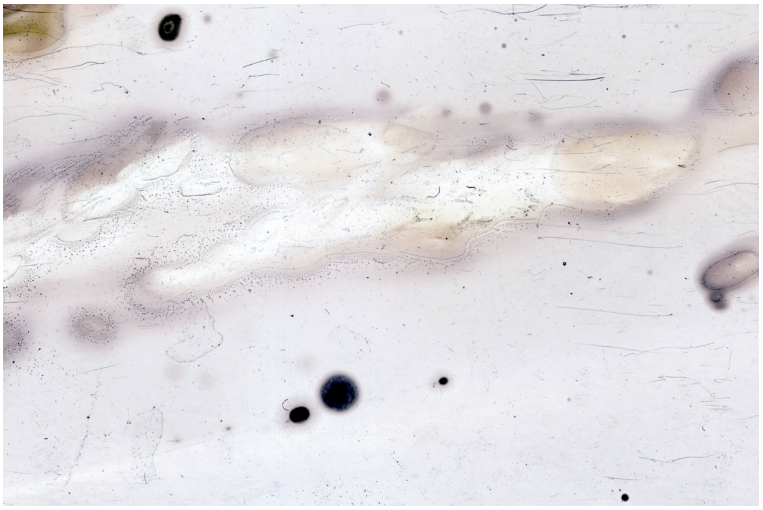
DISTANCE
0 mm

DEVELOPED IN
N/A

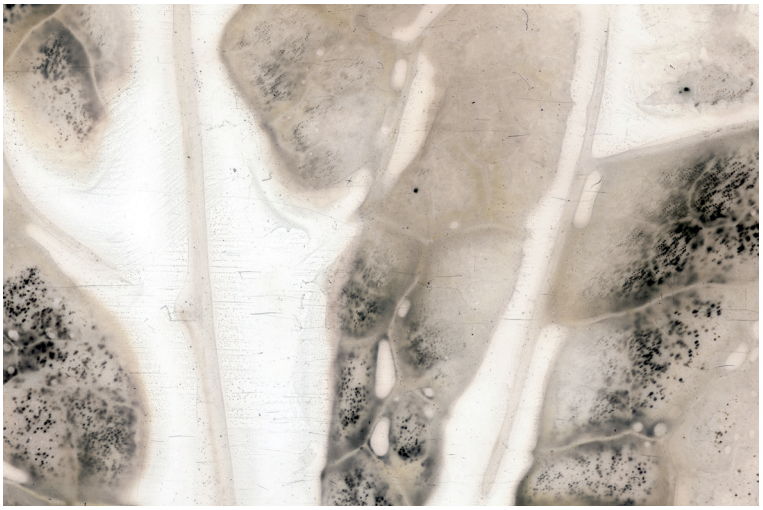
DURATION OF EXPOSURE
523 mins/31380s



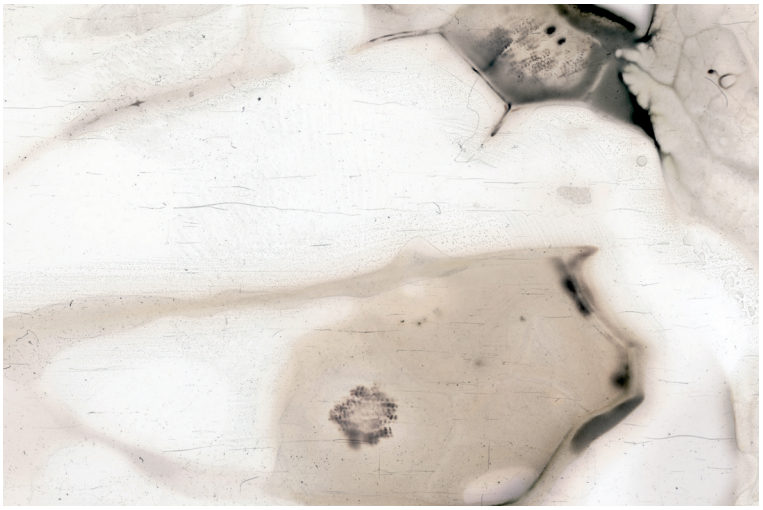




78. —
79. —
80. —
Phytograms roll #2, transparency scan, 35mm film, 2024.







81. —
82. —
83. —
Phytograms roll #2, transparency scan, 35mm film, 2024.



THE SUBJECT
THE IMAGE
The photographic medium

5.

What is a photograph not created by light?

fig 2.9. The mechanics of vision: altering the medium, 2023 *[Sketch by Author]*

DISTANCE
0 mm





SUBMERGE

When wet, the gelatin emulsion becomes as soft as wet paint.

Submerge.

Can the life spirit and motion of a river be recorded into a singular image?

Water shaped by fallen stones, water shaped stones shaping water. Delicate film, shaped by water shaped by stones.

A temporary communion, a joining in mutual decay
427 440 s (approx.)

DEVELOPED IN
BINDWEED

DURATION OF EXPOSURE
427 440 s

fig 2.10. Submerged film strip, digital photograph, 2023.

fig 2.11. Wet Film post submergion, digital photograph, 2023.



DRY

5 x 60 s developper
3 x 60 s fixing agent
[Ilford Rapid Fixer]

DEVELOP

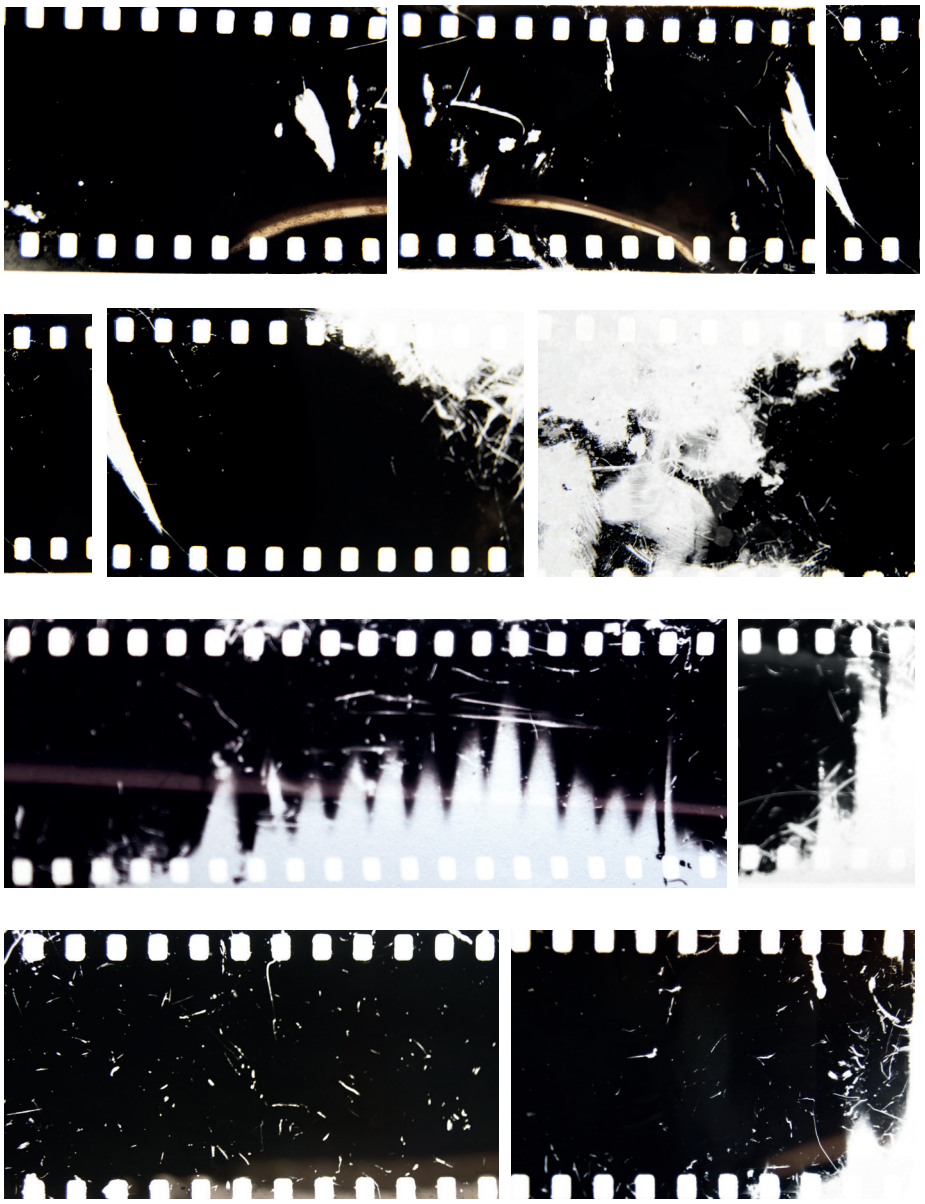


84.
Processed negatives, digital photograph, 2023.

DISTANCE
0 mm

DEVELOPED IN
BINDWEED

DURATION OF EXPOSURE
7124 min / 427440 s

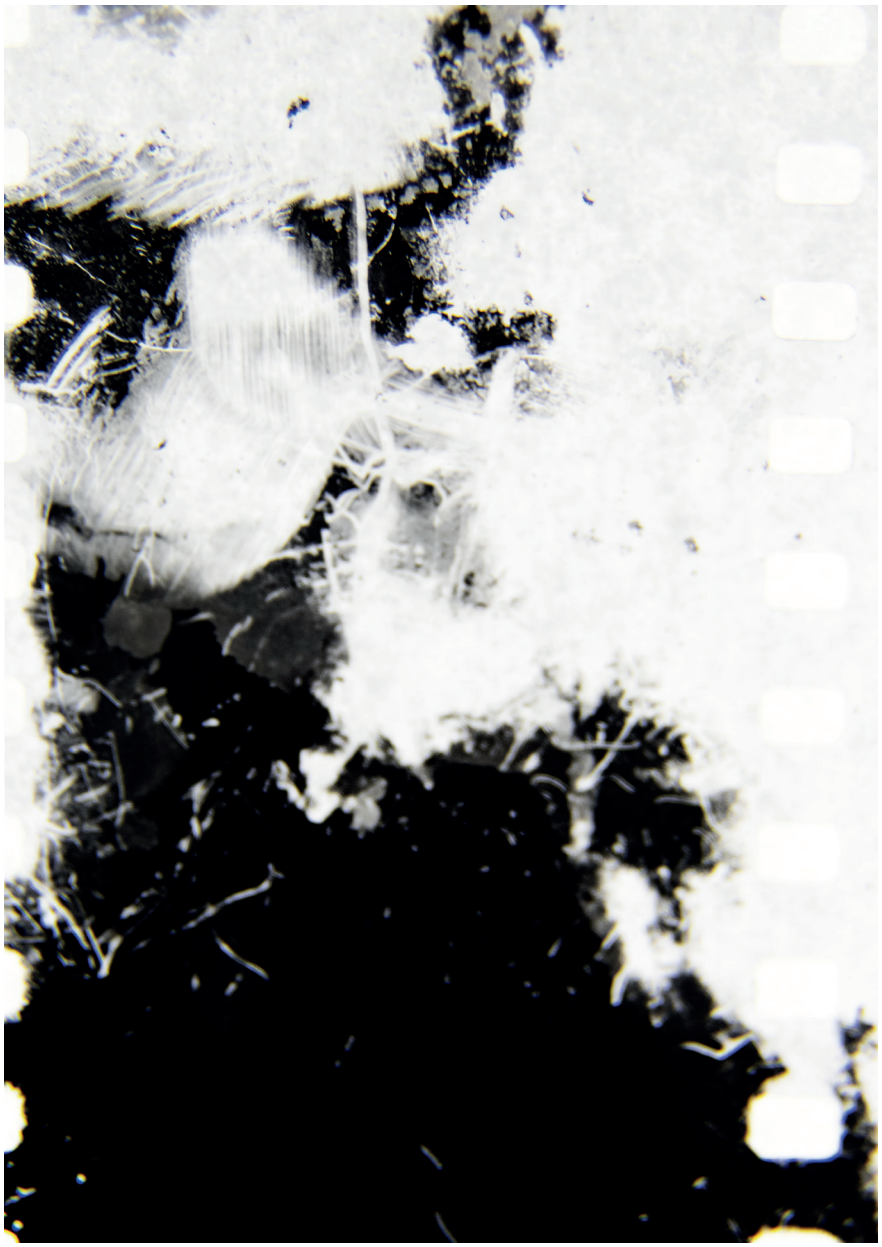


35mm

SCALE 1:1

[THE TRANSCRIPTION OF THE VOICE OF A RIVER]

85. *Submerged film full strip, positive digital photograph, 35mm film, 2023.*



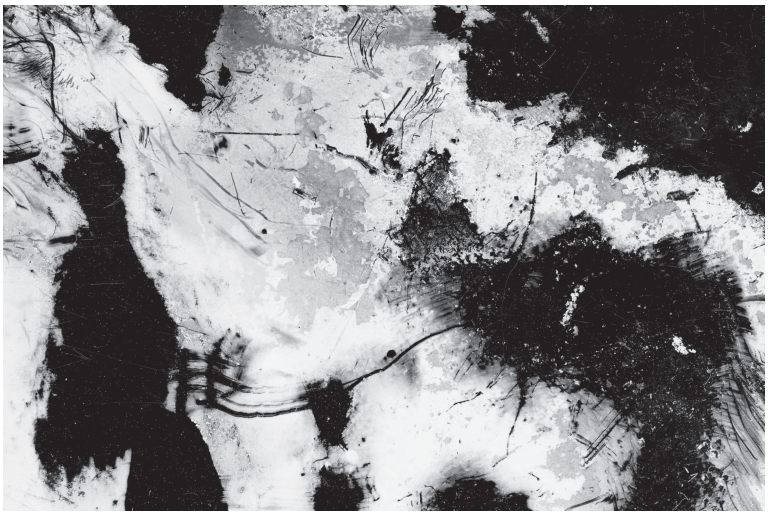
SCALE 3:1

86.
Submerged film, positive digital photograph, 35mm film, 2023.

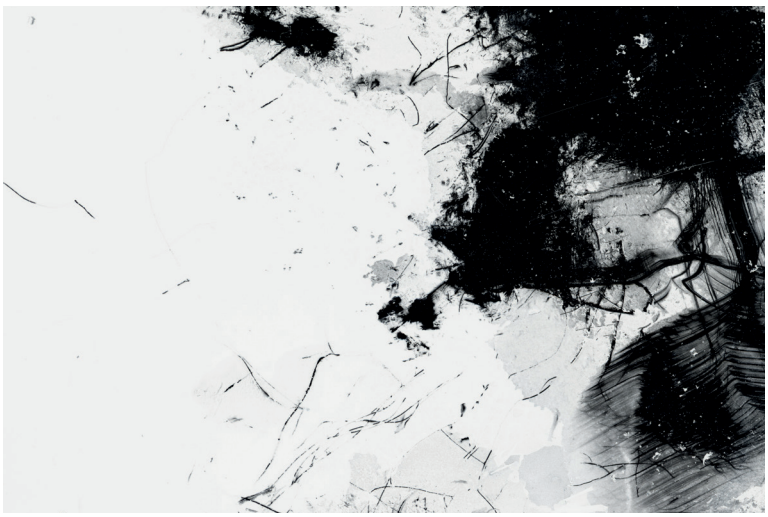
DISTANCE
0 mm

DEVELOPED IN
BINDWEED

DURATION OF EXPOSURE
7124 min / 427440 s

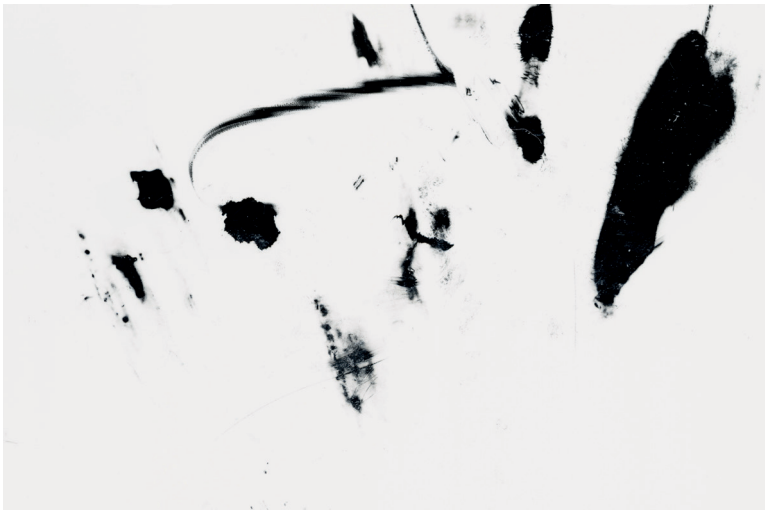






87. —
88. —
89. —
Submerged film, scanned negative, 35mm film, 2023.







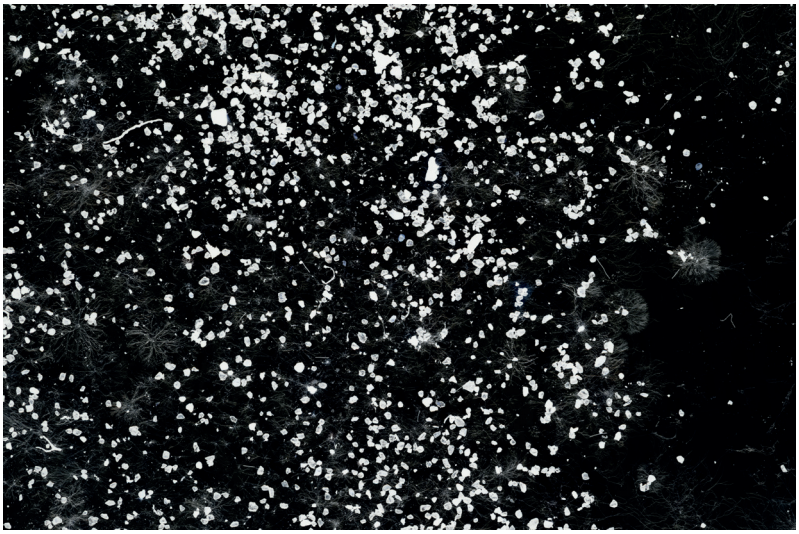
90. —
91. —
92. —
Submerged film, scanned negative, 35mm film, 2023.

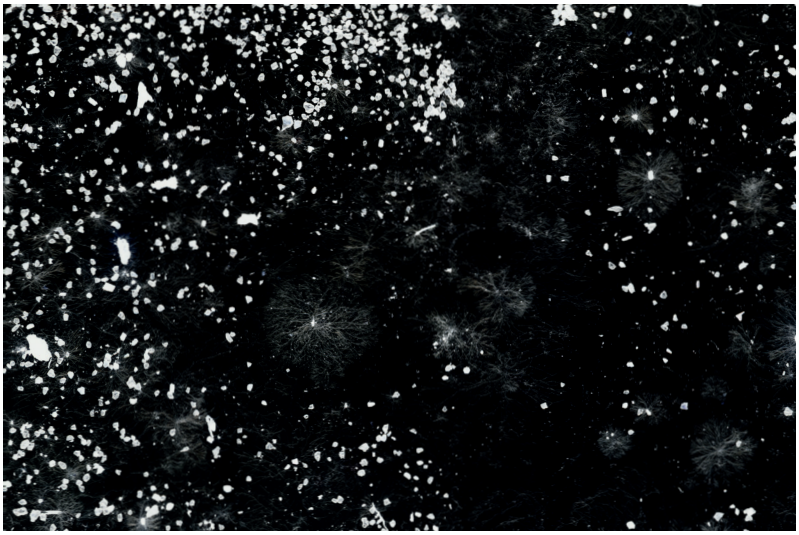
Arista 200 ISO B&W 35 mm

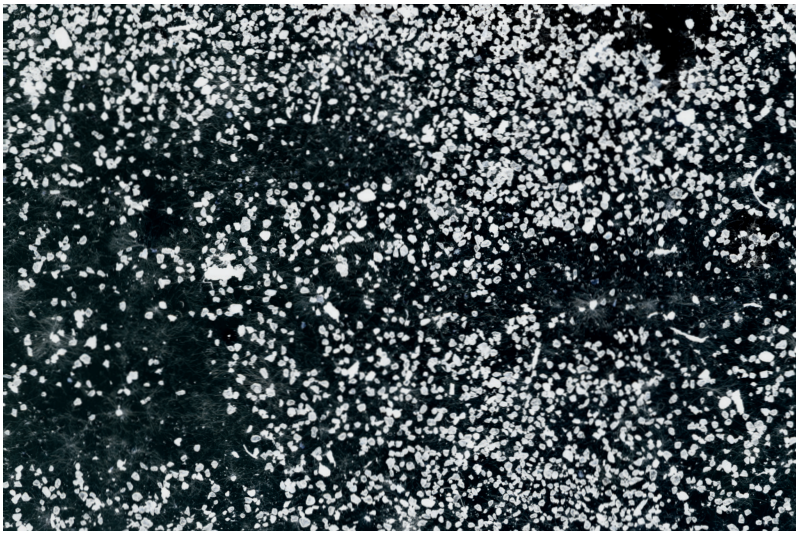
DISTANCE
0 mm

DEVELOPED IN
N/A

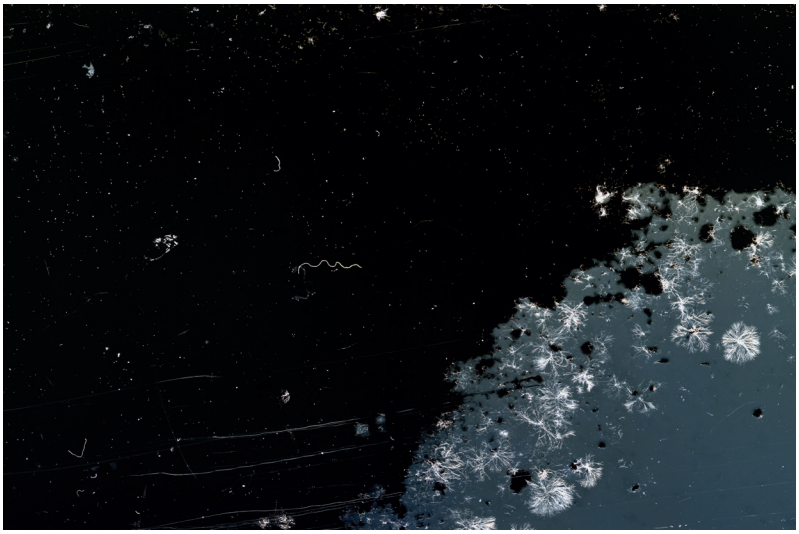
DURATION OF EXPOSURE
10080 mins/604800s







93. —
94. —
95. —
Buried film #1, scanned negative, 35mm film, 2024.







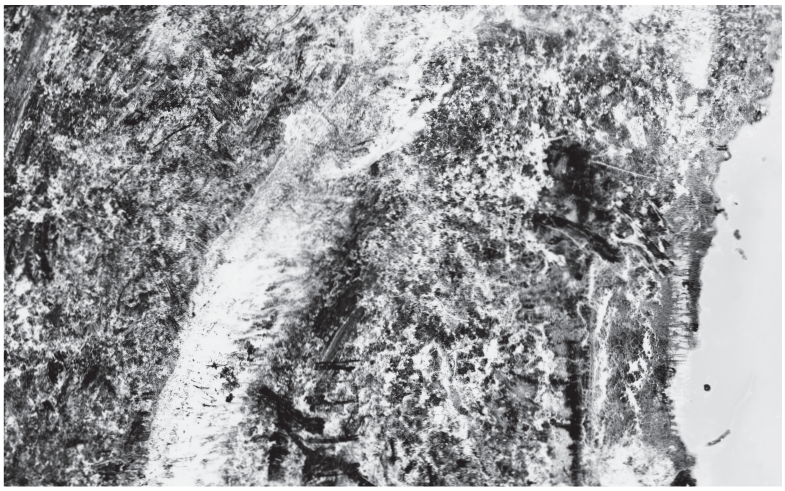
96. —
97. —
98. —
Buried film #1, scanned negative, 35mm film, 2024.

DISTANCE
0 mm

DEVELOPED IN
Cloves

DURATION OF EXPOSURE
20160 mins/1209600s



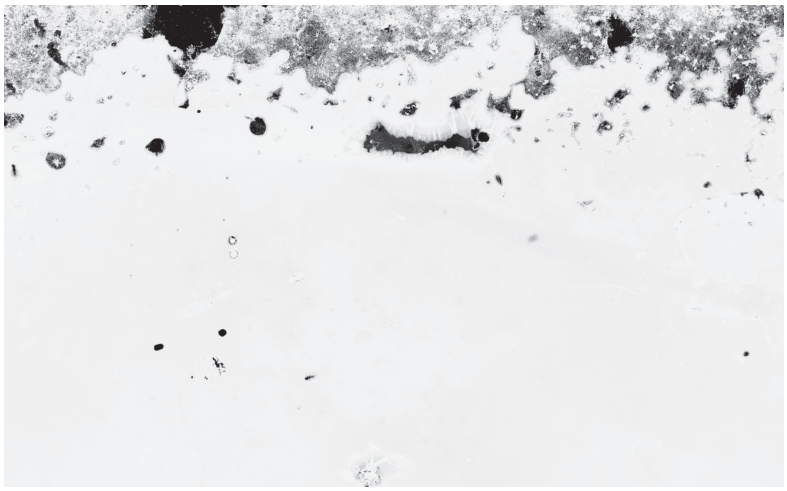




99. —
100. —
101. —
Buried film #2, scanned negative, 35mm film, 2024.







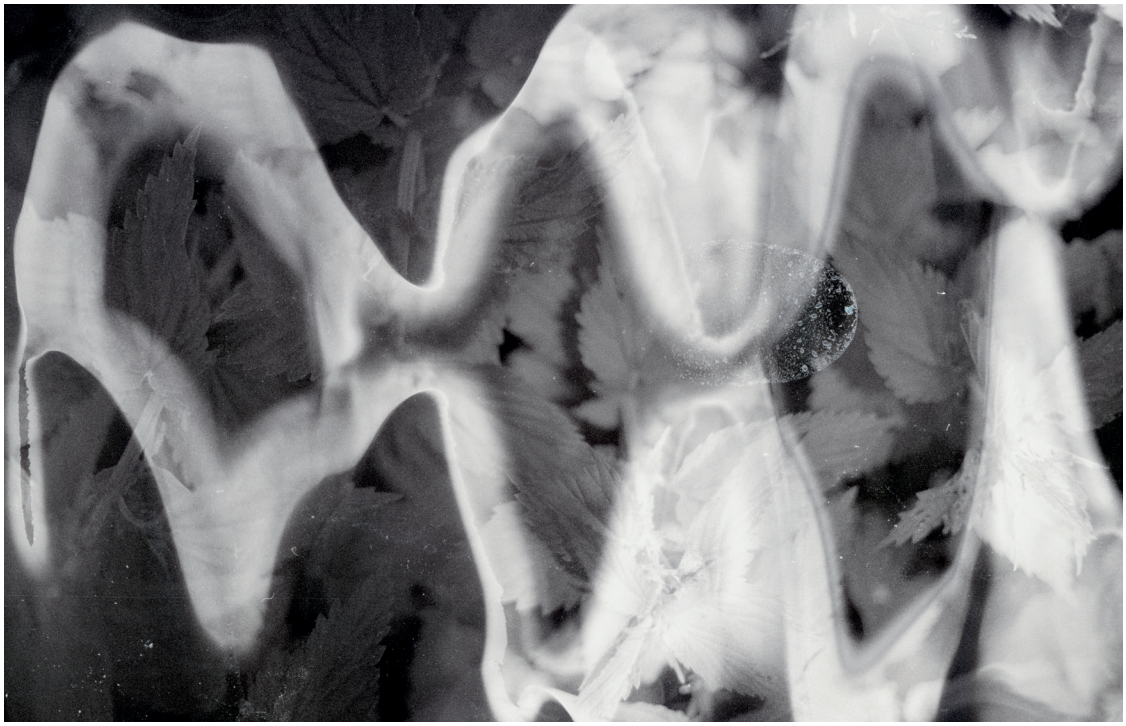
102. —
103. —
104. —
Buried film #2, scanned negative, 35mm film, 2024.

DISTANCE
1000 - 0 mm

DEVELOPED IN
Kodak D-76

DURATION OF EXPOSURE
2s - 1440min/864000s





105.
Souped film, negative scan, 35mm film, 2024.

106.
Souped film, negative scan, 35mm film, 2024.

Shoot film as typical.
In the meantime, prepare the film soup:

Ingredients:
A handful of rusty iron items. Roughly 25g
Acetic acid (or vinegar)

Combine and let rest in a clossed bottle, burping intermittently for as long as possible, minimum 2 weeks, up to 4 months.
This combination should produce iron acetate.

Process:
Bring iron solution to a boil in a small pan. Fully submerge a roll of undevelopped film. Set to boil for 5 to 15minutes.

Let cool

Submerge for 48 hours.
Dry for 7 to 30 days.

Wetter film is more prone to damage and ripping during development.

Kentmere 100 ISO B&W 35 mm

Part 3:

Auto | biographies

The following three sections—'Colours of Green, 'L'Entre-Objets' and 'The Sex Appeal of Vegetal Corpses'—are the in-book synthesis of the film project which accompanies the thesis book.

To the reader of the book:

Face a window, preferably looking out to the sky.

Close your eyes,
almost fully. Just not quite, as to leave a gap in your vision.

A gap just large enough that your eyelashes touch each other and intertwine.

Without letting them fully close, compress your eyelids slightly, oscillate the focus between your eyelashes and the clouds.

Let the clouds come to you.

















107.
Stills (1-16). ambulatory cloud, digital video, 2024.











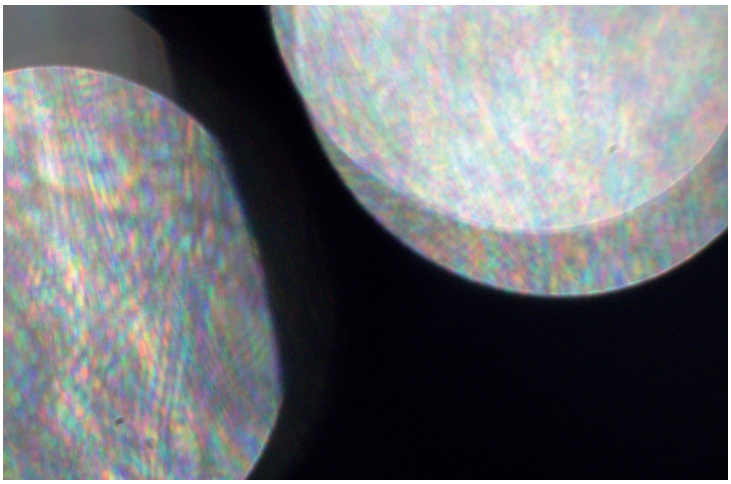






FUNGHI SPORES ARE RELEASED BY CATAPULTING WATER DROPLETS,
ONCE AIRBORN, THEY BECOME THE NUCLEI FOR MORE RAIN.

The Colours of Green



108.
Still.Camera cap on lens,
digital video, 2024.

"And here somewhere, we have an eye
(I speak for myself)
capable of imagining."[117]

Stan Brackhage,
Metaphors on Vision, 1963

117 Brakhage, *Metaphors on Vision*, 115.



109.
Stills (1-3) from 'The Colours of Green'. switchgrass, digital video,

110.
Stills (1-3) from 'The Colours of Green'. white pine, digital video, 2024.



We have eyes (I, also, speak for myself) which are capable of oscillating in focus between planes of vision.

Unlike a camera, which can interchange its lenses, its shooting mode, and the mechanical features of its aperture, shutter and focus, we have only one vision (the primary illusion)/one sight (the only reality).

These are one and the same.[118]

The camera is the lie in the center of the book.

***

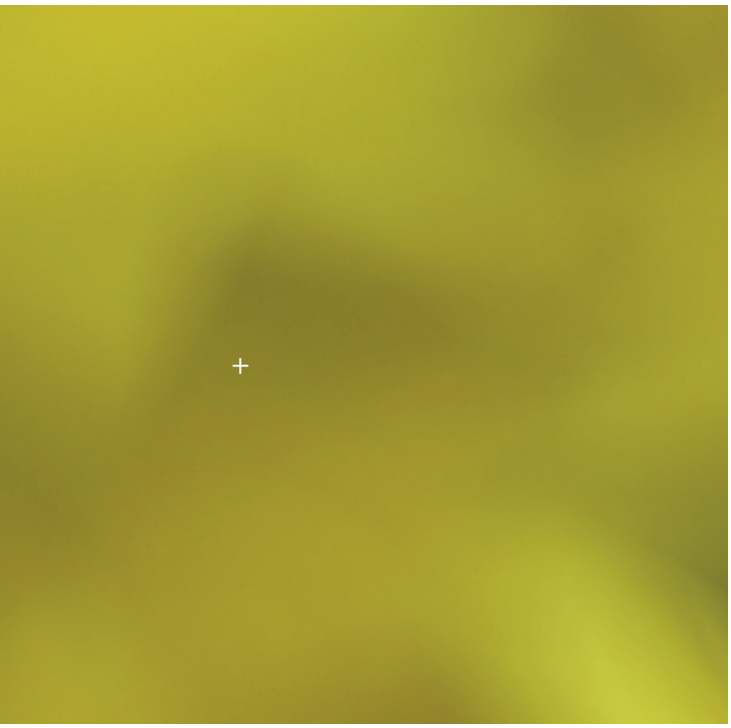
[One way to modify sight: squint. Blur your vision, start first by seeing only vacillating colour.

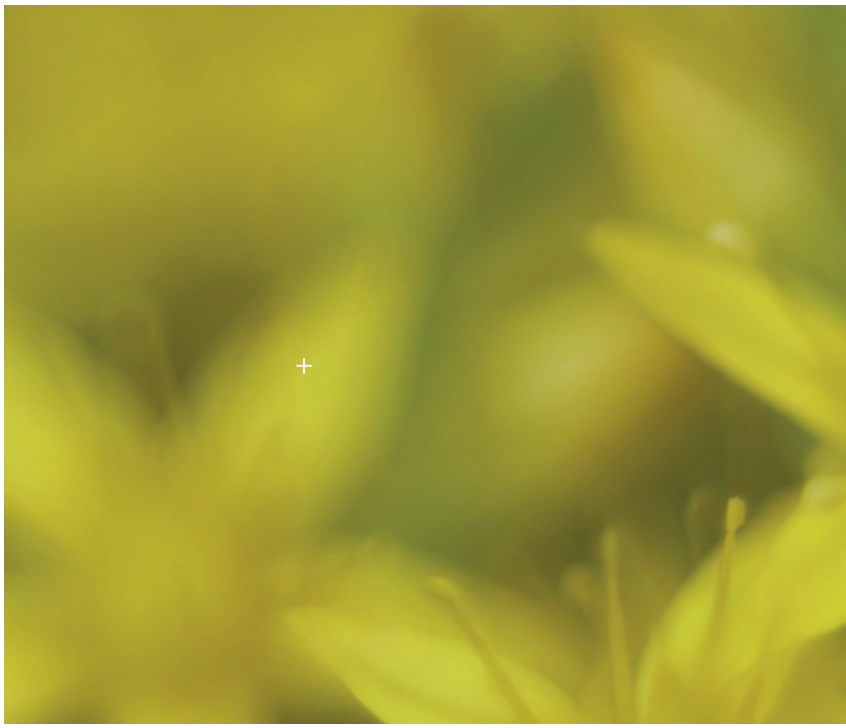
Spit on the lens of the camera (or use a diffusion filter). Open its aperture to the maximum.

Focus on greenness, let these sights blur until you all green has disappeared. What remains now is greenness without green.

Blue.
Yellow.
Gold.
Grey.
Red.
White.
Colours within green: yellow, blue, purple and grey.]

118 Brakhage, *Metaphors on Vision*, 115.





"I'm fascinated by the world of small things that opens up before me, but I'm equally compelled by that space between legibility and illegibility.

The tiny gestures I have to make in order to shift from one visual plane to the other makes me intensely aware of my own body; my breathing becomes softer and shallower, my movements more delicate and considered.

This kind of filming requires such an intimate encounter for an image to appear that the lens has to almost touch the object."[119]

Kim Knowles, *Experimental Film and Photochemical Practices,* 2020

119 Knowles, *Experimental Film and Photochemical Practices,* 152.



111.
Stills (1-2) from 'The Colours of Green'. sedum, digital video, 2024.

In a dense forest, an ocean of water is held by in clouds, dew, mist, within the confines of the cellular matter of moss. An air-borne ocean, in constant flow of dispersing and congealing.

Every cubic meter of air contains, on average, 1000–10000 fungal spores, enough for 1–10 per breath.[120]

When rain drops hit ripe giant puffball mushrooms, they releases on average seven trillion spores. Out of those, perhaps one will reach maturity.[121]

Airborne, a singular fungal spore is thought to act as nucleus for the condensation of a singular raindrop.[122]

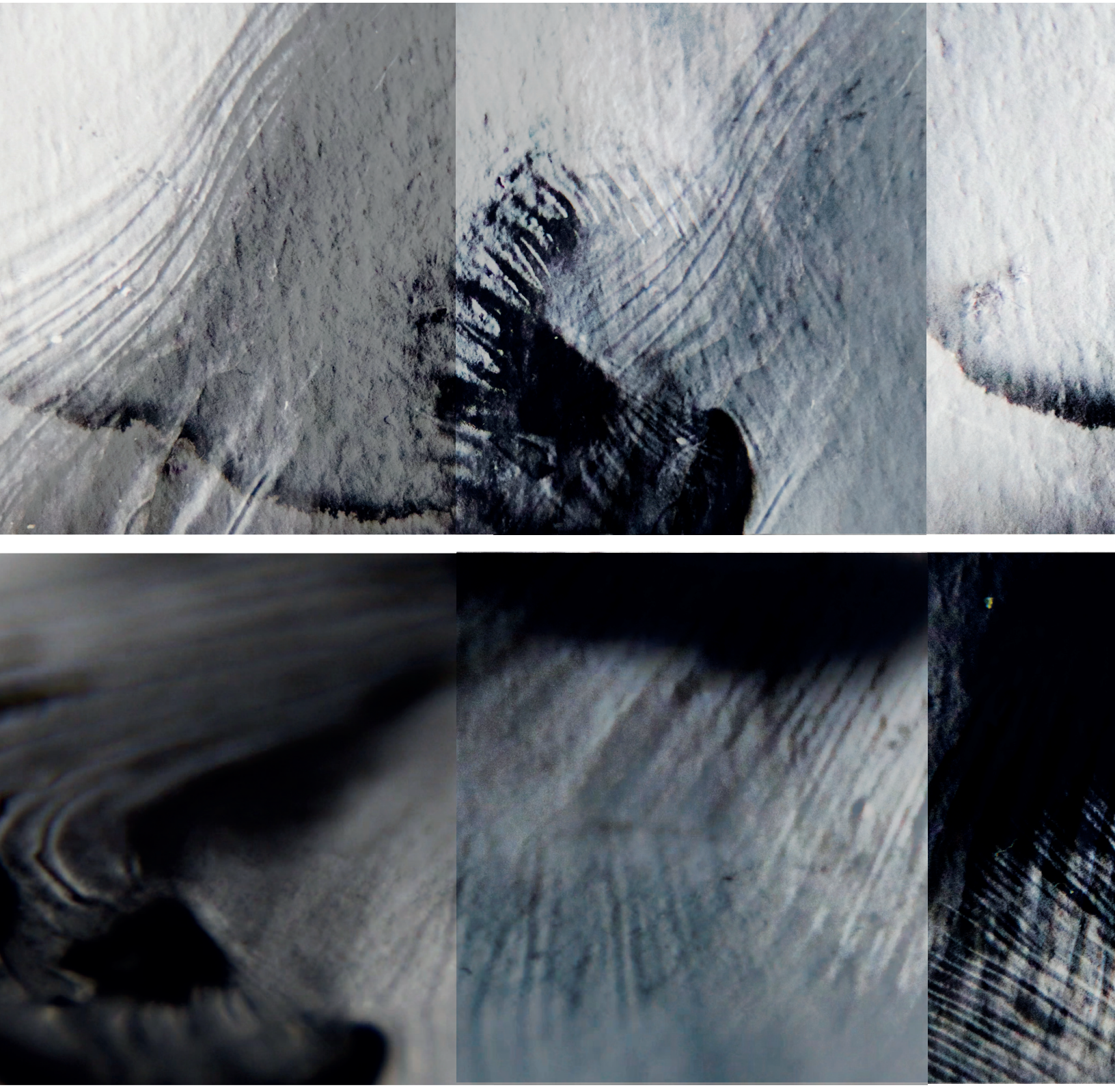
Above forests, fungus borne rain clouds water mycelium networks and falls on more fungus caps to release more spores.

***

And so, it repeats. Because we are thinking ecologically, and in ecological thought there is no end/beginning, no subject/focal point. No wholes with replaceable parts.[123] Just an ever-continuous movement from the macro to the microscopic.

And with it a continuous switching and refocusing of the lens into a new scale beyond normal human perception; a back and forth between beyond (much smaller then) and beyond (much larger then).

120 Johannes Gutenberg, "Air Full of Fungi, Study Reveals | Press and Public Relations," University Mainz, July 13, 2009, https://press.uni-mainz.de/air-full-of-fungi-study-reveals/.
121 Eric Biggane, "The Puffballs," *Wild Food UK,* October 21, 2015, https://www.wildfooduk.com/articles/the-puffballs/.
122 Maribeth O. Hassett, Mark W. F. Fischer, and Nicholas P. Money, "Mushrooms as Rainmakers: How Spores Act as Nuclei for Raindrops," *PLOS ONE* 10, no. 10 (October 28, 2015): e0140407, https://doi.org/10.1371/journal.pone.0140407.
123 Timothy Morton, *All Art Is Ecological*, Green Ideas 3 (United Kingdom: Penguin Books, 2021), 32.



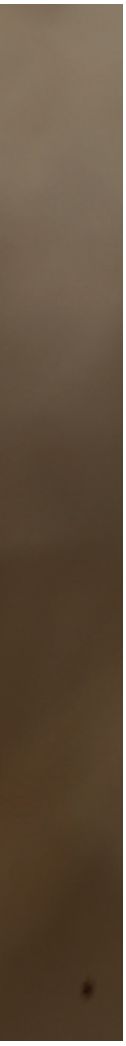
112.
Stills (1-8). mushroom spores, digital video, 2024.

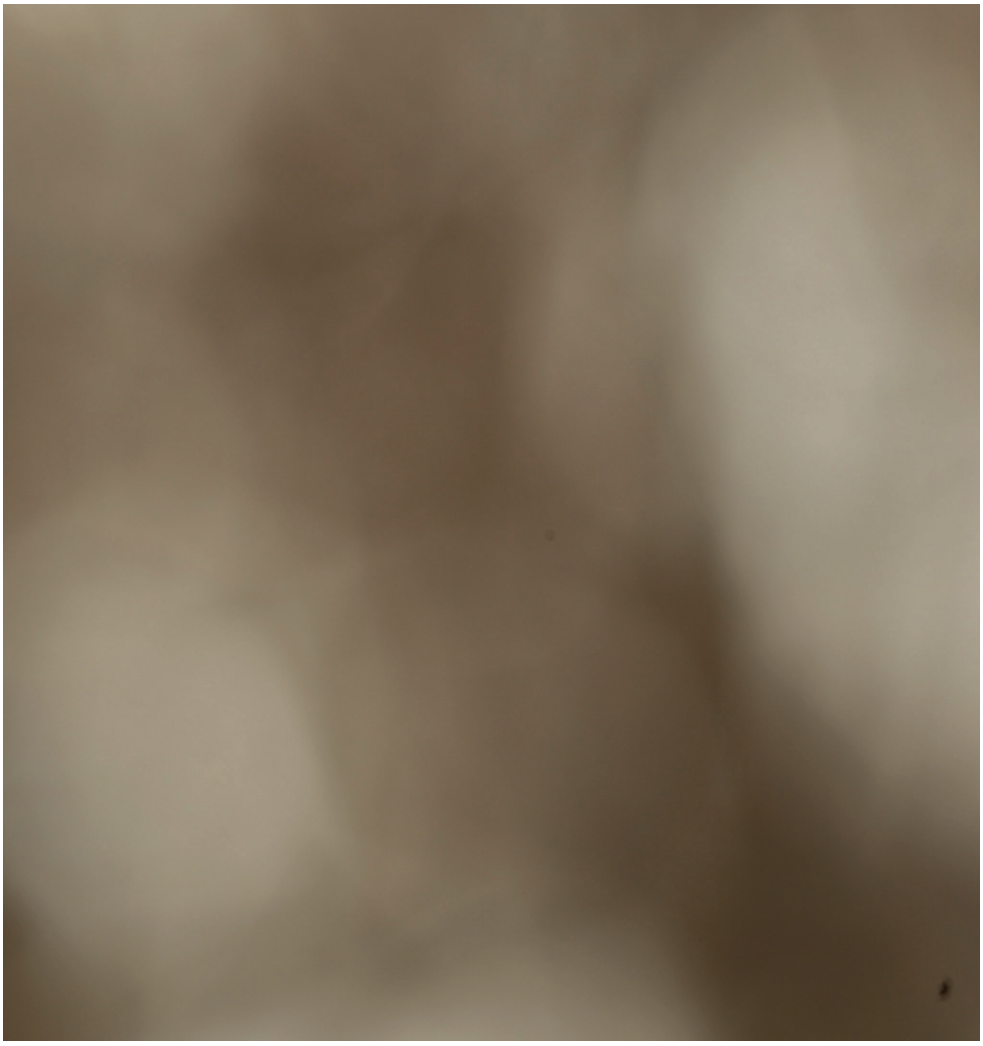


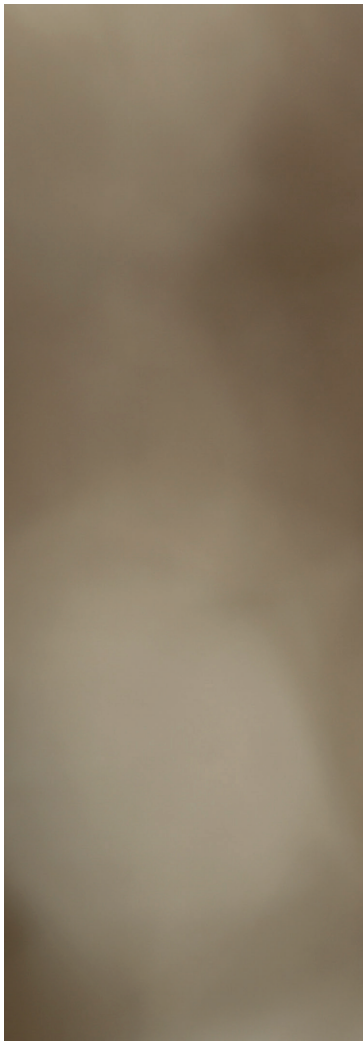




113. *Stills (1-4) from 'The Colours of Green'. switchgrass, digital video, 2024.*











114.
Stills (1-3) from 'The Colours of Green'. dogwood, digital video, 2024.



L'Entre-Objets[124]

124 Knowles, *Experimental Film and Photochemical Practices*, 42. *A play on Raymond Bellour's concept of l'entre-images (between the images), l'entre-objets (between the objects) was coined by Knowles as a reflection of the space that surrounds the film strip, and its influence on the photograph.*



fig 3.1. Engraving of a Bust of Democritus. *Unknown engraver. 460-371 BC [Public Domain]*

"It is recorded among the accomplishments of Greek history that the philosopher Democritus, deprived himself of eyesight willingly because he believed that his mind's thoughts and reflections in considering the laws of nature would be clearer and more precise if he freed them from the incitements of sight and the eye's mistakes"[125]

From Aulus Gellius' Attic Nights, 10.17

125 Cornelius Gellius, *Noctes Atticae (Attic Nights), Vol.II Book X,* Loeb Classical Library 200, (Cambridge, MA: Harvard University Press, 1927), 17.

Speaking to the audience:
[Do not close your eyes]
[But imagine them so.]

[Imagine Democritus,
as he took his sight,
as he reached
with his index and thumb,
the palm of his hand eclipsing
the lens of his Eye.
Did he hesitate? Did he keep
his eye open
as his fingers curled
into its socket.
Was the final image
of his sight, etched by light
into his brain?
But then,
feel the fire,
the blazing, scorching, molten
pain
of blinding light, here a precursor
to optical blindness. Your retina
peeled, ripped, ruptured and mangled
onto the vitreous body of
the Eye.

The optic nerve fires phantom images,[126]
remnants of sight,
into the brain.]

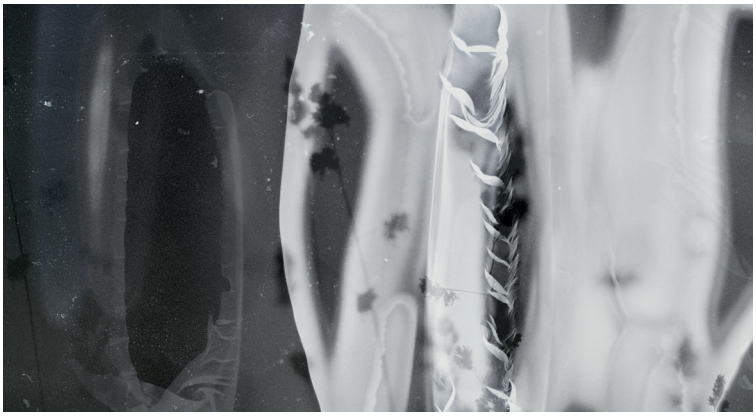
126 John M. Hull, *Touching the Rock: An Experience of Blindness* (New York, NY: Pantheon, 1990), xiv.





115.
Stills (3-10). Tearing away the eye: sky and grass, from l'Entre-objets 35mm film,

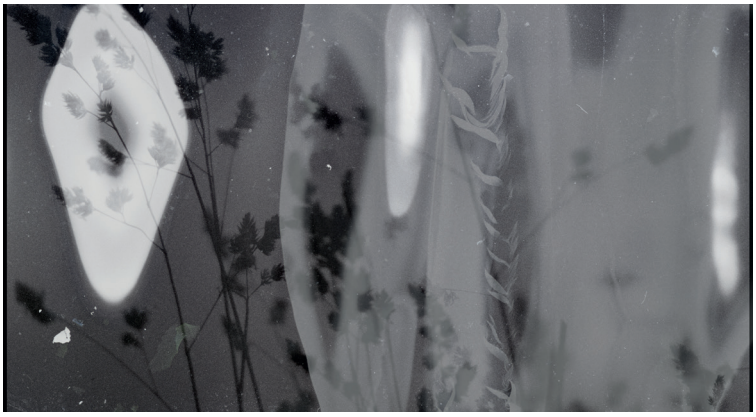


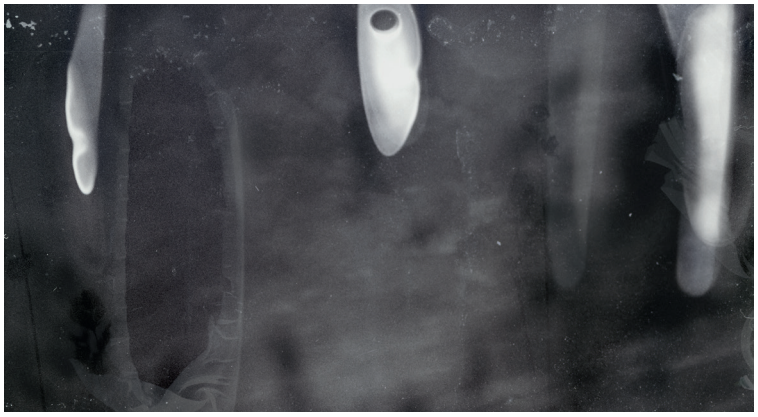






116.
Stills (1-3). Tearing away the eye: sky and grass, from l'Entre-objets, 35mm film,







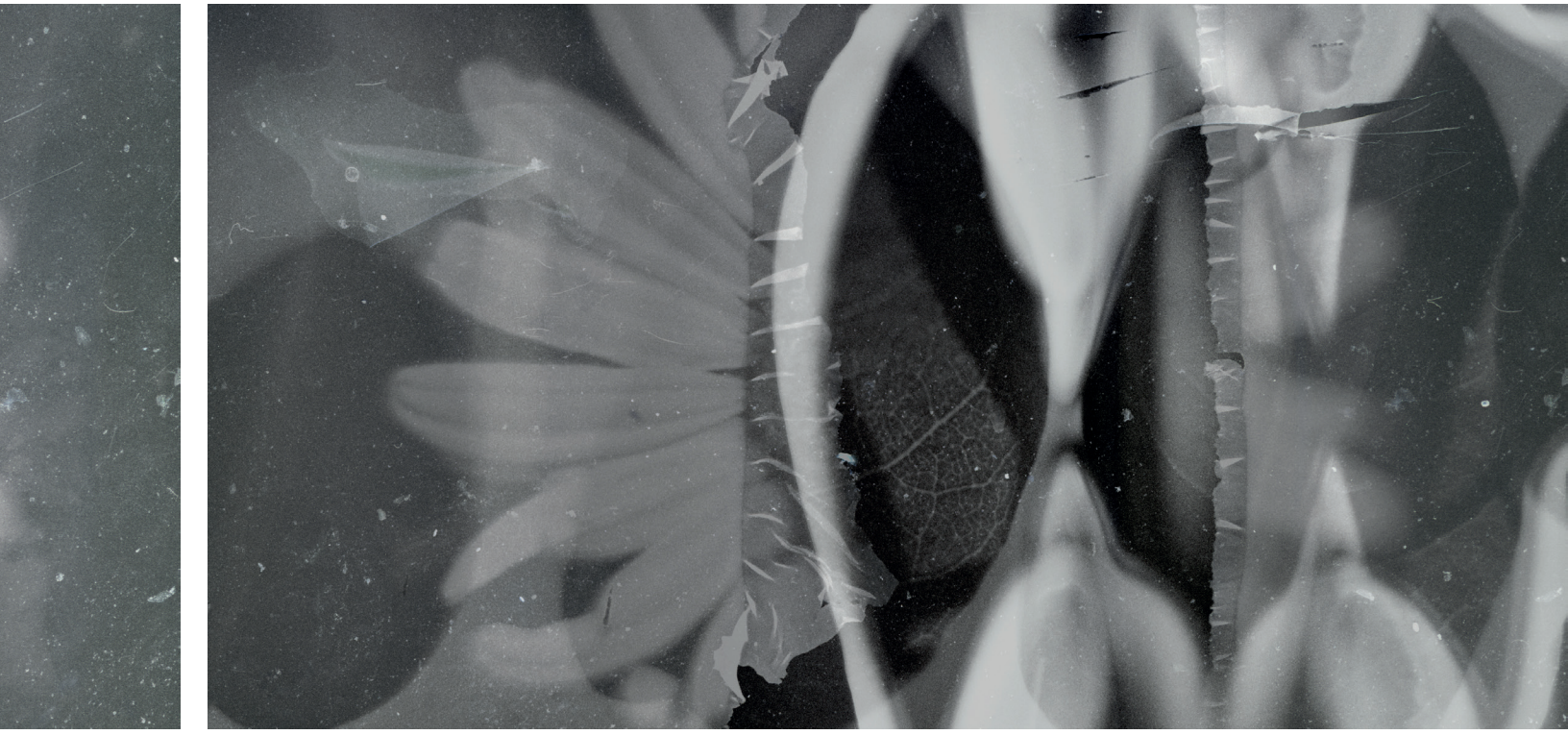




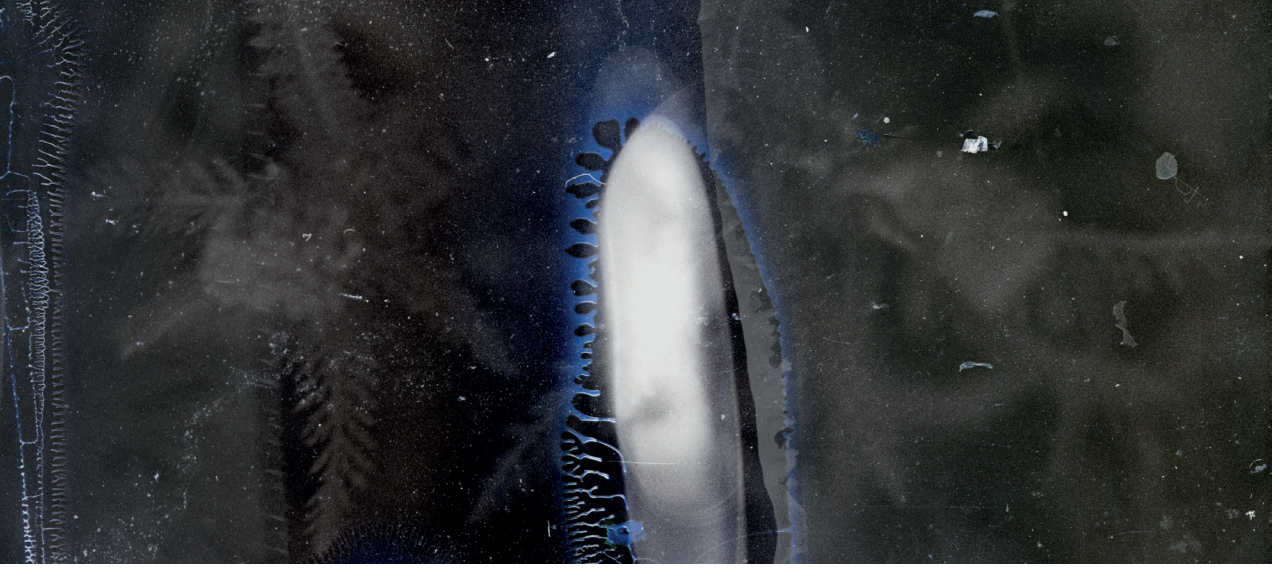
117.
Still from L'Entre-objets.
Tearing the eye away (13),
35mm film, 2024.

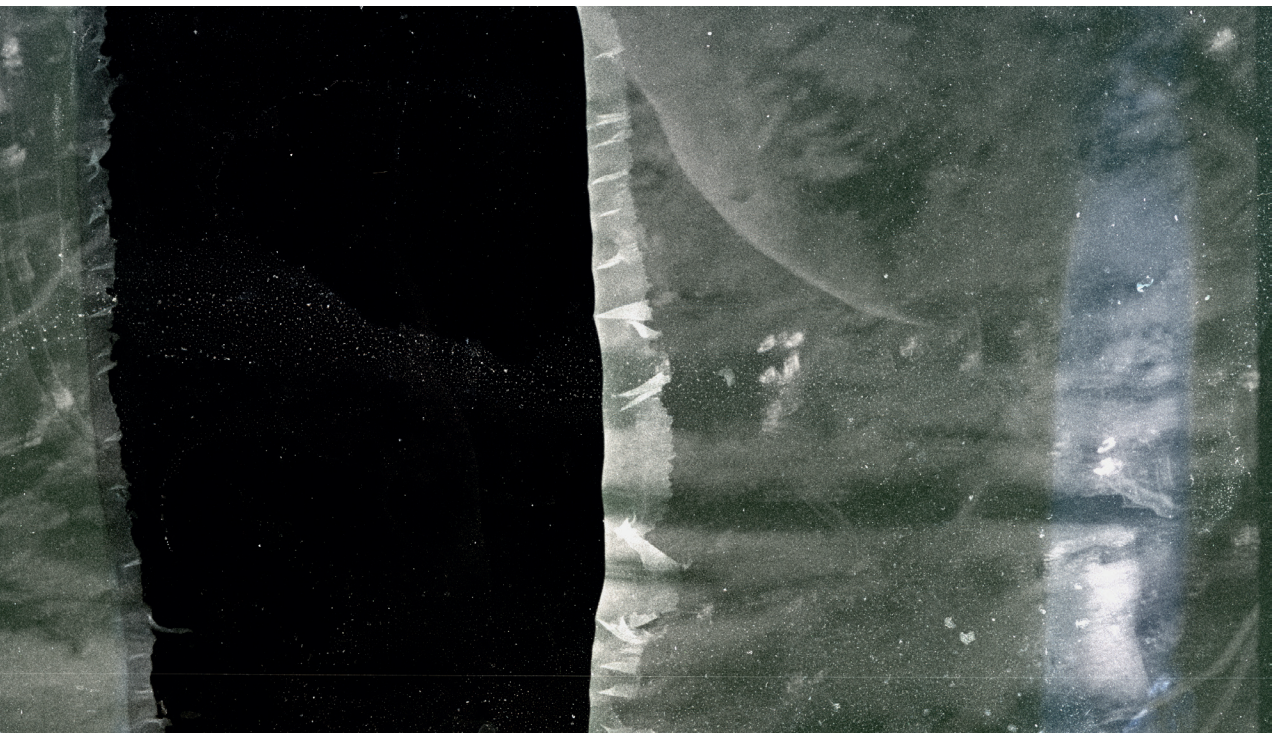
118.
Still from L'Entre-objets,
Tearing the eye away (14),
35mm film, 2024.

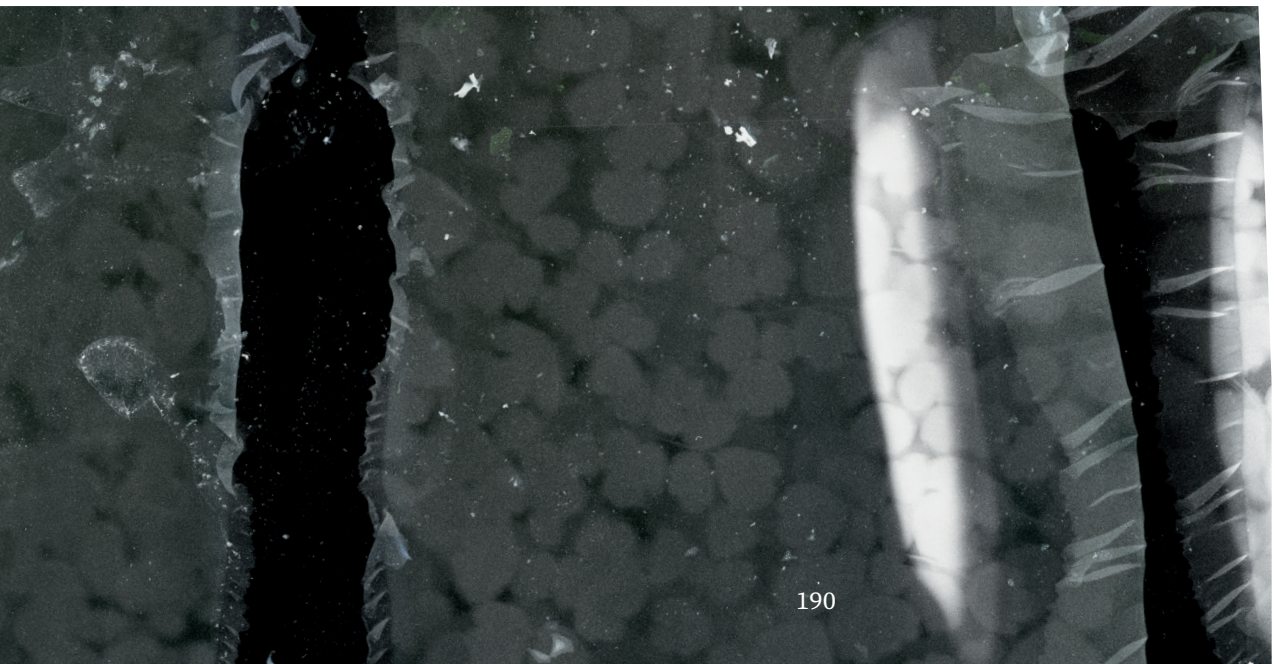




119.
Stills (11-12). Tearing the eye away, from l'Entre-objets, 35mm film, 2024.



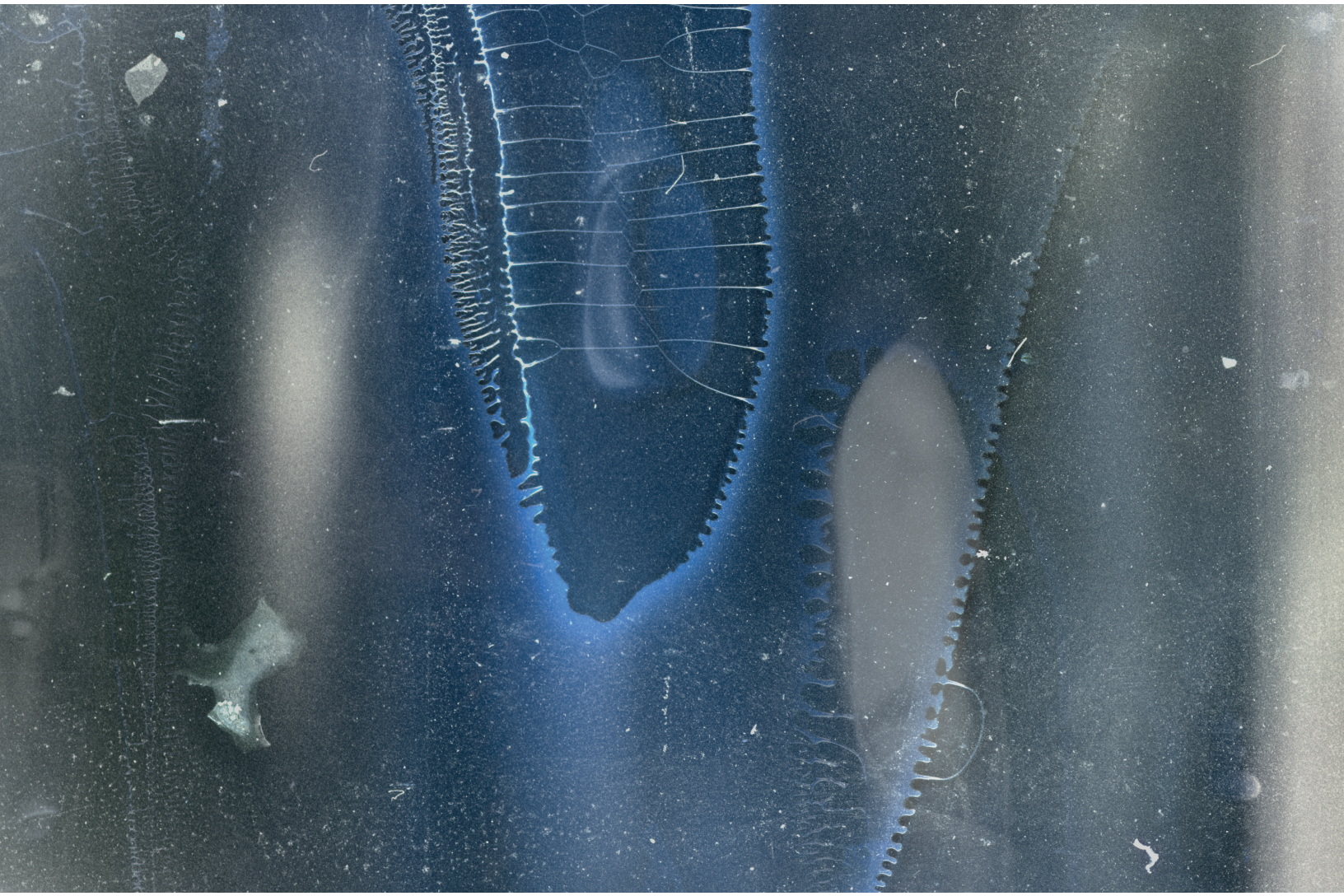


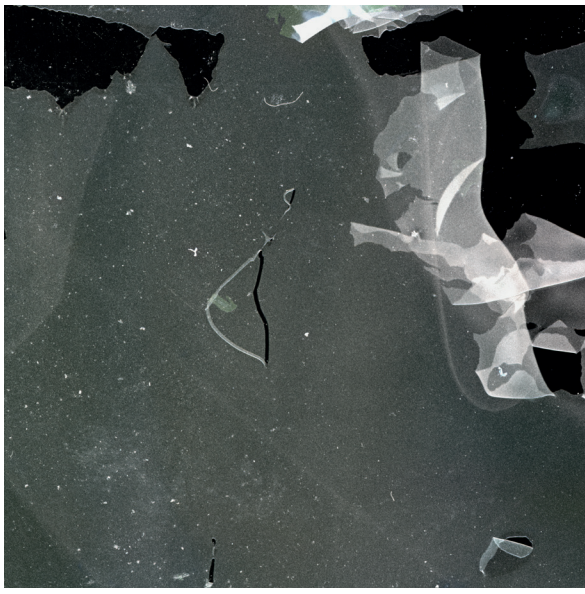


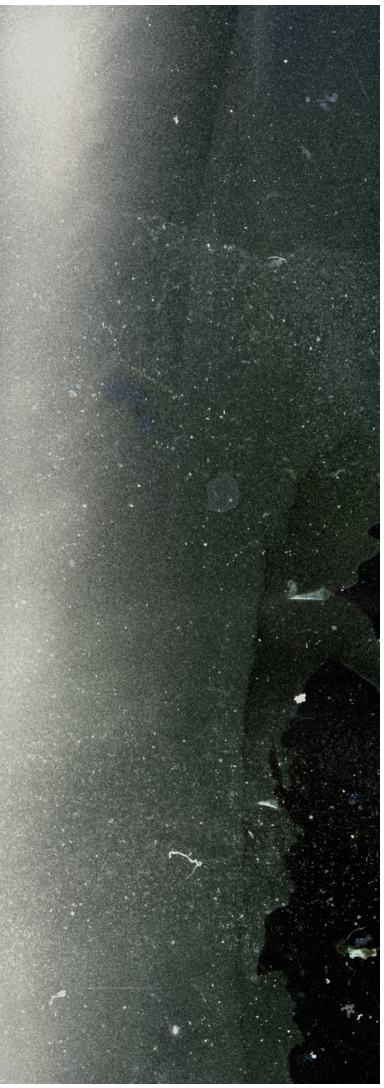
120.
Still from L'entre-objets.
Tearing the eye away (15),
35mm film, 2024.

121.
Still from L'Entre-objets.
Tearing the eye away (16),
35mm film, 2024.

122.
Still from L'Entre-objets.
Tearing the eye away (17),
35mm film, 2024.



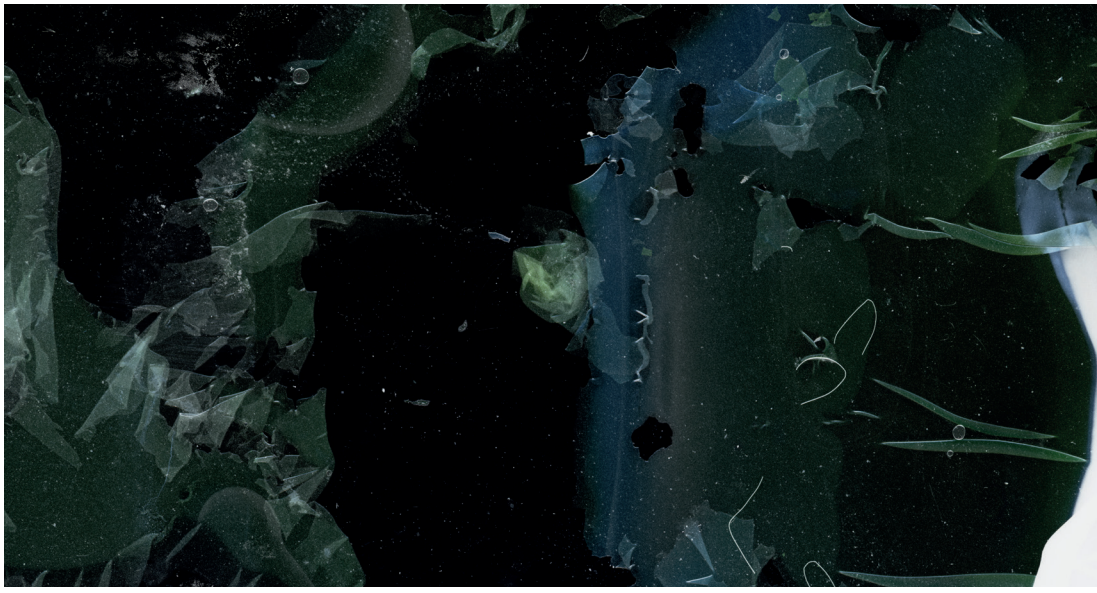




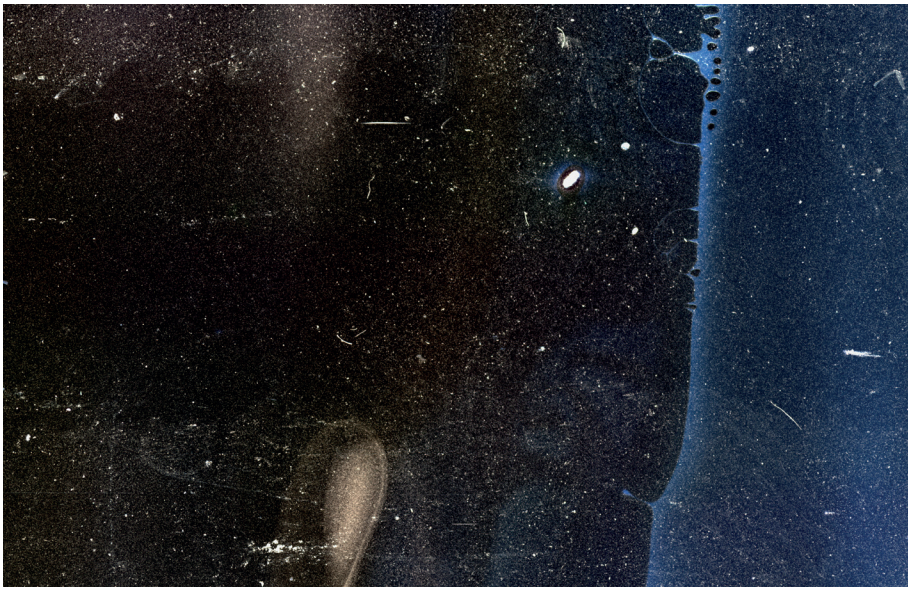
123.
Still from L'Entre-objets, Tearing the eye away (18), 35mm film, 2024.



124.
Still from L'Entre-objets, Tearing the eye away (19), 35mm film, 2024.



125.
Still from L'Entre-objets, Tearing the eye away (20), 35mm film, 2024.



126.
Still from L'Entre-objets, Tearing the eye away (21), 35mm film, 2024.



127.
Still from L'Entre-objets, Black (1), 2024.

128.
Still from L'Entre-objets,
Black (2), 2024.



When exposed to UV light, the silver halides present in black and white silver-gelatin paper release siler nanoparticles.

In turn they accumulate, thickening through exposure, and release interference colours.

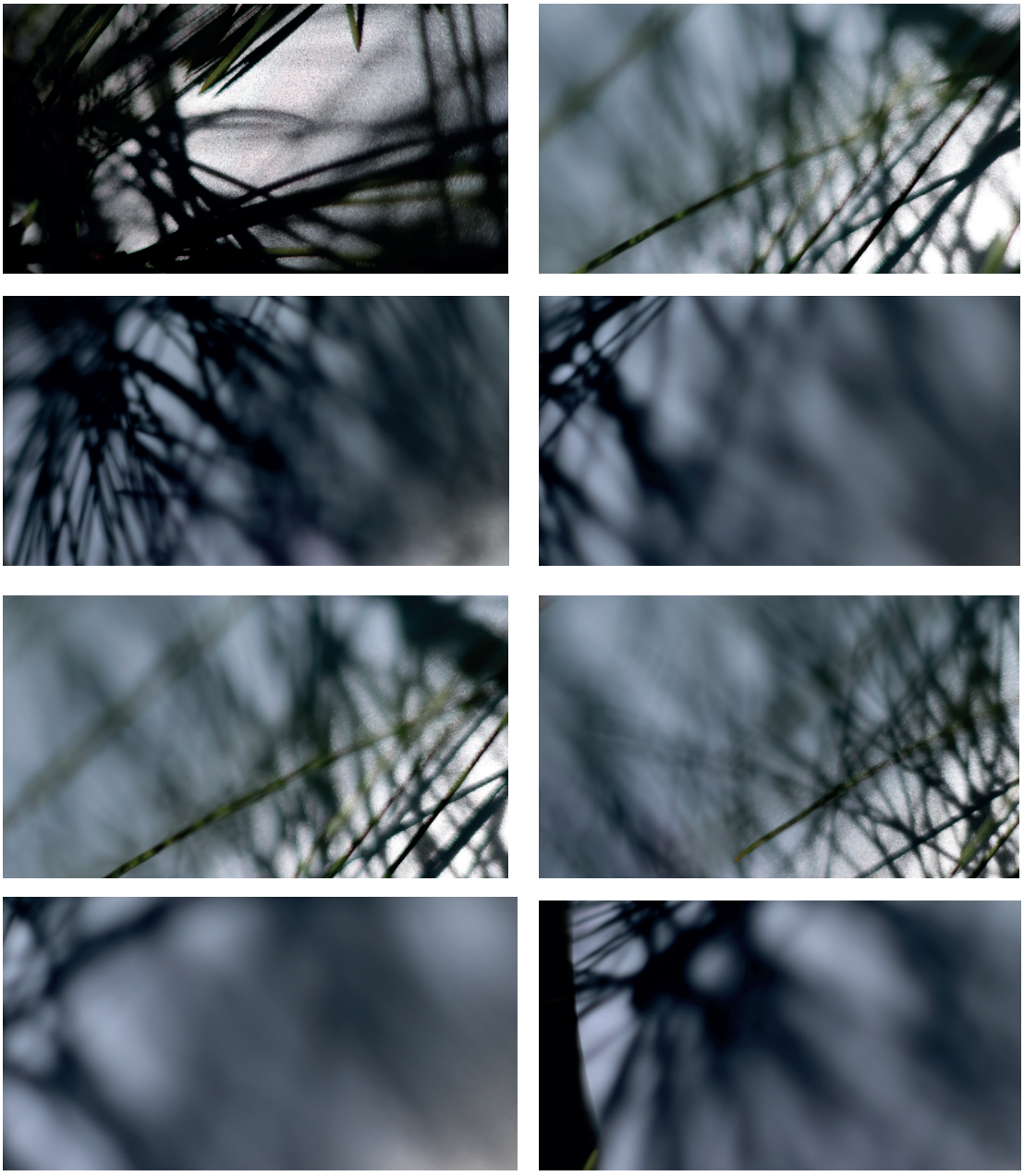
These are colours produced solely by crystalline matter. Colours of light refracting through crystal, interacting with more light, breaking into more colour. When submerged in a thiosulfate-based fixer, the silver halide crystals are dissolved and washed out of the paper. In this process most colour is lost, replaced with a bromide-brown stain.[127]

Horsetail grew first at a time far before horses had tails, far before the world had horses. It grew in the Carboniferous, the only geological period named for its greenness.[128] But also in the Paleozoic, in parallel to all the greenness which filled the world with oil.

Akin to silver, light which passes through thin petroleum oil films interferes to produce patterns of rainbow iridescences.[129]

Temporarily iridescent, temporally driven, these are palimpsests of sunlight filtered through greenness, shadows of green light refracted into all colour. Transpiration from living matter accelerates the process, after three, maybe six hours of human time, definitely no more then ten; eventually Horsetail leaves layers of leaf-prints, and so the paper becomes blank.

127 Daniel Berrangé, "Thoughts on the Chemistry behind the Lumen Process". *f/138*. October 11, 2015, https://fstop138.berrange.com/2015/10/thoughts-on-the-chemistry-behind-the-lumen-process/.
128 *Britannica, s.v.* "Equisetopsida | Ferns, Horsetails & Lycopods", accessed June 26, 2024, https://www.britannica.com/plant/Equisetidae.
129 "Thin Film Interference," accessed June 26, 2024, https://sciencedemonstrations.fas.harvard.edu/presentations/thin-film-interference.



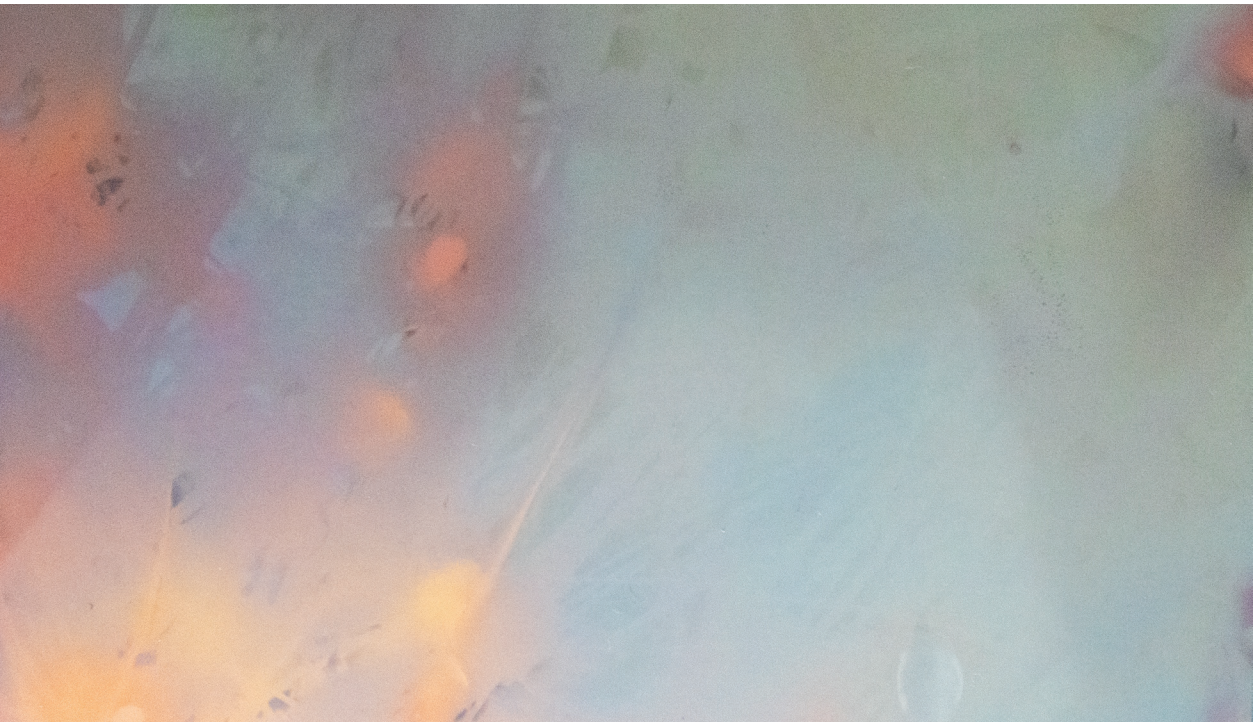
129.
Stills (1-8). Lumens with pine:making of, 35mm film, 2024.

[Silver nanoparticles accumulate in the emulsion.]

*[Individually, each iridescent crystal of silver becomes
an individual grain of the image.]*

[By manipulating sunlight, horsetail, pine and switchgrass redistribute silver into silver paper, they paint the story of one afternoon under the sun.]

*



130.
Still frame from l'Entre-objets. Lumen print #1, 2024.

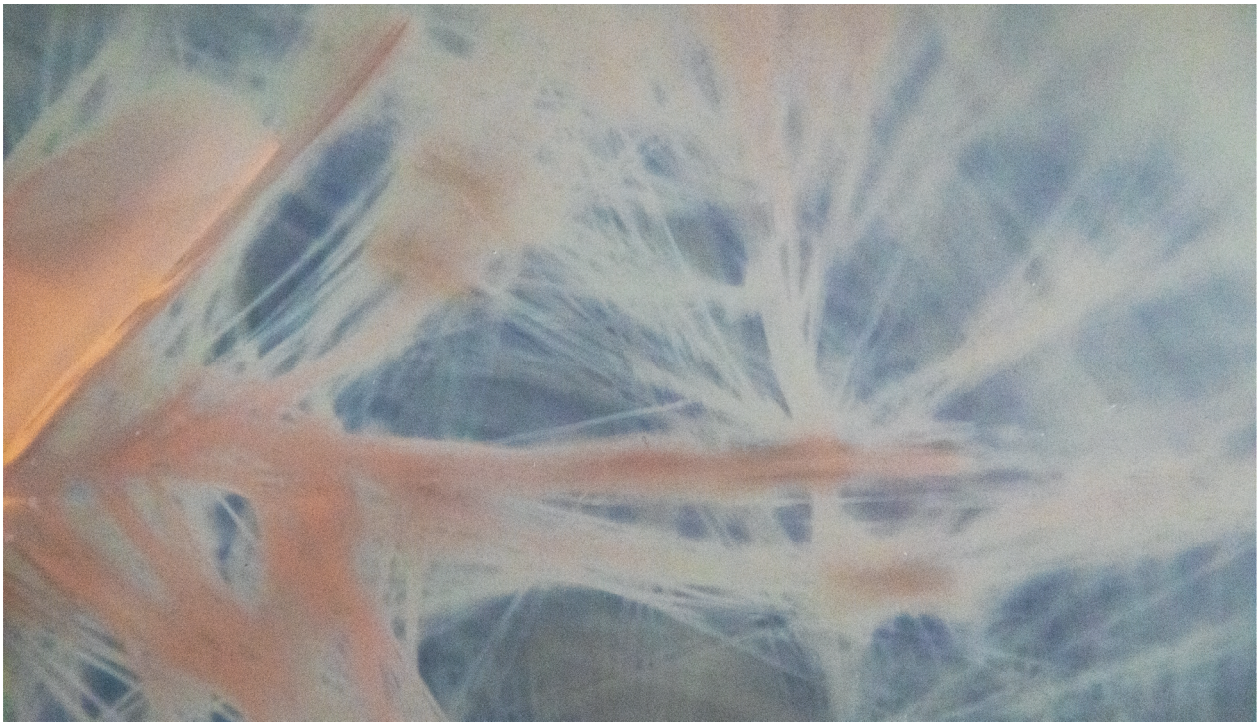
A coincidental first encounter. On a obnoxiously blue-skyed, sunny afternoon of early April. A nook of stone opening onto the Lake.

Had I not turned by back to the wind, I would have missed the dead of last years switchgrass.

Working with grass is simple; even embarrassing, how little is required of me. Without even needing to be present, I let grass brush on silver for three hours.

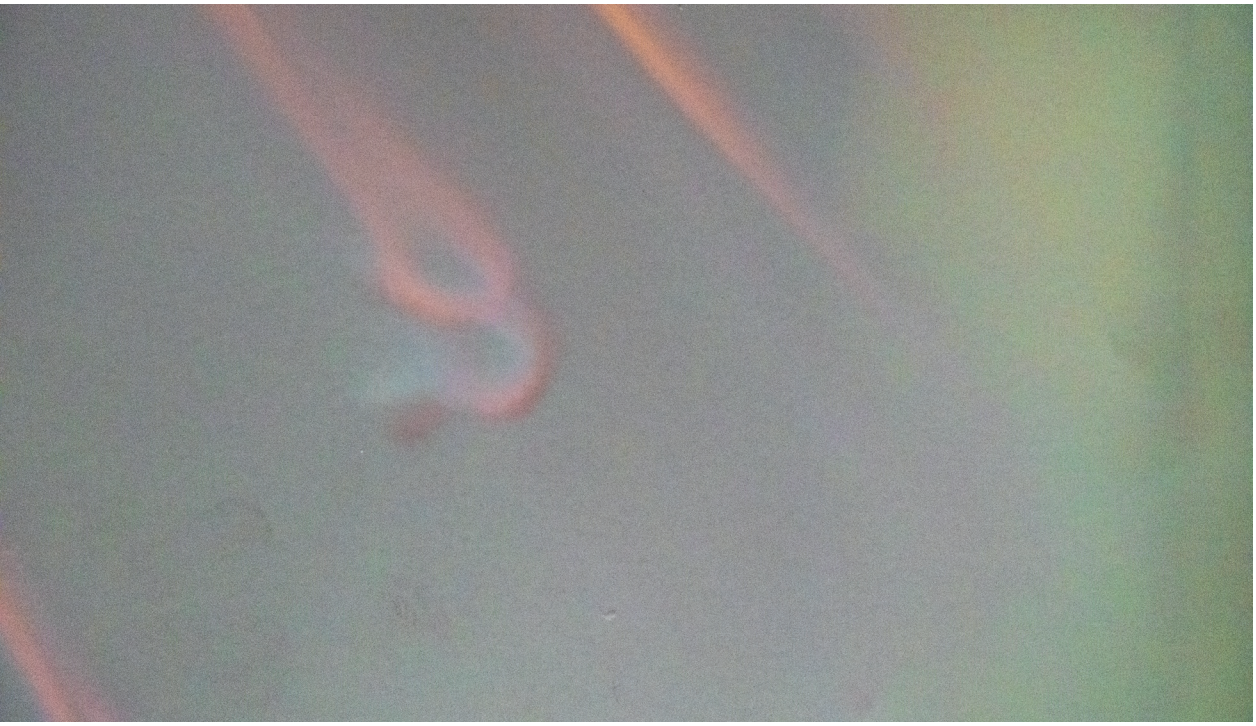
I photograph their autobiographies under the same sun.

*



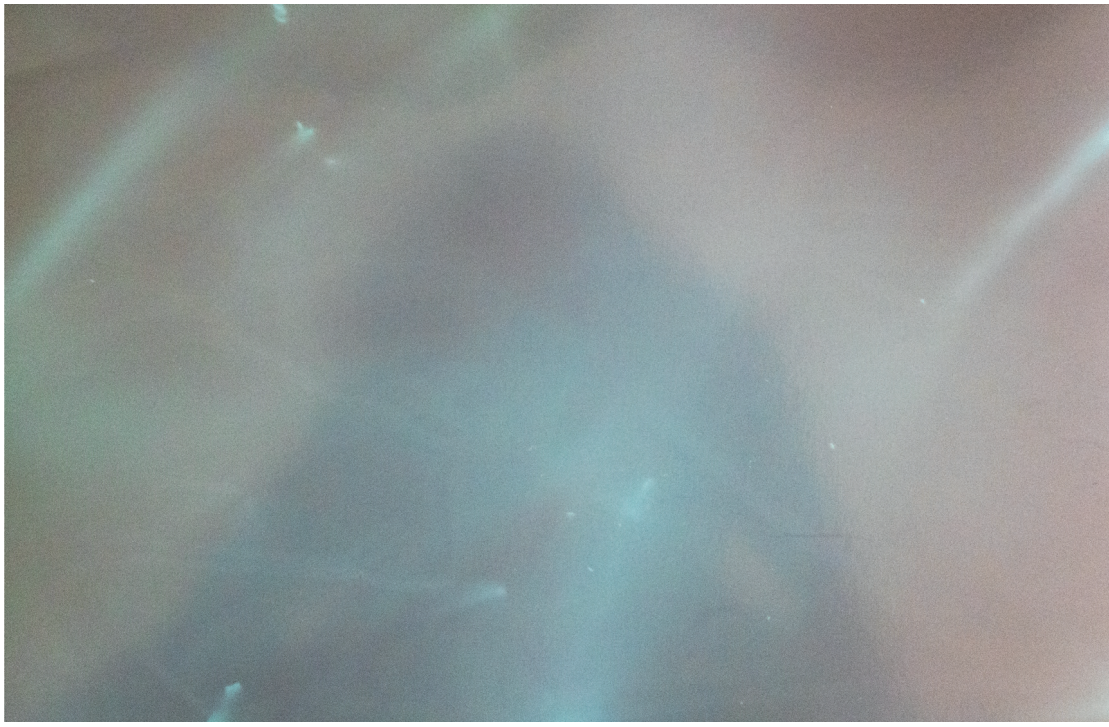
131.
Still frame from l'Entre-objets. Lumen print #2, 2024.

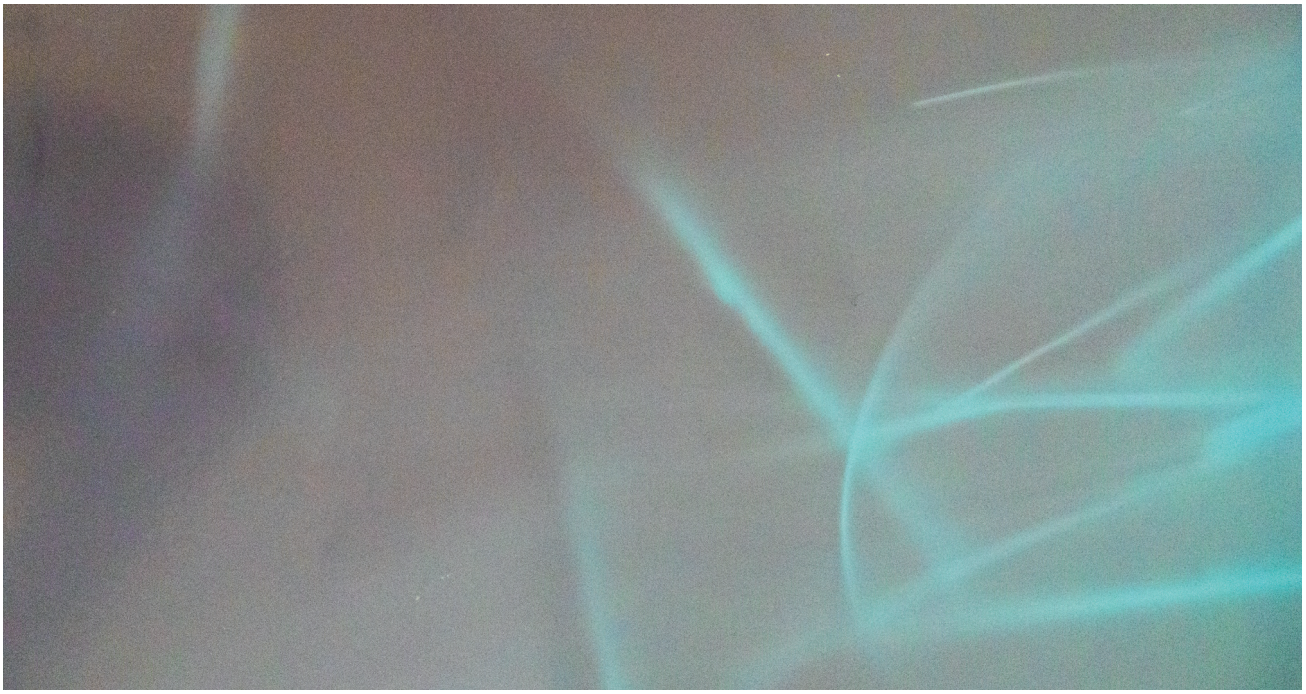




132.
Still frame from l'Entre-objets. Lumen print #3, 2024. (top)

133.
Still frame from l'Entre-objets. Lumen print #4, 2024. (bottom)





134.
Still frame from l'Entre-objets. Lumen print #5, 2024. (top)

135.
Still frame from l'Entre-objets. Lumen print #6, 2024. (bottom)

The Sex Appeal of Vegetal Corpses



136.
Still frame from 'The sex appeal of vegetal corpses'. Peonies #1, analog film photograph, 2024.

[As Van waits to collect his goods, he idly strokes the flowers sitting in a vase on the counter – imitation ones, like everything else in the shop – and suddenly finds himself 'cheated of the sterile texture his fingertips had expected when cool life kissed them with pouting lips.

"My daughter," said Mrs Tapirov, who saw his surprise, "always puts a bunch of real ones among the fake pour attraper le client.

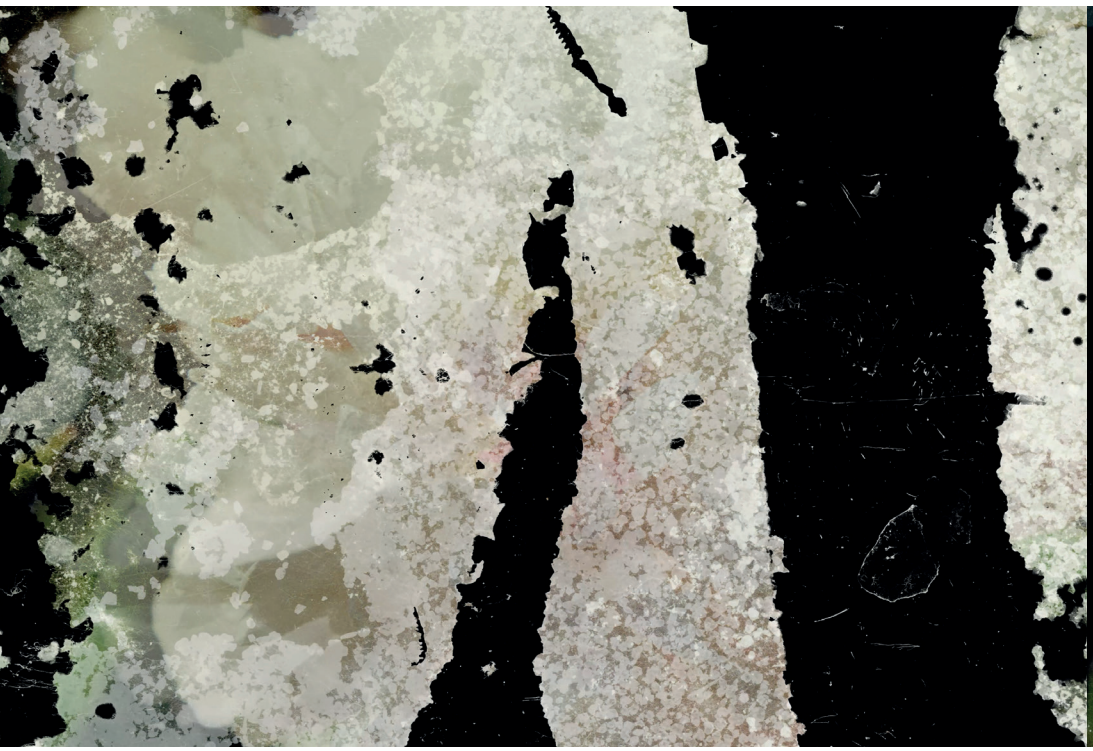
You drew the joker."[130] *]*

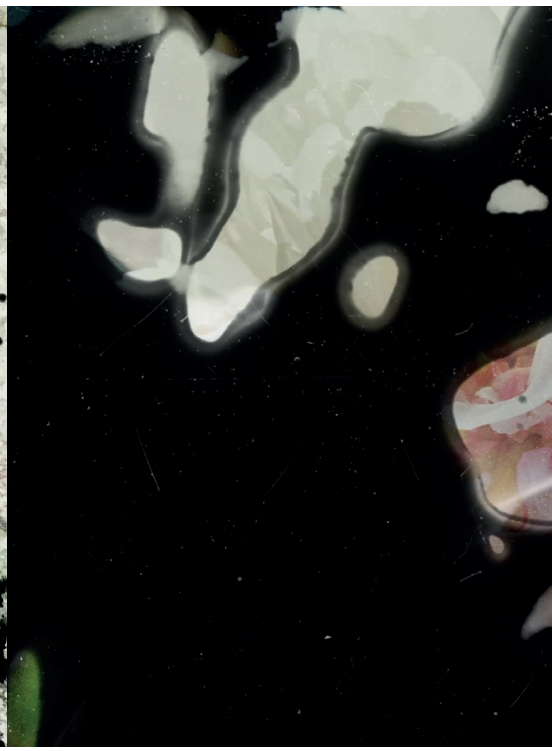
Vladimir Nabokov, *Ada, a Family Chronicle,* 1990

130 Vladimir Vladimirovich Nabokov, *Ada, or, Ardor, a Family Chronicle,* 1st Vintage international ed, Vintage International (New York: Vintage Books, 1990).









137.
Still frame from 'The sex appeal of vegetal corpses'. Peonies #2, analog film photograph, layered negative scan, 2024.

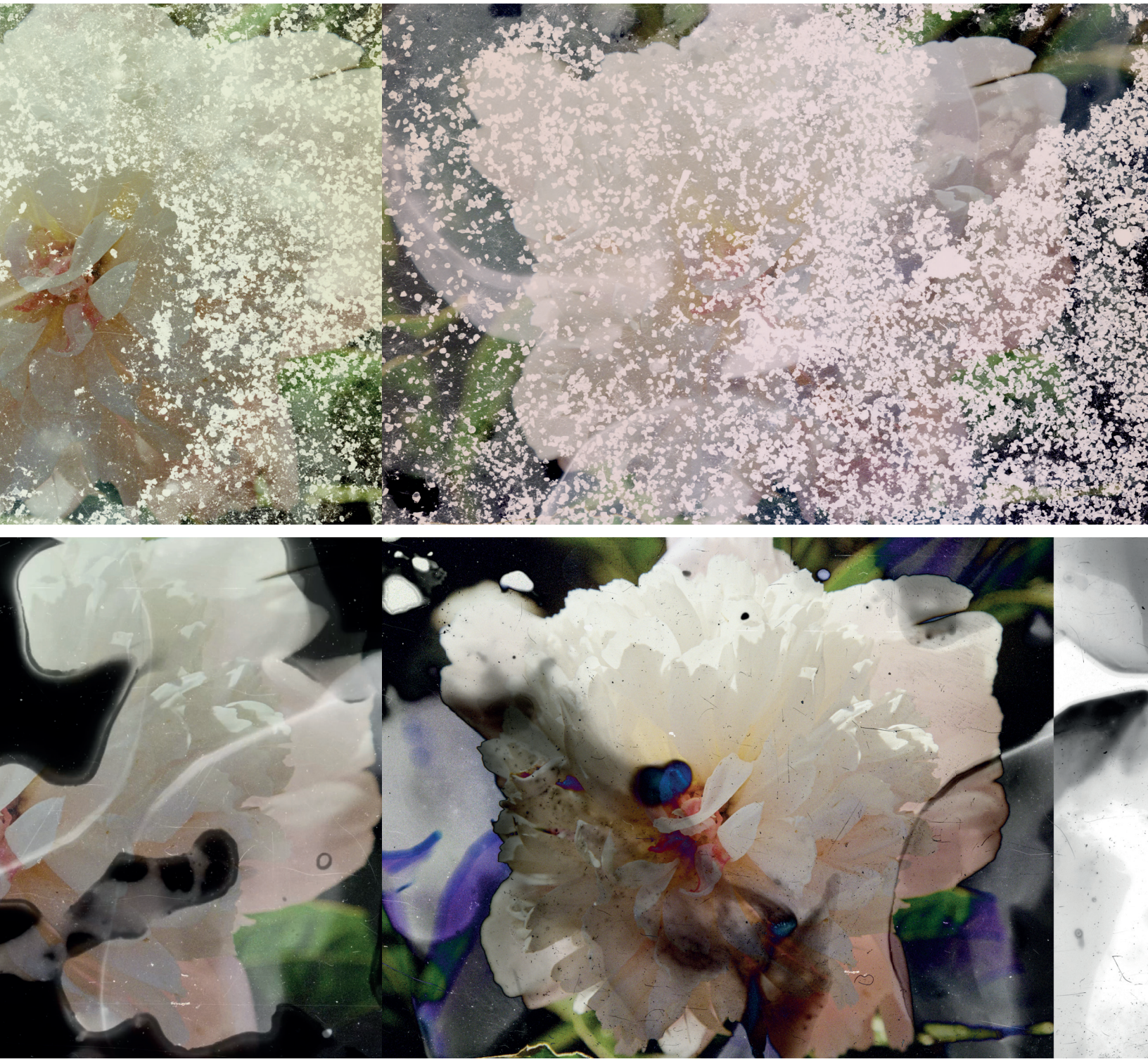
138.
Still frame from 'The sex appeal of vegetal corpses'. Peonies #5, analog film photograph with digital manipulation, 2024.

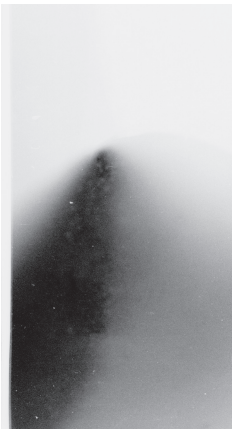
139.
Still frame from 'The sex appeal of vegetal corpses'. Peonies #3, analog film photograph, layered negative scan, 2024.

140.
Still frame from 'The sex appeal of vegetal corpses'. Peonies #6, analog film photograph with digital manipulation, 2024.

141.
Still frame from 'The sex appeal of vegetal corpses'. Peonies #4, analog film photograph, layered negative scan, 2024.

142.
Still frame from 'The sex appeal of vegetal corpses'. Peonies #7, analog film photograph with digital manipulation, 2024.



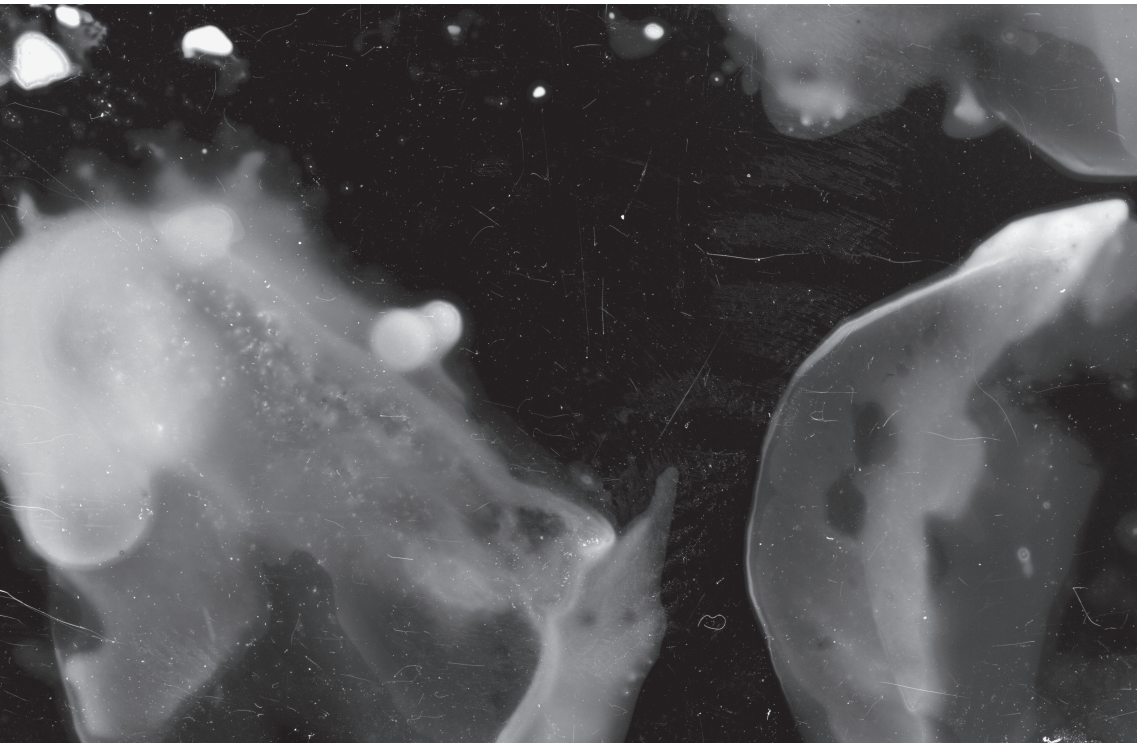


[A real rose among fakes.
A real rose pretending to be fake among fake roses pretending to be real.
A real fake rose pretending to be real.
A reminder that expectations of reality often shape notions of artifice.

Would Van have left, happy and confident in his knowledge of their fakeness,
had he never reached out to touch them,
had he never felt cool reality of their flesh,
a flesh he inevitably bruised with his touch,
but instead stayed satisfied by just their sight?]

***

The Point of Contact is revelatory. Any ambiguity of existence present prior is extinguished at once. The material reality of the rose meets the material reality of the hand. Once they part, traces of rose linger as olfactory compounds, in the air, on the hand. An exchange of atoms.



143.
Still frame from 'The sex appeal of vegetal corpses'. Petals Contact #1, 2024.



144.
Still frame from 'The sex appeal of vegetal corpses'. Contact #2, 2024.

***

When rigor mortis sets in, a butterflies corpse stiffens, its wings close and cannot be reopened without ongoing a re-humidification process.[131] The oldest pinned insect specimen is thought to be a 1702 Bath white butterfly (Pontica daplidice) collected in England of that year. [132]

On a pin, the butterfly keeps its wings open, as if mid flight. It stays elevated above the board, not in contact. This is the mode that best preserves its living form. All the details of its dead body are unfurled, stretched and ties into place for the observatory pleasure of its collectors.

In Herbaria, pressed plant specimens are traditionally attached to paper via thin paper strips and fish glue. At a time where flowers were reigned supreme, yet the botanical details of their sexual reproduction at the most controversial, seaweed albums became the acceptable Victorian botanical pastime.[133]

Seaweed specimens often had a natural mucilage with which they self adhered to paper.[134] The making of these albums required a great amount of care, of devotion in discovery, many days spent outside, in solitude of humanity; in companionship of the natural world. A lot was lost, in the flattening, drying and death of plants between paper (tree corpses) pages. Their shiny transparency, the gummy thickness of their flesh, their water buoyancy with gave them three dimensionality.

131 "A Step-By-Step Guide to Framing Butterflies," *Thanksgiving Point*, August 16, 2022, https://thanksgivingpoint.org/a-step-by-step-guide-to-framing-butterflies/.
132 May R. Berenbaum, "Pins and Needles," *American Entomologist* 63, no. 2 (June 1, 2017): 67–69, https://doi.org/10.1093/ae/tmx022.
133 Martin Kemp, "Sex and Science in Robert Thornton's Temple of Flora," *The Public Domain Review*, accessed June 28, 2024, https://publicdomainreview.org/essay/sex-and-science-in-robert-thornton-s-temple-of-flora/.
134 Sasha Archibald, "Love and Longing in the Seaweed Album," *The Public Domain Review*, accessed June 28, 2024, https://publicdomainreview.org/essay/love-and-longing-in-the-seaweed-album/.

But enough is left to attract the collector. It is difficult to find the words for the attraction; perhaps its an eros[135], or a greed or a lust, which draws them (all of us) to vegetal corpses.

*

I keep a garden of vegetal corpses hung above my desk. It is a collection I started roughly two years ago, and that has accompanied me in my writing.

I follow suit in a long tradition of women collecting dead plant matter. Of herbalists and witch doctors, bor even further, to the the Neanderthal whose skeletal remains have shown evidence of camomile and yarrow consumption.[136] I follow a tradition that called any bitter plant medicine or aphrodisiac.

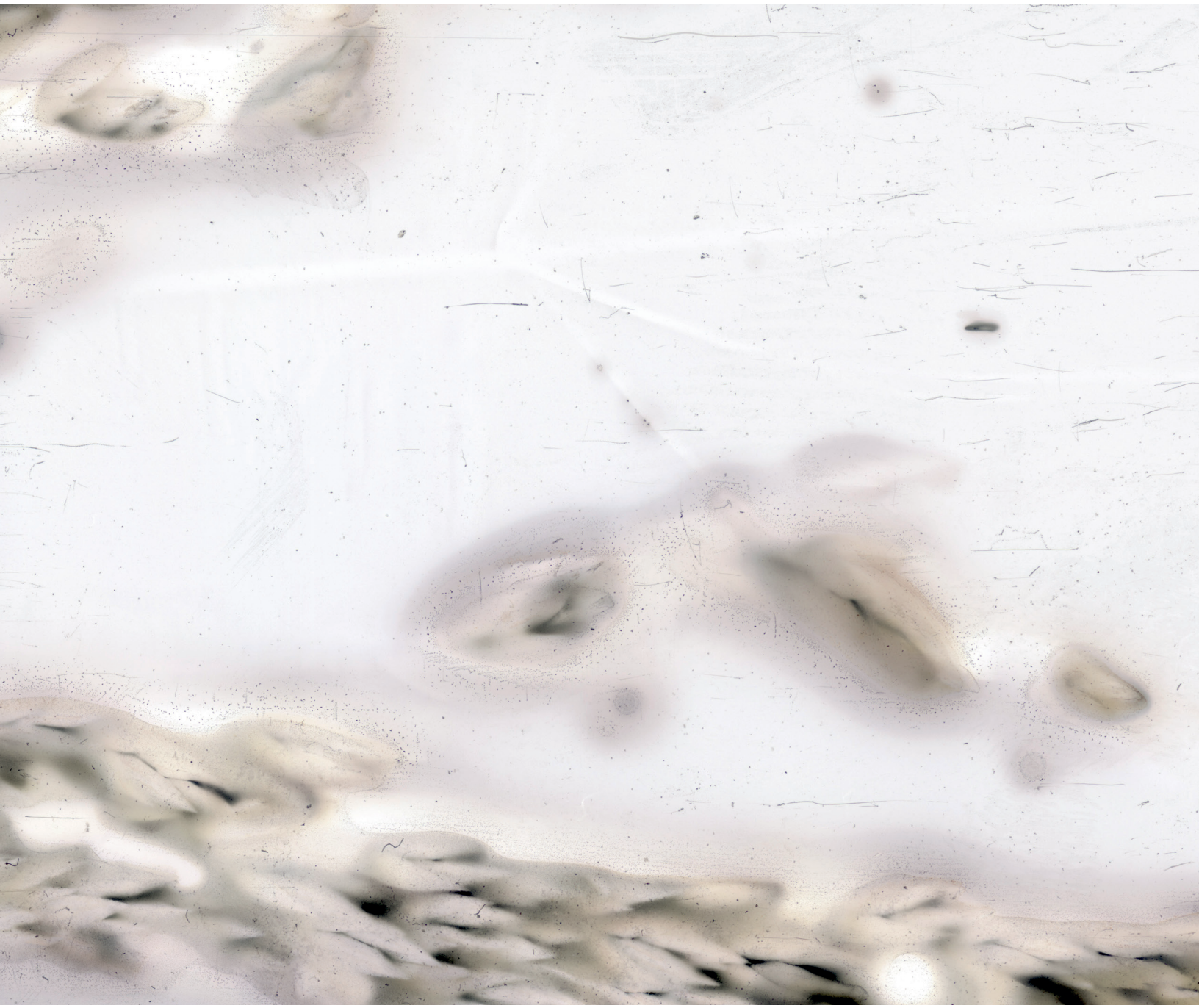
I've resisted organising them, as such they exist somewhere between dead bouquet and pot-pourri.

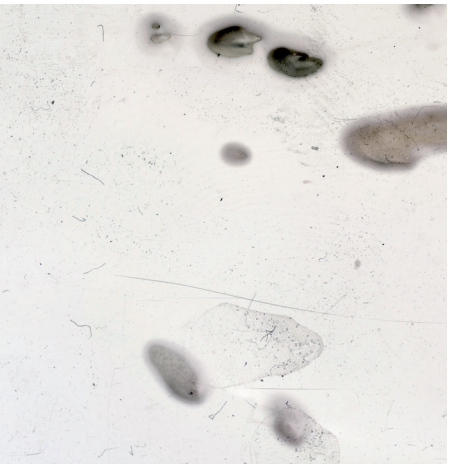
They are a pleasure to visit, and re-visit again. Both as visual delights but also on the rare occasion I get to take one specimen down, crush it and steep it into tea or photographic developer.



145.
Still frame from 'The sex appeal of vegetal corpses'. Phytogram transparencies (1), 2024.

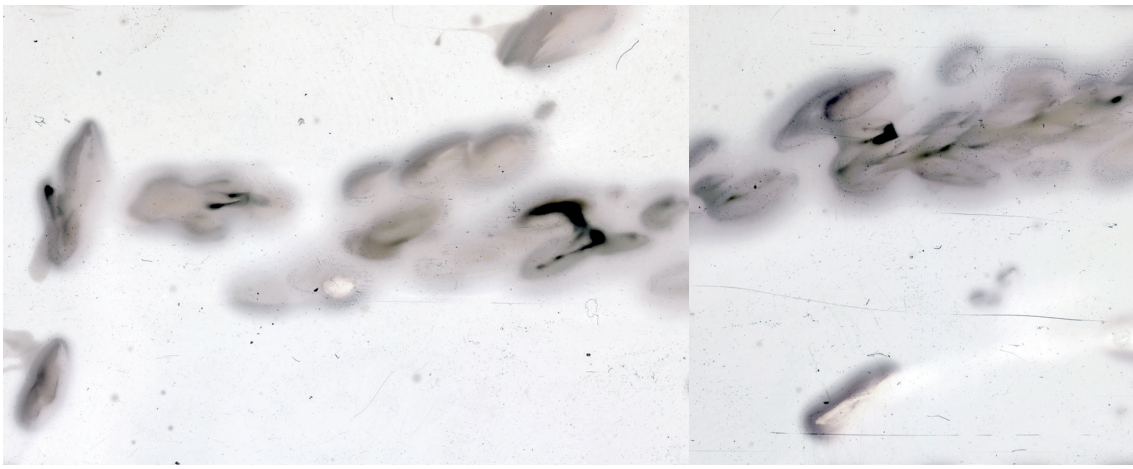
135 Archibald.
136 Karen Hardy et al., "Neanderthal Medics? Evidence for Food, Cooking, and Medicinal Plants Entrapped in Dental Calculus," *Naturwissenschaften* 99, no. 8 (August 2012): 617–26, https://doi.org/10.1007/s00114-012-0942-0.

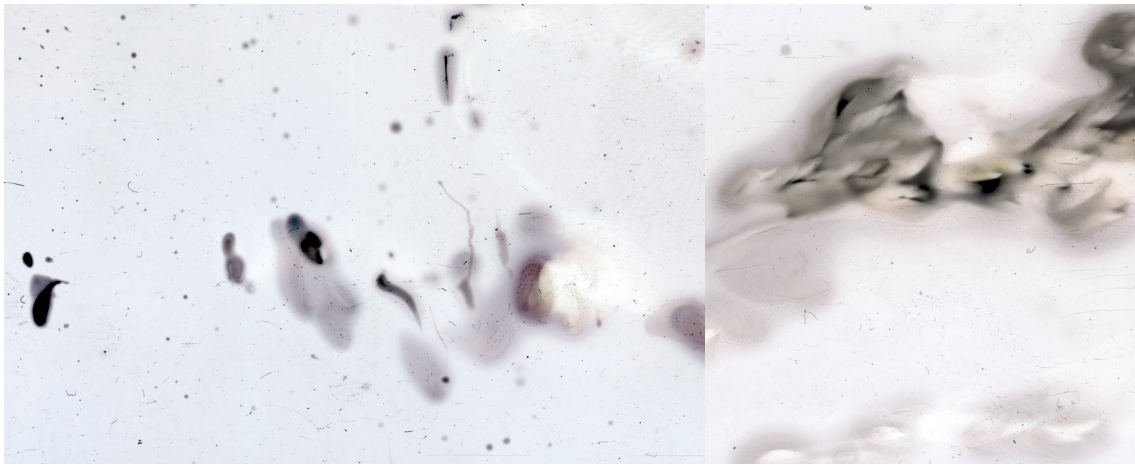


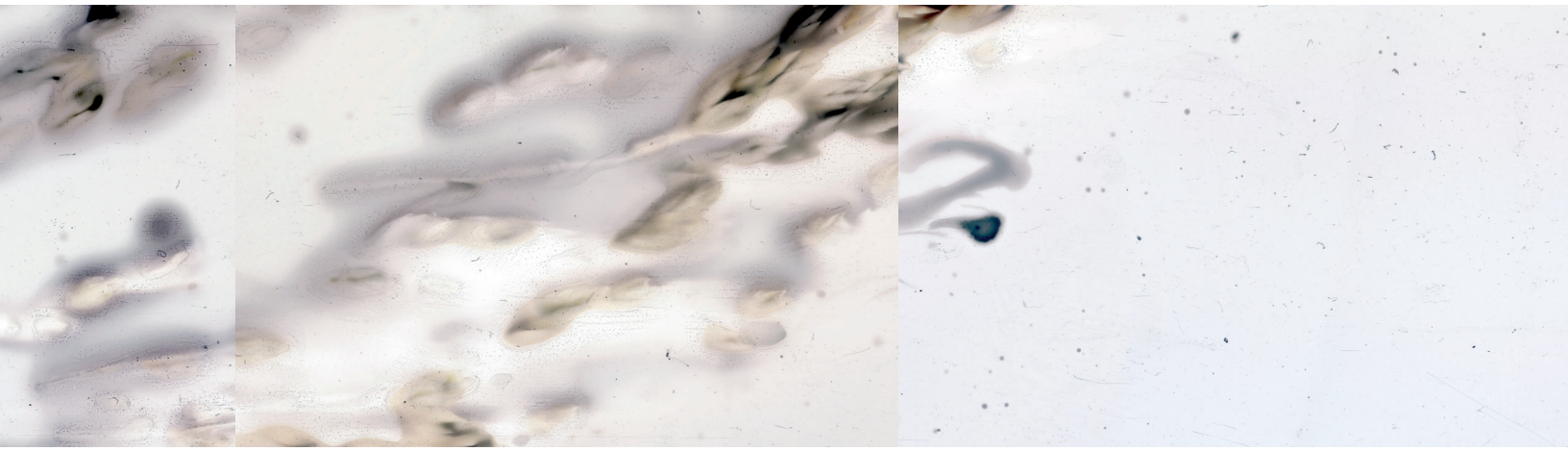


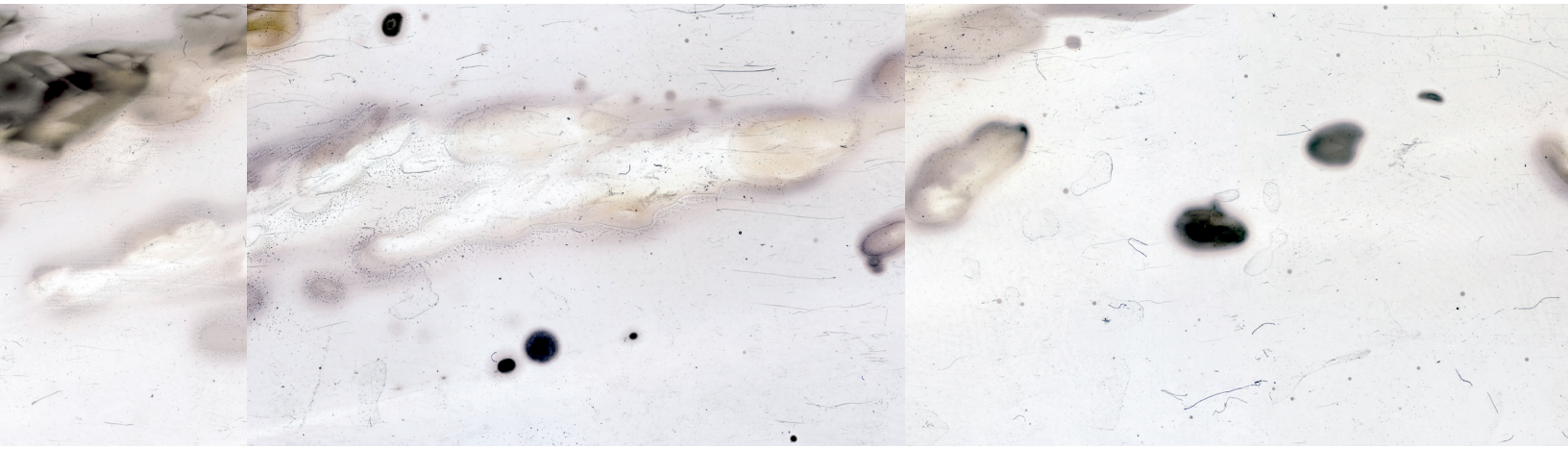
146. *Still frames (2-10) from 'The sex appeal of vegetal corpses'. Phytogram transparencies, 2024.*

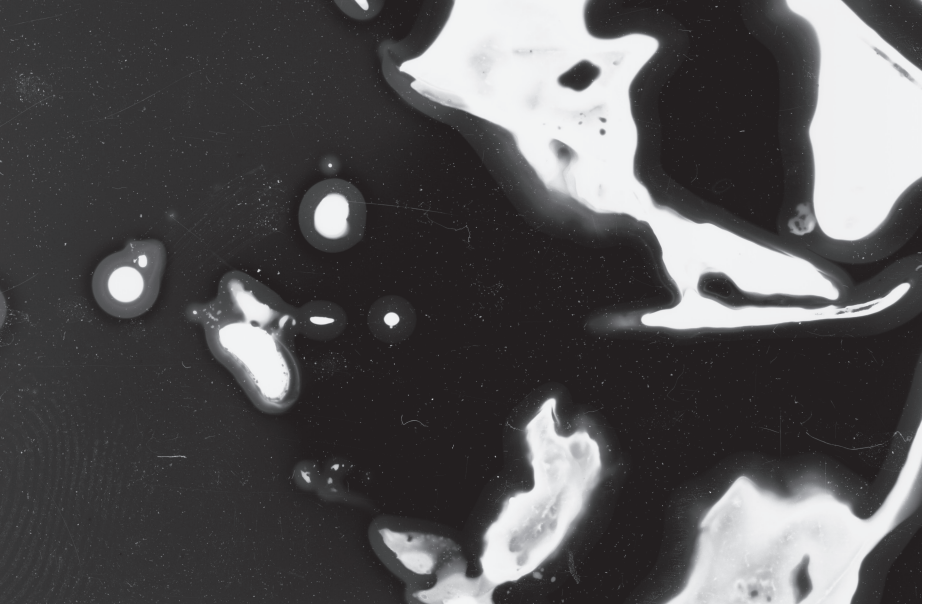
The phytogram, created from both light on film and slow chemical reaction between plant and film, leaves an image that can be quite detailed, indexically representative of the subject whilst also abstracting its edges.

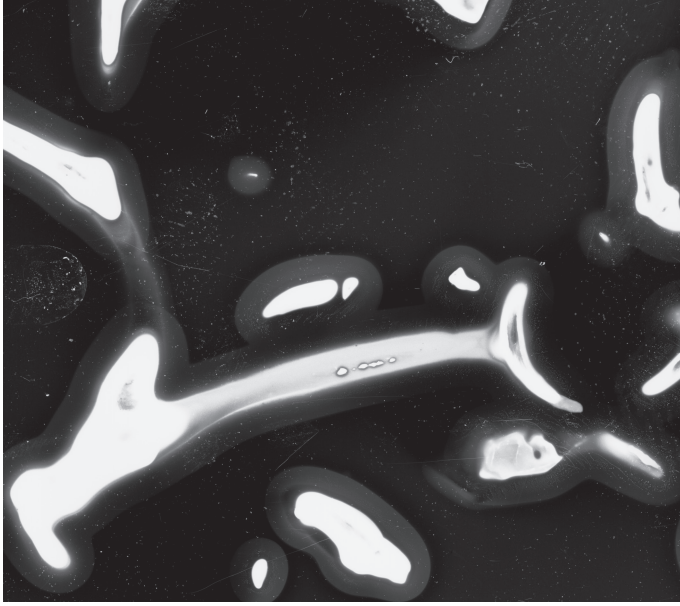


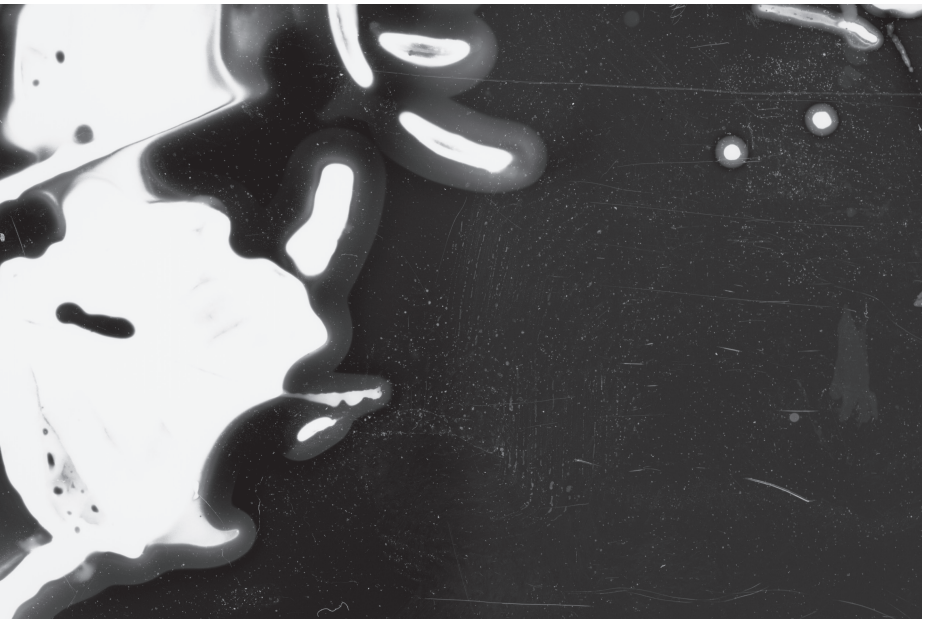


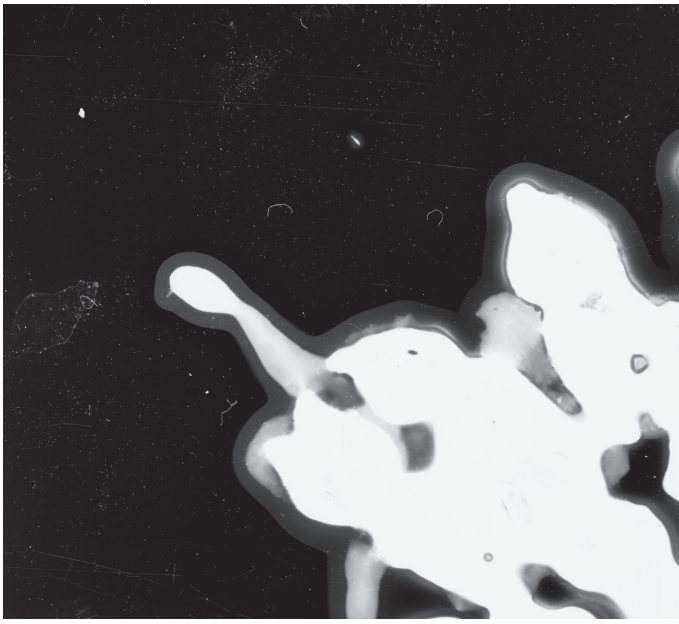


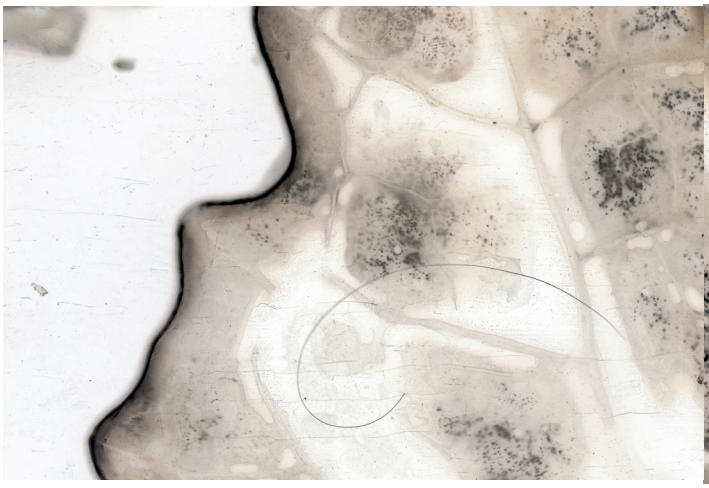


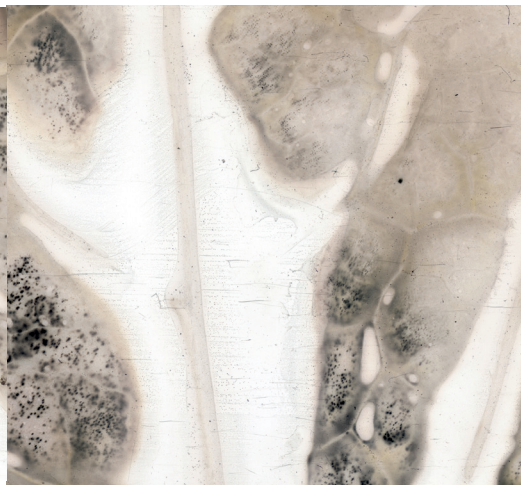




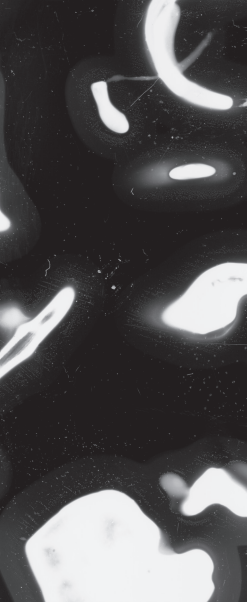








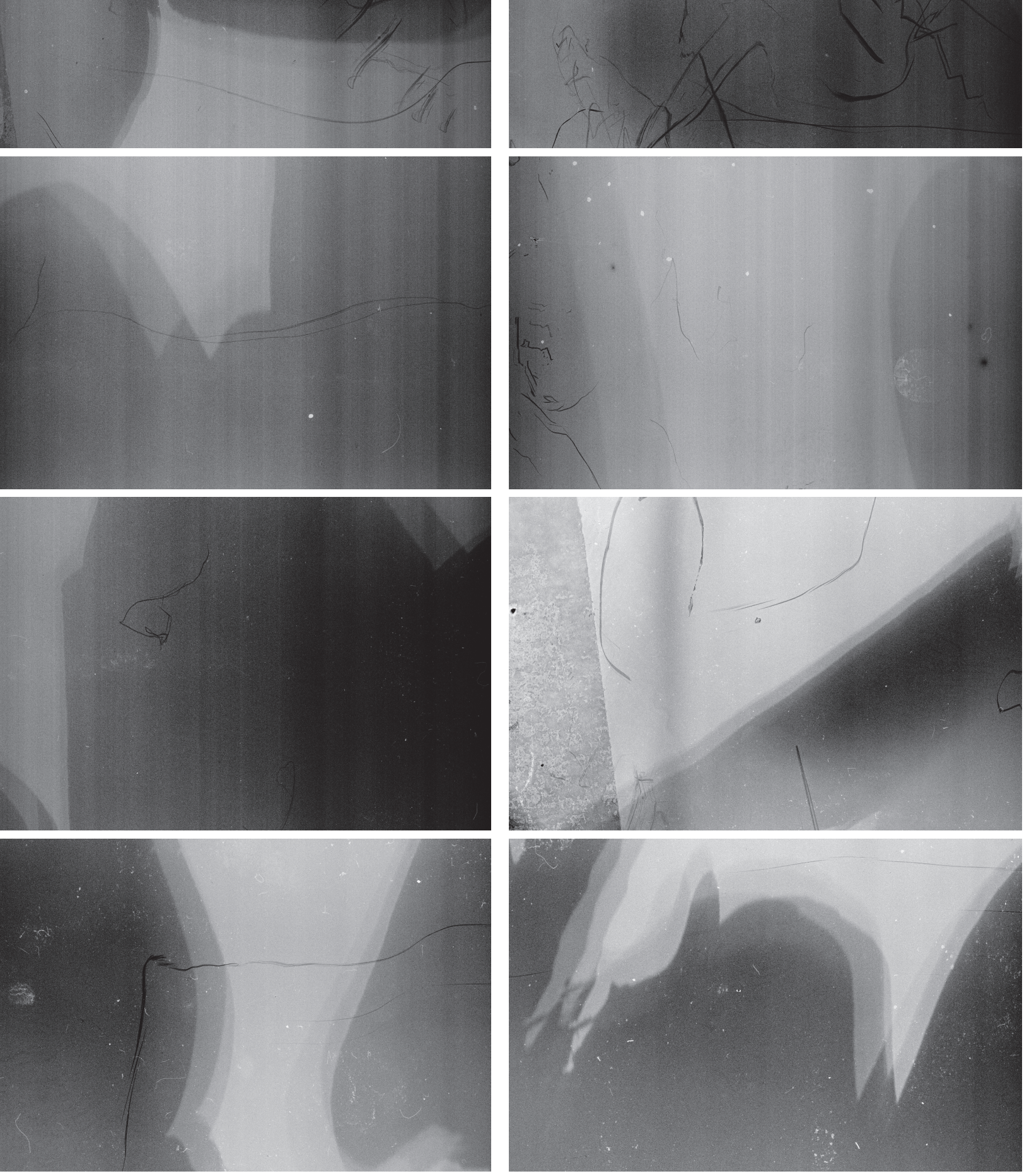
147.
Stills (10-13) from 'The sex appeal of vegetal corpses'. phytogram transparencies, 2024.





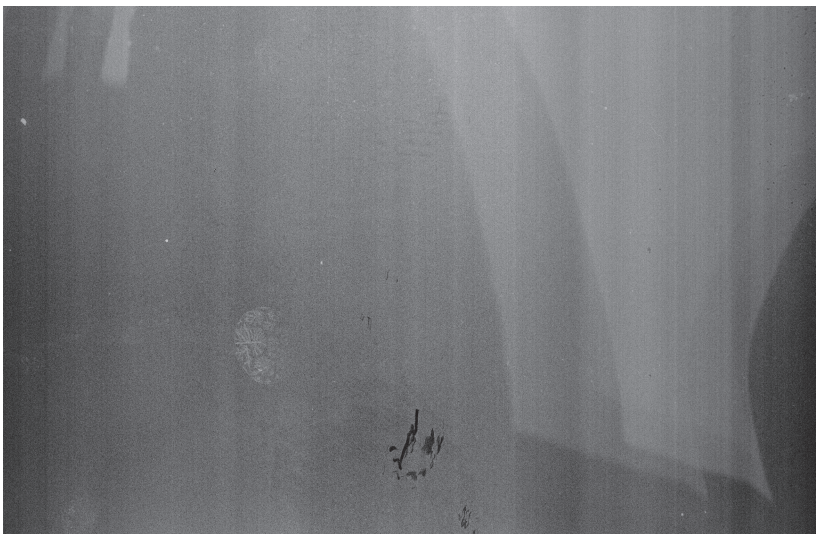
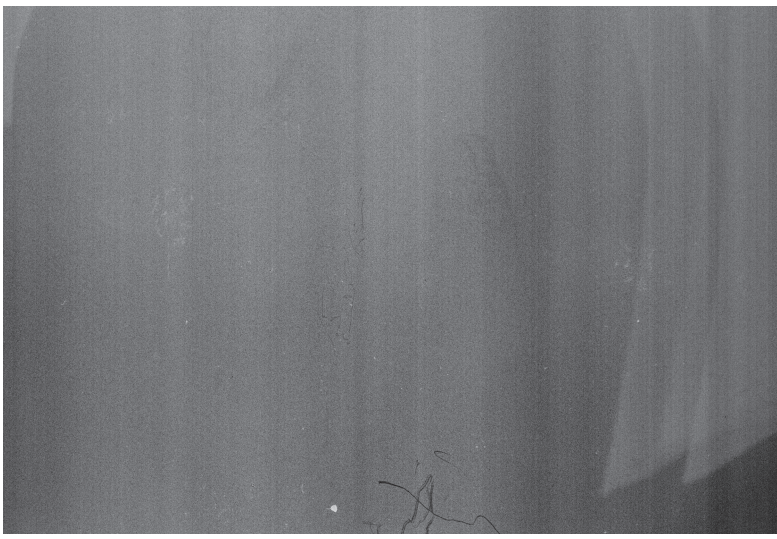
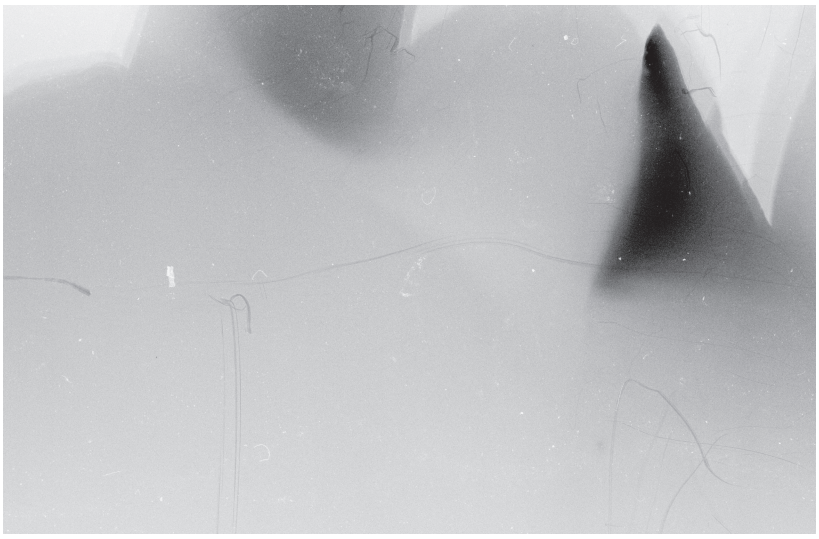
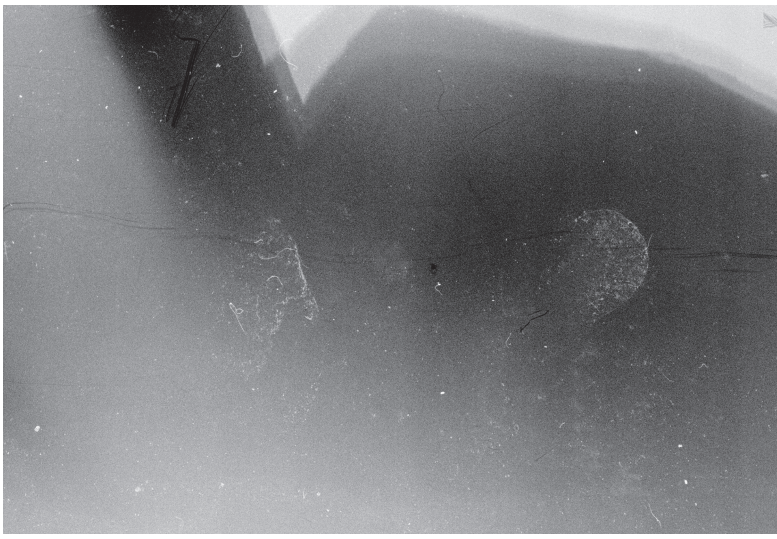
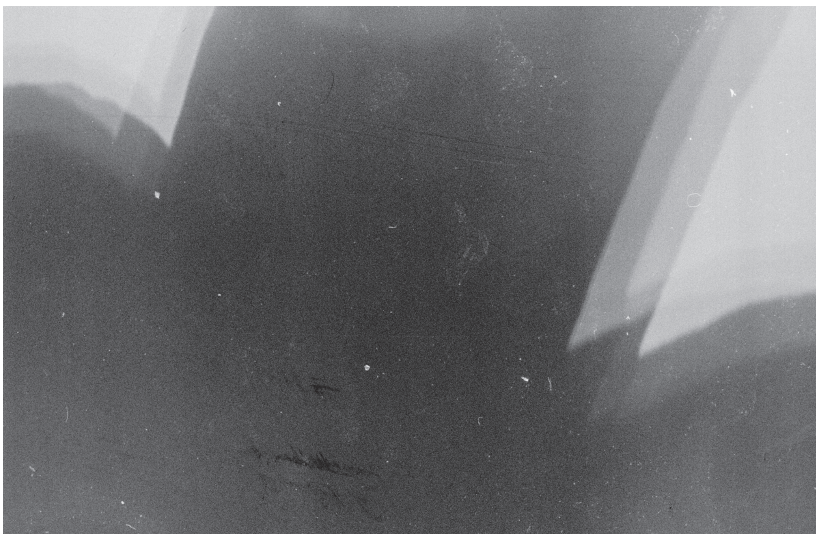
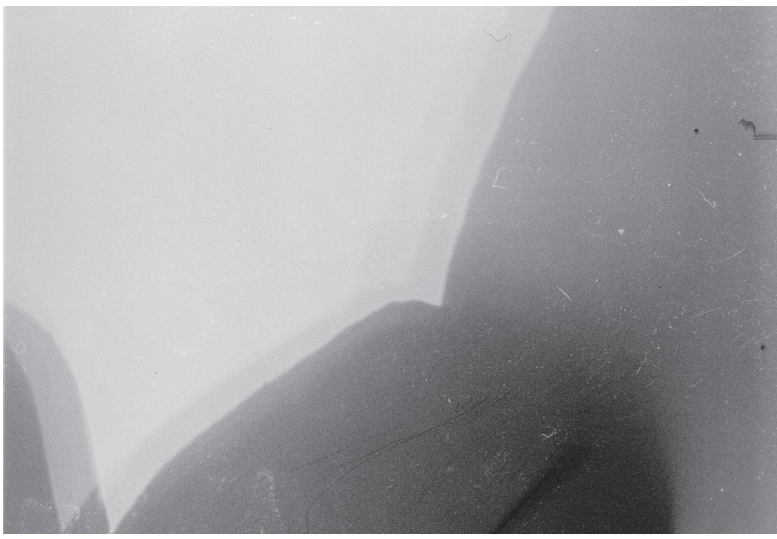
148.
Still(1-4) from 'The sex appeal of vegetal corpses'. phytogram negatives, 2024.

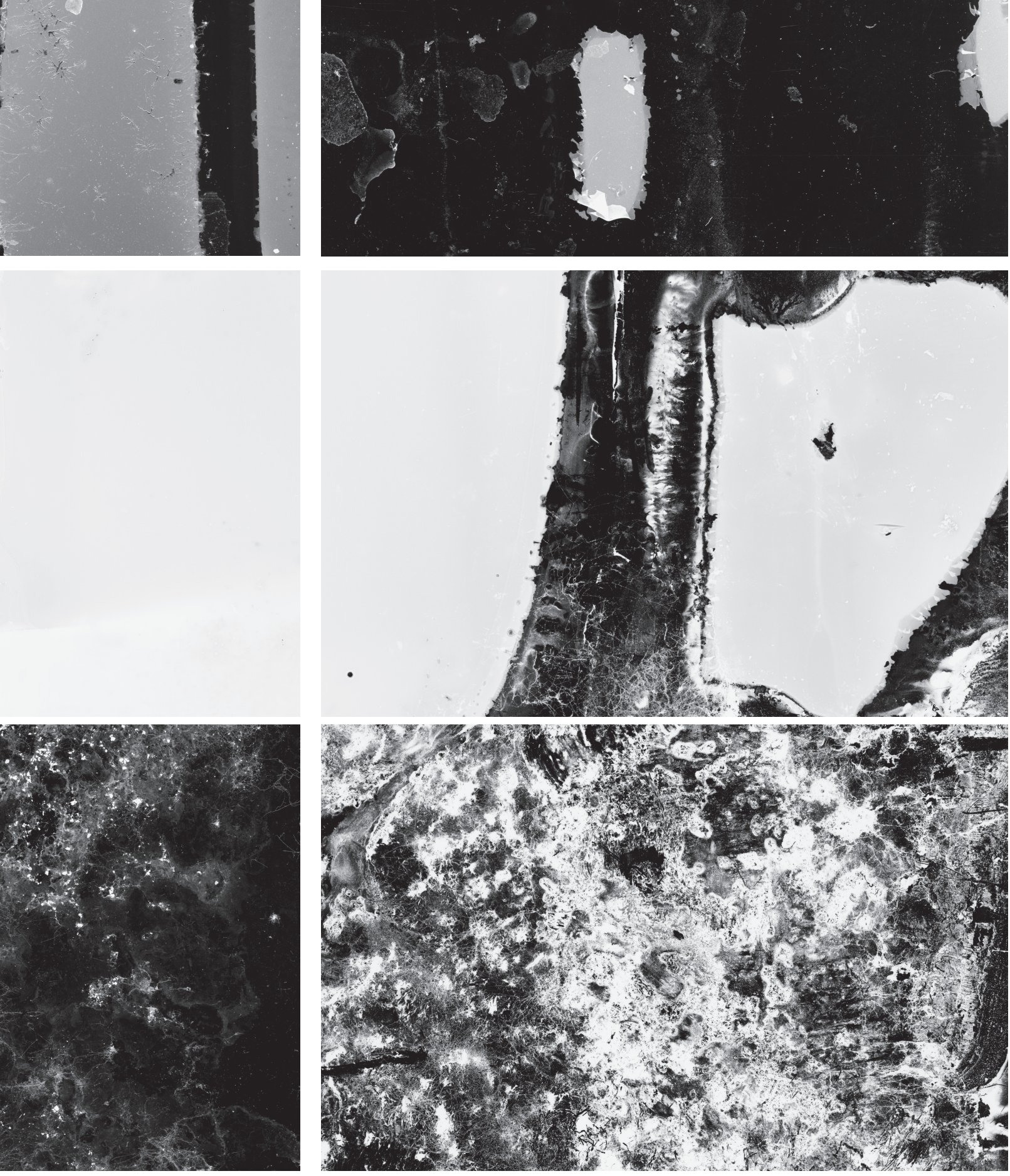




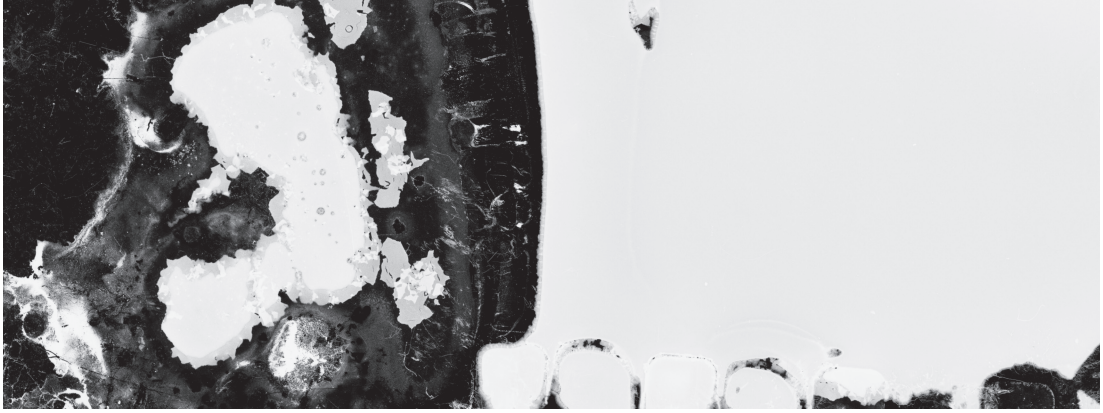
149.
Stills (1-16) from 'The sex appeal of vegetal corpses'. Leaves and yarrow developer, 2024.

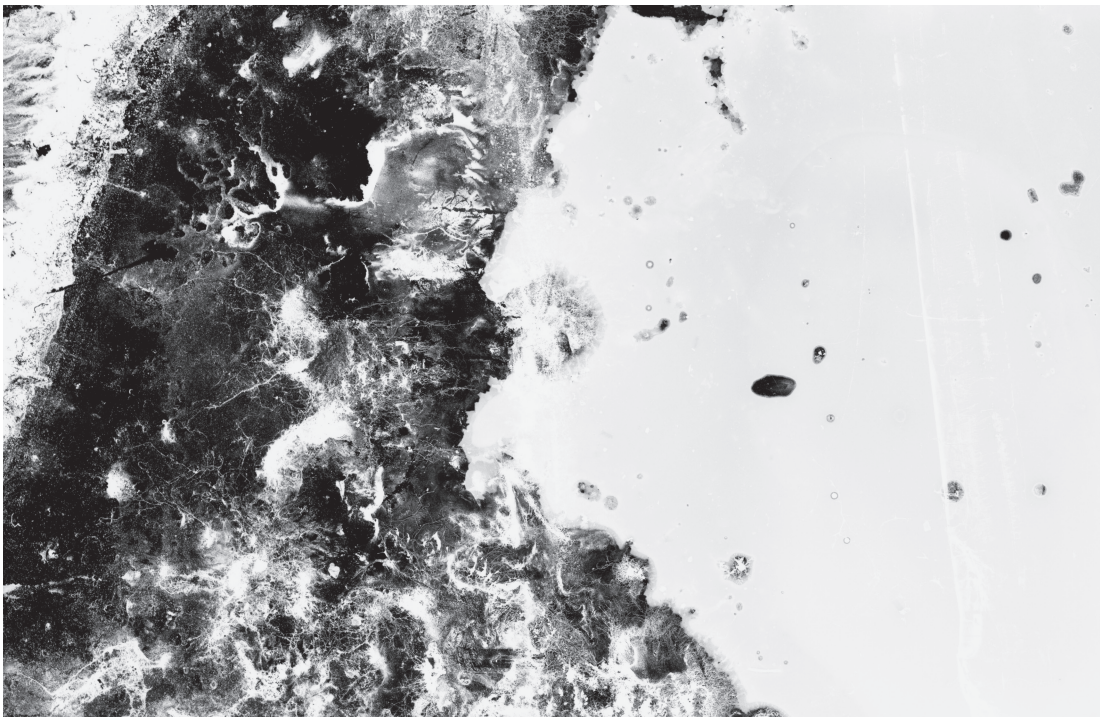


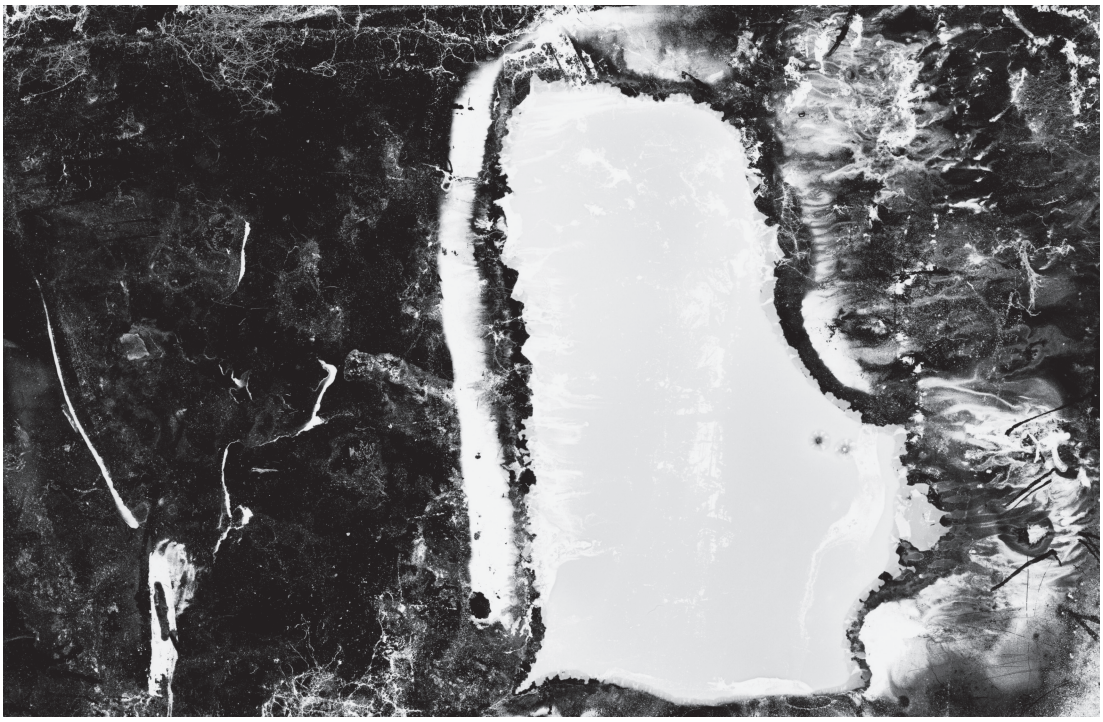
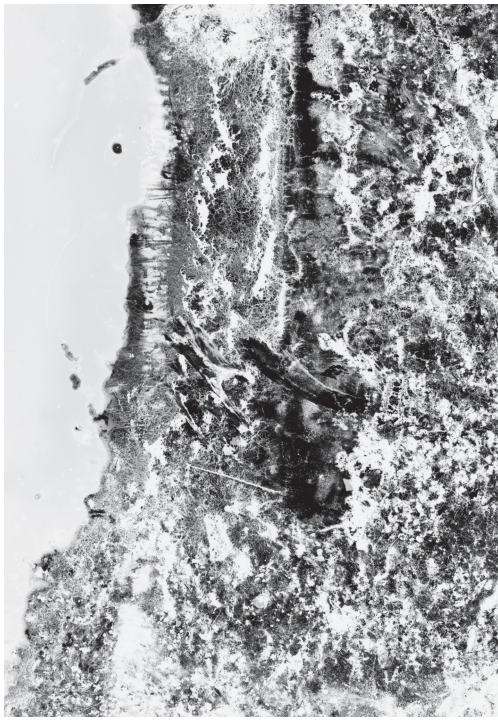







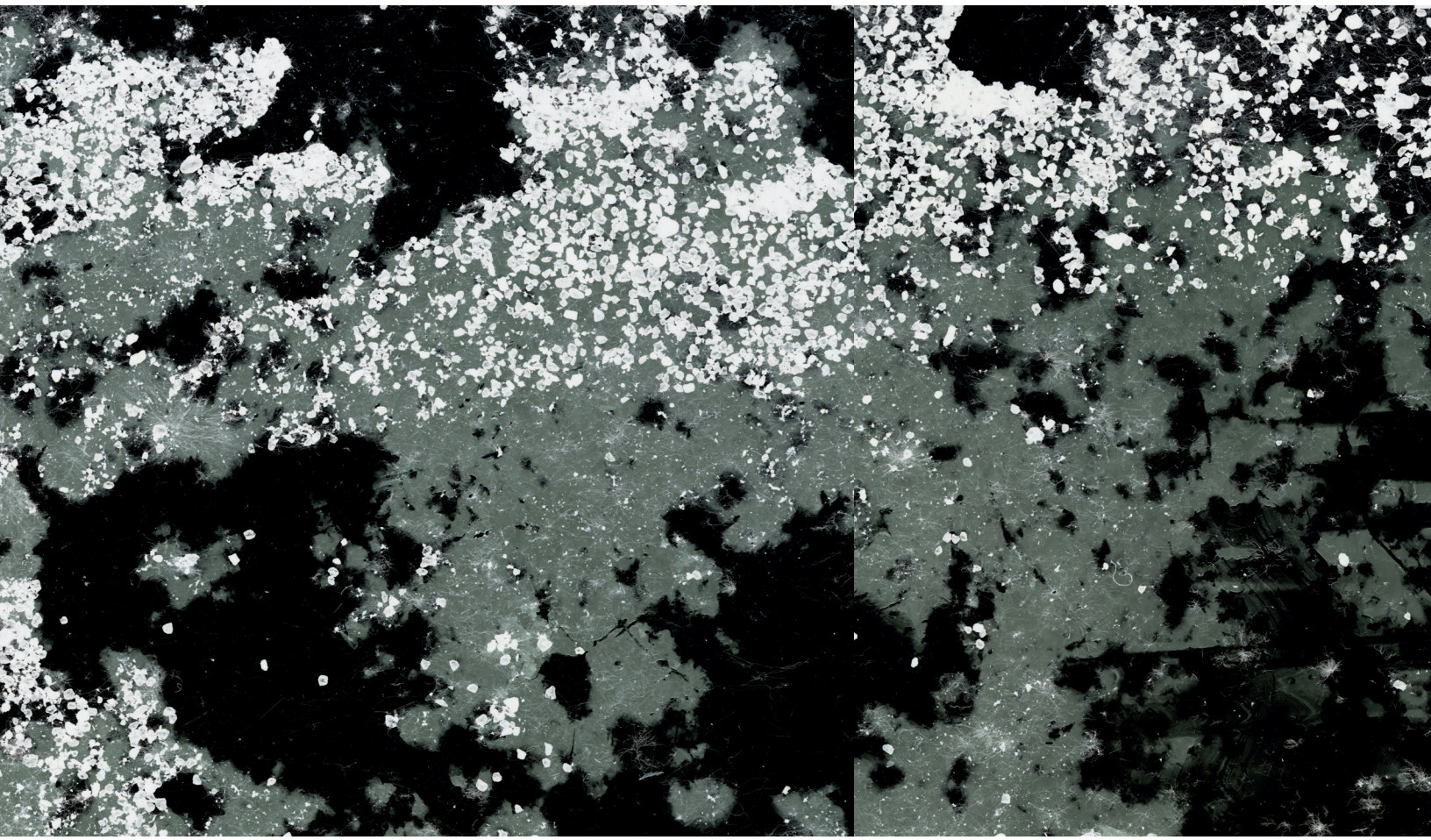


150.
Stills (1-12) from 'The sex appeal of vegetal corpses'. Buried, 2024.

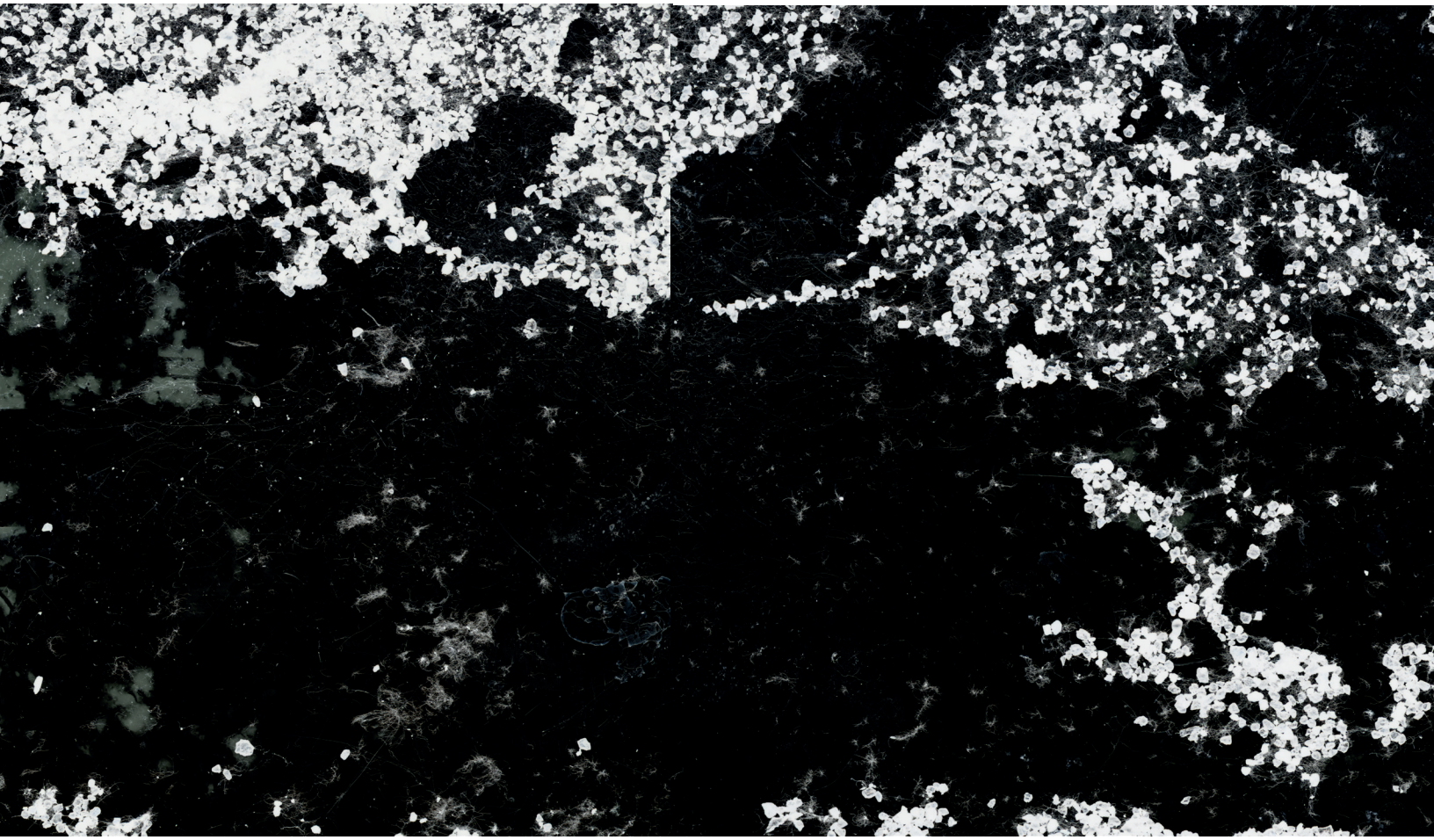


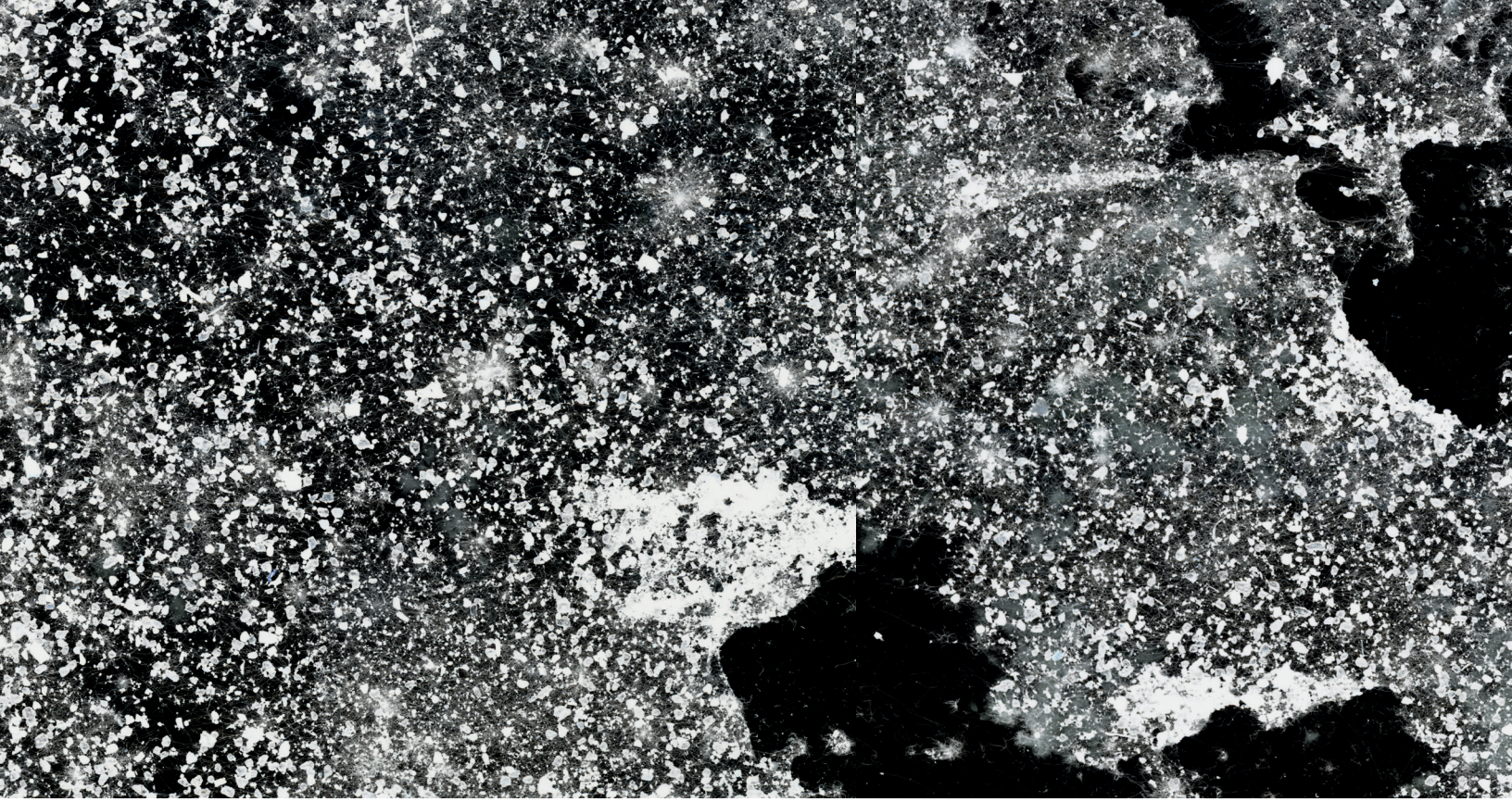


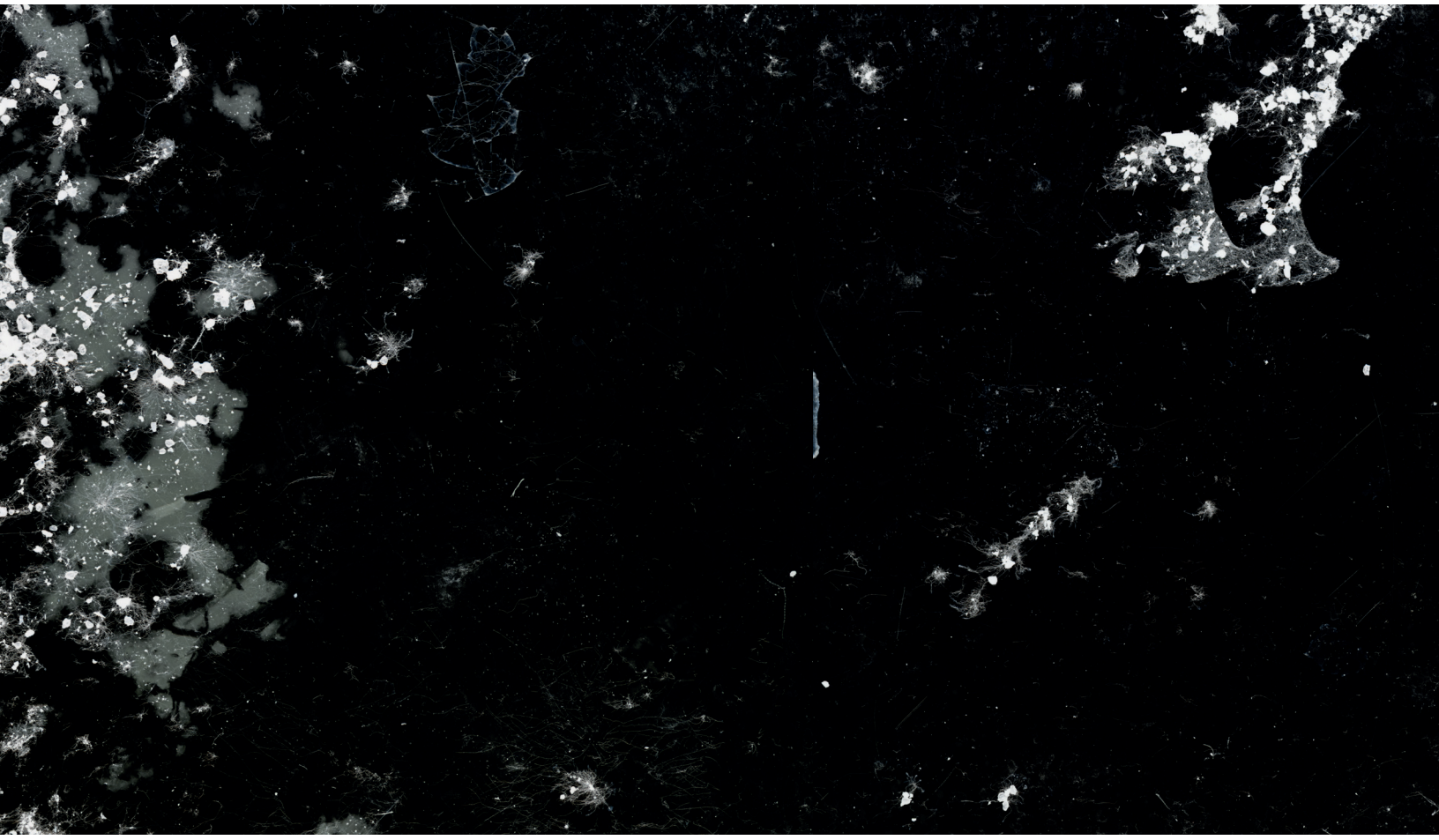





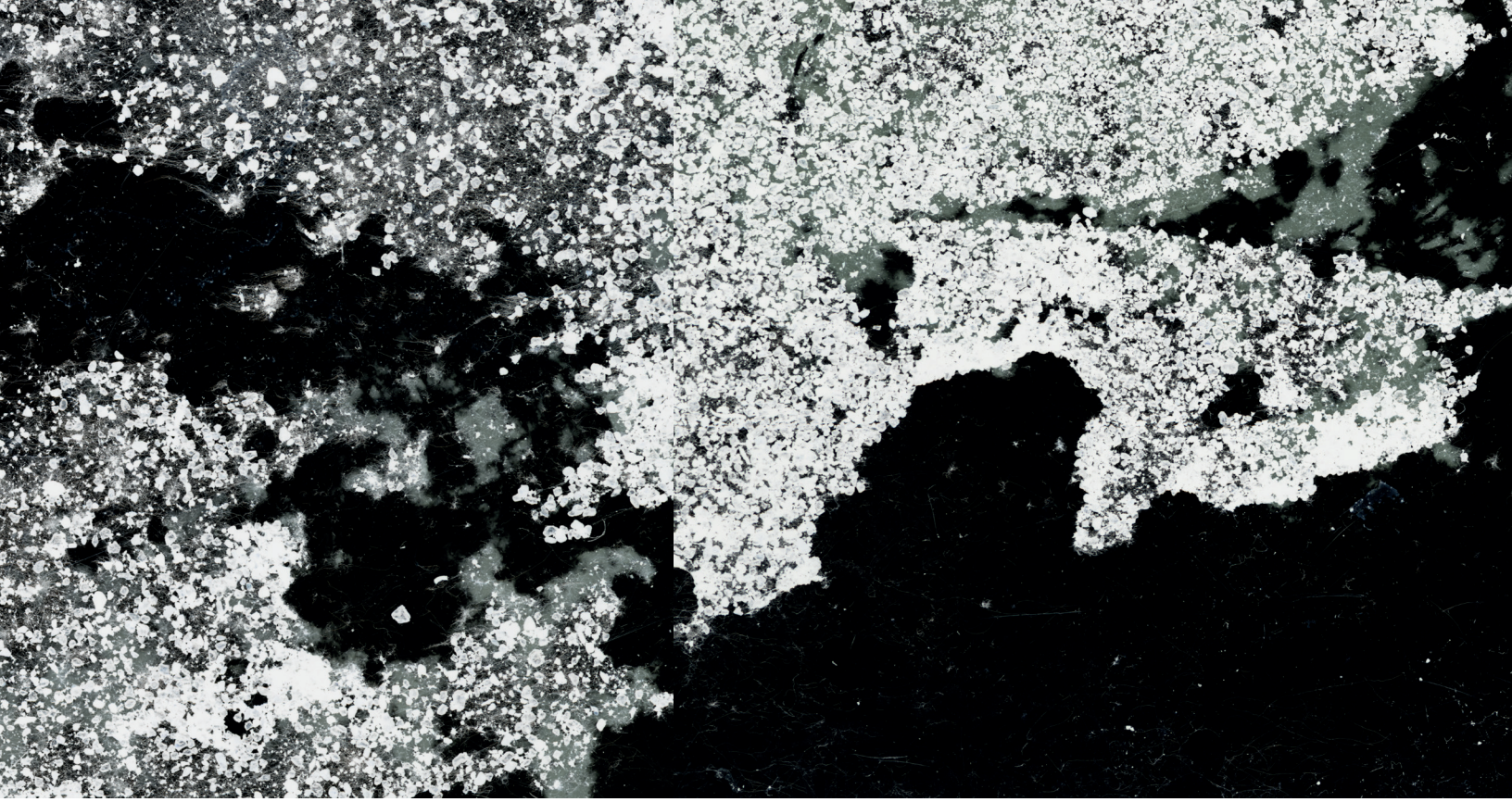
151.
Stills (1-3) from 'The sex appeal of vegetal corpses'. Soil and guano, 2024.

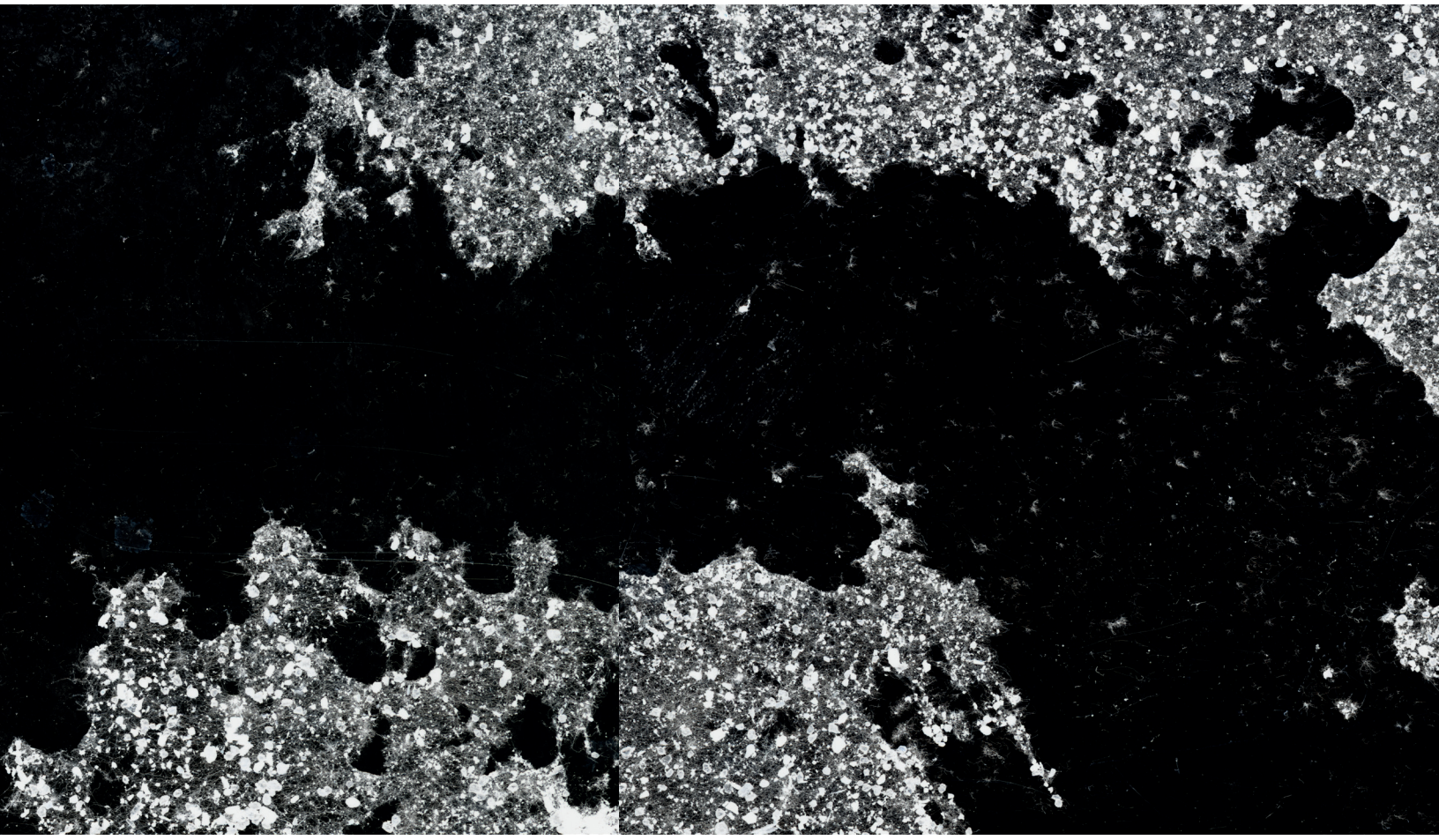


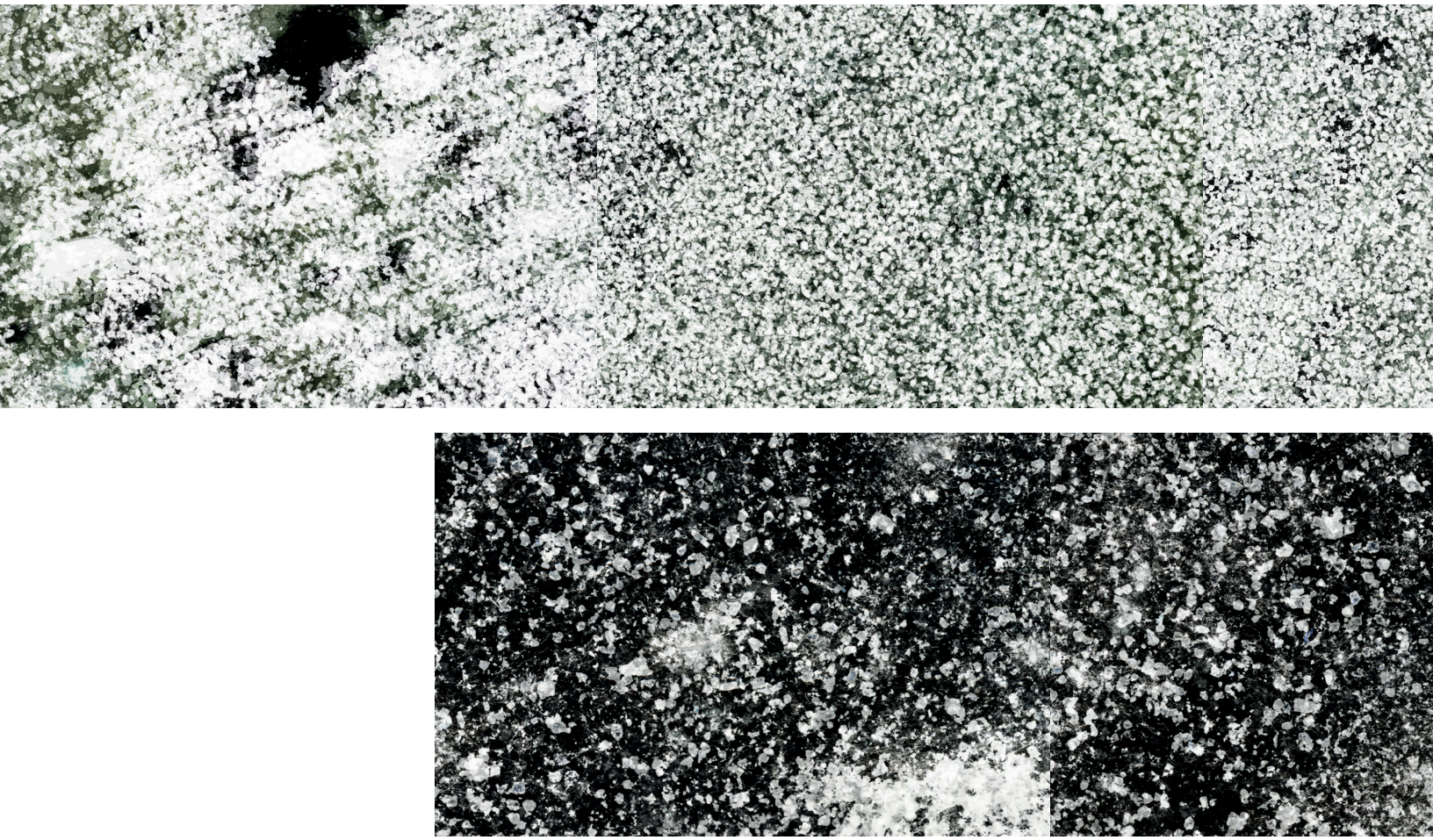




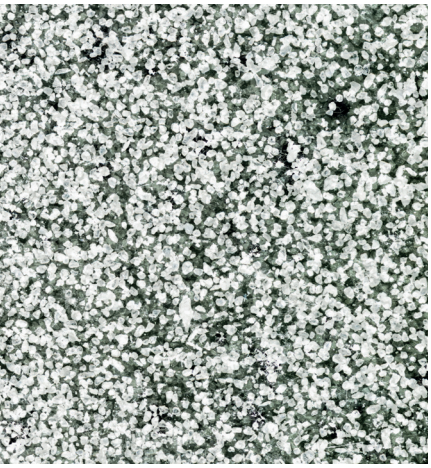
152.
Stills (4-9) from 'The sex appeal of vegetal corpses'. Soil and guano, 2024.
(following page)

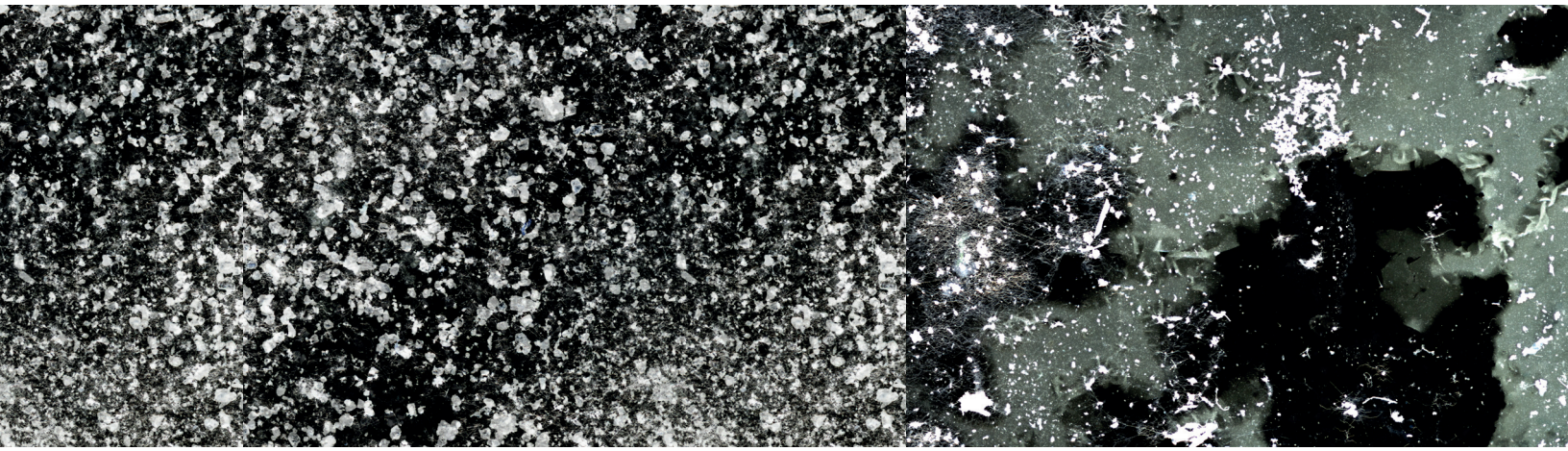






153.
Stills (10-16) from 'The sex appeal of vegetal corpses'. Soil and guano, 2024.

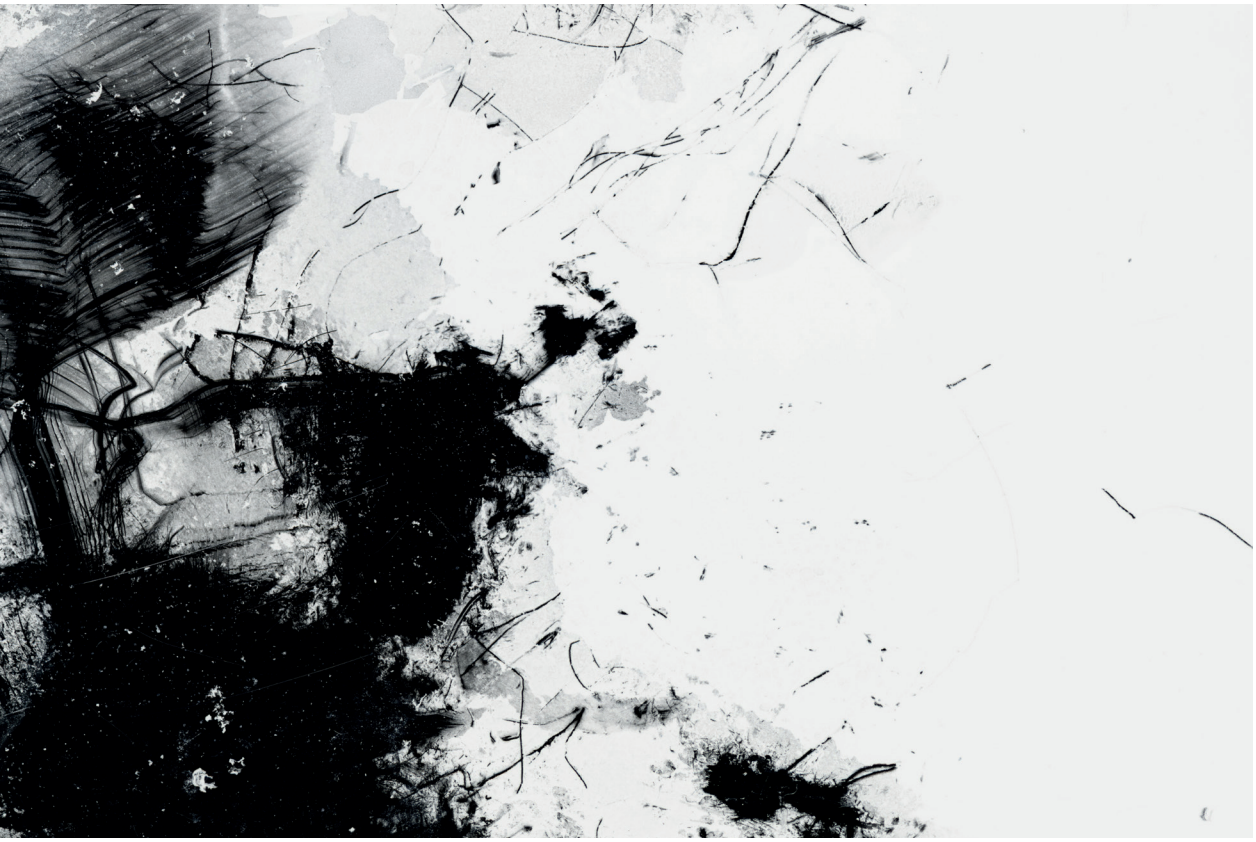


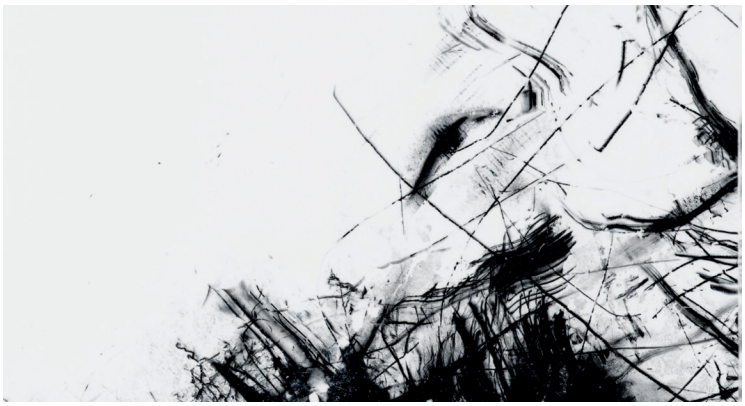




154.
Still frame from 'The sex appeal of vegetal corpses'. Soil and guano, 2024.

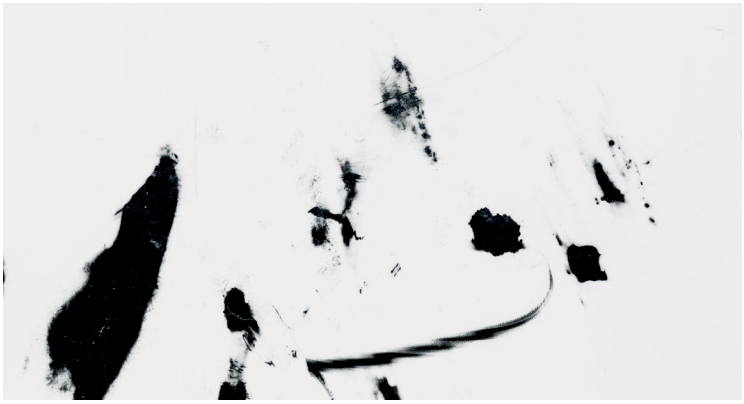






155.
Still from 'The sex appeal of vegetal corpses'. Submerged (1), 2023.

156.
Still from 'The sex appeal of vegetal corpses'. Submerged (2), 2023.





157.
Still from 'The sex appeal of vegetal corpses'. Submerged (3), 2023.

158.
Still from 'The sex appeal of vegetal corpses'. Submerged (4), 2023.

Postscript

1.
Gardens and Gardeners

Behind every garden is a gardener. Every garden is marked by a hand that was eager to work with it, to work with and understand a landscape.[137] To show the earth, Delcy Morelos made it less chaotic, less inscrutable. In speaking of her work, *'El abrazo',* she speaks of wanting "to show the land out of context and in a sacred way," she continued, "so I call it to order."[138] She pushes forward orderly frames, not unlike Robert Smithson who shaped his Spiral Jetty to make the *entropy* of the Utah Salt Lake visible through time.

The gardener, fully enthralled by the wild, extraordinary, beyond human sublime, chases after it to catch it in its web. And, in doing so, the gardener asserts their ability to control, chooses its position relative to the wild. The gardener yearns to be a participant.

The first participant is the gardener, the second is greenness, specifically 'livingness'; temporal change which can be observed and meditated upon. Some gardeners will build static sculptures from living things, perhaps eventually relying on plastic turf and artificial hedges. Some will embrace the disturbance induced chaos of ecological succession, and let fuzzy greenness take over.

Whether motivated by an aesthetic impulse, or a use-value evaluation, the gardener pursues forms of greenness that they deem to be beautiful. The point is, in a way, that by choosing to attend to living plants, every gardener (myself included) regardless of the brutality or tenderness of their methods, betrays a fascination of Greenness.

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137 Elissa Rosenberg, *Gardens, Landscape, Nature: Duisburg-Nord, Germany* (na, 2009), 212.

138 Tess Thackara, "Revering the Earth, Colombian Artist Delcy Morelos Brings It to Chelsea," *The New York Times*, October 5, 2023, sec. Arts, https://www.nytimes.com/2023/10/05/arts/design/delcy-morelos-dia-chelsea.html.

2.
Auto/biographies

The dialectic of auto/biography employed in this thesis is one of 'writing-with' and 'writing-back'.[139]' Writing-with' implies collaborative making, whereas 'writing-back' implies the making done by plants to write their own stories.

In this book I presented a range of photographic work, starting overtly biographical, and progressing towards gradually more and more autobiographical forms of making.

For the reader, unlike the curator, the experience of the book and film will be had without full understanding of the chemical and photographical processes that shape the image. This is a view of my work I cannot see. I wonder what aspects of greenness will the reader and viewer glean from this work?

Can we see the same green?

The most autobiographical images in this work are ones that were placed and left with little thought or intention. The lesser amount of curational effort meant that the images were quite literally grown onto film strips. The shapes and growth of these patterns quasi-fully independent from my actions.

But for the large part, the curational exercise was one of framing the range of the experiment. Of constant adjustments, not necessarily in search for precision, but for a legible image which could be read by the human eye. For example, in the darkroom, any exposure past 30s resulted in almost fully black image,—a beautiful representation of the process, yet also right beyond the capacity of the medium.

139 Ryan, "Writing the Lives of Plants."

3.
Everything is in Motion

My film spent the summer running away from and into me. By that I mean that it arrived to me when I did not expect to be filming, and fell apart when I planned the most things. Ultimately this was not the approach, and my most successful shots were taken on a whim. Not planned, but just with a slowly learned intuition of how to frame things and curate the weird aspects of green.

But this is also the nature of greenness, I ran into it accidentally in March when I started to film it before anything was green. It ran away from me as I experienced the fastest summer of my life. Time started moving fastest when I could see how fast things change and could mourn all the moments of green I missed.

Everything I have photographed is now dead.

In the last section of the thesis, I speak to a fascination with vegetal corpses. In a way this is where we leave of, with the reminder that the photograph is a *memento mori* to green.

4.
In Conclusion

It was important to me, to avoid the rootedness of architectural sites, their boundaries and edges. I had a few options. I could center myself somewhere and in the way of Deleuze and Guattari, branch out from there, like a rhizome. I could create a mosaic of many places, in many times. Or I could focus on greenness, through its most obvious visual characteristic: the colour green. In doing so I could tie greenness to vision, and through vision to photography. Before addressing how we live, how we build, how we act, how we exist, in place or on site, I needed to speak to how we viewed it.

Ultimately, greenness, as proposed in this thesis, is an acknowledgment of the material relations that shape and link plant-life to their *Umwelt**. This thesis is a statement on how 'green' exists solely as color, which has rendered our understanding of it banal. This thesis is also a counterstatement; an exploration into the ways greenness can be re-envisioned beyond the semiotics of green.

** Refer to 'seeing throught the eyes of another'. The Umwelt, as described by Von Uexkiill, is 'an individuals metaphorical bubble of their own time and space.'*

I wrote earlier on how this thesis is not only garden-like, but a garden in itself. Photographs are traces of material realities, extensions of it, parts of it transcribed onto film and paper. In *the Aesthetic of Contact*, those traces could not be more self evident; matter and other matter create the photograph together.

So, the book is a garden of photographs, which are extensions of green things—and greenness in and of themselves. The book, the photographs, the film. All pieces of this garden. A garden which extends beyond what I have presented—both in the many photographs that I made but will not show, and in the photographs I will continue to make.

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Appendix A

A Hidden Natural World in the Unlikeliest of Places — Canada's Largest City | The Nature of Things, 2020. https://www.youtube.com/watch?v=IiZFZYqbxCk.

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Appendix B

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Appendix A:

Site: Moonscapes and City Vomit

When a city vomits up its innards, it places them either out of sight, or below its own feet. New York grew Battery Park City, a now affluent neighborhood in lower Manhattan, on the rubble of the World Trade Center.[1] Toronto grew the Spit, originally conceived as a breakwater landform, an almost-made-into Aquatic Park, and a today cherished ecological reserve and migratory bird sanctuary.[2]
When the Spit was originally conceived in the 1950s, the idea was that Toronto would need an expanded Harbour to accommodate a predicted surge in ship traffic through the great lakes.[3] While a shift towards train shipping would mean a new Outer Harbour would never become needed, the Spit continued to be built, ultimately a much to convenient way of managing city construction waste.[4]

Two birds, one stone, if you will.

Construction started in 1959 with the Baselands, a landform at the foot of Leslie St. Land is thought to have been created with the rubble from regent Park South, St James Town, the Yonge-University subway extension, Toronto's new City Hall and the Toronto Dominion center.[5] In 1964, The Headland (the first 'arm' of the spit) started being built out of the Baselands. Having reached over 4.4km in length by 1979, the spit received over 1600 truckloads, or 3.5 meters, worth of rubble every day.[6]

1 "Manhattan Is Built on Landfills," *Talking Trash*, accessed May 19, 2024, https://talkingtrash.journalism.cuny.edu/landfills-manhattan/.
2 Walter H. Kehm and Robert Burley, *Accidental Wilderness: The Origins and Ecology of Toronto's Tommy Thompson Park* (Toronto ; Buffalo ; London: Aevo UTP, 2020), 3.
3 Kehm and Burley, 1.
4 Kehm and Burley, 37.
5 Kehm and Burley, 37.
6 Kehm and Burley, 37.

Demolition waste was dumped uncontrolled, unsorted into the Spit until 1979.[7] In addition to rubble, toxic matter such as "incinerator residue, battery casings, coal ash, and dredged sediment"[8] were being dumped into the Spit. A new sorting system was put into place, one that was laughably ineffective: the only requirement being that material should be able to pass a visual and olfactory test, conducted by inspectors on site.[9]

Exposed strata of the earlier dumping zones of the Spit are something of an archeological treasure trove. Among the rubble protrude myriads of household items: plates, diapers, eyeglasses etc, suggesting abandoned houses, most likely Victorian Homes demolished to make way for the StJames Town project, had been compacted, still full of belongings, to be dumped into the Spit. [10]

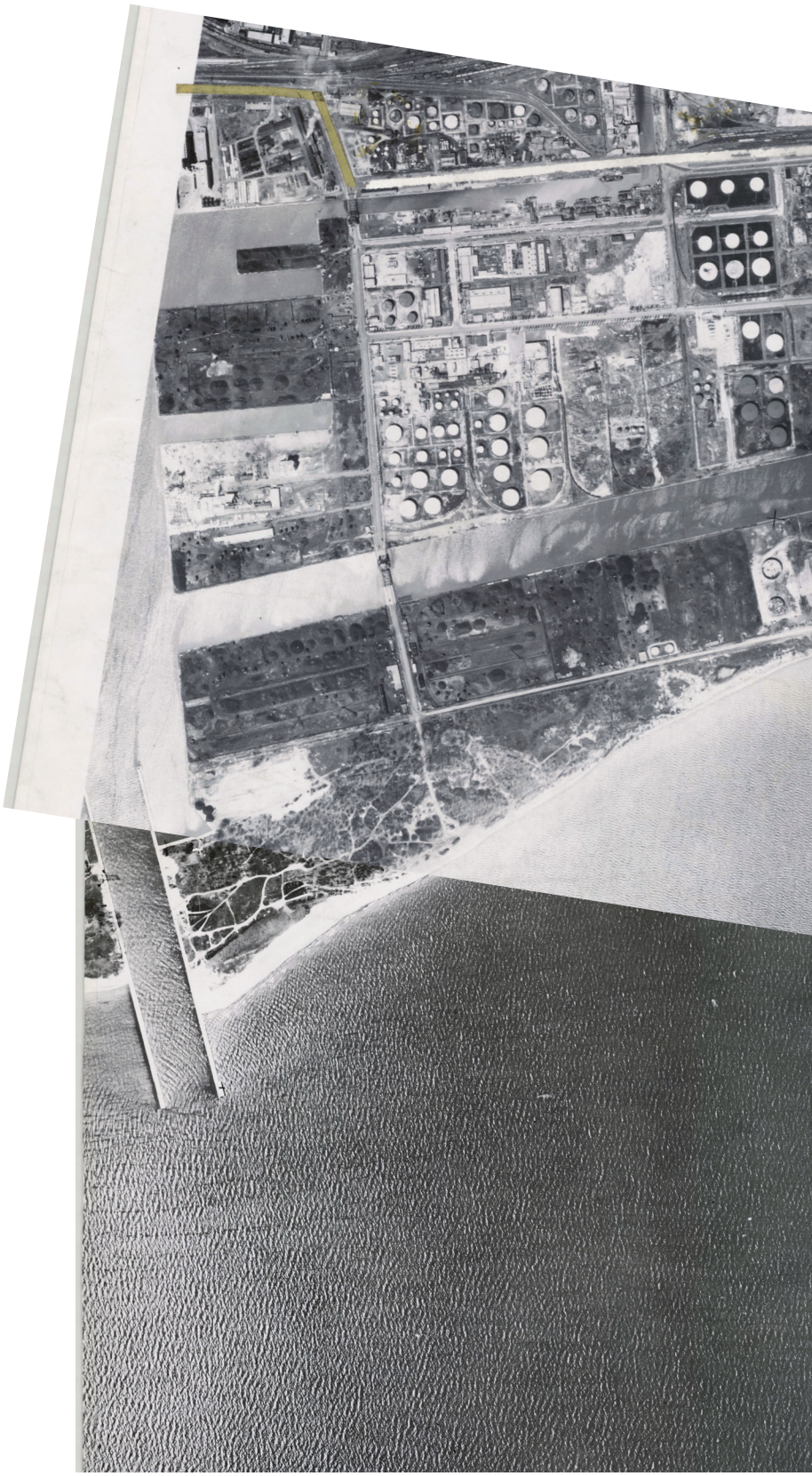
Typically landfill projects are considered ideal spaces for development. No need to evict previous tenants, rehouse populations, or disturb existing transportation networks. In a typical case, there would also never be any need for conflict with local conservation authorities. Afterall, a rubble moonscape of contaminated soil is hardly a place of ecological significance.

7 Heidy Schopf and Jennifer Foster, "Buried Localities: Archaeological Exploration of a Toronto Dump and Wilderness Refuge," *Local Environment* 19, no. 10 (November 26, 2014): 1093, https://doi.org/10.1080/13549839.2013.841660.
8 Kehm and Burley, *Accidental Wilderness*, 37.
9 Schopf and Foster, "Buried Localities," 1093.
10 Schopf and Foster, 1093.



A.xx. *Ashbridge's Bay, looking northeast from north bank of cut. 1904. City of Toronto Archives, Fonds 200, Series 376, File 4, Item 63.*

Moonscapes





A.xxi. *City of Toronto Archives, Aerial Photographs 1950, block 23A, 22D and 22H*



A.xxii. *City of Toronto Archives, Aerial Photographs 1959 block 6 ,7 and 16*



In 1959, dumping starts at the 'Baselands', where Leslie St meets the Lake. Land started being created, at a rate of 7 hectares per year.



A.xxiii. *City of Toronto Archives, Aerial Photographs 1961, block 28*



A.xxiv. *City of Toronto Archives, Aerial Photographs 1963, block 33*



A.xxv. *City of Toronto Archives, Aerial Photographs 1965, block 45*



Photo imagery of 1967 shows the ongoing construction of the first 'arm' of the spit, known as the Headlands and originally conceived as a Breakwater for the Toronto Harbour.



A.xxvi. *City of Toronto Archives, Aerial Photographs 1967, block 13 and 29*



A.xxvii. *Aerial View of Tommy Thompson in 1969*



A.xxviii. *City of Toronto Archives, Aerial Photographs 1969, block 14 and 14a*

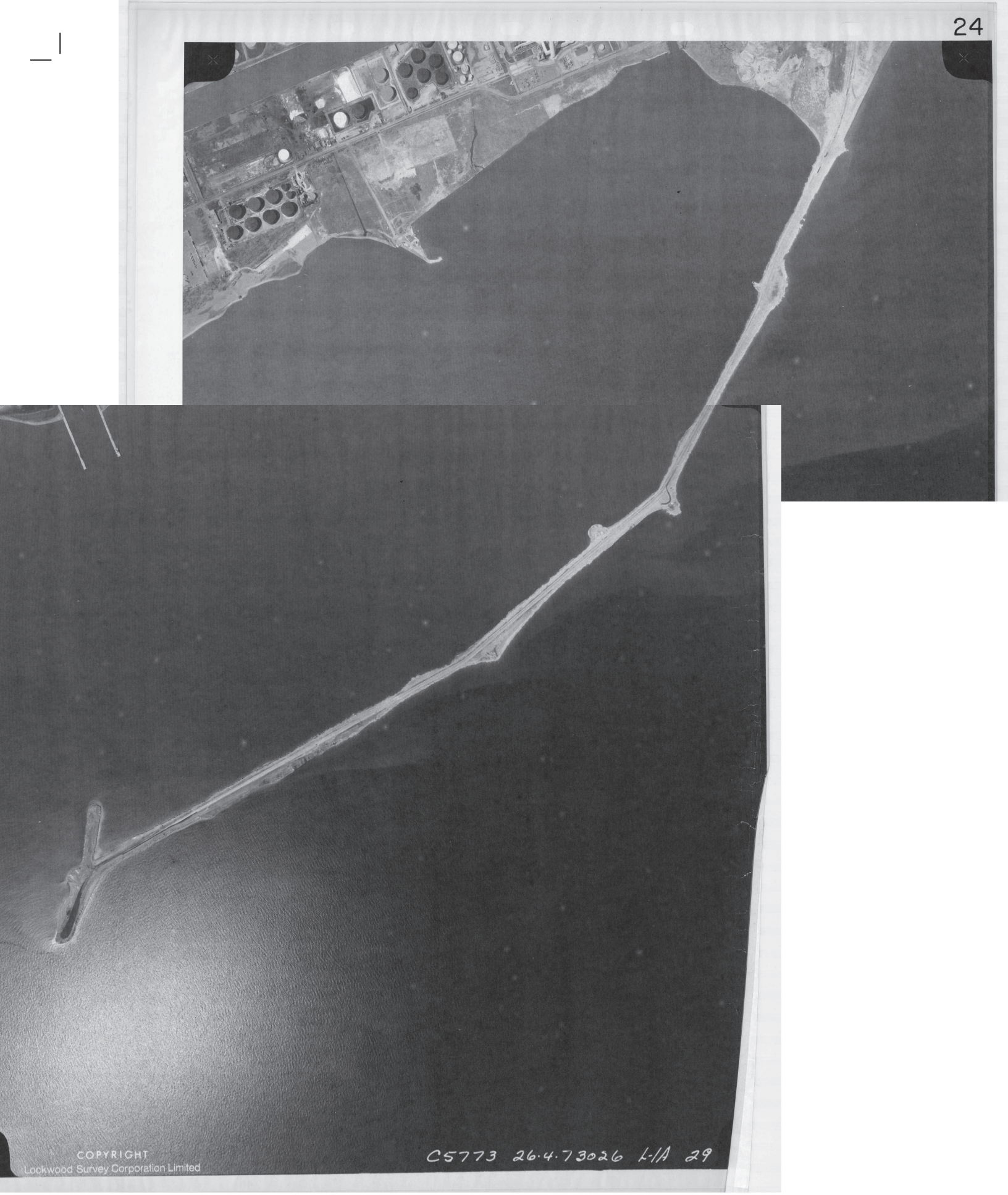


A.xxix. *Aerial View of Tommy Thompson in 1973*

At this point, the initial use of the site to help extend Toronto Harbor had become obsolete. An Aquatic Park plan was proposed for the site. The site was first opened to the public in 1972 for organized groups and general public in 1973.



A.xxx. *Ci*



ty of Toronto Archives, Aerial Photographs 1973, block 11 and 24



A.xxxi. *Aerial View of Tommy Thompson in 1975*



A.xxx



Construction of triangle pond as a lakefill for dredgeate from the Keating Channel. Over 10,000 cubic meters of fill was dumped, and then capped with clean fill to create a marsh habitat.

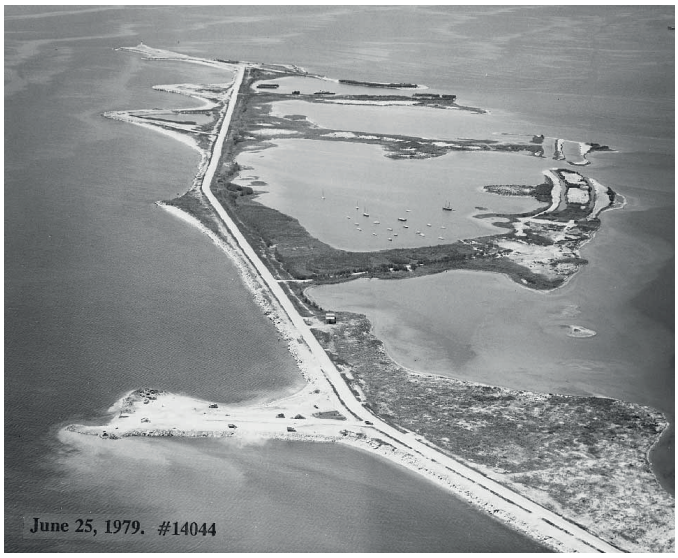
ii. *City of Toronto Archives, Aerial Photographs 1975, block 5 and 18*

The oldest section of the site, the Baselands had now become quite 'overgrown'. By 1976, the Toronto Field Naturalists' Club was pointing out the ecological value of "this apparently derelict area."

By 1976, there were over 155 species of vascular plants on site (p99). 285 by 1978. 1976 saw the first cottonwood saplings (the first trees present on site).



A.xxxiii. *City of Toronto Archives, Aerial Photographs 1977, block 7/8*



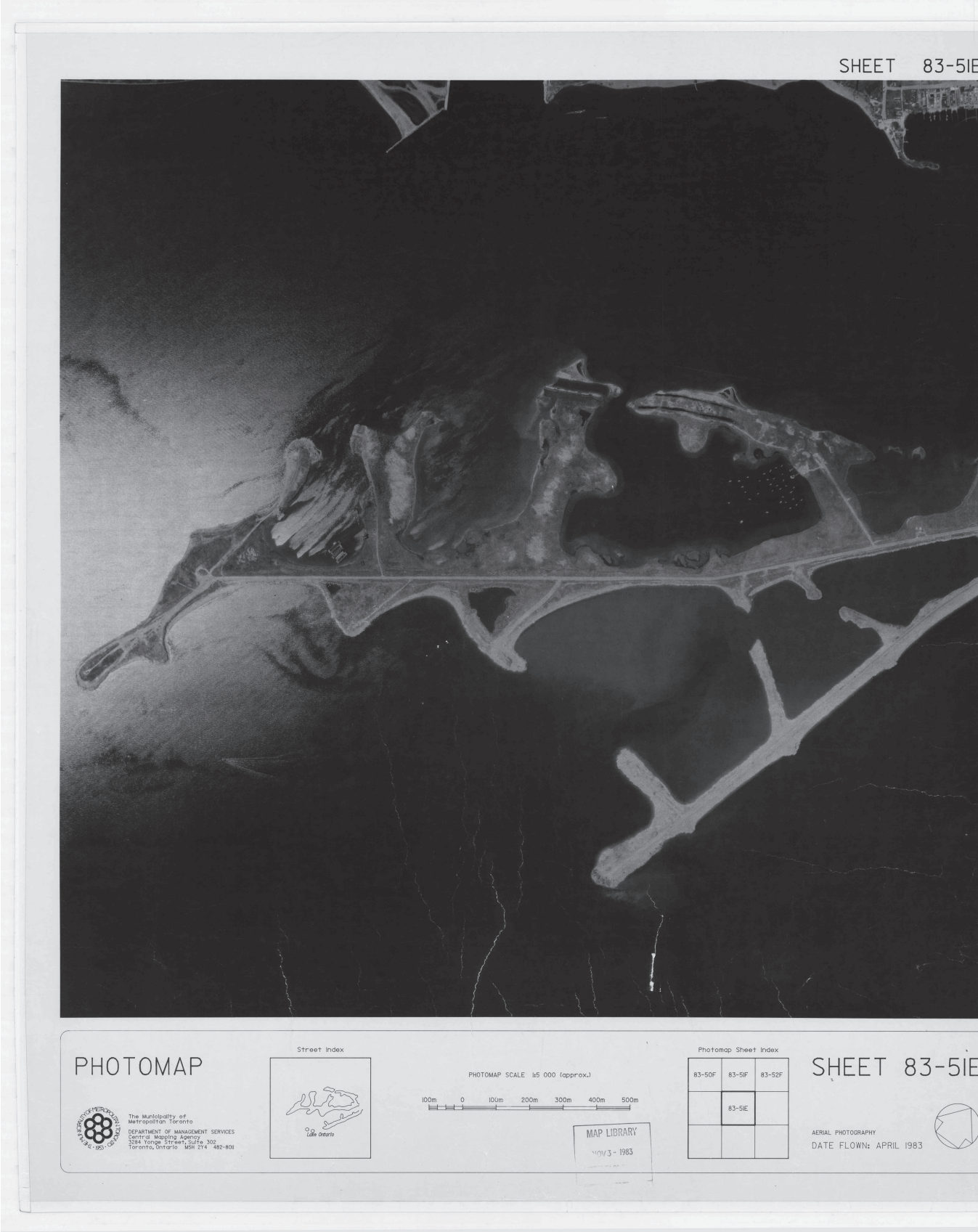
A.xxxiv. *Aerial View of Tommy Thompson in 1979*

Start of the Endikement: it protects the headland from erosion, but, more importantly, it encloses a three-celled "Confined Disposal Facility" for Keating Channel: they will receive sediments contaminated by oils and grease, lead, zinc, and polychlorinated biphenyls.

By now a few trees had reached 11-13 m tall. Succession was exceptionally rapid in most areas of the site, bar from bird nesting areas, which while barren, were also overloaded with guano.



A.xxxv. *City of Toronto Archives, Aerial Photographs 1981, block 5*



A.xxxvi. *City of Toronto Archives, Aerial Photographs 1983, block 51E and 52F*



Thanks to community activists, the spit became part of the Metropolitan Toronto and Region Conservation Authority (MTRCA, now TRCA



A.xxxviii. *Trucked fill builds the Endikement at the Spit, c. 1980-88. (City of Toronto Archives, Series 1465, File 148, Item 2)*

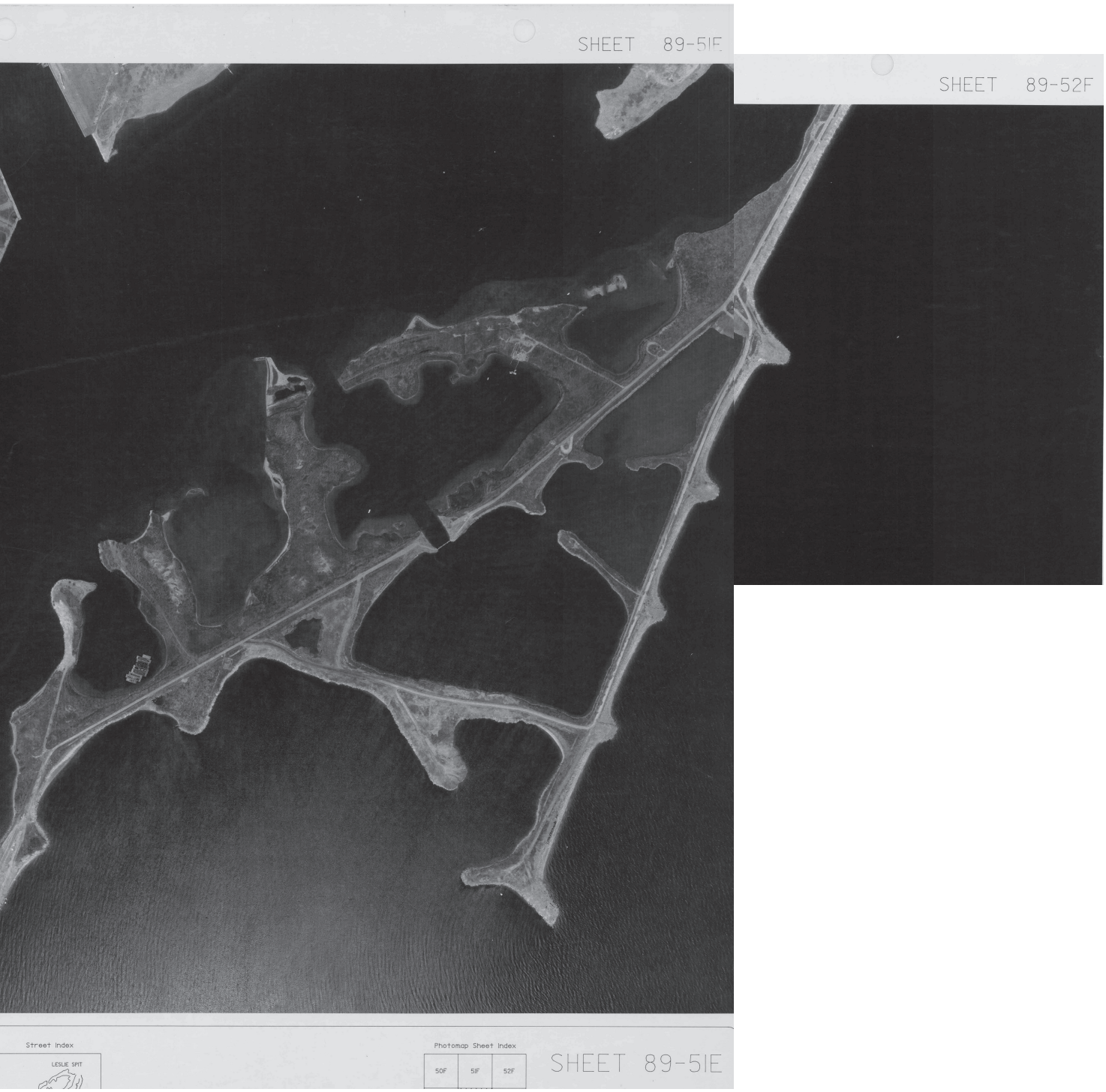


A.xxxvii. *Aerial View of Tommy Thompson in 1982*



A.xxxix. *Aerial View of Tommy Thompson in 1987*





A.xl. *City of Toronto Archives, Aerial Photographs 1989, block 51E and 52F*



A.xli. *Aerial View of Tommy Thompson in 1994*



A.xlii. *City of Toronto Archives, Aerial Photographs 1992, block 51E and 52F*

The preceding aerial photographs of Tommy Thompson Park were sourced from the City of Toronto Archives, the last of which were shot in 1992.

The following letters were sent to the MTRCA (the Metropolitan Toronto and Region Conservation Authority, now TRCA) ahead of the 1992 Master Plan and Environmental Assessment, after which the parks current existence as a not-to-be disturbed, free to the public, ecological reserve was established.

Friends of the Spit
P.O. Box 467, Station J
Toronto, Ontario M4J 4Z2



20 February 1992

Mr. William McLean, General Manager
Metropolitan Toronto and Region
Conservation Authority
5 Shoreham Drive
Downsview, Ontario
M3N 1S4

Re: Tommy Thompson Park
Proposed Admission Fees and User Fees

Dear Mr. McLean:

Through various discussions with your staff members, I have indicated Friends' of the Spit opposition to admission charges to Tommy Thompson Park, and our opposition to user fees for the transportation at the park.

This letter is to formally register our objections with you. We would ask that we be kept informed of all meetings where these items will be discussed, so that we might make representation. We also note that should you wish any input in the formulation of your staff reports on these items, we would be pleased to be of assistance.

The admission charge issue is one which should be tossed out immediately. No park on Toronto's waterfront charges admission; the admission fees hurt those who would benefit most from having a large Public Urban Wilderness on the waterfront. The principle of "user pay" being bandied about by some of the MTRCA board members is insidious. Parks are public amenities that are available to all citizens, and are paid for through taxation. Perhaps your board members, if they drive along 401, should be asked if they intend to drop a loonie every hundred yards on the "user-pay" principle??

RECEIVED
4 1992
M.T.R.C.A.

A.xliii. *Letter from the Friends of the Spit. From 'Appendix A - Public Participation' of 'Tommy Thompson Park MasterPlan and Environmental Assessement Adddendum, 1992.*

PUBLIC MEETING

TOMMY THOMPSON PARK REVISED MASTER PLAN 1992

In July of 1989, The Metropolitan Toronto and Region Conservation Authority submitted the "Tommy Thompson Park Master Plan", to the Ministry of the Environment for approval under the Environmental Assessment Act. Due to time delay and some changing circumstances, the Master Plan was returned to the MTRCA in November 1991 for resubmission to the Minister of the Environment. At its meeting #2/92 on March 27, 1992, the Authority adopted a revised concept for public consultation. This resolution, in part, is as follows:

Res. # 38

THAT the revised Tommy Thompson Park Concept (March 6, 1992) be endorsed as a basis to obtain public and agency comment in preparing a resubmission of the Tommy Thompson Park Master Plan/Environmental Assessment in 1992 to the Minister of the Environment;

THAT staff be directed to prepare the necessary documentation for public and government review with a special public meeting of the Water and Related Land Management Advisory Board to be scheduled to enable consideration of a revised Master Plan by the Authority no later than its meeting of July 24, 1992;

THE METROPOLITAN TORONTO AND REGION CONSERVATION AUTHORITY, as part of the public consultation process, has arranged a public meeting of the Water and Related Land Management Advisory Board for:

DATE: Wednesday, May 27, 1992

TIME: 7:30 p.m.

PLACE: HART HOUSE THEATRE
Hart House Circle
(between Queen's Park Crescent and
St. George St., just south of Hoskin Ave.)

THE BOARD REQUESTS YOUR PARTICIPATION AND COMMENTS

Copies of the Authority Minutes of March 27, 1992, and Board report on the Revised Concept Plan are available upon request. A Revised Master Plan Summary to be considered at the public meeting, will be available from the Authority Office, as of May 20, 1992. This information will also be distributed at the public meeting.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL:

Larry Field, M.C.I.P.
Manager, Waterfront Planning
Telephone No: 661-6600, Ext. 243

the metropolitan toronto and region conservation authority

Working Together for Tomorrow's Greenspace

A.xliv. *Notice of Public Meeting, May 27th 1992. From 'Appendix A - Public Participation' of 'Tommy Thompson Park MasterPlan and Environmental Assessement Adddendum, 1992.*

MAY-26-1992 13:21 FROM INST FOR ENVIRON. STUDIES TO 96616898 P.01
FAX NO: 978-3884 ENVSTUD@VM.UTCS.UTORONTO.CA

661-681

Institute for Environmental Studies
Institut pour l'Etude de l'Environnement

26 May 1992

FAX to The Metropolitan Toronto and Region Conservation Authority
Attention: Mr. L. Field

Re: Revised Concept Plan for the Leslie Street Spit

As a long-term conservationist and teacher at the University of Toronto, I wish to voice my disapproval of that part your Revised Concept Plan for the Leslie Street Spit that would continue to permit vehicular access to members of the Aquatic Park Sailing Club. I very much approve of sailing as a form of recreation, but why not provide docking facilities elsewhere along the Toronto waterfront?

The Leslie Street spit is a unique ecological zone, and in my view it should be offered as a candidate for the UNESCO Biosphere Reserve network. This would really put Toronto on the world map. I cannot think of any other city that has such an opportunity.

Yours sincerely,

R E Munn

(Dr. R. E. Munn)

A.xlv. *Letter from Dr. R. E. Munn. From 'Appendix A - Public Participation' of 'Tommy Thompson Park MasterPlan and Environmental Assessement Adddendum, 1992.*

botany

UNIVERSITY OF TORONTO • DEPARTMENT OF BOTANY • 25 WILLCOCKS ST., TORONTO, CANADA M5S 3B2 • FAX (416) 978-5878

May 27, 1992

TO: MTRCA BOARD

FROM: VERNA J. HIGGINS, BOTANY CONSERVATION GROUP

RE: TOMMY THOMPSON PARK MASTER PLAN

Let me first congratulate the staff of MTRCA for the courage and initiative to revise their 1988 Master Plan to resemble very closely the model that many of us requested at that time. We thought in 1988 that we were very progressive in our expectations of the future for the Toronto waterfront; however, in the intervening years, the Royal Commission on the Future of the Toronto Waterfront headed by David Crombie has changed everyone's perspective of the waterfront. Things we never dreamed of now seem possible. Meanwhile, the Toronto environment has changed for the worse- there are more people, more cars and more pollution- the Spit is more and more a haven for many of us who live in the Greater Toronto Area.

It is apparent that the main issue facing us tonight is not whether the Revised Plan is superior to the original plan, there is no doubt about that. The real question is, should it still include the Aquatic Sailing Club - a question which we have spent a lot of time considering. As it presently exists, the club has little effect- granted their stewardship leaves something to be desired- monitoring of visiting boats to the club is suspect when two such boats remain all winter; perhaps the vehicle which drove through the adjacent wet meadow containing the bog twayblade did not belong to the club; even the ever expanding parking lot/garbage area can be tolerated. No, these are all small petty things.

It was when I thought about the Spit user of the future that I realised the importance of what seems such a trite issue now. Fifteen years from now as the Spit finally nears completion, will the new users of the site understand or forgive us for leaving a piece of the park in private use? Will they understand why at a time when there was space at the North Shore Park or the THC marina for that club that we agreed to continue this compromise in our only urban wilderness park? (Would our forfathers, who established Banff National Park still opt to retain a townsite that could still continue to expand 100 years later?) Thus, I can not in good conscience agree to this part of the plan. I really wish I could.

Verna J Higgins

Printed on 100% Recycled Paper

A.xlvi. *Letter from Verna J. Higgins. From 'Appendix A - Public Participation' of 'Tommy Thompson Park MasterPlan and Environmental Assessement Adddendum, 1992.*

PO Box 433, Stn E, Toronto M6H 4E3

May 27th 1992

Lois Griffin, Chair
Metropolitan Toronto & Region Conservation Authority
5 Shoreham Drive
Downsview, Ontario
M3N 1S4
FAX: (416) 661-6898

Dear Lois Griffin:

RE: CAR-FREE LESLIE STREET SPIT

Thank you, MTRCA, for shelving the 1988 plan for the Leslie Street Spit!

The new plan, which would stop all automobile traffic at the base of the Spit, has my hearty support.

Parks are supposed to be a refuge from noisy, polluted city life. Ironically, there are few places in the Greater Toronto Area where one can get away from the car-dominated parks. The presence of cars in parks violates everybody's right to clean air, peace and quiet. Everything about the car is antithetical to a nature park -- from its noise, to its air and water pollution.

Urban designers have over-accommodated the car, giving it maximum right of way and maximum space. One-third of the average city's space is devoted to the car.

It is time to liberate ourselves from cars. They consume our time, our public places, and our health.

American wilderness defender, Edward Abbey, once wrote (referring to U.S. national parks), that, "We have agreed not to drive our automobiles into cathedrals, concert halls, art museums, legislative assemblies, private bedrooms and the other sanctums of our culture; we should treat our national parks with the same deference."

The Spit isn't a national park, but it is a "holy place". Car access, with its accompanying space requirements and danger, would put all other park users at a mobility disadvantage. The Spit must be accessible to all people ~~(including community sailing clubs)~~ -- not their cars.

AH I did this!

Yours truly

Anne Hansen

Anne Hansen

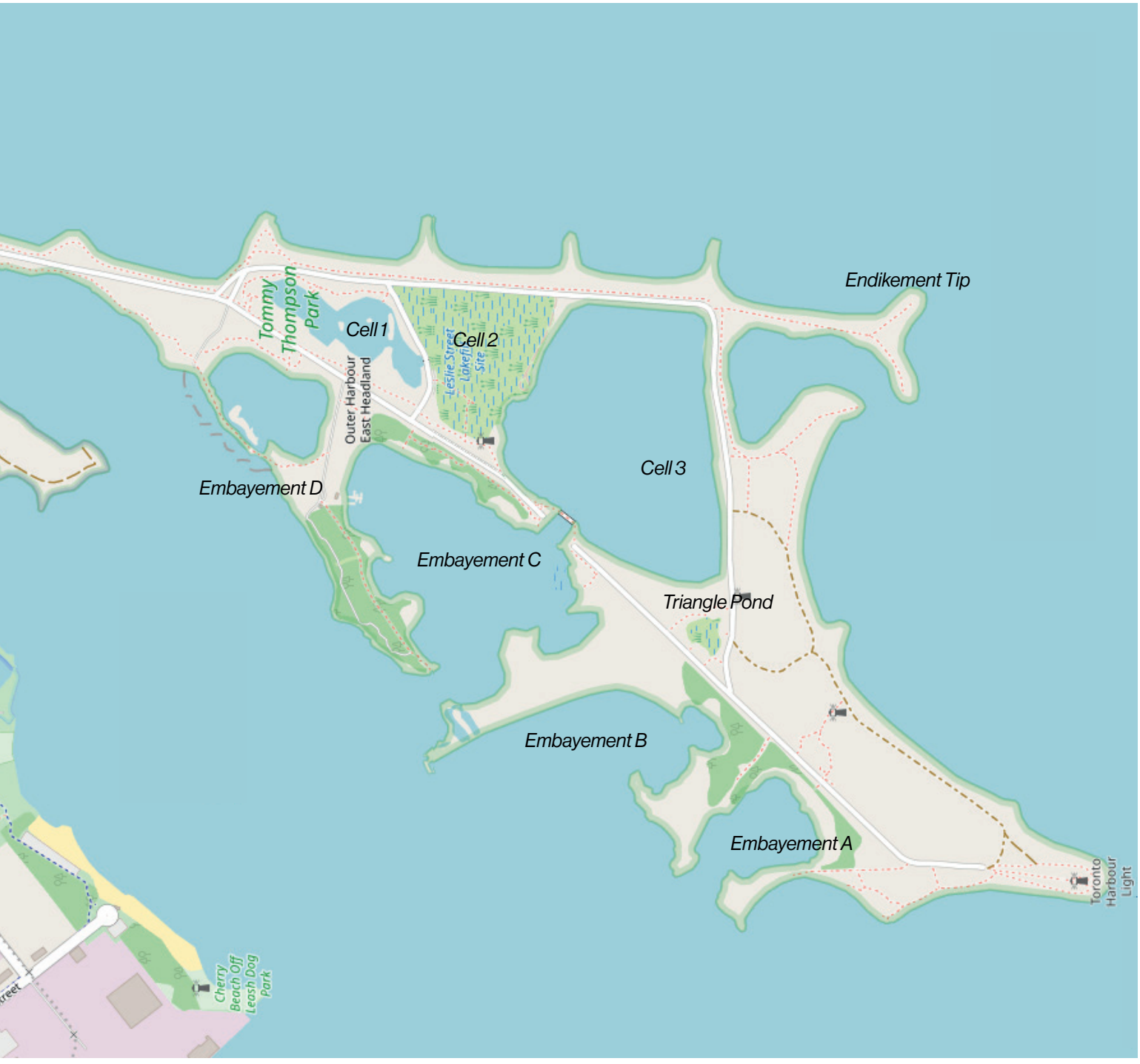
A.xlvii. *Letter from Anne Hansen to Lois Griffin, chair of MTRCA. From 'Appendix A - Public Participation' of 'Tommy Thompson Park MasterPlan and Environmental Assessement Adddendum, 1992.*





A.xlviii. *Aerial view of Tommy Thompson Park, 2013, (TRCA)*


The Baselands
Leslie Street
Leslie Street
Unwin Avenue
Outer Harbour Marina
Innocon
Portlands Energy Centre
Turning Basin
Commissioners Street
Basin Street
Logan Avenue
Bouchette Street
Basin Street
Saulter Street South
Villiers Street
Don Roadway
East Harbour
Lake Shore Boulevard East
Unwin Avenue
Regatta Road
Cherry Beach Sports Fields



A.xlix. *Current park and trail map of Tommy Thompson, OpenStreetMap, Public domain, via Wikimedia Commons]*

1.
On my fourth visit to Tommy Thompson, I walked to one of my favorite locations in the park; right off from trail post 39, there is a narrow beach lined with young willows which wrap across embayment B.

The land which shapes the four embayments on the western side of the Spit have been 'completed', and thus left to barren since the mid-70s. They are as a result some of the most ecologically progressed land areas of the Spit today. In 1990, the thicket of poplars that had been early colonizers of the site, became the nesting grounds of double crested cormorants.[11] As nesting seasons went by, the soil under the trees was overloaded with guano, becoming too acidic and nitrogen filled for the poplars to survive. As I visit the site in 2024, hundreds of nests remain in use within the sun-bleached skeletons of these trees.

2.
There are two main substrates present on the Spit. The first is City Vomit: fill from excavations (clay subsoil, Ordovician slate) and rubble from demolished buildings. The second is lakebed material from Lake Ontario, sandy and placed along the northern peninsulas of the Spit.[12] This soil was much easier for vagabond plants to colonize, compared to the denser, poorly drained soils found in most of the Spit.

3.
Vegetation in Tommy Thompson originally settled from 1975-82, during which surveys of the parks flora counted an approximate 155 species in 1975, to a peak of 285 by 1978. Early species such as sea-rocket, horseweed, cottonwood and sandbar willows all have seeds that are rapidly dispersed by wind or water,[13] with many most likely travelling from the near-by Toronto islands.

11 Kehm and Burley, *Accidental Wilderness,* 104.
12 Kehm and Burley, 99.
13 Kehm and Burley, 100.

4.
There were two major exceptions to the expected vegetative population of the site.

The first being that although much of the site experienced quite rapid ecological succession, the nesting areas of gulls and terns (colonial water birds) remained largely barren, most likely due to an overload of guano. Only a few hardy and nitrogen loving plants such as lamb's quarters, tended to grow in these areas.[14]
The second being a small subset of species that could only be garden escapees, most likely brought to site by members of the public, who had at some point been given permission to dump domestic waste on the Spit.[15] Vegetables, such as tomatoes, cucumbers and corn were found on the spit, although never established themselves as long-term residents, but also ornamental flowers such as petunias, blanket flower and spiderflowers.

5.
Undoubtedly, spit has a strong aesthetic appeal. An allure built from its feral wilderness, which distinguishes it from everything that surrounds it. It has attraction and repulsion.

6.
Without decades of advocacy, the Spit may have been transformed into an Aquatic Park, an airport, or landscaped to become an also attractive, not so quite repulsive, urban park.

14 Ibid.
15 Ibid.

Appendix B:

Making of

a brief record of photographic processes and methods used in the making of the thesis



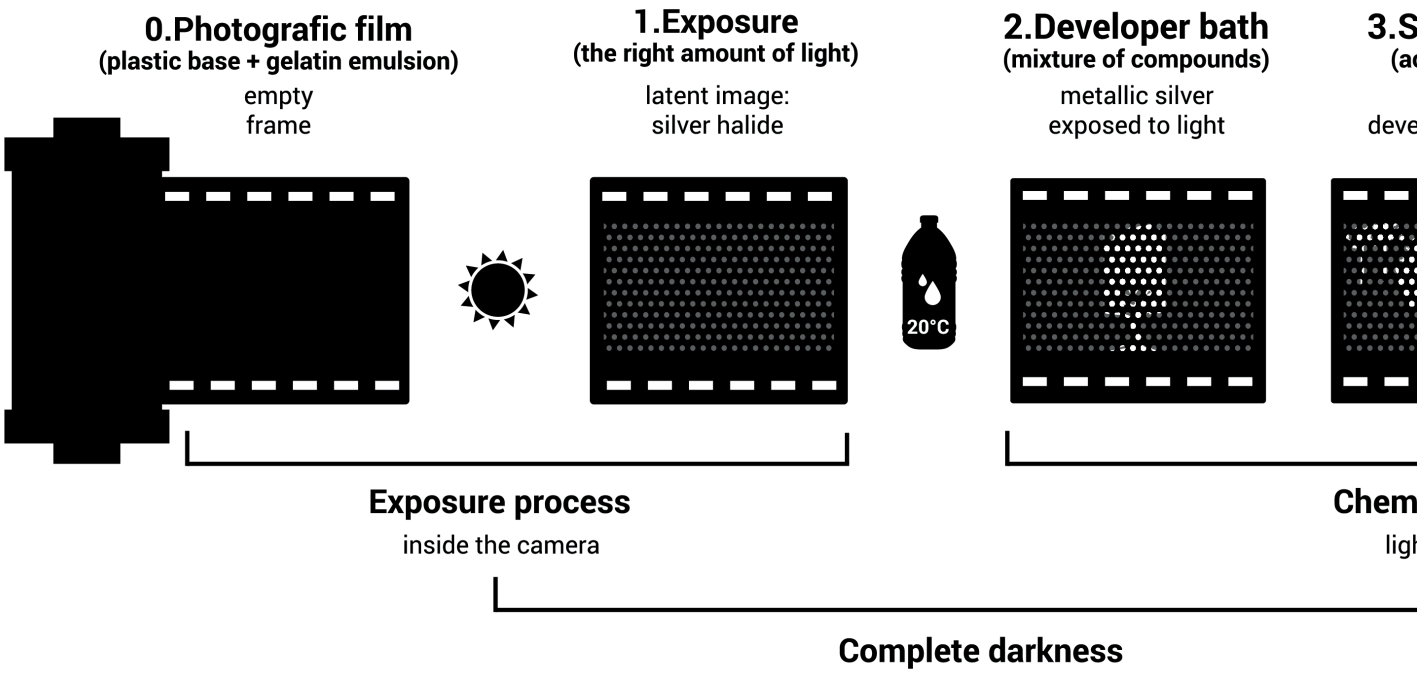
B.i. *Field work Equipment, 2024 .*

Tabletop tripod, a variety of film stock, tiny scissors, misc. containers, extension tubes, Canon 50mm f1.8 lens, Extension tube set, Canon Rebel 2000 film camera (compatible with modern EF lenses), backpack. Not shown: Light proof bags, Canon R8, photographic paper, notebook.



B.ii. *Darkroom Equipment, 2024 .*

Developing trays (x3), change bag, Paterson tank, graded cylinder, scale, film can opener, developing tongs, film squeegee, large paper clips, nitril gloves, black lightproof bag, photographic paper, film stock, Ilford rapid Fixer, Safe light, funnels.



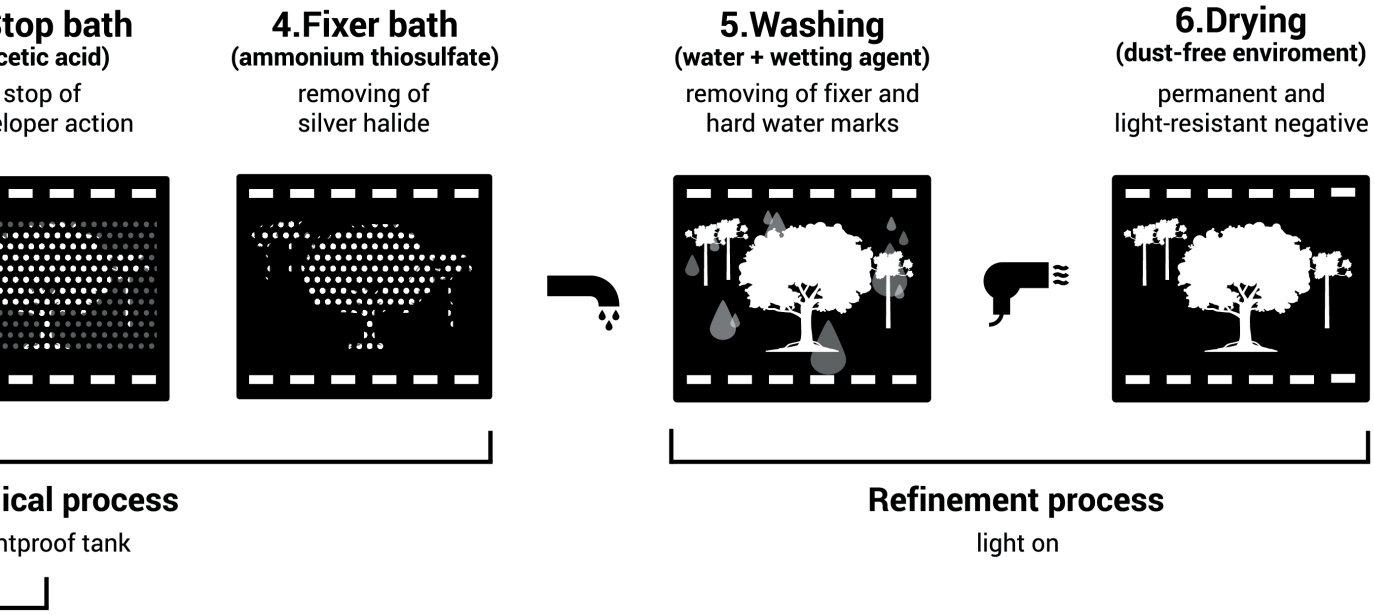
B.iii. *Photographic Processing. Diagram by Marianna Caserta, DensityDesign Research Lab, 2015*

Photographic Development:
Traditional B&W silver gelatin process

The proper processing of analog film requires 6 carefully executed steps: Exposure, Development, Stop, Fixing, Washing and lastly Drying, which is done in a controlled environment.

Three of these steps are key to the photographic process: Exposure, Developing and Fixing. All of the methods I present in the thesis are in some form explorations of ways of modifying how these steps are approached in conventional photographic processing. All of the methods I employ are based on B&W photographic processing, and employ either B&W photo-mediums, or non-silver gelatin mediums.

I use both silver gelatin photographic paper and photographic film. Both of which are manufactured by laying a photosensitive emulsion onto a rigid backing—resin coated paper or a plastic film.



The emulsion is made by mixing gelatin with a silver halide solution (either silver bromide, silver chloride, or silver iodide) as well as manufacturer specific additives. These include pH buffers, defoamers, surfactants, restrainers, stabilizers, biocides etc.[1] These additives—as well as differences in emulsion formulation—mean that different papers or films will react differently when used with experimental processes.

While a majority of processes I explore employ silver-based light sensitive chemistry, I also explore photo-making through alternative 'emulsions', although to various degrees of success. These include cyanotypes (ferric ammonium citrate, and potassium ferricyanide), anthotypes (light sensitive pigments), chlorophyll prints and fungal spore prints. The making of all these alternatives methods can be similarly described through the same three key steps.

1 Daniel Berrangé, "Thoughts on the Chemistry behind the Lumen Process" *ƒ/138*, October 11, 2015, https://fstop138.berrange.com/2015/10/thoughts-on-the-chemistry-behind-the-lumen-process/.

Lumen prints, also known as *Luminograms,* are photographic prints that use silver gelatin photo paper as a base. They were the first style of print I experimented with, and are one of the most accessible silver gelatin methods. Of the three key photo-processing steps, only one is required to make lumen prints: exposure. Both Chemical processing steps are not required, and although the prints can be fixed for archival purposes, it is entirely possible to make lumen prints with no chemistry whatsoever. Additionally, the photographic paper in this process can be manipulated in lit spaces prior to exposure, so the process does not require a Darkroom.

Equipment:

- *Silver-gelatin photographic paper*
- *Miscellaneous objects*
- *Glass sheets larger than the paper sheets*
- *Frames for the smaller glass sheets*
- *Fixing solution (Ilford Rapid Fixer or ultra salinized solution)*

Process:

To create prints, place a subject of choice in contact with the photographic paper an expose to direct sunlight for any duration. Often 30 minutes tends to be the minimum to obtain a detailed image, and little change happens after six hours. After overexposure, the print fades and looses definition.

These timings are approximate to sunny conditions, in non-UV light or in low UV conditions, the prints need to be exposed for much longer.

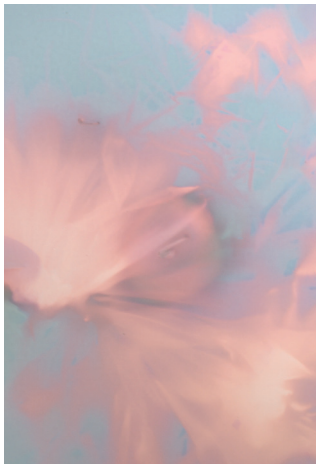
Notes:

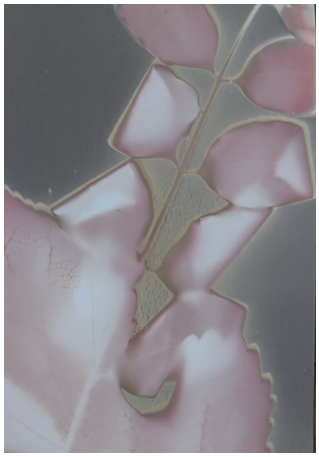
1. Prints can be made with or without a glass frame to compress the subject. Without a frame, the lumen print is capable of capturing gradations of depth and the three-dimensional structure of the subject.

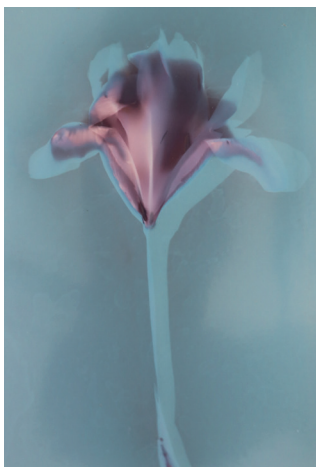
2. When exposed in full sun, condensation will often result in a darker or more vividly coloured 'halo' around botanical subjects. Acetate can be used to avoid contact.

3. When fixed, the print will fade to a beige or brown colour with much lower contrast than the initial print.

4. Lumens can be fixed with thiosulfate,(Ilford Rapid Fixer diluted at a 1:9, 1-3 minutes). Alternatively, use a solution of 100g salt per 300ml water for 24-48 hours.







B.iv.
Lumen print, Victoria BC, silver gelatin print, 2023.

B.v.
Lumen print, Victoria BC, silver gelatin print, 2023.

B.vi.
Lumen print, silver gelatin print, 2024.

B.vii.
Lumen print #9, eucalyptus, silver gelatin print, 2023.

B.viii.
Lumen print, made for galt. publication silver gelatin print, 2024.

B.ix.
Lumen print, made for galt. publication, silver gelatin print, 2023.

B.x.
Lumen print, iris, silver gelatin print, 2023.

B.xi.
Lumen print, Victoria BC, silver gelatin print, 2023.



B.xii.
Making of Lumen #5-7, digital photograph, 2023.



B.xiii.
Making of Lumen prints for galt. publication, acetate and glass method, digital photograph, 2024.



B.xiv.
Making of Lumen in an outdoor space, Victoria BC, digital photograph, 2023.



B.xv.
Making of Lumen prints at Tommy Thompson, digital photograph, 2024.

In the Darkroom:
Experimental Development

Both B&W film and B&W paper can be developed using homemade developers. These are known as polyphenol-based developers, and are derived from the 1995 recipe for Caffenol, created in a class by Dr. Scott A. Williams Ph.D., at the Rochester Institute of Technologie (R.I.T.).[2]

The main ingredients are as follow:

- *A source of Polyphenols*
- *A super-additive (Vitamin C)*
- *An alkali accelerator/pH buffering (Sodium Carbonate)*

Caffenol has become a quite common recipe. As such it benefits a wealth of community data on how to create consistent, well-developed images. Other polyphenol recipes are not quite so predictable, namely, it is difficult to reliably find the phenol content of non-food plants. The good thing is that the developing process is quite flexible, and the recipes are not an exact science, especially when not concerned about reusability.

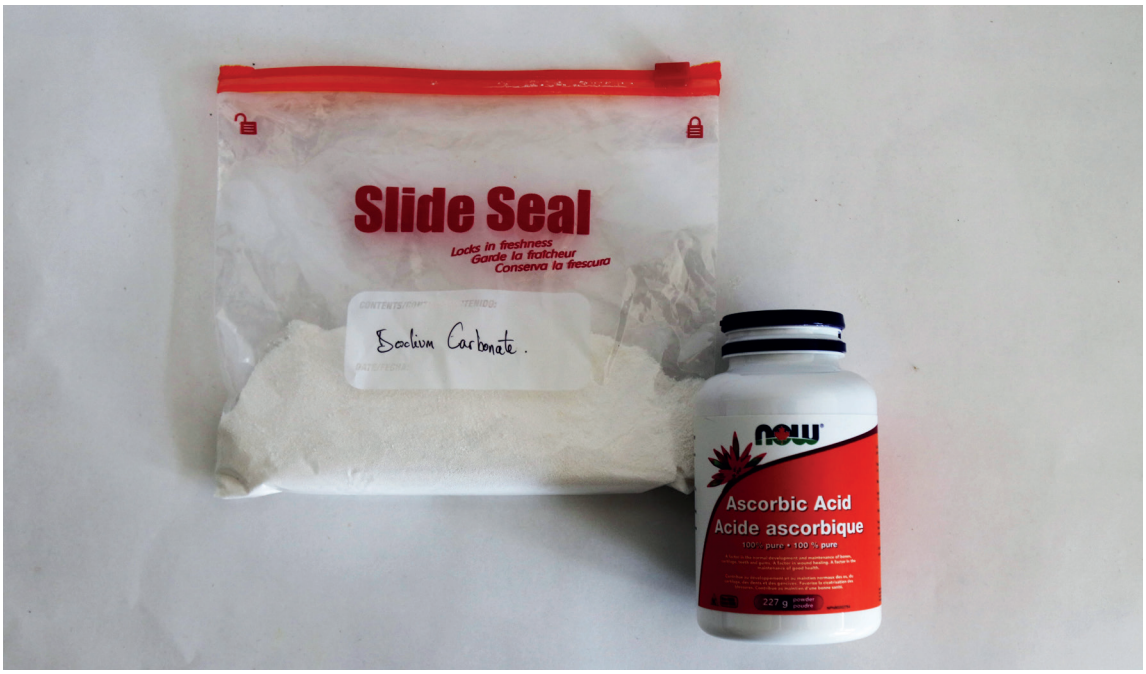
Interestingly, many polyphenols are flavonoids; the aromatic compounds of plants. They can also by anthocyanins, which are responsible for the dark-blue purple pigment of plants. These are both useful clues in approximating a plants development potency.

Caffenol and other polyphenol developers are often considered, one shot' developers; use them once then throw them out. The quality of the image is hard to guarantee after more than 1 35mm roll (36 exposures), or a 3-4 half letter sized prints.

Food	Polyphenols[a]	
	Content	Rank
Cloves	15 188	1
Peppermint, dried	11 960	2
Star anise	5460	3
Cocoa powder	3448	4
Mexican oregano, dried	2319	5
Celery seed	2094	6
Black chokeberry	1756	7
Dark chocolate	1664	8
Flaxseed meal	1528[c]	9
Black elderberry	1359	10
Chestnut	1215	11
Common sage, dried	1207	12
Rosemary, dried	1018	13
Spearmint, dried	956	14
Common thyme, dried	878	15
Lowbush blueberry	836	16
Blackcurrant	758	17
Capers	654	18
Black olive	569	19
Highbush blueberry	560	20
Hazelnut	495	21
Pecan nut	493	22
Soy flour	466	23
Plum	377	24
Green olive	346	25
Sweet basil, dried	322	26
Curry, powder	285	27
Sweet cherry	274	28
Globe artichoke heads	260	29
Blackberry	260	30
Roasted soybean	246	31
Milk chocolate	236	32
Strawberry	235	33
Red chicory	235	34
Red raspberry	215	35
Coffee, filter	214	36

B.xvi. *Chart of Polyphenols in food. Concentration is in mg/100g. Source: Daniel Keating, 35mm*

2 Imagesfrugales, "Who Invented Coffee Based Development?," Caffenol (blog), June 12, 2010, http://caffenol.blogspot.com/2010/06/who-invented-coffee-based-development.html.



B.xvii.
Ingredients for B&W developer: Vitamin C and Sodium Carbonate, digital photograph, 2023.

All ingredients for this phenol based developer are easy-to-find, accessible and non-toxic. Overall photographic developer made like this is much easier to dispose off, unhazardous to handle, and much more sustainable then traditional darkroom chemistry.

+



B.xviii.
Bindweed Tea to use as B&W developer, digital photograph, 2023.

A GUIDE TO BREWING TEA
(originally from the sex appeal of vegetal corpses)

[Use good water.

Spring water, earth-drawn water, rain collected water or glass-bottled water. Not water from a plastic bottle, nor water past 180mg of calcium carbonate per Liter.

Do not use Cambridge water.]

*

[Jin Xuan Oolong is a Taiwanese camellia sinensis cultivar commonly sold under the name 'Milk oolong'.

Naturally light and floral, partially oxidized, it carries a light fragrance akin to milk.]

*

[Bring your water to a light boil.
After a few minutes of rest, test the water temperature.

Aim for 85 °C. No more or the delicate leaves of tea will be burned. Warm the pot with a first wash of boiling water.

Measure 25g.
Wash the Tea, 10s.
If using ball or rolled-style tea leaves, add wash for 30s longer to allow the leaves to unfurl.

Steep once, 15s. Steep twice, 30s, steep thrice, 40s.

Enjoy the aroma before tasting.

On the fourth, steep for 43200 s.
Serve in a palm sized bowl.

For every 300 ml of water
Add 8g of ascorbic acid (Vitamin C),
and 28g of sodium carbonate.]

***

In the Darkroom, the following intermingle.

Bleach and cloves.
Yarrow and rust.
Sumac and pokeweed.
Oolong tea and salt.
Coffee and ammonium thiosulphate

With poor ventilation, in-
toxicating.

***

[As a tea, it is more fragrant then bodied.
In the Darkroom, it fully develops a print in 180s.

Rinse prior to submerging in an ammonium thiosulfate fixer,
extract any deposited silver prior to disposal.

Tea can be brewed again for 2-5 times prior to disposal.]

Notes from my Journal:

Making of yarrow developer,
January 29th 2024.

Yarrow (Achillea Millefollium) leaves were collected in early October 2023, in preparation for winter.

After rehydration, I used approx. 100g of yarrow Yarrow was left to steep in hot water for 24hours, after which 220 ml of solution were extracted from the leaves.

[Herbal solution is best kept refrigerated before and after being mixed into a developing solution]

To 220ml of solution, add: 20g of sodium carbonate (NaCO3) + 5g of Vitamin C (ascorbic acid)

Shake lightly until fully dissolved.

A second developing solution was made using the same yarrow leaves steeped a second time, with the addition of 2 green tea sachets.





B.xix.
Yarrow, Tommy Thompson Park, digital photograph, 2023.

B.xx.
Yarrow on light table, digital photograph, 2023.

In the Darkroom: Contact Prints

Contact prints, like lumen prints, typically use silver-gelatin photographic paper as a base. These prints are the most similar to traditional photographic print making, minus the need to use an enlarger, which would typically be used to project and image from 35mm film (or 120) onto paper. Instead, a subject/object is placed in direct contact to the paper—either unassisted or with the help of a contact frame—and then exposed to light. The printing process follows all three steps of the traditional B&W development process.

Equipment:

- *Silver gelatin photographic paper*
- *Botanical subjects*
- *Contact Frames*
- *Developer*
- *Rapid Fixer*
- *Water Stop Bath (optional: acetic acid)*
- *Developing trays*
- *Developing tongs*
- *PPE (disposal gloves, protective eyewear)*

Process:

The following prints must be made in a darkroom environment. Unlike the lumen prints, the photographic paper must be opened in a darkroom under a safelight, or else the paper will be fogged and unusable. Paper that has been opened outside of a darkroom is unsuitable for these prints.

Turn off the lights. Turn on the safelight.

To create prints, place a sheet of paper in your contact frame. Place a subject of choice on top of the paper and close the contact frame. Expose to full spectrum light. Most of my prints were made in 1-8 seconds of exposure.

B.xxi.
Contact print, eucalyptus test strip, silver gelatin print, 2023. (left) Exposure: 1s, 4s, 8s, 12s / 2min 30s Development in caffenol

B.xxii.
Contact print, eucalyptus #1, silver gelatin print, 2023. (right) Exposure: 2s / 3min Development in

B.xxiii.
Contact print,eucalyptus #2 silver gelatin print, 2023. (left) Exposure: 2s / 3min Development in yarrow.

B.xxiv.
Contact print, eucalyptus #3, silver gelatin print, 2023. (right) Exposure: 2s / 2min Development in yarrow.

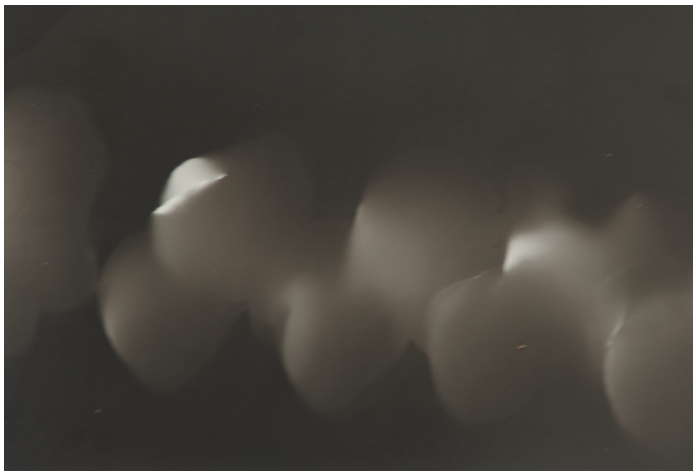
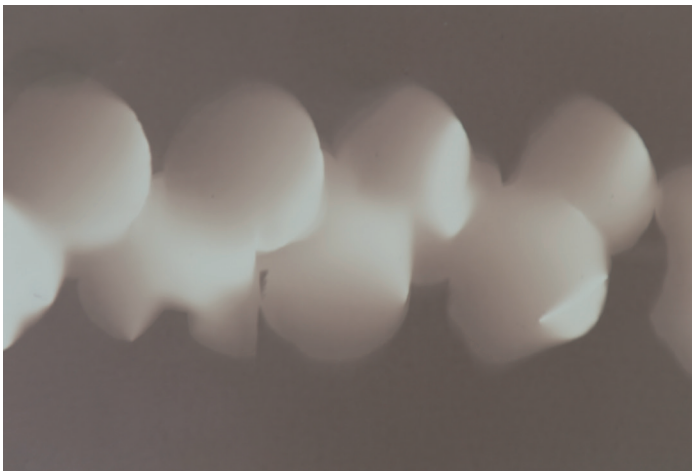
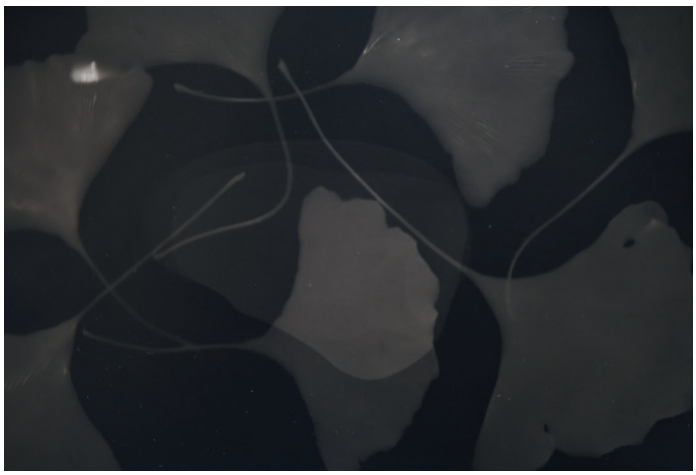
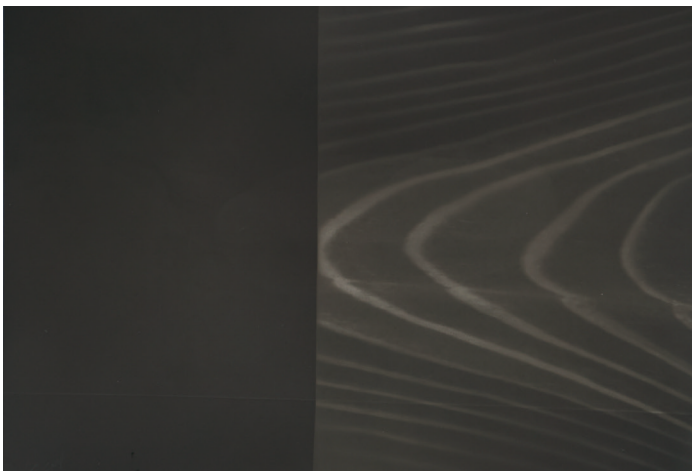
B.xxv.
Contact print,gingko #1, silver gelatin print, 2023. (left) Exposure: 8s / 2min 30s Development in caffenol

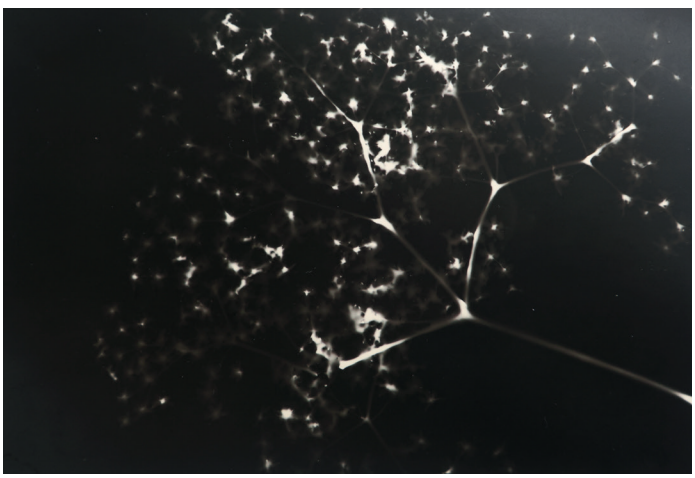
B.xxvi.
Contact print, wood sheet, silver gelatin print, 2023. (right) Exposure: 1s / 3min Development in caffenol

B.xxvii.
Contact print, gingko #2, silver gelatin print, 2023. (left) Exposure: 2s / 3min 45s Development in caffenol

B.xxviii.
Contact print, elderflower, silver gelatin print, 2023. (right) Exposure: 2s / 3min 45s Development in caffenol





Develop, rinse, and fix (1-3 mins for Ilford Rapid Fixer diluted at 1:9). Once fixed wash abundantly, 5 minutes under running water, and hang to dry.

Notes:
1. Generally speaking, only one variable should be modified when experimenting with processing timing. Different experimental developers will have different required processing times, but will overall all require at least 2 mins 30s to obtain a solid black anywhere on the image. As such, it is recommended to experiment mostly with variations on exposure timing.

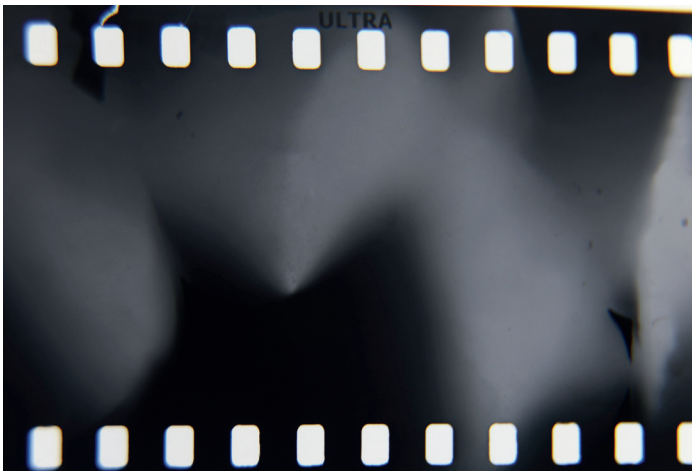
2. Images made without contact frames will have a much lower contrast then those made with one. Subjects with high transparency (see prints of wood sheets) will also have much lower contrast.

3. Images with higher exposure times will develop a lot more quickly in the trays. 10s extra in the solution can strongly affect the print contrast.

4. This process can also be done on film. However, as film cannot be exposed even to a safelight, it must be done completely in the dark. I acheived this by exposing and then loading and processing in a Paterson tank.

5. An alternative technique is to use a printed negative of an image to place in the contact frame. Negatives can be printed on transparent acetate sheet, and produced best results with an inkjet printer.

6. All prints shown were produced using room temperature developer. Increasing developer temperature also increases its potency/speed.



B.xxix.
Contact print, eucalyptus on film, digital photograph of 35mm film, 2023.

The following image was set up, developed and fixed in complete darkness. The vast majority of B&W film stock are designed to be sensitive to all light colours. Only specific brands such as Ilford Ortho films can be handled under red safelights.



B.xxx.
Negative contact print, yarrow #2, silver gelatin print, 2023. Exposure: 0.5s / 3min 45s Development in caffenol.

The first attempt at negative contact printing. Although the exposure was kept as brief as possible, the low quality of the laser printed negative resulted in a muddy print.



B.xxxi.
Negative contact print, vetch, silver gelatin print, 2023. Exposure: 2s / 3min Development in caffenol 9old solution, possibly expired)

The following two negative contatc prints were achieved by printing a negative of the original image on an acetate sheet. I used a laser printer, which resulted in an even and quite streaky ink distribution. Two acetate negatives had to be layered to acheive sufficient ink density.



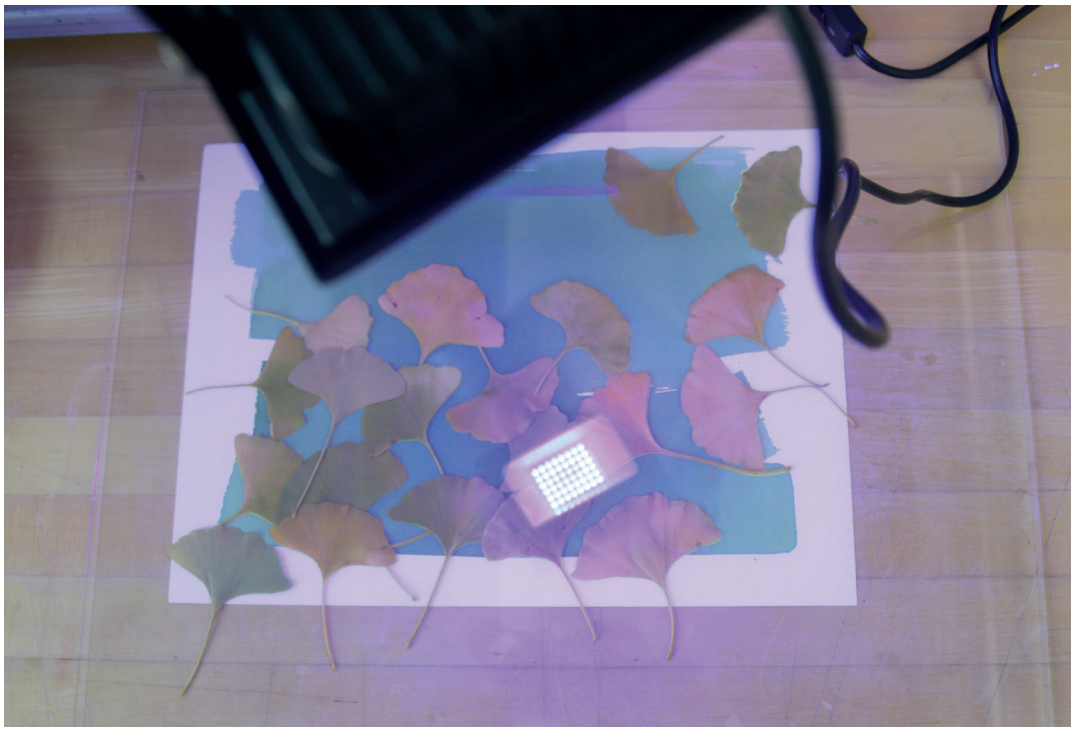
B.xxxii.
Negative contact print, yarrow #1, silver gelatin print, 2023. Exposure: 2s / 3min Development in caffenol (old solution/

Unlike the previous methods, cyanotypes use a mixture of two chemicals (ferric ammonium citrate, and potassium ferricyanide, mixed in equal parts) to create a light sensitive solution. This solution is only sensitive to UV, and as such can be mixed and applied to paper (or other mediums), under artificial lights, without a darkroom space. It can then be exposed either outside in daylight, or under a UV lamp. Exposure times can vary, from 5 mins to 3 hours, and follow a similar logic to Lumen printing exposure timing.

Cyanotypes can be applied to a varied range of mediums, the most common being paper and natural fiber fabrics. Porous surfaces work best, but with some treatment, it is somewhat possible to create cyanotypes on non-porous surfaces such as glass or acetate. Most of my attempts at these had either mixed results or were failures.

On paper: Because the cyanotype process requires copious washing, it is best to use a heavy weight paper, typically something intended for watercolor use (300g/sqm). Cyanotypes work best in slightly acidic conditions, so it is important to check the acidity of the medium prior to application. Typically, commercially available watercolor papers are alkali buffed to ensure they are 'acid-free' and improve their longevity. Such paper needs to be acid treated prior to use. I achieved this very simply by soaking sheets of paper in a solution of diluted white vinegar and drying prior to applying the cyanotype solution.

On glass or acetate: Nonporous surfaces much be treated in a way to allow the cyanotype solution to 'stick' to the glass. This is done by first coating the glass in a gelatin solution, letting it dry, and then applying layers of cyanotype solution to the gelatin film. After exposure, the print needs



B.xxxiii.
Making of Cyanotypes using UV Lamp, digital photograph, 2023.

All cyanotypes shown in the book were made using a 30V UV Lamp. The lamp was hung in a range of 20cm to 40cm fro the paper.



B.xxxiv.
Collection of Cyanotype results, digital photograph, 2024.

much longer to wash then a regular paper print, and the gelatin may fall away if not applied properly.

Gelatin on acetate process:

- *5g powdered gelatin*
- *200ml water*
- *10ml potassium ferricyanide*
- *10ml ferric ammonium citrate*

Notes:

1. I tried two different methods of incorporating the cyanotype solution. The first (tried on acetate) involved mixing the cyanotype solution into the gelatin layer. It helps to have a gelatin pre-coat. The second is applying the solution directly on a slightly tacky gelatin layer, and then letting fully dry (tried on glass). This 'gelatin cyanotype' emulsion should be fully left to dry prior use.*

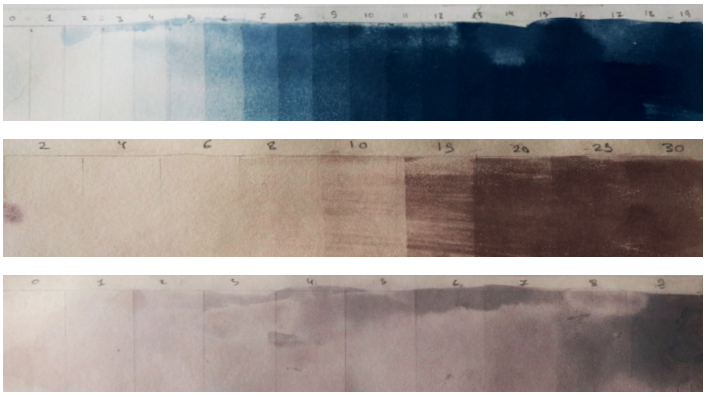
2. After rinsing, a cyanotype can be bleach or toned to achieve variations in colour. Bleaching happens by submerging the print in a sodium carbonate solution until the print turns yellow. It can then be toned using a high in tannin solution. Ex: tea, coffee etc.

3. Bleached prints can have a second layer of cyanotype solution applied to them, be re-exposed and treated anew. With a bit of organization, it is possible to create multicolored prints from cyanotypes.

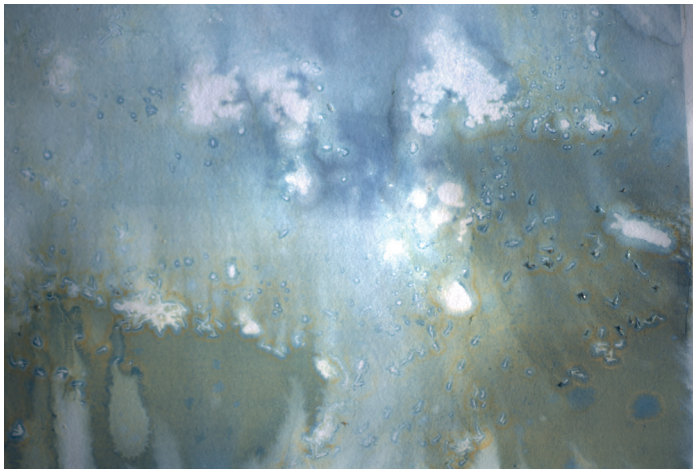
**Gelatin pre-coat (subbing):*

Wash the glass surface with water and powedered laundry detergent. The water needs rinse off as a uniform film, without any beading, this is a sign that the glass is chemically clean.

The gelatin solution should be prepared by first blooming the gelatin. Sprinkle 5g of gelatin onto 250ml of water. Allow it to swell for 5minutes. Melt the gelatin using a double bath, no need to reach the boiling point. Pour the solution on your glass surface, drain and let dry thoroughly.

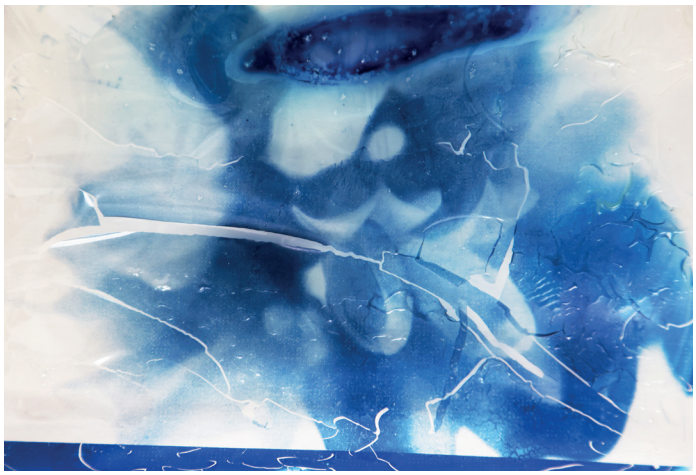


B.xxxv.
Cyanotype test strips, cyanotype print on paper, 2023. Exposure time in minutes. (from top to bottom: untreated , toned in green tea, bleached in sodium carbonate and toned in green tea)



B.xxxvi.
Cyanotype made in Lake Ontario, print on watercolour paper, 2024.
The originally blue solution first turned orange, and then green and then reverted back to blue.





B.xxxvii.
Cyanotype of columbines, gelatin negative print on glass, 2023. (left)

B.xxxviii.
Cyanotype of vetch, gelatin negative print on acetate, 2023.(right)
40 min Exposure @30 cm from print.

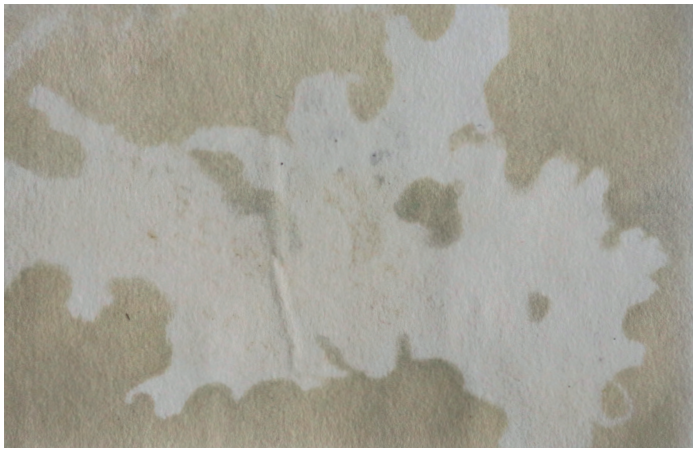




B.xxxix.
Cyanotype of maple seeds, layer 1, cyanotype print on paper, 2023. (left)

B.xl.
Cyanotype of maple seeds, layer 3, cyanotype print on paper, 2023. (right)
Double bleached, triple exposed print





B.xli.
Cyanotype of Lichens, cyanotype print on paper, 2023. (left)

B.xlii.
Cyanotype of Lichens, bleached cyanotype print on paper, 2023. (right)
Bleached once.

Phytograms are created using a process created by filmmaker Karel Doing[3]. They use the same ingredients as other Caffenol/phenol-based development techniques, but instead of creating a developer from an herbal tea, the plant itself is directly used as both subject and 'developer. They can be made on both photographic paper, or film.

Equipment:

- *Sodium carbonate*
- *Ascorbic acid (Vitamin C)*
- *Plant matter*
- *B&W film stock (8mm, 16mm 35mm, etc) or silver gelatin paper*
- *Processing equipment (film tank or developing trays)*
- *Ilford Rapid Fixer*

Process:

Mix sodium carbonate and ascorbic acid to the same ratio as would for a phenol developer, roughly 20g/5g. This is not an exact science.

Soak your chosen plants in the solution. This timing will depend on the plant itself. Thicker leaves will need more time, delicate flower blossoms should be barely dipped.

Place and order the soaked plants on an unraveled film strip. This can and should be done in a well light room. Only the spots in contact with the developing solution will show an image once processed, so it is okay to fully expose the roll to light. Film rolls and papers should be rinsed, and then processed in fixer (in trays or tank). Exposure time and intensity will lead to varying results. A long exposure time (multiple hours) in a shaded area will result in more subtle and detailed images. A short exposure (a few seconds) in full sun will result in a more 'blobby' and abstract image.

B.xliii.
Phytogram, grasses #1, colour transparency scan of 35mm film, 2024. (left)

B.xliv.
Phytogram, grasses #1, negative B&W scan of 35mm film, 2024. (right)

B.xlv.
Phytogram, petals, colour transparency scan of 35mm film, 2024. (left)

B.xlvi.
Phytogram, petals, negative B&W scan of 35mm film, 2024. (right)

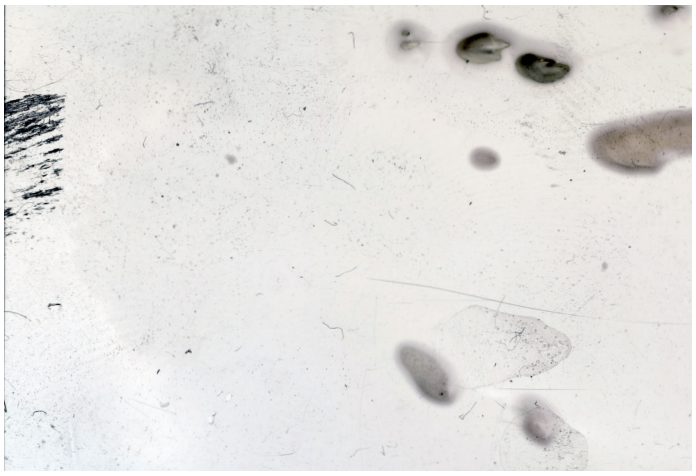
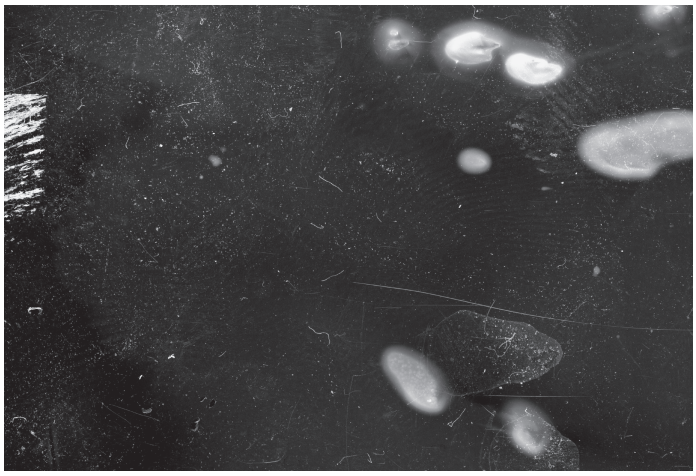
B.xlvii.
Phytogram, ground elder leaves, colour transparency scan of 35mm film, 2024. (left)

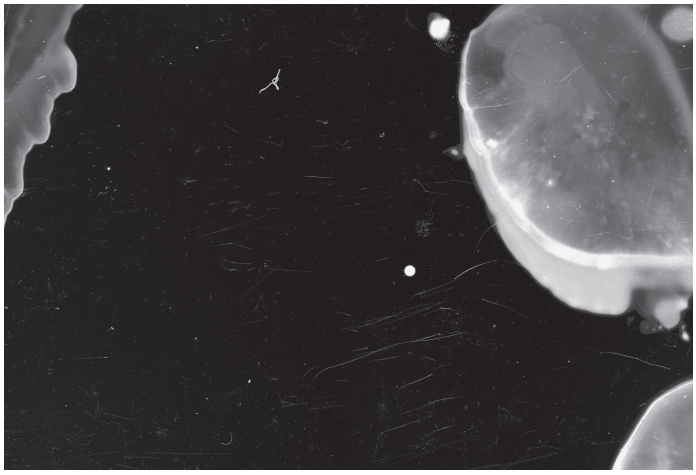
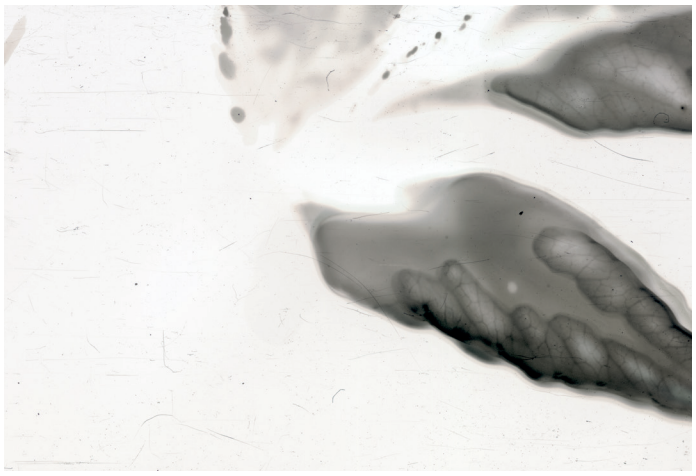
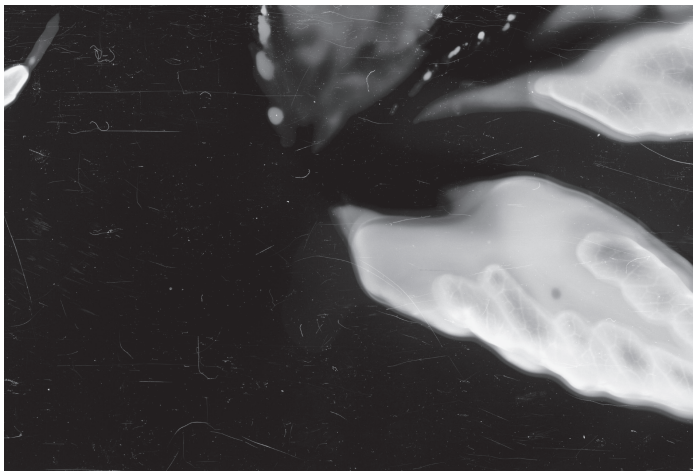
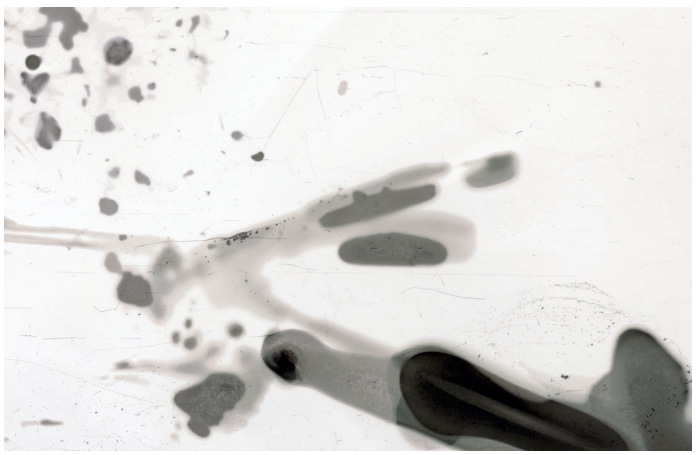
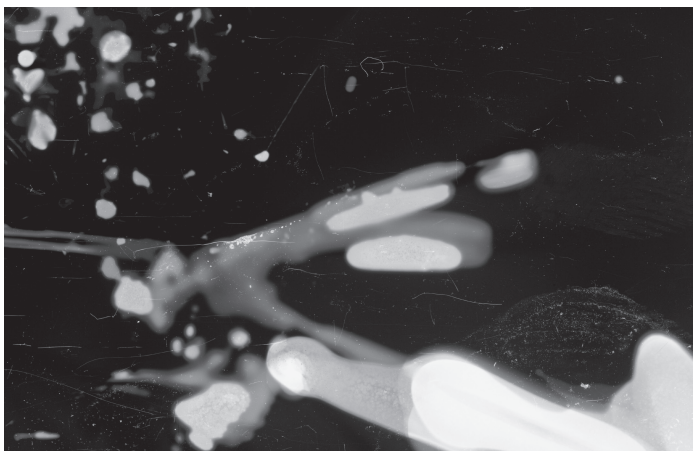
B.xlviii.
Phytogram, ground elder leaves, negative B&W scan of 35mm film, 2024. (right)

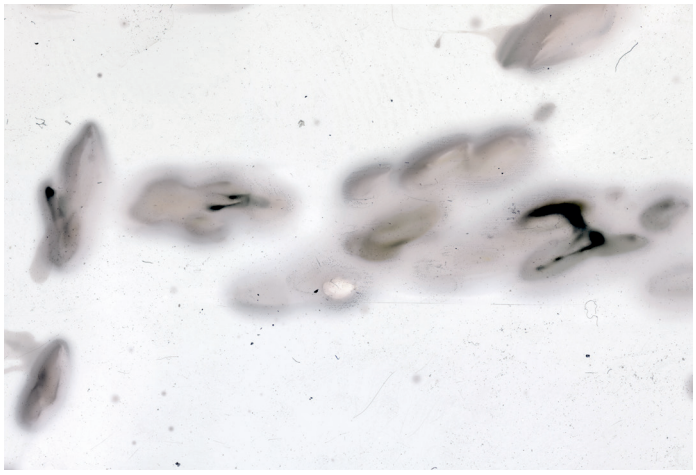
B.xlix.
Phytogram, ground elder, colour transparency scan of 35mm film, 2024. (left)

B.l.
Phytogram, ground elder, negative B&W scan of 35mm film, 2024. (right)

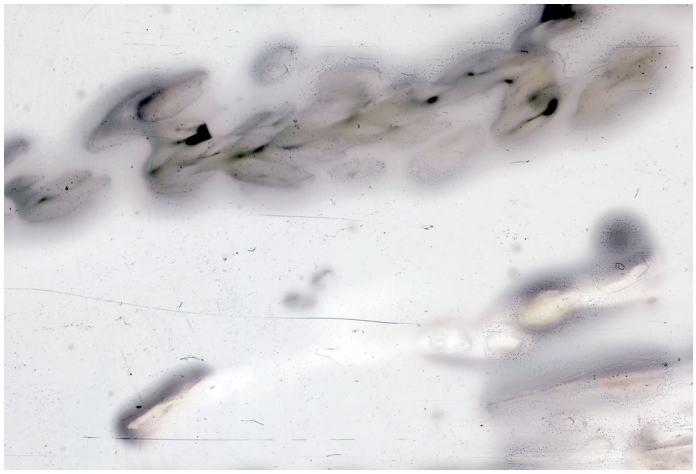
3 Karel Doing, "Phytograms: Rebuilding Human–Plant Affiliations," Animation 15, no. 1 (March 2020): 22–36, https://doi.org/10.1177/1746847720909348.

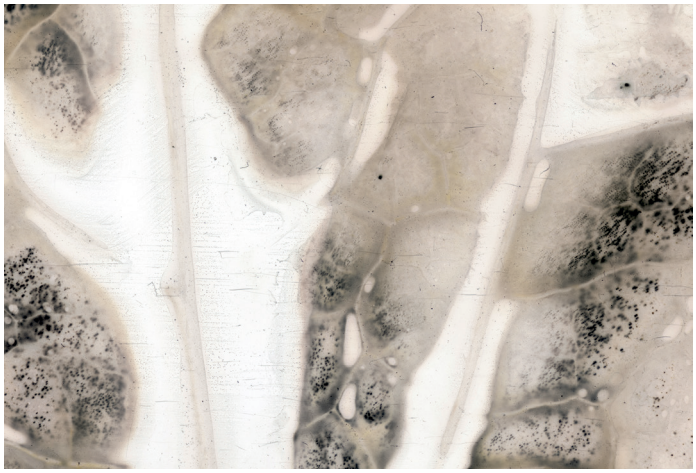








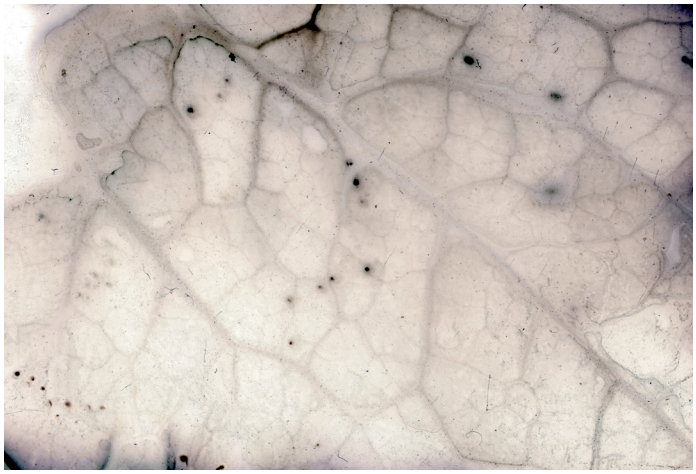
B.li.
Phytogram, grasses #2, colour transparency scan of 35mm film, 2024.



B.lii.
Phytogram, grasses #3, colour transparency scan of 35mm film, 2024.



B.liii.
Phytogram,garlic mustard #1, colour transparency scan of 35mm film, 2024.



B.liv.
Phytogram,garlic mustard #2, colour transparency scan of 35mm film, 2024.

The phytograms on the previous page were exposed in a dark room with little sunlight, for approximately 1 hour and 30 minutes. The ground elder leaves and flower petals were soaked in the developing solution for 30minutes prior to development, and a 120V light bulb was used on the prints for about 10 of the 30 minutes.

Because phytograms require un-raveling a roll of film and taping it down to a flat surface for the duration of the exposure, I used the same roll of Arista Edu 400 ISO B&W film to create a second set of images.

The four images on this page were exposed for 8 hours and 45 minutes in a similarly shady to dark environment. They were scanned as transparencies as the slow exposure process resulted in some delicate colour gradations on the film. Transparencies show the colour of the film exactly as on the roll.

This is most obvious in the grass phytograms. As with most contact-based photographic processes, moments of prolonged and consistent contact result in the most detailed/indexical photographic results. By their nature, plant matter such as petals or thin leaves 'stick' to the film emulsion much more easily than hardier plants like grasses. In a quicker process, the grass phytograms would have looked much more abstract: much more rounded and less defined.

In most prints, the edges of the plants would typically turn the darkest, as the developing solution would pool away from the center of the plant. Interestingly, the garlic mustard prints showed patterns of darker dots (darker indicating more complete development) spread across the leaves.

The following processes do not have official names. They are purely results of long term decay/material interaction between matter and film roll.

I experimented with four different processes:

1. The first, burying an unraveled roll for 15 days at Tommy Thompson Park. The roll was buried in an area away from the cyclist and pedestrian trails, in a zone with a strong concentration of nesting cormorants. It can be extrapolated that the soil was rich in guano, and as such strongly acidic and rich in nitrogen. The following images from this roll were developed using a yarrow based developer prior to fixing.

2. The second was similarly buried, but this time in a more controlled environment. I collected a small amount of guano laden soil from a similar are of the site, and buried strips of film in the soil in a box, from which I was able to periodically inspect and process film. Scan (B.lvii) shows what I suspect to be fungal growth on the film after 7 days buried. This roll was copiously rinsed, which unfortunately resulted in large portions of emulsion loss.

3. The third process happened fully in water. The film was retrieved after about 5 days of exposure, left to dry before being developed with bindweed, fixed and scanned.

4. From the same roll as technique #2. This second half of the roll was processed more gently, first by letting the sand and emulsion fully dry to allow some of the sand to naturally fall off. Second by soaking with little agitation after fixing. This roll was processed after 10days of exposure.

B.lv.
Film buried on site, Tommy Thompson Park, negative scan of 35mm film, 2024. (left)

B.lvi.
Film buried on site, Tommy Thompson Park, negative scan of 35mm film, 2024. (left)

B.lvii.
Film buried in sand and guano, Tommy Thompson Park, colour transparency scan of 35mm film, 2024. (left)

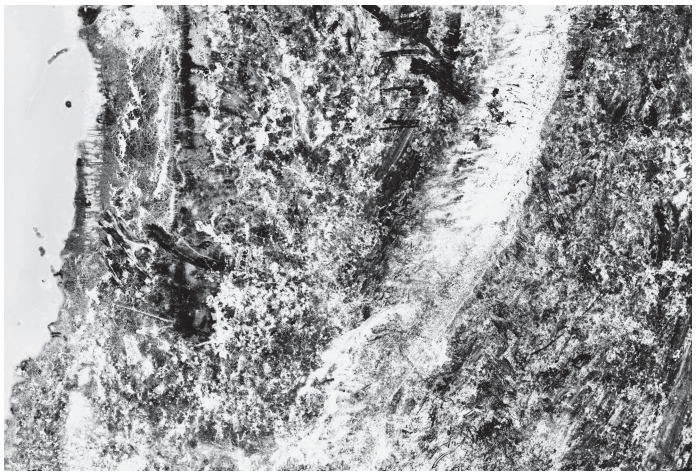
B.lviii.
Film buried in sand and guano, Tommy Thompson Park, colour negative scan of 35mm film, 2024.(left)

B.lix.
Film left in river, Grand River, negative scan of 35mm film, 2023.(left)

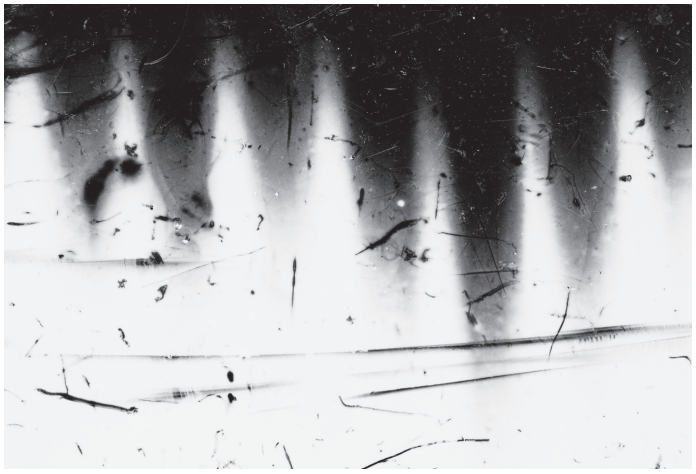
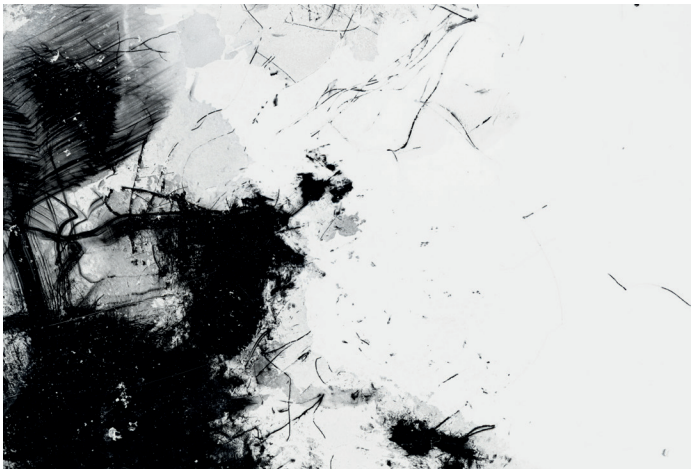
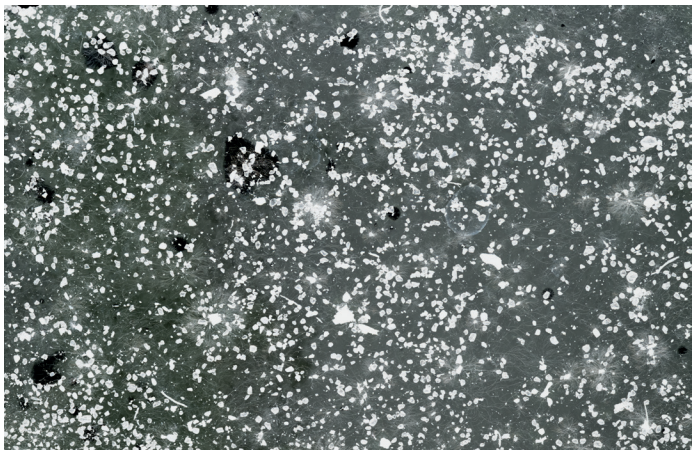
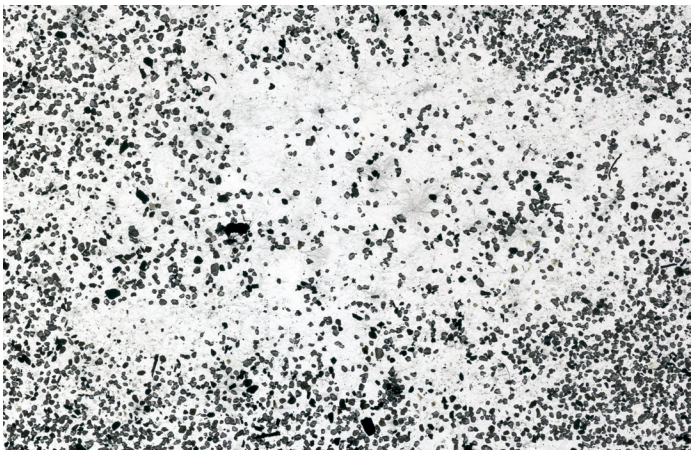
B.lx.
Film left in river, Grand River, negative scan of 35mm film, 2023.(left)

B.lxi.
Film buried in sand, Tommy thompson Park, positive scan of 35mm film, 2024.(left)

B.lxii.
Film buried in sand, Tommy thompson Park, negative scan of 35mm film, 2024.(left)





I started developing 'camera-shot' film images in parallel to my thesis camera-less explorations using a canon Rebel 2000 camera, which could be outfitted with the same modern lenses as my Canon DSLR and mirorless cameras. I started developing film in a traditional darkroom process as a side project undertaken during 'Analog' club meetings, through the club equipment and resources. Mostly I was interested in colour development, which I was unable to do with experimental chemistry or camera-less techniques.

The following posters were developed as reference guides for 'Analog' club members to use when developing film. Traditional film development is a much more delicate process than any other technique I have mentioned prior. Mostly because there is an expectation of what the image should look like. Not only is that expectation present in the photographer's mind, it is also built-into the film chemistry itself and the camera settings.

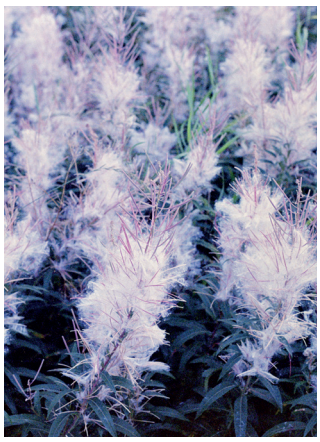
After much experimentation, I was eventually able to integrate 'camera-photography' techniques into the logic of the thesis, through film 'souping'.

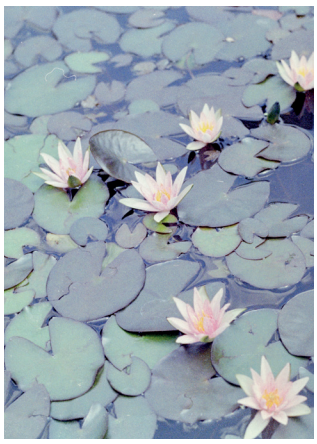
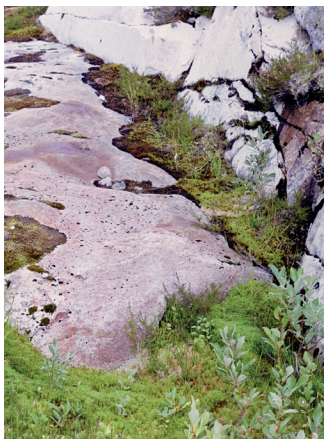
B.lxiii.
Field of flowers, shoot in Norway,analog film photograph, Kodak Ultramax 400, 2023.

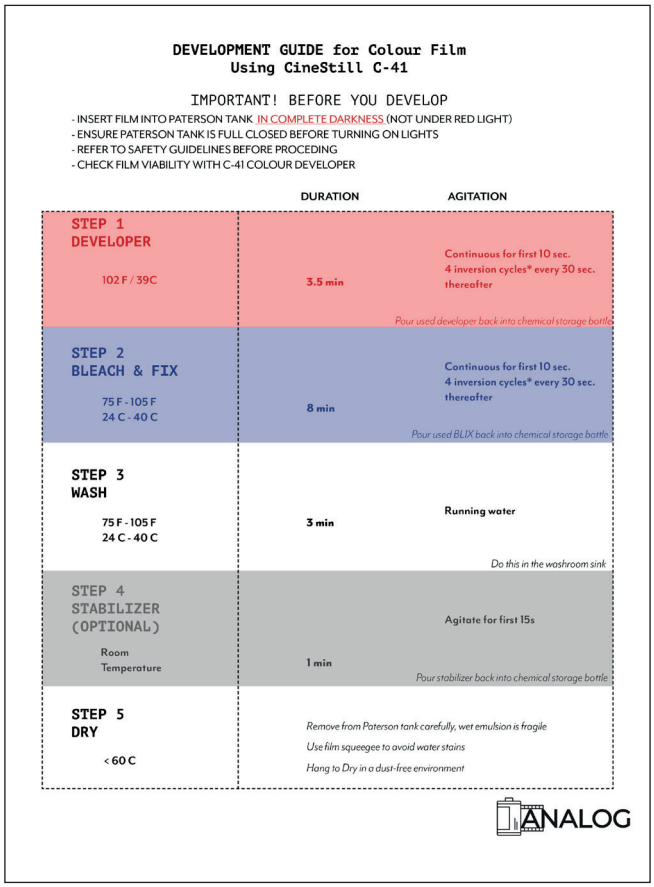
B.lxiv.
Flowers, shoot in Padova, analog film photograph, Kodak Gold 200, 2023.

B.lxv.
Water lilies, shoot in Padova,analog film photograph, Kodak Gold 200, 2023.

B.lxvi.
Bolders and Blueberries shoot in Norway,analog film photograph, Kodak Ultramax 400, 2023.





DEVELOPMENT GUIDE for Colour Film
Using CineStill C-41

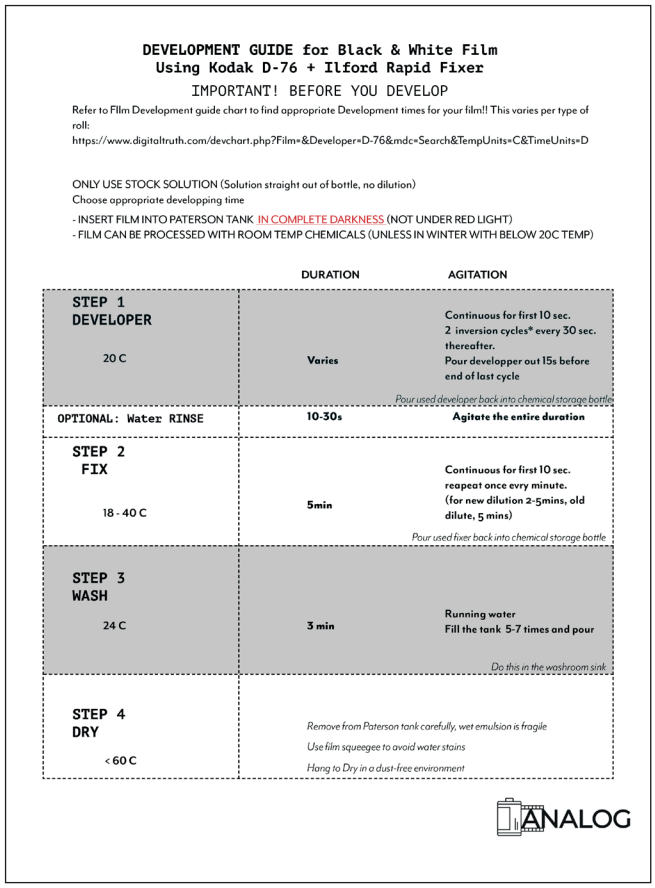
IMPORTANT! BEFORE YOU DEVELOP

- INSERT FILM INTO PATERSON TANK IN COMPLETE DARKNESS (NOT UNDER RED LIGHT)
- ENSURE PATERSON TANK IS FULL CLOSED BEFORE TURNING ON LIGHTS
- REFER TO SAFETY GUIDELINES BEFORE PROCEDING
- CHECK FILM VIABILITY WITH C-41 COLOUR DEVELOPER

	DURATION	AGITATION
STEP 1 **DEVELOPER** 102 F / 39C	3.5 min	Continuous for first 10 sec. 4 inversion cycles* every 30 sec. thereafter. *Pour used developer back into chemical storage bottle*
STEP 2 **BLEACH & FIX** 75 F - 105 F / 24 C - 40 C	8 min	Continuous for first 10 sec. 4 inversion cycles* every 30 sec. thereafter. *Pour used BLIX back into chemical storage bottle*
STEP 3 **WASH** 75 F - 105 F / 24 C - 40 C	3 min	Running water *Do this in the washroom sink*
STEP 4 **STABILIZER (OPTIONAL)** Room Temperature	1 min	Agitate for first 15s *Pour stabilizer back into chemical storage bottle*
STEP 5 **DRY** < 60 C		*Remove from Paterson tank carefully, wet emulsion is fragile* *Use film squeegee to avoid water stains* *Hang to Dry in a dust-free environment*

ANALOG

B.lxvii.
Colour Developing guide for 35mm film with Cinestill C-41 simplified quart kit, made for Analog, 2024.



DEVELOPMENT GUIDE for Black & White Film
Using Kodak D-76 + Ilford Rapid Fixer

IMPORTANT! BEFORE YOU DEVELOP

Refer to FIlm Development guide chart to find appropriate Development times for your film!! This varies per type of roll:
https://www.digitaltruth.com/devchart.php?Film=&Developer=D-76&mdc=Search&TempUnits=C&TimeUnits=D

ONLY USE STOCK SOLUTION (Solution straight out of bottle, no dilution)
Choose appropriate developping time

- INSERT FILM INTO PATERSON TANK IN COMPLETE DARKNESS (NOT UNDER RED LIGHT)
- FILM CAN BE PROCESSED WITH ROOM TEMP CHEMICALS (UNLESS IN WINTER WITH BELOW 20C TEMP)

	DURATION	AGITATION
STEP 1 **DEVELOPER** 20 C	Varies	Continuous for first 10 sec. 2 inversion cycles* every 30 sec. thereafter. Pour developper out 15s before end of last cycle *Pour used developer back into chemical storage bottle*
OPTIONAL: Water RINSE	10-30s	Agitate the entire duration
STEP 2 **FIX** 18 - 40 C	5min	Continuous for first 10 sec. reapeat once evry minute. (for new dilution 2-5mins, old dilute, 5 mins) *Pour used fixer back into chemical storage bottle*
STEP 3 **WASH** 24 C	3 min	Running water Fill the tank 5-7 times and pour *Do this in the washroom sink*
STEP 4 **DRY** < 60 C		*Remove from Paterson tank carefully, wet emulsion is fragile* *Use film squeegee to avoid water stains* *Hang to Dry in a dust-free environment*

ANALOG

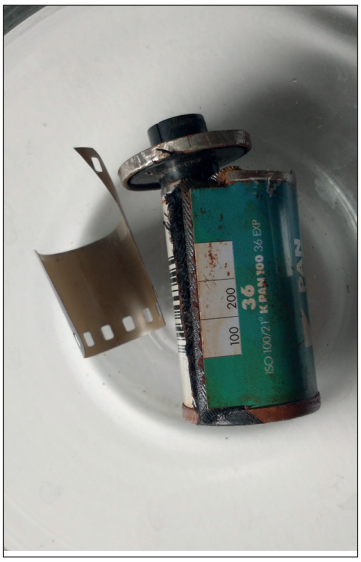
B.lxviii.
Black and White Developing guide for 35mm film with Kodak D-76, made for Analog, 2024.

Souping is a film process by which a roll of film is submerged and boiled in a 'chemical' solution, typically either strongly acidic or strongly basic. This can happen either before or after exposure, but generally prior to processing. In either case, the film roll must be left to fully dry after souping. This can take anywhere from 2-4 weeks.

B.lxix.
Film canister after souping process,digital photograph, 2024.

I souped a 100 ISO Kentemere B&W 36 exposure roll in a solution of ferric acetate (rust + vinegar), made from scrap metal found on my site. This process was based off a recipe for oak gall ink, which uses hyper-tannic oak galls in combination with ferric sulphate or acetate to create an extremely strong an indelible black ink. The film was souped after exposure to avoid introducing any of the ferric acetate into my camera body.

B.lxx.
Ferric Acetate, digital photograph, 2024. (rusty nails + acetic acid aka vinegar, left for 13 days.)



Process:

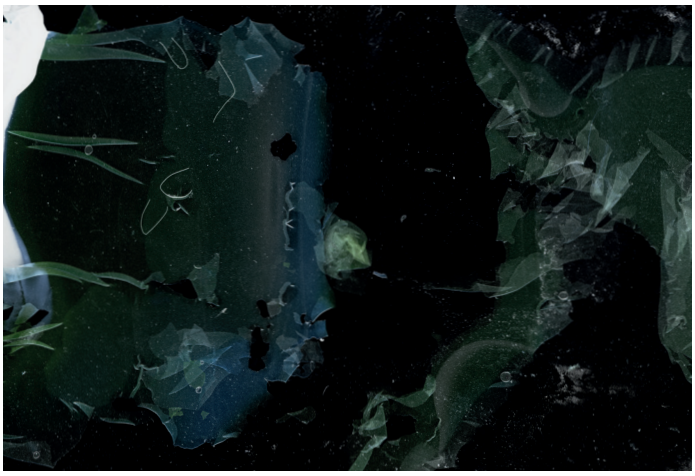
- *Boild film in its canister in ferric acetate for 10 mins. Place in a jar covered by the still hot solution and let soak for 48 hours.*
- *Rinse.*
- *Let dry for 11days. Process in Kodak D76 (9min development)*

Notes:

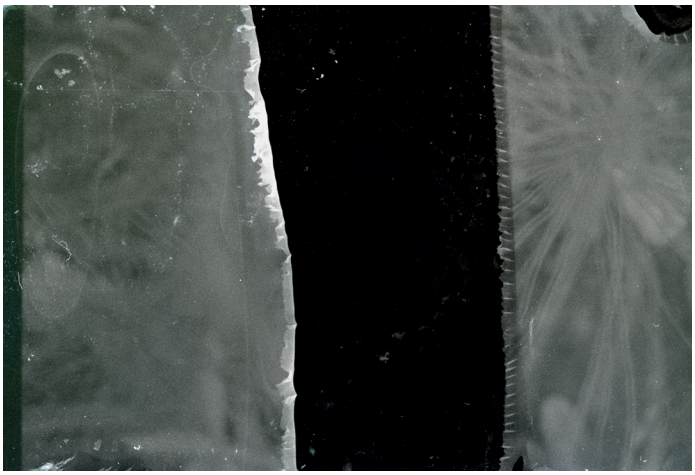


1. The film was loaded into a Paterson tank using a change bag. This process took over an hour, as the film had severely warped along the edges and was unable to properly fit onto the spool. The film should have been left to dry for much longer, as a result the film was still wet when unraveled, which resulted in large chips of emulsion being pulled off from the film during processing.

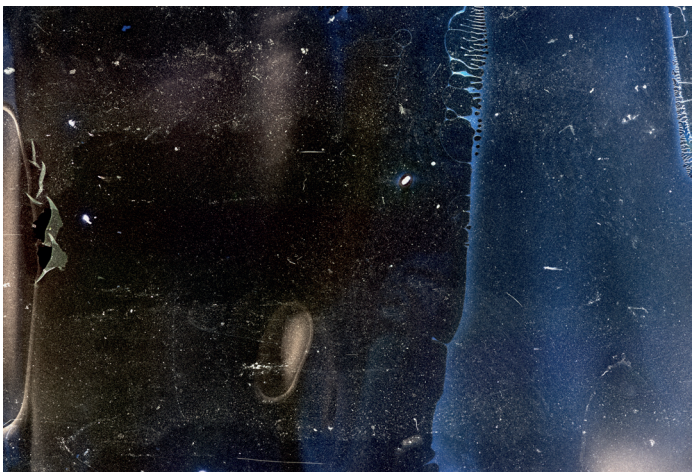
2. The images shown here were scanned as colour negative to highlight the rust deposits that remained on the film after processing. As negatives, the colours were inversed, hence why the rust appears as blue streaks on the image.



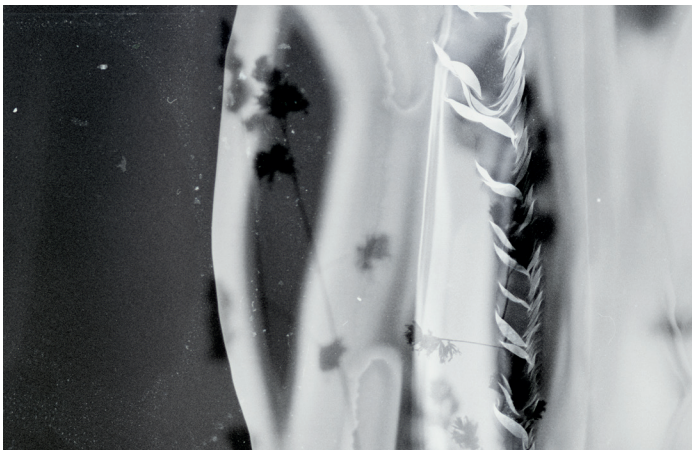
B.lxxi.
Souped film roll, image #1, colour negative scan of B&W 35mm film, 2024.



B.lxxii.
Souped film roll, image #2, colour negative scan of B&W 35mm film, 2024.



B.lxxiii.
Souped film roll, image #3, colour negative scan of B&W 35mm film, 2024.



B.lxxiv.
Souped film roll, image #4, colour negative scan of B&W 35mm film, 2024.

In addition to all of the techniques showcased in the thesis book, I explored many techniques which were unsuccessful, many of which completely failed, and some which almost did not fail.
Many of those revolved around explorations attempting to integrate colour into the B&W silver gelatin process, specifically shades of green.

1. I first started with an exploration into lightfast ink creation. Generally, green is a horrible colour to make inks for. Most green pigment in plants comes from chlorophyll, which degrades readily when exposed to light. I created a green pigment using buckthorn berries—best harvested ripe in October—a pigment that has also been used historically as 'sap green', a dye used in medieval illuminations. Shades of green can be obtain by adjusting the pH with a strong base such as lye to obtain yellows, or a strong acid to obtain purple tones.

2. This ink was used to create DIY gelatin filters. These were made using gelatin, rubbing alcohol, pigment ink, and glycerin. Once left to dry on a sheet of acetate, the resulting filter is somewhat flexible, and can be cut to fit into a regular glass filter and then used in conjunction with a camera. Filters are used in photography to filter parts of the light reaching the camera. With B&W film, they can be used to increase the image contrast. My initial goal was to photograph the same image with different shades of green filters and print each as a different negative to showcase the variances in 'green'.



B.lxxv.
Buckthorn ink (green), digital photograph, 2023.

B.lxxvi.
Buckthorn ink (dark green) , digital photograph, 2023.

B.lxxvii.
Buckthorn Ink (yellow), digital photograph, 2023.



B.lxxviii.
Goldstream Park, Victoria BC, 35mm colour film, 2023.



B.lxxix.
Homemade gelatin filters, digital photograph, 2024.

Spore prints

When a mushroom is mature, its cap contains thousands of spores. Invisible to the human eye, their colour can be an essential clue in the mushroom identification process.

Process:
For mushroom with gills or with pores, slice the specimen stem right below the cap, and place gill side down either on: a glass slide, plexiglass, a half black half white piece of cardstock, or even on a strip of 35mm film. Cover with a plastic or glass container and let sit for 2-24 hours. The container ensures there is not air movement around the mushroom so it can drop its spores onto the paper without disturbance, and also helps maintain appropriate humidity levels.

It is recommended to use 50/50 black and white paper when identifying, as different spore colours may or may not appear on either. Spores are typically either white, pink, yellow, or brown. A print made on glass can be moved to different colored backdrops to test contrast.





B.lxxx.
Spore print on cardstock, digital photograph, 2024.

B.lxxxi.
Spore print lumens, silver gelatin print, 2024.

Chlorophyll prints

The following process is based on Alice Cazenave 'pelargonium' printing method.[4] The goal of this method is to create a print on a leaf—using it as the photographic medium—by exploiting the chemistry of photosynthesis.

As leaves undergo photosynthesis, they produce a noticeable amount of starch within the leaf fabric. That starch can then be 'developed', or more accurately, stained, using iodine.

Process:
The specific leaf chosen for this process is quite important. My overall failure at this process was in part caused by my inappropriate leaf choices. The leaf should be thin, but not overly flimsy like a nasturtium leaf. Pelargonium leaves are proven to work. Tropical or house plants should be avoided due to their thickness. The chosen plant must be isolated from all sun for at least 48hours. This is to 'reset' the photosynthesis of the plant. Exposure happens by sandwiching a leaf with glass plates and a printed negative. The print must be exposed for 12-24hours in a strong light. Artificial is ideal to maintain a consistent brightness.

Afte exposure, the leaf is killed in a bain-marie of isopropol alcohol. This also draws out all of the chlorophyll, which is necessary to create a clear image. The leaf is then rinsed and water, and 'developed' using a few drops of iodine (Lugol's 2% Iodine).

4 Sarah Marie Allen, "How Photography Is Just like Photosynthesis," *British Journal of Photography*, September 24, 2015, https://www.1854.photography/2015/09/alice-cazenave-how-photography-is-just-like-photosynthesis/.





The result on these images is subtle, but you can observe a variation in darkness across the leaf which signifies varying levels of photosynthesis

B.lxxxii.
Chlorophyll print processing, digital photograph, 2023.

B.lxxxiii.
Chlorophyll print died in Iodine, digital photograph, 2023.