



Paperbark, Issue 03

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paperbark

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FALL/WINTER 2021

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More information about our team is available at
www.paperbark.org/ourteam-F21

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Mission



Paperbark Magazine lives at the confluence of text and image, science and art. We believe in the obligations of a liveable future nurtured through collaboration across generations and fields of thought. Rooted in stewardship and creative possibility, Paperbark gathers stories of ecologies in crisis—as well as stories of life's flourishing intricacies.

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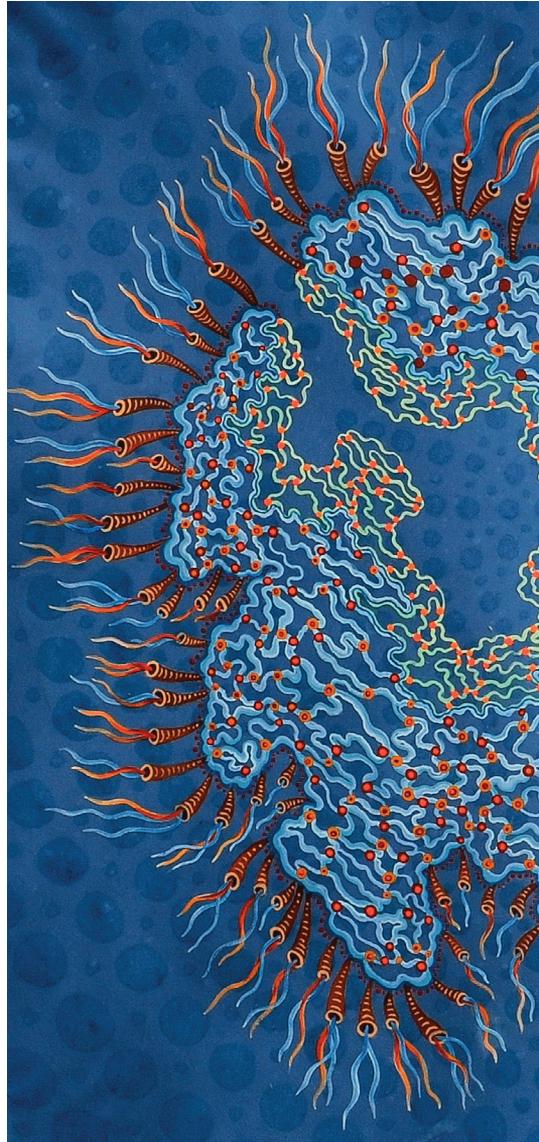
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Letter from the Editor

Dear Readers,

Publishing a magazine is difficult. Publishing a magazine following a year-long hiatus, with an almost entirely new staff, amidst a lingering pandemic is exceptionally difficult. The magazine you hold in your hands is made up of 5,104 Slack messages, over 500 emails, 255 submissions, 43 individual donors, 21 contributors, 14 exhausted staff members, three generous grants, and one spectacular faculty advisor.

The Paperbark staff are humbled and delighted to present Issue 03. The artwork, photography, poetry, fiction, creative nonfiction, and interviews within this issue are quiet and loud, local and global, lovely and terrible. We are overwhelmed by the beauty held within this issue. As always, Paperbark remains dedicated to exploring the intersection of science and art, to publishing work which engages with our ecological crisis, and to the creative possibilities of regeneration. Featured here are award-winning writers, scientists, and artists, as well as up-and-coming





voices for whom this magazine is their first publication. We are honored to share their work with you.

Before I leave my textual podium, I'd like to thank the following: Paolo, Mikaela, and Joey, our in-desperate-need-of-a-raise undergraduate design team; Jay Pisco, our Marquis printing representative and UMass alum, for answering my panicked texts about paper stock at all hours of the day; Tom Racine, our English Dept. Business Manager who is dearly tired of seeing my name on an incoming call; Darci Maresca and Madeleine Charney for their long devotion and steady hands; Ezra Small for working tirelessly to diminish the carbon debt of our campus; and of course, our dedicated leader Noy Holland, without whom this magazine would have shuttered in 2019. Thank you, thank you, thank you.

Here's hoping Issue 04 will come easier, knowing it won't, and doing it anyway.

With gratitude,
Evelyn Maguire
Managing Editor

Carbon Literacy: A Stepping Stone Toward a Livable Future

In fall 2021, UMass Amherst launched the Carbon Literacy Project (CLP), a pilot activity-based training curriculum centered on climate science, carbon calculations, environmental justice, and solutions. As geographer Harriet Bulkeley aptly stated, without literacy there is an information deficit model: “Public ignorance and illiteracy... will lead to misinformed views, apathy, ill-considered calls for government action, and little change in personal behavior.” Because education and advocacy go hand in hand, the need for global citizens who are able to communicate effectively and persuasively with peers and build coalitions with campus and community leaders is exceptionally vital. UMass Amherst is the first U.S. campus to participate in this international project.

With support from the UMass Amherst Libraries Sustainability Fund and leadership from Madeleine Charney, the sustainability studies librarian, a cohort of 13 undergraduate students across a range of disciplines are being trained (and certified) to deliver the CLP curriculum. In spring 2022, these trained students will share the CLP message through direct coursework and through workshops around campus. The open access curriculum consists of four modules equalling eight hours of training. No prior knowledge is required. We begin each training with the official UMass Land Acknowledgement, instilling humility and a sense of place.

Our team, consisting of undergraduate students, graduate students, staff, and interns updated the CLP curriculum with information on the UMass Amherst Carbon Mitigation Plan (100% renewable by 2032) and tangible projects related to our campus. We also added videos and open-ended discussion questions that address the emotional aspects of climate change. Our tailored version speaks to our humanity and bioregional context. The CLP provides an entry point

for anyone regardless of discipline, knowledge base, or vocational trajectory to understand various ways to take individual and collective action and access resources around carbon mitigation.

We are honored to share our unique yet intertwined backstories and experiences working on CLP. We hope our voices provide a glimpse into how the current student cohort intends to make an impact.

Why do you engage in climate mitigation efforts and activism?

Caroline Sunuwar: My academic pursuits, as well as personal connections growing up, opened my eyes to the enormity of the climate change situation. I realized that humanity is in the throes of an existential crisis, as we are on track to hit 2 degrees Celsius warming by 2050 if we continue to burn fossil fuels. I believe in the power of activism to persuade and pressure our elected officials/legislators to make the changes necessary to break away from fossil fuels.

Caroline Williams: Efforts toward climate mitigation affect every single person on this planet. We all deserve to have a future, and I am fighting for this to be possible. I also want everyone to know they have a voice even when issues seem bigger than ourselves. We have the power to make a difference. While my activism has taken many different forms, the one thing that has not changed is my desire to help as many people as possible.

Why are education and literacy important in the context of climate activism?

CS: In order to mobilize our constituents, we need to be carbon literate. Carbon literacy helps us renegotiate our own ignorance or prejudice, awakening us to climate change as a crisis with a solution. Carbon literacy is a gift as well as a weapon in combatting

science nay-sayers or political pushback. CLP boosts students' self-confidence through obtaining educational tools along with actionable steps for a more sustainable future.

CW: Along with Caroline Sunuwar, I am the campaign coordinator for the Massachusetts Public Interest Research Group (MASSPIRG) 100% Renewable Energy campaign. Through my engagement with MASSPIRG, I realized many of my peers lack basic climate knowledge. Climate change is the defining issue of our time, and it is important that everyone at least knows the basics of what is happening around them. Our generation and our kids will bear the worst impacts; we all need accurate information to make decisions in the best interest of all of our futures. I believe that college should prepare students to face the realities of the world—the good and the ugly—and most importantly, climate change.

What is your personal backstory that empowered you to help with climate mitigation efforts?

CS: During my childhood in Nepal, my grandmother, a local politician, worked on hydropower projects in Liku River in Nepal which helped to improve the drinking water crisis where the Sunuwar/Kirant (local indigenous people) people lived. Witnessing her activism, I began to understand that corporations can not only cause harm to vulnerable, low income, and under-resourced communities, but they can also harm our environment. I now realize that there is a lack of equity in both the domestic and international sphere towards the Global South. People in remote villages like my own don't have the resources to protect their needs nor the environment.

In high school, I was inspired to continue combating environmental harm by joining Mass Peace Action and advocating for the Green New Deal. Participating in rallies and circulating petitions was empowering, but I wanted to take my advocacy farther. When I arrived at UMass Amherst, I was fortunate to discover MASSPIRG and their 100% Renewable Energy and anti-plastic campaigns. I am now a leader who coordinates meetings, events, and grassroots action

items. I speak with faculty members, department heads, community organizations, and legislators to convey MASSPIRG's goals. After witnessing wins like passing the S9 climate bill, which serves as a next-generation roadmap for MA's climate policy, in the last Congressional session, I know our work takes time to achieve, but it can be done.

CW: When I was younger, I couldn't bear watching the news and seeing people suffer. When I started learning about climate change in elementary school I became extremely sad and desperately wanted to help fix the situation. I wrote letters to President Obama imploring him to take this issue seriously. He sent back photos of his dog and a vague promise that action was being taken. Over the years I began to realize that the Federal government is stalling. Nothing is getting done and this makes me angry. Taking action through state and local governments with MASSPIRG students to pass the 100% Clean Act is empowering and satisfying.

In order to make a real difference, we need to mobilize people and this begins with education. The CLP will bring more and more members of the UMass community together so we can take actionable steps. The power is in the people, but decades of overlooking climate change legislation has left us an enormous problem that needs an immediate solution. Since young people are the ones who will bear the brunt of the impacts, it is crucial that we, the students, stand up and demand that UMass Amherst and the whole country turn its attention towards our ecological crisis. This project generates a sense of community while being a driving force in eco-conscious efforts at UMass Amherst and beyond. Carbon literacy is a major stepping stone into a livable future.



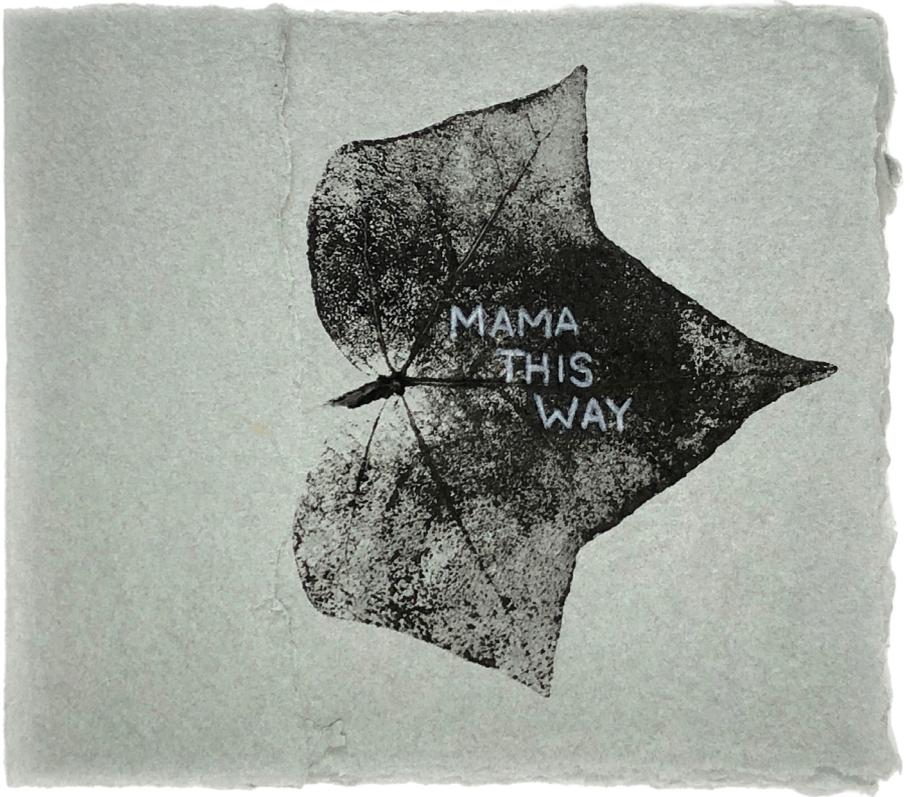
Caroline Sunuwar ('24, Political Science Major, Environmental Science Minor)

Caroline Williams ('23, Environmental Science and Geography Major)

DAVID GREENSPAN

An incomplete history of

saplings in the beginning
there was water & noise
 thrash crass
 ordinarily bright soon
after mulberry seed
moist vertical in loam
 hungry & fetal soon after
 birth of fiber bird throat
snatched across
coarse miles then
very little quartz
clouded stillness decades
pass an idea of dirt
& trudge of braised
earth & bacteria
 all hail this
small unfurling



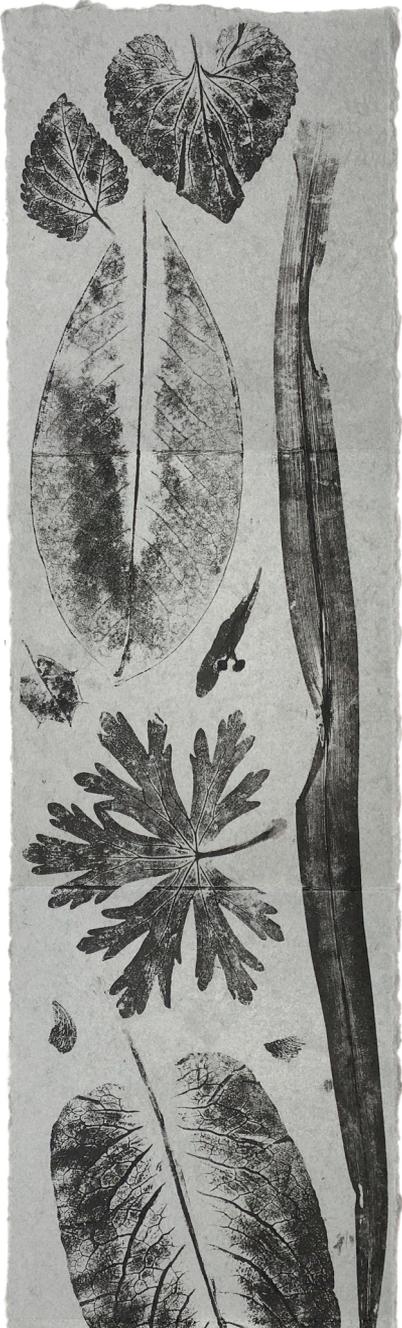
SARAH DOLAN

“Mama This Way” is an accordion book measuring 36 inches long, which is my young daughter’s height. The book was hand-printed with found leaves collected by my daughter on the frequent walks we would take around the neighborhood during stay-at-home orders. It is titled “Mama This Way” because that is what my daughter would say to me as she decided which way we would go on our walks.

Mama This Way

Dolan





from YESTERDAY

EMMALIE DROPKIN

I only like the white rocks. Quartz sounds like you're sucking on a stone and trying to get a word out around it. Salt, well, you'd suck on that until your mouth went dry. If you bit into a diamond, your tooth would fracture first. With enough force your tooth would split right down to its root and leave you curled up on the ground and screaming, screaming.

Diamonds aren't the only things harder than teeth. Especially if your teeth are bad. If you put a bone in your mouth, another creature's tooth right there up against your own, whose would survive? Maybe instead of taking the risk you'd just suck on it, your tongue only the second tongue ever to explore those crevices and crannies. Only you could perceive that tooth, a dozen times its real scale, and then swallow it whole.

On the frost, you measure your weight against the depth of your footprints. It helps to be hungry.

If my tooth ever finds itself in your mouth, press hard with your tongue to the groove where many nights' grinding have worn away the protection my body knew to

build for itself, where nightmares fought enamel and won. What more intimate way could there be to learn my agonies? With my tooth in your mouth, you could only love me.



Have you ever bitten into the crunch of an apple and thought: all of last summer, while I was wherever I was, mountains or dunes, eating, asleep, all that time this apple hung from a branch on one particular tree? All those months of growing just for this, a moment in my mouth and some faith that I'll toss the apple core where its seeds can grow.

Now. Now, a grain of rice is growing. Its roots love the soil. And someday you will eat it. The passage of time and space overlay each other. What I will eat may be far away, but when I arrive there and raise a leaf to my pursed lips, I will taste its entire life.

Some time ago—I don't know how long, so let's say yesterday and know that I mean that this did happen—I was traveling the frost.

Yesterday I saw a dog. His left ear had been torn and healed, and its tip flopped from side to side as he stalked toward me. He was ugly, but cuteness by human standards is no longer an adaptive ploy. Floppy ears and expressive eyebrows are only of use if you have to make the evolutionary winner love you.

This dog growled, certain I was not of his pack. I slunk away.

I like to imagine my bones settling into the earth when I die, resting dormant as dinosaurs—but that only happens in eras of cold or ash, the preservatives of the world. Dogs may eat my meat and scatter my bones. So be it.



Yesterday a tangle of vines threw up a pavilion in the middle of the frost, fine green fingers as set on their purpose as a crew of laborers. My mind wide with morning, I thought: they're trying to communicate. A letter means nothing to a plant, but structures they know.

If it is our nature to measure other forms of intelligence or beauty in our own terms, is it possible that all life does the same?

Nearer, a narrower answer. Tendrils embracing the rough-cut posts of an old shelter. Inside each post lived wood laid down in rings that have still never seen daylight. Growth is only a story after death has given it an ending. And

so the vines embraced their kindred unknowingly, no vegetable mind at work that I could understand. And many more leaves lifted toward the sun through this partnership.



Either there is one tire or there are many tires. If there are many, perhaps they are laid out in a grid, each the origin point of a map.

Did someone teach you how to change the tire on a car? Did you change one in the rain, as passing vehicles splattered you with mud? Had you smeared the grease on your nose before you noticed it all over your hands?

Yesterday I found half a tire sitting above the surface of the frost. The other half might have been below. A word rotated around the visible curve.

A man built a company and gave it the same name he gave his son. A man designed a logo to make that name appealing and familiar. Men built the machines that shaped rubber from thousands of miles away into the curves of that logo. And back at the beginning, someone set a knife to a tree's soft flesh and let latex drip free.

I rested my cheek on the warm surface of the tire and felt closer to the tree than to the men. The tree sought sunlight.

Either I had passed this tire before or I had not. There was no way to be sure. Within its inner moonscape, I aligned the tines of my fork with the puncture wound.



Yesterday I found a sinking castle. Rocky cobbles rose in walls and towers, seams green with determined life. Against a gray sky, I chose back and forth: now a lattice of moss that rock came to love, now an artifact of man being slowly consumed.

Gravity is said to be immutable, but at the thin barrier where underground meets aboveground, it varies with the temperature. I discovered the castle on a cold day. The ground held its constancy like a gift. The unlucky castle hadn't escaped the seasons: as I walked in on a layer of frozen mud, the back of my head stuttered against the ceiling.

To make the rounded lintels, men must have worked together to hold stones in an arch, until the stones learned from the men how to support each other. Which of the men didn't believe it would work and laughed when it did? I licked the stones but they refused to impart their memories to me.

A skeleton slept in one of the upstairs rooms. Not human, no, it laid at the foot of a crumbling bed frame. Crossed near its head were two long, curving horns, ridged like the knobs of a spine. This creature might have attacked me if he'd been alive. His mind could not have

comprehended the sound his horn would make, lifted to my lips.



Sometimes on the frost you may cross a broken line of trees, and by their boughs you may know how the world answers a boy's determination.

Some yesterday, I met a man whose cart had broken down. He told me I could take as many apples as I could carry if I watched the cart while he went for help.

He left while I was eating, and he never returned.

I stayed until the apples were gone, until I had a bundle full of apple seeds that wept with juice.

I spent many days planting them one after another in a row that traversed hills and valleys, that dipped into craters where I held my breath. When I buried the last seed I turned and went back again in the other direction, up and down, a journey that took days from one end to the other: tending.

Perhaps you would cross that line and not recognize it as I do. A few trees cluster successfully on this hill, trunks as thick as my calf. The next survivors are a mile away. Dreams become memories without leaving your mind.

As a boy I dreamed of order.



When I lost another fort or furrow to the thawing frost, my father used to ask, What if you got up in the morning and the view out your window was always the same? We lived in a land that melted. Melted, evaporated—it seemed as though there were two layers to the world: the sea of mud beneath us, with stones and bones and rabbits and snakes swimming through it, and then everything above, we who could wave our arms without restraint and go tumbling wildly among the air. Everything living or dead was drawn to the barrier. Pebbles rose by night in rough colonies. I wasn't a clumsy child but I ran everywhere I went, and I often tripped flat against the distinguishing plane between sky and earth. I'd end each day with the ground streaked on my palms and knees to remind me where I belonged.



There are many kinds of vision on the frost. Straight-ahead vision finds the curves of new dunes. This vision acknowledges the flickering paths of rodents through the scrub or storm clouds overhead.

If your conscious mind manages this field of view, whichever part of you dreams owns your periphery. Out of the corners of your eyes, the frost comes to life. A skittering leaf is a crab, a wavering bush the hiding place of a child.

When I search for what I've lost, I look at the world sideways.

I have seen horses here, and goats, and worms, and lichens. All of them in motion. The world can change in the time that you close your eyes and open them again. We learned in school of nematodes, tiny worms that were dormant in the depths of the permafrost for tens of thousands of years only to wake up when it warmed. These were no dinosaurs, though their ancestors surely knew those monstrous beasts. Years of absence had not rendered them oil or soil but had passed in a slow blink that they woke from surely as you did this morning.

The images painted in your brain by the light you see now are as much your own interpretation of the world as your mother's face if you picture her laughing. How old is she there, how lovely? Like you, all her ages at once.

If I ever find my sister, she will be a woman I do not know. Will she have worn grooves in the edges of her teeth by grinding them? They may be all I have to recognize her by.



HANNAH PIETTE

Flash Angel (I)

The afternoon is difficult
Explaining the head layers
They are sticky hatefully
The baby I imagine
That's the dream baby
The octopus is small I eat it
The tension between each line
Is actually so sexy I keep doing it
When I remember the sound
Of that word do I hear it really
It is so thrilling to light
That candle
In a tree (climb up a tree)
A windy hilltop right down
On the rocks by the water
In the ocean under the water
A huge bird lumbers
I want to cry when I hear
People playing together
The ace of spades I found
Is small and I keep it around
My sister tells me about character
The importance of it
How it structures the afterlife
When I want to agree with her
I am not wanting to be here
Daily at the same time
With the high priestess I met her
Along the lake an angel
Flashed in the cloud layer

Flash Angel (II)

all I hear is an old horse swaying
in the distance, in silence, some kids wrangling
huge branches, nothing else

hundreds of slightly shaking hands
faced me in the bright lake
I stood on the bank as they shook
as they calmly glittered now I still see it the ants

the edges of clouds appeared to me
all at once and how slowly
the tree was moving I hadn't noticed
it was constantly in motion
the cloud passed over the sun
multiple heads collapsed into one
the birds also spiral they were millions the sea is

calm now and hot I am in it barely moving
suddenly heard the entire sea
turning over and passing away
then I wanted to put on a play

Trick Poem

Every delicate radish a web
Tiny and ferment that
Nostril I think it's ugly
In the cloud I see an animal
That lumbers heavy and rocks
With small feet all along
It was ready to form
Is it mine the yellow moon
In a circle my family cried
I forget I'm here daily
A riddle is a trick
And water passing through
Holes the saddled sieve
The beating of the bounds
When they beat the bounds
They walked about
They wandered around
The flour marks a trace
It's tricky to hold on
To every new sentence
In time light shined
Into my head I transformed
The riddle of the sphinx
I want to memorize it
Holding onto the fish body
Its fish mouth is open
The soft shaking fish song
When they leveled the molehills
The moles hung from a fence
In each burrow bounded
The mole song is traceable
Beneath lemon branches
A circle of shells
A circle of seashells
So delicately ringed

HUMBOLDT

Friday, Dec 21st

2018

I came to Humboldt this week to escape my feelings, as per usual.

Today, Camille took me to the beach. We passed through a forest area on the way where there was a lot of Vaccinium ovatum!

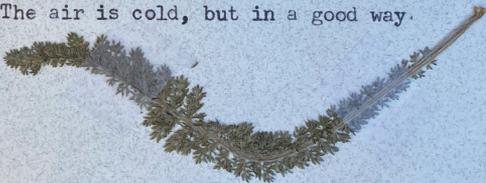
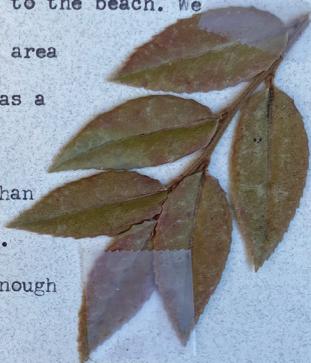
They were much taller than us and doing really well.

One specimen even had enough fruit for us to eat a

handful. -ANTIOXIDANTS, UTI, ALZHEIMERS-

I love the dunes for their other-worldly quality. The air is cold, but in a good way.

There are cool little plants who poke their leaves out of the sand, some of which I didn't expect because I know them to grow on different soil, like Achillea millefolium, Pteridium aquilinum, and Baccharis pilularis.



Saturday, Dec 22nd

2018

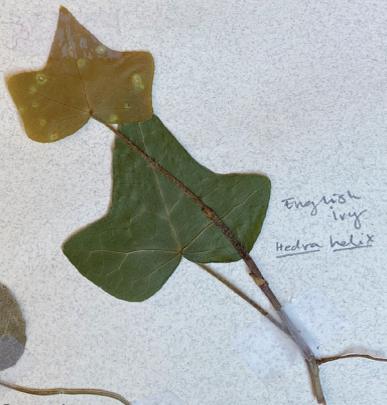
This morning I set out on my own to see some redwoods since I didnt want to leave here without seeing them and its going to rain soon. I walked down to the Artata Community Forest and walked around. the remnants of high-grading there are so apparent - huge stumps with a ring of young trees growing around them. The middle dead stump, which has already sloughed off probably a foot of bark, is three or four times the size of the current live trees. I guess it isnt so sad when you thi nk of the current trees as clones of the middle one, carrying on its life with new growth.



I saw lots of understory plants that I did and did not know. I took a flora with me but it didnt end up being very helpful. There are cool ferns and little plants that I like. The air was cold too but it helped that I was walking around. Im always surprised bb how wet it is here.



something
in
Saxifragaceae



English
Ivy
Hedera helix



Redwood
violets
Viola
sempervirens

Western
Sword fern

Polystichum
minutum



spreading
wood
fern
Dryopteris
expansa



deer
fern
Struthiopteris
spicant



leathery
polypody
Polypodium
scoleri

MAYA WEEKS

from Barnacle

i could listen to the waves forever freshwater fluxes absolute body trust i told therese
 that it's clear she belongs in the water and she said, "vet i fan, men jag trivs." is my favorite
 thing about the ocean how it asks me to follow my body? trying 2 bear with myself at least
 a week's worth of sand in my ears if plastic appears invisible if plastics appear invisible
 Tell me what you want to do crust recycles my destiny, the aleutian trench
 scour moat intense winnowing a hill in the middle of the ocean maintained by wind
 energy when the water turned from fresh to brackish intertidal whelks
 running scenarios about the future all the time pitted if centrifugal response

commodity thermoplastics

meet

plastic grazers

it feels that i have estranged myself you know? isotope chasing love 2 get caught up in
the failures of systems gesture goods multimillionaires, hollywood celebrities, and
special military programs oil predation polymetallic nodules loose observer
nothing is certain but death and plastic skärgården blir ett filter

my hair is too soft for quarantine i'm trying to think about where i am most beneficial to the
world read "see less" as "selfless" i have decided to lean in to my illegibility
what constitutes a permanent waterway i made a caterpillar out of a word bad
idea factory 2k20 i know better than to become anyone else

fish talk future marine debris i carved my left a little too hard world's best
sinus rinse if i ride the whitewash that's cool too subterranean water returns to ocean
infinite fetch komplicerad saneringsarbete mistaking the frame sand
castle worms how to navigate the new ocean revisiting my life path the
luck we have a drought in oyster shell a forty percent decline in mussel
cover

CRUDES

Crudes investigates a niche sector of the oil industry by creating portraits of various crude oil blends, while researching their often humorous names as well as their histories and origins. Each portrait is composed of a satellite image of where the crude oil blend is produced. Alongside this

are manufactured goods, often referencing sporting prowess, power and masculinity, characteristics commonly associated with the oil industry, that are derived from each crude. Lastly there is the primary agricultural or food trade that has been impacted by the refinery's presence.

SHEIDA

SOLEIMANI

In order of appearance: *Iran Heavy*, 2018, 24 x 18 in; *Alaska North Slope*, 2019, 24 x 18 in; *Basra Light*, 2018, 24 x 18 in; *West Texas Sour*, 2019, 24 x 18 in; *Bayou Choctaw Sweet*, 2019, 24 x 18 in













An Interview with Robert DeConto & Sandy Litchfield

in conversation with Ellen O'Leary

Rob DeConto and Sandy Litchfield are a married couple currently living in Amherst, Massachusetts. Paperbark's Prose Lead, Ellen O'Leary, sat down with them to discuss their interpersonal collaboration, thoughts on the climate crisis, and the power of cross-disciplinary thought.

This interview has been edited for clarity. To read the full interview, please visit our website at www.paperbarkmag.org/interview-rd-sl

(Opposite) *The Academy*, 2020.
22 x 22 in



Ellen O'Leary: It feels like the subject of climate change has gone from a niche cluster of people who are interested in environmentalism, to a situation of: everyone should, and must care about this. How have you experienced that change, and how has it impacted your work?

Robert M. DeConto: The acceptance has increased for sure. Twenty years years ago, I remember, multiple times, I'm flying someplace to give a lecture and to the person next to me [on the plane], it would be obvious that I'm working on climate change stuff. And I've actively had people say, "This stuff is bullshit. I don't believe any of it." And now, people will say, "Oh, you're a climate scientist. Why aren't you and your community fixing the problem? Why aren't you getting the policymakers and politicians to do something about it?" So I've seen a real change. But it's gone from: we were the bad guys, because we were making this stuff up, to now we're the bad guys because we're not fixing the problem.

Sandy Litchfield: It does seem like the culture went really fast from climate denial to almost a nihilistic view of, "Well, it's gonna happen, and we're too late anyway.' But I mean, Rob and I have known this was happening our entire relationship. So for 20 plus years, it's been a part of our reality—understanding what is happening and what is coming. And so that part hasn't really changed that much.

I think what has changed is that there's a feeling of finally, everyone's catching up. Earlier on, Rob felt his work was important, but it wasn't being necessarily acknowledged in the rest of the world. And now it is. So, even though that's kind of scary and depressing, it's also exciting, personally, to be invested in something like that.

EO: Absolutely. And have you noticed any increase in opportunities, as the topics you're engaging with have become more mainstream?

SL: You know, we're both in our mid 50s. If you're working hard your whole adult life, that's when things start to come to fruition in general, no matter what your research is. At least, I want to believe that. So I don't know if climate change in particular has offered opportunities for me. But people want to hear about Rob's research all the time. He's had to be selective about where he puts his time. There's a push and pull between feeling excited that his work is important and valued. But then also 'I don't have any time for myself and my family and I miss that part too.' I'm putting words in your mouth, honey.

RD: [laughs] But aren't you seeing more? Aren't there calls for public art that are environmental? More so than there were?

SL: Yeah. More social equity, especially, I think, in the last couple of years. And since Black Lives Matter. I see a little bit of climate awareness, but not as much as equity.

RD: I'm trying to get funding to start up a coastal resilience research center, across all the UMass campuses. And I've got something in there to support public art around climate change awareness. I think scientists are thinking about art as a communication tool.

I did a panel discussion with an artist Cota at the Augusta Savage Gallery. We had a conversation on the stage about art and science and integration, and I was explaining, not so much at

this COP [Climate Change Conference, Conference of the Parties], but at the previous COP in Madrid, there was a ton of art. I think it's had an impact on the collective conscience of the world and accepting this as real. I think it legitimized a lot.

SL: I feel like the sciences ask the questions, they're the investigators. And then the artists are the reflectors. The scientists are really engaged in the objective outside world, and the artists are really looking inward and thinking about the effect of all of these discoveries and facts, and how it impacts our psychological, emotional lives.

I just read Richard Powers's *The Overstory*, which has tons of science in it. And yet, it's all these very personal—sometimes very magical—experiences in there that are scary, but also enchanting. And very real. As real as science itself, except on a more internalized level. And so that's how I see them as sort of these two sides of the same coin.

EO: Absolutely. I am curious about your relationships with that internal vs. external. Thinking about our world in crisis takes a personal toll. And then you're also trying to professionally engage. Could you speak to what that is like, emotionally?

RD: It was all really abstract to me for maybe for the first half of my career. And then, like everyone, you just start seeing

this stuff unfolding on the TV. It can really be intense. But, personally, when I'm actually doing the work, you're so focused that you're not thinking about the external implications of whatever you're working on.

You'd have to stay optimistic and positive, or it could really be a bummer. But one thing about the COPs is there's all this incredible youthful energy. There's a generation, literally, that's mobilized. And then there are all these old, mostly white men, in these negotiating rooms talking about these tiny, incremental things that they're bargaining over. It's totally disconnected. And I've often thought, how can we make this connection? Do we have to wait for this young generation to be old enough to vote?

Lighthouse, 22 x 22 in., 2020



SL: Or something calamitous to happen, for people to be shocked into waking up? I mean, that's what I worry about. And you already see that starting to.

RD: Yeah, it's happening now.

SL: That's had to happen for people to wake up. As artists, we're world builders, and sometimes that feels escapist. But other times, it feels like that's the most direct way that you can confront the problem, because you're thinking speculatively about alternative operations, future fictions. What are we going to do? Besides getting a hybrid electric car, these little things that I can do in my own personal life. What is the most important thing that I can give? Maybe it is the imaginary. Again, Richard Powers, or I heard about this other book coming out [Kim Stanley Robinson's *The Ministry of the Future*]. It's a sci-fi book, and it's optimistic. It's thinking about how we can restructure our governmental policies so that they're working more effectively, and not just nitpicking. It's not just about money, it's about survival.

RD: Remember, when we were in Rome? You were really into thinking about the layers in the rebuilding and the constant regrowth and then decay, and then the regrowth. Regeneration.

SL: Of cities and civilizations.

RD: Now we're seeing maybe one of the dips. And then we'll be in regeneration. And there'll be new technologies and new opportunities.

SL: I always think about Jim White, this class that I took at University of Colorado. I took a geoscience class on climate

change. This was in the 90s. He talked about this idea of step function change, that we don't want to change, unless we have to. I feel like we're right about to hit that step. What is that one step going to look like? I don't know.

EO: At a personal level, you use an electric car, you recycle... At a professional level, are there choices you actively make with sustainability in mind? Or factors that make those choices difficult?

RD: We think about it all the time. An electric car still, on average, probably costs \$50-60,000. It's not accessible to everybody, but it could be if there were subsidies, if the government did something proactive. In reality, the whole system needs to change. And I think there are fewer opportunities than there should be for individuals to make a difference because the system isn't set up for it.

SL: That said, I do think about that in my studio a lot. Some of my favorite art materials are the cadmium reds and yellows, which are not planet-friendly. So I try to be really mindful about that, and I have changed my habits. Making sure that when I wash my brushes, that the water that I clean my brushes with does not go back into our water system. It evaporates and it's disposed of properly. There is information out there, and I try to minimize my impact. I'm just producing these little paintings, and in the big scheme of things, it doesn't seem like very much, but when you have an art

department or architecture department, and there's lots of students coming in, that is cumulative. That's a responsibility that we all need to take seriously.

EO: I'm glad you brought up your use of color, because in your work, the colors are so striking. Your art also deals with scope and perspective in really interesting ways. And then [to Rob] your scientific work has these questions of magnitude or even location: where are we looking for certain data? Could you each speak to your relationship to place, size, and scale?

SL: I was really interested in these pictorial maps that were made in the 18th and 19th century. There were these new towns that were being developed almost wholly. That really interested me. From a formal stance, that bird's eye perspective, that kind of overview of a place, and then projecting kind of a future fiction onto it, like this is what's going to happen... Looking at the past, looking at the future almost in terms of who we are and where we exist in the world.

RD: And you used to be really influenced by geologic cross sections and maps.

SL: When I was in graduate school, I just kind of went into the whole history of image-making and landscape. What what are all the different ways that we've represented the landscape?

RD: You went through a satellite image phase.

EO: It's nice to have this sort of historical record here!

SL: Rob and I met actually, because I took a geoscience class when I was an undergrad. So I've always been fascinated with the earth dynamics and sections of the earth and thinking about the way the planet has formed. I think that's a fundamental reason why I paint landscapes. I'm interested in our planet. And our place in our planet.

RD: I even did a little climate modeling for you. I did some computer modeling—what the climate in this place would be like. We should really revisit that. That was a great collaboration.

SL: Basically, the question underneath Ondacka [a current work-in-progress] is, if mistakes are gifts that we give ourselves to learn, what are we going to learn from the mistakes that we're making now? With that question, I try to imagine what a planet would look like, who has already gone through this catastrophe? But there's no way that I can project into 1000 years. I started doing some research during my sabbatical, and I kind of got just overwhelmed, which is why I'm afraid to call it anything right now. Because I thought, 'This is beyond me.' And then I read *The Overstory* and I was like, 'This guy's so much more brilliant.'

EO: Well, it's not really fair to measure yourself against a Pulitzer winner.

SL: [laughs] Totally. But what actually came out of that is that I had to come back

to the reality of my everyday. I started doing this practice, where I would draw a very small drawing a day out my window, or from my walk. I felt like I got lost. And then I needed to come back and be like, 'You know what, I'm just going to draw this tree that's in my backyard. I'm just going to draw this apple tree.' Really keep it very close to home and grounded.

Students come in, and they're so afraid, they just want to do well. I want to tell them, "You're gonna fail. It's okay, like, I want you to go there."

EO: I love that. Which relates to maybe what you said about mapmaking earlier, because I read that you were interested in the failures of mapmaking too. I think like failure and iteration are both integral to the scientific and artistic processes. Could you each speak to that?

SL: I've attended some pedagogical conferences that are about the importance of risk-taking and failure in the creative process. Students come in, and they're so afraid, they just want to do well. I want to tell them, "You're gonna fail. It's okay, like, I want you to go there." Our civilization is really quite young in that way. We're fucking up. We're the young adolescent who's like, 'Oh, yeah, let's take the car out.' They're not thinking about the future. They're not being responsible. And yet, we don't have the adult who's

protecting us from ourselves. So we are making some huge mistakes right now. But I do hope that we survive into that mature level of civilization where we can think and act responsibly and take care of our home where we live, and provide for next generations. I want to believe that that's going to happen, I want to believe that we're just infants, you know, trying to figure it out still.

RD: My work tends to be really controversial in climate science. I think it's because I'm trying to think a little bit more fantastically and creatively, like an artist, to bring sort of an artist's eye to a problem.

EO: And where do you think that comes from? That impulse?

RD: I don't know. Probably there's been some absorption from Sandy and her community. And, likewise for her, I think, somehow for her I've been influential.

SL: Oh absolutely, I mean, you can see it in the way that I'm so interested in earth science, or just science in general. I love science. If I wasn't an artist, I'd be a scientist.

EO: [To Rob] If you weren't a scientist, would you be an artist?

RD: Maybe. I really appreciate design and aesthetics, and all those things.

EO: You mentioned doing climate modeling. Have there been any other moments of overt interplay where you've actually gotten to engage with each other's work?

RD: That's probably the best example. We haven't done enough.

SL: We do have our own kind of worlds that we go into, but I would love to do more collaborative work with Rob and with other scientists. I think there's a lot of fertile ground there.

EO: What role does collaboration play within your fields? How does collaboration work for each of you?



Flood of Feelings, 22 x 22 in., 2020

SL: I oftentimes feel envy for Rob because the sciences are so collaborative. I think artists, in general, are a little bit more solitary. When I've gone to artist residencies, there's a lot of energy that wants to come together. But then I also very much like my solitude, and being on my own, making my own little worlds.

RD: Your collaboration with Roberley [Bell] was pretty exceptional. But ego gets in the way sometimes, in certain circles. That can be the biggest stumbling block.

SL: It's like a relationship. You find the right synergy. Then it's really great. You kind of fall in love with each other's work. And then other times, it's just like, 'No, that's just not a good fit.'

RD: There are big meetings that used to happen. They haven't for two years because of COVID. Those are these places where scientists get together. We'll come back from these national or international meetings totally energized and excited to have learned all the latest stuff. And that's the kind of collaboration that Sandy has seen and thought, 'Wow, this is just so great.' You all get together and share ideas, and it sparks like another whole year of progress. It's been impactful, I think.

EO: I can imagine going to those things feeling very energized. But with such a busy career—for example, you're already engaged with a project in Greenland that has about a five-year timeline—how do you channel that excitement? Your work takes time that you cannot speed up. Are you somebody who wants to be moving and trying new things all the time? Or are you content to sort of say, 'I'm not going to even think about another project until this one's through?'

RD: What I've learned is that I'm just better off finishing one thing. A big project has so

many different facets to it. The Greenland project will have so many different elements that will be exciting and new to move onto continually. Those projects are all slowed down right now anyway, because the people going into the field haven't been able to. My work is theoretical and computer-based, and I don't have to get into the field to contribute. But it's been tough on those folks for sure. We're both lucky in a way that our creative work is something that hasn't been super impacted.

SL: I was on sabbatical last year, so I was happy to sort of hide in my cave and immerse myself in the studio. I wasn't dealing with Zoom.

EO: Oh, you really missed out. But with respect to the pandemic and isolation, how about the inverse—how do you think art and science can engender community? Is there anything that comes to mind, specifically, in terms of bringing people together, or seeing your work be efficacious?

SL: Amherst is pretty progressive, as is New England. When I think about what's going on in some places, that's where I think the change really needs to happen. It feels very divided right now.

RD: MASS MoCA did a whole installation about change in the Arctic. It was science, but it was art-based. And so every person that goes to the MASS MoCA, who maybe knows nothing about science is going to come out with a new awareness. The

optimistic side to the story is that working within the arts definitely opens up a dialogue to people that might not have been thinking about this stuff.

... you can't really make big change unless you're really taking care of your own little world, too.

SL: That's where we go back to the step function change, right? I want to believe that the arts help people find a way to process it, maybe more so than taking action and changing the world. Hopefully it has a big impact on the policymakers. It's through the arts that they understand what the science is saying. I mean, not all of them. A lot of policymakers are more science, factual-informed that way. But some of them may be informed by art.

RD: That's a good point, because policymakers are typically people of means that are in the art world. They're going to galleries. You know, Thursday night openings in Chelsea, that sort of thing. So that's an interesting point.

EO: In thinking about places to mobilize from, I think that education is also key. Both of you teach at UMass. How do you think higher education is engaging with this institutionally? As well as your experiences in your own classrooms?

SL: I teach one class, called "Drawing

the City," and it's been my favorite class. Students have to imagine a future for [three] cities. And then through different processes—drawing representation, collage processes—tell both a visual story and then a short narrative about a speculative future where they are confronting these issues. It forces students, through fiction, to imagine something different. I think it's an empowering project for them to think about how they may be able to get involved in change for these issues. So that's one class that directly is related to climate change in my teaching. Rob has many, many more.

RD: I was lecturing yesterday and just showing possible futures in the range of the projections. [Students] were all, I think, in agreement that it's so clear as day as to what has to happen. I basically scrapped a regular lecture, just to talk about the COP, and show what I was observing happening, which is: a lot of empty promises. I worry about the next generation. I do think there's some complacency and like, 'There's nothing I can do about it.' I think there's probably some depression around it. Kids know that they're going to have fewer opportunities in some ways. And face challenges that didn't have to be there, because of the choices that are being made by the older generation. It's frustrating.

SL: But there are some real activists too, and in the younger generation, and that's exciting to see.

RD: There's like, 300 environmental

science undergrads now. The Masters of Sustainability Science program is bursting at the seams. There's so much interest, here on our campus, around climate change and sustainability. There's always been a culture here in the Valley, and I think there's been a change in that the science is so much more resolved now than it was even 10 years ago. There really is a sense of urgency that I've never seen before, and you feel it among the students.

EO: Do you see any shift from 'Let's research, what is happening and might happen' versus, 'Let's research solutions and technologies?' I'm curious about the balance of understanding vs. innovation.

RD: This notion of living laboratories is big on our campus. And a great opportunity will be this idea that UMass is going to try to be carbon neutral—buildings being renovated, whole new heating systems being installed. That provides training opportunities for students to earn skills that will probably drive a whole future of innovation. Natural market forces are providing some of the change. There's so much money that could be spent on accelerating the change. So if we figure out a way to collaborate, to have an impact on that. Shaming through art, getting Amazon to pay their fair share.

EO: Is there anything that you say to your students, or to yourselves when you're having moments of panic or pessimism?

RD: Choices that are made in the next couple of decades are going to determine which path we go down. It's not too late is the main, positive takeaway. I usually try to end on that.

SL: I think it's that marathon of, 'Oh, my gosh, we have so much to do!' It can be so overwhelming and depressing and scary. You have to bring it down back to the present and just think 'Well, what can I do today? What can I do right now? How can I live my life in the best way that is going to support change? Getting involved in these daily practices. I think that's really important to ground the bigger issues. Stay sane and healthy and in your community, in your relationships with people, in your relationship to your work. All of those things are important, because you can't really make big change unless you're really taking care of your own little world, too.

RD: That's a really good point. A colleague at COP said, "Do you feel like it was worth coming?" Because traveling in the age of COVID isn't really all that fun. But I thought, you know, if the scientists give up, and don't keep pressing, even if it doesn't feel like it's having that step function change... We've got to just keep plugging away, be steady and consistent in the message and not give up.

SL: That's true. And in the arts, too. It goes back to that daily practice: 'What can I do today? And how can I take care of things that I need to take care of now and be responsible?'

RD: These communities feed off of each other. If the artists see that the climate scientists are still plugging away, and the artists are motivated to feel like they have an audience for their work, it's all mutually beneficial and supportive. That's something that we do: support each other and keep providing energy. I'll get really frustrated about getting reviews back in a paper and it's just like when Sandy gets turned down for public art commission or something. You just dust it off and get up in it. Try it again. Resubmit.

SL: You have to have some thick skin, if you're going to be doing the hard work. You can't just give up. You're gonna fail, it will happen, and you just have to get up and move on to the next thing.



ROBERT M. DECONTO

Robert M. DeConto studies polar climate change, the response of ice sheets to a warming climate, and coastal impacts of sea-level rise. He serves on international science advisory boards and is a lead author for the Intergovernmental Panel on Climate Change (IPCC). Previously, he held research positions at the US National Center for Atmospheric Research and the National Oceanic and Atmospheric Administration. He is a professor and Co-Director of School of Earth and Sustainability at University of Massachusetts, Amherst.

SANDY LITCHFIELD

Sandy Litchfield is an Associate Professor at the University of Massachusetts' Department of Architecture. Her work has been recognized with grants and commissions from the Public Art for Public Schools, the Massachusetts Cultural Council, and the Puffin Foundation. Litchfield has exhibited in the DeCordova Museum and Sculpture Park, The Fitchburg Art Museum, The Portland Art Museum, The Hunterdon Museum, and more. Her art is focused on landscape as a construct for understanding place and notions of belonging.

Avital Sagalyn



“There are things you can’t reach,” the late poet Mary Oliver once wrote. “But you can reach out to them, and all day long. The wind, the bird flying away.” Like Oliver, the painter Avital Sagalyn (1925-2020) was a longtime Massachusetts resident whose creative works, often depicting nature, were meant to speak for themselves.

In college and the decade that followed, Avital honed her voice as an artist, crossing style and subject-matter boundaries with a dexterity that often defied categorization. But instead of pursuing commercial success or fame, she focused on simply making art. In the process, Avital created a bold, exploratory, and distinct body of work. Her paintings, drawings and sculptures are recognized today as an extraordinary achievement, which sit comfortably among the work of eminent 20th century artists.

Movement and liveliness spring from Avital’s iterative discovery process. As with many of the variations-on-a-theme in her deep portfolio, this series of Dead Bird drawings (1990s) offers a glimpse into the fleeting place where space, time and deep attention meet. Though the subjects depicted here are inert physical remains, life breathes through drawings that are animated by subtle differences in the mind and hand of the artist. Reflected in these studies is a conviction that even the inanimate can be subject to spirited reimagination.

— *Courtesy of the Sagalyn Family*







PETER GIZZI

The Ingenuity of Animal Survival

Deep in the enzyme is the shape of home.

Deep in the code is the architecture to nest.

The Robin collects mud with its beak along with twigs and pieces of down, feathers too.

The Grouse burrows in a subnivean world for heat and shelter.

The Raven uses branches and breaks them off with its weight and its beak, it papers its nest with bits of fur and debris.

The Goose sheds her chest feathers to line the chamber.

Sorrow is long.

When will I return to my country?

SEAN SAWICKI



Bucks Are Hard to Spot

(Above) 2021; 9 x 12 in

***Unfinished Journal,
Listening to Loons***

(Page 84) 2021; 11 x 17 in

Water Scenes of Possibilities

ARNO BOHLMEIJER

With the low tide, the beach is now so wide there's a little lagoon or inlet in the middle. They can wade through to an island with ripples that feel funny under their feet.

Boldy runs and topples on his face in the water. Sparrow goes carelessly fast and hurls in too. For a second it's truly like flying.

Mom comes racing and flaps onto her chest like a flying fish.

"Together!"

With the best long run-ups, they thunder over the island and tumble for a smashing splash. People are stopping to watch, including this girl in purple, timid behind others.

"Just one more," Mom pants.

"Whacking fast!" Sparrow dares.

Here they go: run-up, flying speed, wham.

And some spectators have a go too.

"Let's float now," Mom says, moving to a quieter spot. "How blissful."

Finally she crawls ashore on all fours, to fall into her deckchair and sputter a lot of drops on Dad, who cries out, "Help, a seadog!"

After heaps of bread, wholemeal cake, and big savory snacks, they have liters of tea, juice, and water.

"Let's go explore far," Boldy suggests.

But Mom tries to warn them. "Don't go on those wave breakers: the moles. They're so slippery and treacherous! Please, keep our yellow parasol in sight."

"Treacherous?" Sparrow checks.

"Yes," Boldy says, "don't forget this wild current. If you get in it, you're dragged down into the deep with your head on the rocks."

As the tide is coming back in, considerable waves are broken on the glistening rocks.

At some distance they find precious treasure shells, pieces of glass, a rope, half a football, a pair of sunglasses, and a shoe—as if a ship has perished on the cliffs, or on the stone breakers called moles.

The inlet has turned all warmish, and in a corner, a girl is lying with her head on the edge of sand, where her purple swimsuit shines in the sunlight.

"Hi," Sparrow begins.

But there's no reply.

"What's your name?"

There's only the smallest response of her lips.

"Are you drozing?" Sparrow mixes up words—at moments of tension or intensity?

The girl blinks, but for the rest she doesn't stir.

Afraid to disturb, Sparrow sits gently beside her in the lagoon pool, then she lies and closes her eyes.

Now the girl moves.

Trying again: "Hi, I'm Sparrow."

And the silence is more open.

"What's your name?"

“Audrey.”

“Are you lying here often?”

There’s no answer.

Sparrow sits up and says, “Have you ever peed in the sea? I have, but only by accident. And not in this pool here. That would show, right?”

Audrey nods.

“I’ve been thinking,” Sparrow continues, “where are your mom and dad? Are you sad?”

Abruptly Audrey gets up and walks, not running or looking back, just ‘lost in thought,’ it seems. Maybe deeply?

Puzzled, Sparrow leaves for her yellow parasol.

When a bell sounds, Boldy states, “In a heat wave like this, we have to eat ice cream—a lot—or else we’ll dry out inside. Like...”

He clutches his stomach, pulls a horror face and collapses in the sand. “So I’ll go buy some. For you too?” (talking to could-be-future-Dad-in-law) “If you have enough cash...”

Tough Dad clutches his stomach, pulls a horror face, and smacks in the sand. “OK, hurry!”

They all turn to Mom, who says, “Do you want me to go nuts too?”

She faints and cries, “Go buy the coldest ice!”

After caramel, blackberry, and mango flavor cones, with the smacking of lips and sighs of delight, this beach day is over.

“Already?” Boldy says. “One more swim!”

“No, tomorrow. Who’s for spaghetti?”

Boldy shuts the parasol with himself in it and walks home.

On the dune path, Sparrow lags a bit and happens to bump into Audrey, who is sitting on the side, where people pass by or scrape her, saying,

“Out of the way, dummy.”

“Poor thing, are you so tired?”

“Not very smart parents.”

“Audrey?” Sparrow says. “Are you lonely?”

She sits next to her again. “Where are your mom and dad?”

Audrey laughs in a weird way, rubbing her face.

“You can come with me,” Sparrow goes on. “We’re having spaghetti. And if you don’t like that...”

A woman comes and talks to Audrey. “Ah, here you are, I’ve looked everywhere! Let’s go, sweetheart, I’ve got your things.”

This woman sounds worried and kind at the same time. She smiles to Sparrow. “Bye bye.”

Now Sparrow needs to catch up with the others. The path is winding along bushes that have a strong smell in the buzzing stillness.



Next day it’s so hot and sticky, Sparrow does not stop to think of the crabs with crooked claws. She tears head-on into a major wave and does a Boldy-dolphin-dive.

Back on her feet, she needs to wipe-spit-blow the salty water out of her eyes-mouth-nose. Next she swims with such force that the crabs or lobsters or worse will know how strong she is—may cross the ocean and reach a desert island with plenty of food.

She notices a pair of eyes fixed on her: Audrey’s. Both girls walk to the inlet, which, however, is filling up swiftly again, swallowing the island.

The mole is swarming with gulls, that screech and crash-dive, catching fish.

“Hi,” Sparrow starts in good heart, while Boldy spurts around the surf, to make fountains of sparkles: flying drops in the sunlight. “Was that your mom yesterday?”

“Yes...” Audrey falters. “I want to live with her.”

“So where are you living now?”

"With my father."

"And your mom?"

"She's moved out."

"Why?"

"Divorced," Audrey says.

"Oh. Won't she come back?"

"No."

"Why?" Sparrow asks.

"My dad is mental or mad."

"At your mom?"

"At everybody."

"Even you?"

"Sometimes," Audrey says.

"Why didn't you move with your mom?"

"He wouldn't let me. He says I'm his girl too. My brother and sister are with Mom; they're younger, and he wants at least one of us. He likes my little brother more, but he's only two."

"Sad," Sparrow says.

"Yes."

"But um, what if you join your mom anyway?"

"He'll get even angrier."

"That's not fair! What does he do?"

"Yell, bang doors, throw chairs..."

Now there's a long hush.

Sparrow wants to ask and say more, but Audrey is growing too nervous. Shyly she says, "Bye," and leaves, disappearing behind people who play beach-ball and cheer with each point.



At breakfast the curtain by an open window balloons into the room.

"Storm," says Boldy. "We have it coming."

"Why?"

"It's too hot. There will be a thunderstorm."

And Sparrow thinks: he likes the idea.

On the beach they want to put their windbreak up, but how to stop the wind for a minute and plant the flapping break? It's done with keen teamwork, and once the parasol stands as well—firmly?—the shelter is very much like a cozy tent.

But nature is getting even stranger. The sun stings, and ladybirds are borne on the wind over land, falling in the sand.

"Sorry," Sparrow tells them through a chink of her towel. "I can't save you."

Next a plastic life-belt comes whizzing by as if it were a circus act, whirling on and just missing an old man. It rams a sand castle near a very purple swimsuit: Audrey! Without thinking, Sparrow runs over past the mole, which is devoured by the tide.

They go and collect shells for presents or souvenirs to be kept on a tiny cloth in a fine little box. But waves keep washing the shells and pulling them away from under their hands. Rising and rising, the sea is turning wild, and the wind seems to draw the girls in.

Unaware, Sparrow asks, "How come you're here with your mom now?"

"Dad is away."

"For long?"

"Four days. By plane."

"Good thing he didn't take you with him."

"Yes, he took somebody else, a woman."

"If only the plane won't crash," Sparrow says. "I saw that on the News."

"If only they will crash," Audrey says. "No, that's not what I mean, that's bad."

Sparrow shivers. "I think you mean it alright!"

Small waves are growing into big ones. At the

same time, the air is so hot that the coolness of the water feels good, soothing.

"If your dad is cruel," Sparrow says, "it's normal to wish that—about the plane crash. What does your mom say?"

"She's scared of him too; I think she bites her tongue to keep him quiet."

"Do you cry when you're alone with him?"

"I could, when he's mean and loud and rough, but I don't."

"Shame."

"What?" Audrey calls out.

And Sparrow explains, "If you cry, your dad knows how bad it is."

"He knows already! That's why he gets even worse."

"So," Sparrow ponders out loud, "if he's mad because he knows how bad it is, he can really stop being mean—easy. We can tell him."

"And then?"

"Well... You can go home to your mom!"

Despite a headache from such reflections, or the sultry weather, she does have a plan. "Let's write it down, to show him on paper, in black and white."

She stands up and feels her soaking swimsuit, and sees how far the tide has come in: the inlet is gone completely. They're in the spot where the island was a while ago, and there's no trace of sand or shells anymore.

"Quick," Audrey gasps, "turn back!"

"Watch out for the mole..."

They reel in the current, which is too strong. Each time they wade a step or swim a stroke, they're pulled off balance in the water mass, and sometimes it reaches their necks.

But just when Sparrow thinks: I can move no more, I'll be dragged under... she hears a familiar horn. It's blown hard a few times.

She keeps trying to stand or hang in, holding Audrey as well, and the other way round. They press their feet on the bottom, where the water is clawing their legs like giant crabs.

The lifeguard with the horn is flailing, pointing... Maybe, if it's too late, he can't get in further himself; he can't risk his own life too!

The shrieking gulls and breaking waves are close by on the mole's end. Sparrow thinks of Mom and Dad and Boldy, who don't even know where she is. Are people shouting and signalling on the beach?

Somebody cries out, far away and yet nearby.

A person gets hold of her arm. It hurts but also feels good and strong. She's taken along. And Audrey? She can't see or ask...

What exactly has happened?

She's carried, resting on someone.

A man says, "What's your name?"

"Sparrow."

"OK, Birdie, hold tight. Where are your folks?"

Vaguely she points in some direction.

"Can you find them for me?"

There are lots of yellow parasols. Which was their windbreak again?

"Let's go," the man says, "and we'll see."

"But Audrey..."

"Is she your sister?"

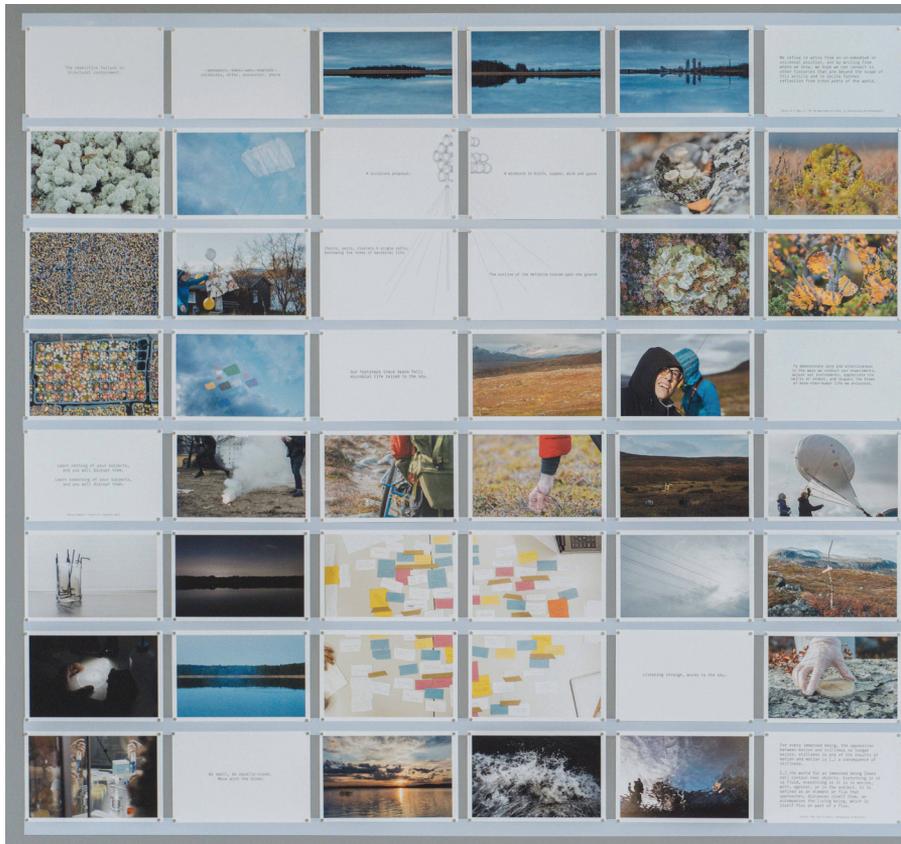
"No, my er... new friend."

She looks around and sees Audrey with her mom, also safe. She wants to go over, because they just found out that life could be changed—with her dad. But now she needs to locate her own mom and dad.

"Back in a minute!" she calls over to Audrey. "I'll just let them know where I am!"

Adding to herself or anyone: where we stand with our perfect plan.

HIGH ALTITUDE



Flock 2019-2021

Till Bovermann (DE)

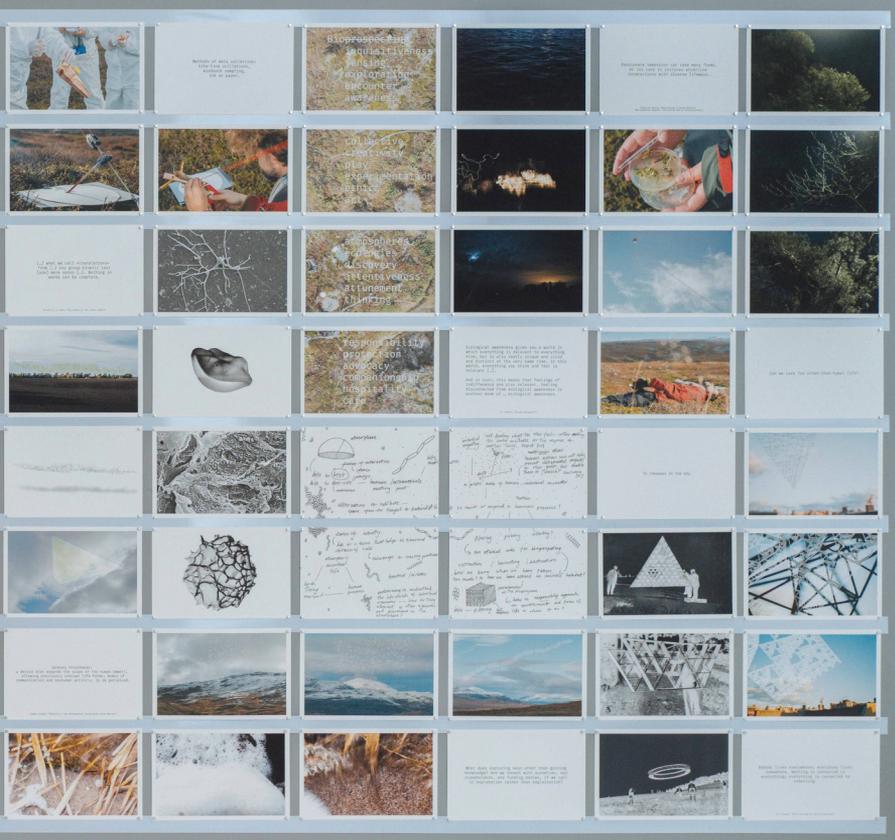
Hannah Imlach (UK)

Postcards, soundscape

Flock began as a conversation towards the end of an intense week of flying a helikite (a combination of a helium balloon and a kite to form a single, aerodynamically sound aircraft), gathering samples, taking thousands

of photographs, and making drawings, sound recordings and video. The conversation turned to trying to make sense of these experiences. How should we engage in such an endeavour? Is it possible to “bioprospect” ethically?

BIOPROSPECTING



Imlach and Bovermann exchanged nearly 100 postcards between Glasgow and Berlin. The cards reflect on their shared experience and move outwards, including related research images, photo-collage, textual fragments

and imagined airborne structures for inter-species encounters. The sound you can hear are various recordings made during the Kilpisjärvi expedition.

The work explores our awareness of, and

responsibility to, forms of life at the very edges of our perception.

For more information and to hear the composed soundscape, please visit <https://organisms.de/flock/>

ATMOSPHERIC ENCOUNTERS

Birmingham Open Media Gallery

19 May - 28 August 2021

Till Bovermann, Anna Dumitriu, Melissa Grant, Hannah Imlach, Alex May, Oliver de Peyer, Heidi Pietarinen, Noora Sandgren, Paul Shepherd, Anne Yoncha

The HAB (high altitude bioprospecting) team returned to BOM, 5 years after their first exhibition at BOM and 11 years since their first flight.

What is bioprospecting?

Bioprospecting is the search for molecules and microorganisms in the environment.

The expedition was an opportunity to develop creative ideas at the intersection of art and science as part of a collaborative laboratory, called field_notes, organised by the Finnish Bioart Society. The team came together in a quest to find microscopic life at the edge of space, and to design novel ways of capturing, examining, and visualising life above the Earth.

During the field-notes expedition, the HAB team tested new ways of bioprospecting and captured over 80 bacteria or fungi. Many of these microorganisms have adapted to the cold

and can form spores, which means they can survive in the atmosphere. Some of these microorganisms were first identified in the Antarctic or the Arctic and could have travelled across the skies to Finland.

The commitment and innovative work of this team leads us to question:

Why are we drawn to discover new forms of life?

Atmospheric Encounters tells a story of what can happen when experts come together across science, technology, engineering, arts, and maths (STEAM) to play and test ideas. The HAB team are brought together by a shared interest in microbiology (the study of living organisms that are too small to be visible with the naked eye), art, and our environment.

As we head towards a post Covid world, why is this kind of cross-sector collaboration and innovation interesting today?

What role can exploratory collaboration and creativity play in innovation?



High Altitude Bioprospector (HAB)

Oliver de Peyer (UK)

Paul Shepherd (UK)

Corrugated plastic, paper, acrylic, copper foil, medical syringes and valves, servos, and electronics

2020-2021

This is a functional prototype of a HAB (high altitude bioprospector) that can fly into the stratosphere on a balloon. It is designed to ‘fly’ into incoming wind during changes in wind direction across different altitudes. These would have created transient currents of air collected through the copper cone at the front, which is coated in copper to maintain sterility

during assembly and launch. The air bubbles through a system of valves into a small sampling vial. Chemicals are added to the vial through syringes, valves, and servos. A biochemical reaction then occurs which reveals telltale DNA stratosphere.

Windssocks

Melissa Grant (UK)

Silk, copper fabric, copper wire

2019

These analogue windsocks were used to capture microbes from the atmosphere in northern Finland. The copper shrouds were placed around the windsocks to prevent contamination from above during launch on the helikite (a cross between a helium balloon and a kite). Three socks

were used for each flight and placed at approximately 5 meter intervals below the helikite. These were labelled top, middle, and bottom socks. On return to the ground, microbes were harvested from the inside of the socks by imprinting them on to agar plates.

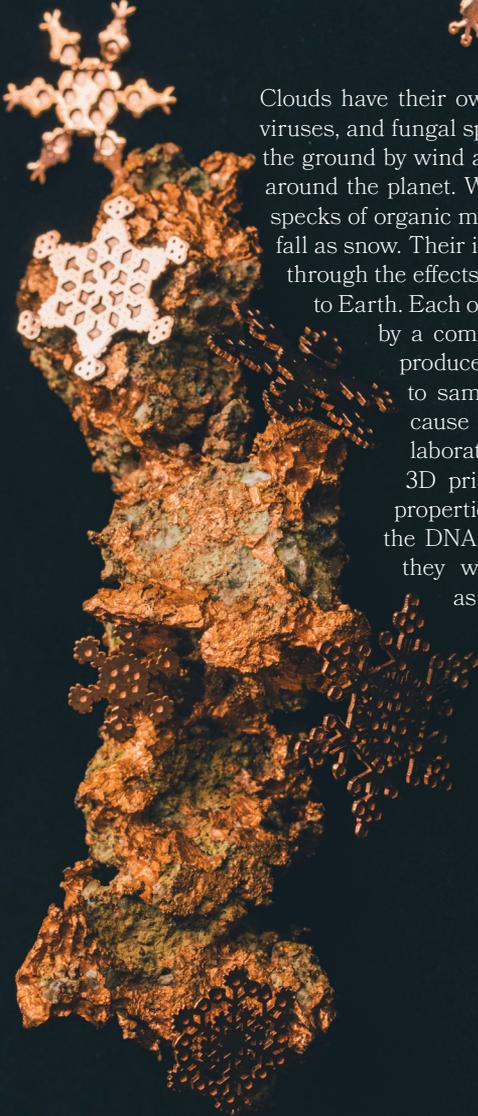


The Birth of Snowflakes

Anna Dumitriu (UK)

3D printed copper, copper ore, bacterial DNA, and viral RNA

2021



Clouds have their own microbiomes made up of bacteria, viruses, and fungal spores, which have been swept up from the ground by wind and through evaporation to hitch rides around the planet. Water vapour can collect on these tiny specks of organic matter and form into ice crystals, which fall as snow. Their intricate crystalline forms are sculpted through the effects of microgravity as they plummet back to Earth. Each of these snowflakes has been generated by a computer using scientific data. This data produces numeric values which are allotted to samples or fragments of organisms that cause disease and are available for use in laboratories. The snowflakes have been 3D printed in copper—for its antimicrobial properties—and have been impregnated with the DNA or RNA of the microbes from which they were generated, such as SARS-CoV-2.



SEAN CHO A.

The Trees will releaf

so for now trust history.
I know it's hard.

The world is bad.

When you or i walk
through the forest
the truth doesn't matter.

We all know the story:
a tree falls. But this time
I'm there.

This time when the tree falls
i was busy admiring its leave-spaces:
how the branches were naked

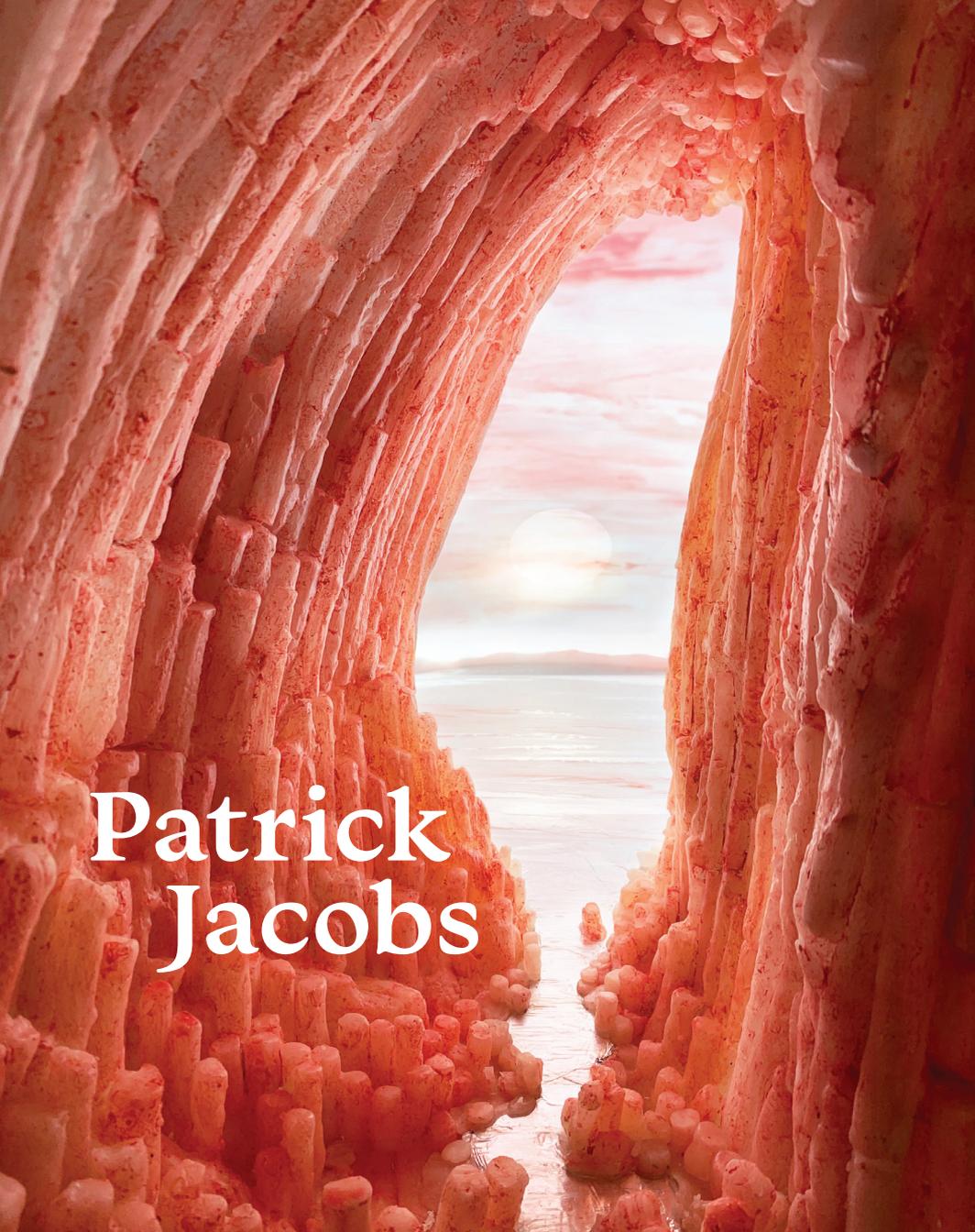
without shame: not waiting
to dress in spring green again,
not fearing December

or the lonely of the birds leaving
for ever-warm. And remember dear,
you were there too.

The tree creaking as you climbed
its limbs in search of something
forgotten: the cuckoo birdlet

we'd mistake for a sparrow,
that looked at me and saw
home. You said

earthworms had no mouthparts,
most forest berries lack poison,
and we'd be okay here too.

A photograph of a natural sea stack archway. The arch is formed by tall, cylindrical rock pillars, likely sea stacks, that have eroded into a tunnel-like structure. The rock is a warm, reddish-orange color. Through the arch, a bright sunset is visible over the ocean. The sun is a large, glowing orb, partially obscured by a thin layer of clouds. The sky is a mix of orange, pink, and blue. The water in the foreground is calm and reflects the light from the sunset. The overall mood is serene and dramatic.

Patrick
Jacobs



Pink Sickle Moon with Stars, 2019.
Diorama viewed through 7.5 in. (19 cm) window.
20 x 28 x 20 in.



Ear with Crescent Moon, 2020.
Diorama viewed through 4.5 in. (11.4 cm) window.
14.5 x 15.25 x 12 in.



Moon & Stars Over Landscape, 2020.
Diorama viewed through 7.5 in. (19 cm) window.
20 x 28 x 20 in.

Jacobs investigates
space, scale, perception of reality
and, increasingly, landscapes of desire,
while working across media.

Drawing inspiration from nature and ecology, historical
landscape painting, and the supernatural, he sets up contexts
with inherent internal contradictions.

His small-scale dioramas—which he began developing twenty
years ago—are observed through circular apertures, or windows,
of curved glass embedded in the wall.

Depicted in miniature, they are both a part of and in contrast
to their meticulously constructed surroundings.

Through its thick, distorting lens, the eye has no
point of reference, no real scale...

— *Bartholomew Bland*

(Title page) *Turner's Cave*, 2020.
Diorama viewed through 7.5 in. (19 cm) window.
20 x 28 x 20 in.

SCOTT BENTLEY

Form after "AND SO I ANAL DOUCHE WHILE KESHA'S "PRAYING" PLAYS FROM MY
IPHONE ON REPEAT" by Billy-Ray Belcourt from *Shapes of Native Nonfiction*

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PRONOUNCED H'WULTCH \ THE SOUND OF SALTWATER WAVES WASHING ONTO
THE BEACH \ I WENT TO k'waatəd BEACH FOR MY BIRTHDAY \ MY VERSION OF
GOING TO CHURCH \ I'M A FAN OF THE CROWS \ THEY PICK UP ARTHROPODS ON
THE BEACH IN THEIR MOUTHS \ LIFT INTO THE SKY \ THEN DROP THEIR SHELLED
FOOD ON THE ROCKS \ IT REMINDS ME OF THE STORY OF wee'git THE TRICKSTER
RAVEN \ AND THE FIRST haida \ wee'git FOUND THEM LIVING INSIDE OF A
CLAMSHELL ON THE BEACH \ AND BROUGHT THEM OUT OF THEIR SHELL \ I
BRING COFFEE \ A MUG OF BLACK MEDICINE AND STEAM \ TO DRINK WHILE I SIT
ON A LOG OF DRIFTWOOD \ AND LISTEN TO "VIDEO GAMES" BY LANA DEL REY
WHEN "TURTLE ISLAND" BY BEACH HOUSE MIGHT BE MORE FITTING \ I READ
THAT dx'wədəwʔsbʂ PRONOUNCED DOODaWaBSH \ THE DUWAMISH PEOPLE \ HAVE
BEEN LIVING HERE FOR OVER ONE THOUSAND YEARS \ MAYBE TEN THOUSAND \
THE kaʔkaʔ \ MOB THE kyuuqs \ I LOOK AT THE MAPLE \ ALDER \ ASH \ WILLOW \
MADRONE \ CASCERE \ EVERGREEN WESTERN RED CEDAR \ WESTERN HEMLOCK \
DOUGLAS FIR \ PINE \ SPRUCE \ SEDGES \ CATTAILS \ LADY FERNS \ AND WONDER
WHAT THEIR NAMES ARE IN dx'wəʂucid BUT I DON'T BOTHER TO READ THE
TRANSLATIONS \ INSTEAD I READ THERE ARE PLACES IN WATER NEAR
COASTLINES CALLED DEAD ZONES \ WHERE EUTROPHICATION HAPPENS \ TOO
MANY NUETRTRIENTS IN THE WATER \ CAUSES HYPOXIA \ OXYGEN IN THE WATER
IS REDUCED \ SO MARINE LIFE CAN'T BREATHE \ AND DIE \ OR LEAVE \ OFTEN
CAUSED BY UNSUSTAINABLE FARMING \ THE NUTRIENTS FROM FARMLAND SOIL
POLLUTES THE WATER \ BIODIVERSITY DECREASES \ BY 2050 \ PLASTIC IN THE
OCEANS WILL WEIGH MORE THAN ALL FISH \ THEN I READ GREY WHALES ARE
DYING AT INCREASED RATES BEFORE I WONDER ABOUT THE SEA SLUGS \ THEIR
BODIES ARE SOFT \ SLOW MOVING \ THEY CLEAN THE OCEAN FLOOR \ EATING
PLANKTON \ ALGAE \ DECAY \ ON ROCKS AND REEFS \ THE HARRY KELLARS OF
THE SEA \ SOME AUTODECAPITATE \ SHED THEIR BODIES \ REGENRATE BODIES
FROM A SEVERED HEAD \ REGROW HEARTS \ WHICH SOUNDS POETIC AS FVCK \ I
DON'T WANT TO CALL THIS FEELING ECO-ANXIETY SO I'LL OPT FOR DESPAIR \ AS
I WATCH THE LAZY TIDE \ THE GRAY SKIES \ ABOVE THE SHORE \ CARRIES THE
SALTWATER \ IN THE SPRING MORNING \ AND THE AIR IS A COLD COMFORT

An Orange Bud

Bloomed on a boot hill

The glowing blossom blew

Away in the breeze

A sparking of surreal song

Sprung from the bony rill

Ashes of a burning blind

Fell on the bony hill

As the cold cosmos burned on

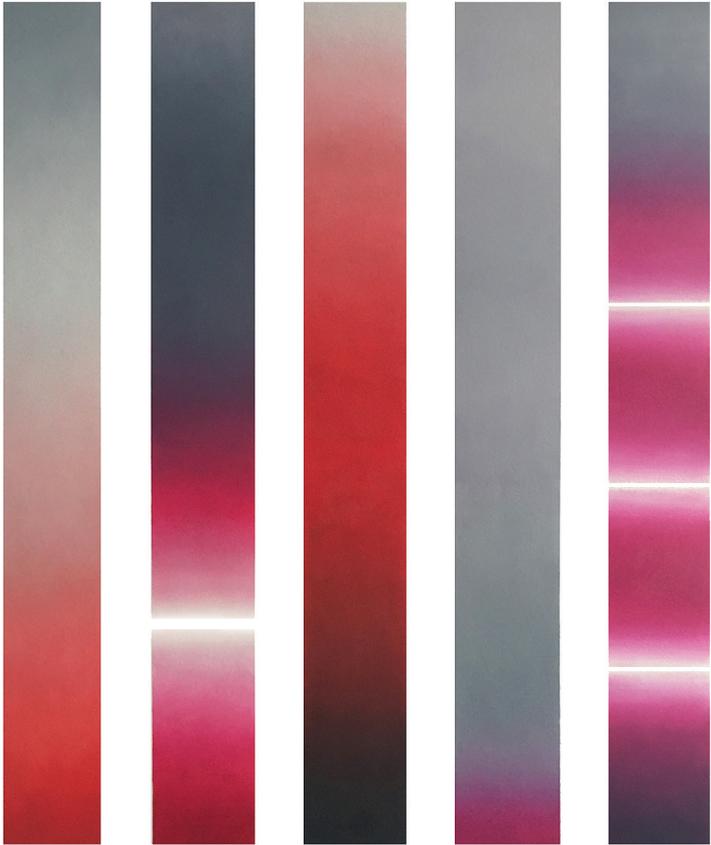
Soot soon scattered a torrid curtain down field

As the cold cosmos burned on



Resonant
2018, 40 x 30 in

ASHLEY ELIZA WILLIAMS



Data for Resonant
2018, 20 x 20 in

from a Wildlife Webcam Journal (2020)

CALLUM ANGUS

3.25.20, Spring Whale Watch

Oregon Coast

Across the room I've left open a window on my computer that shows a live feed of the ocean, a stretch just off the Oregon coast that is particularly busy this time of year with whale traffic. Every few minutes a white spout appears in the pixelated sea. There is no attendant flipper or tail, the only sign that this particular spray is anything more than a wave catching a rock is the way it moves around the screen and the biologist's excitement as he tries to refocus and zoom the camera. He talks about how yesterday there was a group of transient orcas, one of three groups of killer whales commonly sighted off of the Oregon coast. Transients feed



Oregon State Parks, "Spring Whale Watch Week 2020 Day 5 (2 young whales in the bay)", YouTube.com. March 25, 2020. <<https://www.youtube.com/watch?v=q6g-Xc3KMaY&t=31s>>

on marine mammals, sometimes other whales, while the other two groups—the offshore orcas and the southern PNW pods—maintain diets of sharks and salmon, respectively. Perfectly divided and adapted to their food sources, it would seem there's little competition between the three groups save for our attention and that of the little black eye of the camera, which they probably don't want anyway, but who am I to say how much limelight a whale wants. He keeps a red buoy in the middle of the frame, both for reference, a place to rest the eyes, he says, and because it seems like the whales might be attracted to its ringing and whistles as a point of sonic interest—being musicians themselves, new notes might bring them to the surface in search of variation. Layers and layers of invisibility and unseenness; trapped in my basement apartment by the threat of contagion, I turn to a blue screen that promises only glimpses of the largest animals on earth, that otherwise hides them entirely from the technology of our constant attention.

3.26.20, Bald Eagle

Decorah, Iowa

A nest is a ratty old thing from which the sounds of far-off highways can be heard, and where the husks of corn and grass long-dead can be pulled a bit closer for warmth. It smells only of yourself, and perhaps a mate. An eagle's nest contains little of the cozy human imagination. Large rough sticks and lice abound. This one sits in the crotch of a tree between three limbs. In Iowa the trees have hardly begun to bud. The midwestern raptor sits alert on three eggs, head cocked, looking as if it can hear the mechanical sound of the camera zooming in and out but, unsure where to look, it keeps all angles in its sights. No one watches an eagle unwatched. Once I saw an eagle devouring the carcass of a bloated seal at low tide, ripping at the mottled flesh with its beak and talons, ruler of decay, but this one looks soft, its brown and white feathers ruffled by periodic spring breezes. From a new angle, it's clear how close to the road we are, 100 yards or less, a deep teal holding pond between nest and highway, affording some protection maybe.

3.27.20, Barn Owls

Dorset, UK

Today, a pair of speckled barn owls, moonish and white inside their nest box. Their faces are long affairs, flat, drawn-out masks with slits for eyes and beak embedded in feathers, no chance of projecting expression onto them. For a while they sit motionless atop a midden of pellets and bones—the footage is in black and white, and there are only piles of pale angles and darker splotches of what must be the fur of many rodents matted with spittle and digestive juices—the only sound that of unseen human families walking the trails outside, a child, a disobedient dog being called back which the owls give no sign of hearing. Eventually one of the pair starts a repetitive screeching sound, a rasping caterwaul repeated every few seconds that goes on and on until the second rouses. This owl mounts the first—the ‘female,’ I suppose I should call her, although I hate to do it because what evidence is there really; but then, the birds don't care what I call them—all prevaricating is for my benefit alone. He grips her feathered back with talons and pumps away, there's no other way to put it, owl sex has a rhythm too, apparently. The noise increases. He lets out a high-pitched scream that in no way compliments her

caterwauling. The whole thing lasting 30 seconds or less. He dismounts and her tail twitches three times. He scratches his ear. She stretches a wing. They return to their one-legged postures—I see now that they don't sit but stay balanced on one leg, leaning lightly against the body of the other for support, and all returns to how it was. An FAQ says this ritual is repeated multiple times a day, presumably whether it's needed or not. From this point on, her rasping screech never stops. I wonder if they can hear it, the people who walk the grounds around the box. It's easy to see how myth and awe cling to these birds like static as they take the familiar rites of people and strip them of all emotion until what's left is a raw pellet of sound and feathered fucking and a few bones.



Dorset Wildlife Trust. "Wildlife Webcam", accessed March 27, 2020. <<https://www.dorsetwildlifetrust.org.uk/wildlifewebcam>>

3.28.20, Elk Migration Jackson Hole, WY

No sound in this one, which is just as well because I struggle to make sense of what I'm seeing. The top half of the screen is covered in snow, the bottom has the new yellow-green and purple shade of new grass. In between the two is a narrow band of shimmering mauve spots which must be the elk, although the shapes of their bodies are lost among the herd. When I hear the word 'migration,' I think of movement with purpose, not this massive wandering. There is no clear direction or leader. Periodically a string of deer no bigger than a grain of rice walk to the right, disappearing off the edge of my screen, but those in the rear seem to be moving in the opposite direction; in the middle, they don't move at all. A pair of horses graze the foreground, apparently used to the gathering. Add to that the fact that the whole picture wiggles like a mirage; it can't be from the heat as it's late March and evidence of snow is still abundant. At times it feels like the entire herd will disappear, and I'll be left to realize that what I've been watching all along was the patchy muddy winter melt of March in the foothills of a mountain range, the elk having long moved on to someplace else. And it would

be appropriate. Part of closely looking at webcams, I've realized, is never being quite sure what or when you're seeing.

I try to watch only 'live' cams showing me a now that's somewhere else, but the park rangers and samaritans who run them tend to have a low technology threshold, and it's not always clear if now is now or sometime before. If there are animals in the frame, it's usually a highlight reel, as most webcams show absence most of the time: abandoned nests that this time last year raised a clutch of hatchlings, vacant fields of blue ocean where the animals sometimes are, but rarely stay. A still and beastless frame is a more reliable indication of a 'now' than anything else.

3.31.20, White Storks

Zeist, the Netherlands

These storks are a BBC miniseries set in the fifties. These storks are a knockoff. These storks drink tea at four and never wear sweatpants out of the house. These storks have child-rearing advice to give: flat, wide nests, not too much sugar, and a healthy respect for crows. By night, these storks are a Hitchcock film, but not the obvious one. These storks are Vertigo or _____ (it's been a while since

I've watched any, and these storks just won't stand for casual name-dropping for cultural cache). These storks wear feather boas to bed and appreciate a good Pollock and worry about their investments. These storks think the neighbor's solar panels are tacky, but will be converted if they ever see the bill. These storks chose to nest on a platform above a small town because people are a deterrent to predators and so they can feel superior to those beneath them.

4.1.20, Baboon

Mpumalanga, South Africa

The baboon sleeps with a baby curled against its cheek. I can tell they're dreaming by how their eyes move beneath their eyelids. But the tree branches and leaves in the background have a much higher resolution, and I can't tell if this baboon has been photoshopped in or not. It looks unreal, but then one of the baboons stretches its neck and looks more real than me sitting hunched on my bed over my makeshift desk on an ironing board in my lap, scribbling in my notebook. I should probably stop caring so much about what's live and what's asynchronous. Doing this has blurred them together anyway, the real and the 'fake,' live and pre-recorded, and



Explore.org, “Olifants River - AFRICAM”, accessed April 1, 2020. <<https://explore.org/livecams/africam/olifants-river>>

especially time. I’m conscious of where night’s shroud falls at any given moment around the world, when the animals are more wakeful in black and white or infrared. If today I’m watching a baboon sleep in the early hours of tomorrow, will tomorrow come for me? I can see how this can mess with my circadian rhythms. A comment below the baboon reminds viewers to not say anything if they see a rhino. Do not time stamp the rhino, do not use the “snap tool” on the rhino, do not comment or take a photo or video of the rhino or do anything that might attach its presence to time and place. All of this is to protect rhinos from poachers, although I have a hard time imagining a poacher tracking a rhino from webcam comments. Still, I say nothing about the rhino, which isn’t there anyway. I’ll only say things about the baboons who have now shifted positions so that one leans in sleep against the other in the branches, the brief glitter of an eye the only sign that they don’t slumber as deeply as I think.

4.2.20, Pond Bats

Piusa Caves, Estonia

Bats are animal of the year for Estonia, information which is provided as partial explanation for why someone has set up a webcam to record a small clutch of hibernating bats inside a cave in Eastern Europe. The bats—there are maybe 10-20 individuals, though it’s hard to tell as they’re huddled together in a cluster no bigger than a penny in the middle of the screen—do little but enjoy one another’s warmth, though maybe they’re also telling stories. Soon, however, there’s the sound of featherless wings flapping like a baseball card in a wheel spoke, and it becomes clear that the cave made chalky white by the night vision camera is full of bats, and full of their strange bat sounds. A hissing punctuated by high-pitched squeals and chirps like a radio being tuned, as if they’ve picked up on the ASMR craze. A few swoop back and forth across the screen, but not one bat dislodges from the clump in the middle on which our sights are trained. They stay immobile in a cleft in the rock that looks eroded by an ancient tributary, wave marks left behind in the sediment so it appears as if the bats in the frame are their own furry life raft clinging to one another adrift on the current.



Estonian Fund for Nature. "Nahkhiirekaamera Piusa koobastes - Bat Webcam at Piusa Caves, Estonia", accessed April 2, 2020. <<https://www.looduskalender.ee/n/en/node/4228#cam>>

4.5.20, Sea Otters

Elkhorn Slough, CA

My plan today was to trawl the California coastal cams for elephant seals. I can sometimes spend hours searching out the right webcam. But even though it's finally sunny in Portland, south of San Francisco, rain pelts the camera on the Elkhorn Slough, constantly disrupting the autofocus so that all you can see is an impressionistic green and gray and brown landscape that might not be there. The camera auto-pans every few seconds, coming to rest behind a spiderweb built on

a protective plastic screen, quivering in the wind. The slough calls this its OtterCam, as if the moniker could manifest the cute and cuddly pups that grow up in its sheltered waters each spring. And then I do see two, performing barrel rolls on top of the water, rubbing their bellies to help the rain penetrate the dense under layer of their fur, but the camera doesn't care and it soon moves on. It makes no difference to the camera that it's found and focused on the very subject it's supposed to be filming. What matters is covering the maximum amount of territory, zooming in and out at regular intervals on the same small patch of still and muddy shore, and panning through the same spiderweb over and over. What matters is the act of observation and recording, the consistent mapping from an unchanged perspective. I challenge myself to notice something different each time—the low barn roofs in the background, the regular march of the telephone wires, flocks of grainy white birds that stutter past, the blue and purple zip ties that attach the camera to a metal pole and occasionally enter the view. In one spot a tongue of water reverses current, tiny waves moving in the opposite direction from the rest. And occasionally an otter, who is almost immediately abandoned in favor of the sedge grass nodding its heavy-seeded heads in the stiff wind.

4.6.20, Gilt-head Bream

Martinska, Croatia

The fish cluster like moths around the light of the camera, and it shimmers off their scales lighting up the Adriatic night. Gloom is just a few feet away, and dozens of fish swim in and out of it. They are mostly a sleek and twitchy kind, with one long fin down their back that they can raise and lower like a sail as they maneuver through the current eating marine snow, little bits of plankton and detritus that drift through the water column like dust motes swirling in a stage light. They feed by projecting their mouths in front of their bodies to create negative pressure, a tiny suction that brings the morsel into reach almost too fast to see. It's hard to know where to look, and I wish they'd all swim off somewhere for a few minutes so I could just watch the slow drift of plankton without their constant starts and stops and course corrections. A silly thing to wish for, an ocean without fish. Some shine like flickering lanterns; what do they do in the absence of light? Do they prefer an illuminated buffet? Does feeding in the dark lack drama and intrigue? It sounds exciting to me, night feeds in which you can feel your schoolmates' eddies, the drag of their scales past your cheek, but not see them. Though maybe it grows boring after a while, like



Sinbenik-Meteo.com. "Underwater Live Camera", accessed April 6, 2020. <<https://www.sinbenik-meteo.com/podvodna-kamera>>

most things. It might be nice sometimes to see who's come to lunch. Sebald writes about the changing sex of bream in *The Rings of Saturn*, saying female bream are "increasingly developing male sexual organs and the ritual patterns of courtship are now no more than a dance of death, the exact opposite of the notion of the wondrous increase and perpetuation of life with which we grew up." It's one of the few false sentences in that book. I can't tell the gender of these fish, but the only dancing going on here is one of life and feeding and glittering things. Maybe there's death, too, but death is hardly an opposite to life.

4.7.20, Polar Bears

Manitoba, Canada

It may be a little masochistic to stare at windswept snowfields with the dim promise of polar bears. I know there won't be polar bears, I'm not really here for them despite the webcam's name, but more the wind whose tracks are etched into the flat expanse of snow—an animal in its own right and everywhere at once. There's no sound, but a separate recording on YouTube of "Pure Arctic Wind" works well. The sun is out and when it pans far left an inch of blue sky is visible at the top of the screen. This angle also shows the structure on which the camera is mounted, a screenless porch or platform open to the elements, weathered white paint encrusted in old snow and ice, the grain of the floorboards peeking through in whorls of tree rings sanded flat. The only other human structures: a metal cage sunk in the snow, and a sign perpendicular to the camera so its information is unreadable, but its heavy wooden buttress half covered in snow suggests it's a message meant to stay relevant for a while. I'm avoiding describing the snow field. It resists description—white, yes, but stippled like the bottom of a sandy creek, not unlike the same sinuous curves of the cave that sheltered the bats in Estonia. The horizon is a black band where the sun blots out the finer details and light gets

warped by processes not fully understood. It feels luxurious to stare into the emptiness for so long and be unaffected by the elements. It also feels like trespassing. On the wind, on silence, on the Cree, Sayisi Dene, and Inuit communities to whom the land belongs, if it can be said to belong to anyone. A pop-up appears in the corner with the message "ADORABLE BABY EAGLES NOW IN VIEW!" and a link to a different webcam. An encouragement to leave this barren wasteland—a waste of land, a waste of space, but land that's wasted is generally just undeveloped—to stop looking at nothing and watch something cute instead. But I want to keep looking and thinking about marks of absence, territory of the wind, names and empty meaning. After a little research, it appears that it was white men who named the park Wapusk, which yes, is the Cree word for 'white bear,' and this palimpsest may explain why there are none to be recorded.



Explore.org. "Polar Bears Cape East - Wapusk National Park", accessed April 7, 2020. <<https://explore.org/livestreams/polar-bears-international/polar-bear-cape-churchill-cam-2>>

EXISTE

TO

LONE

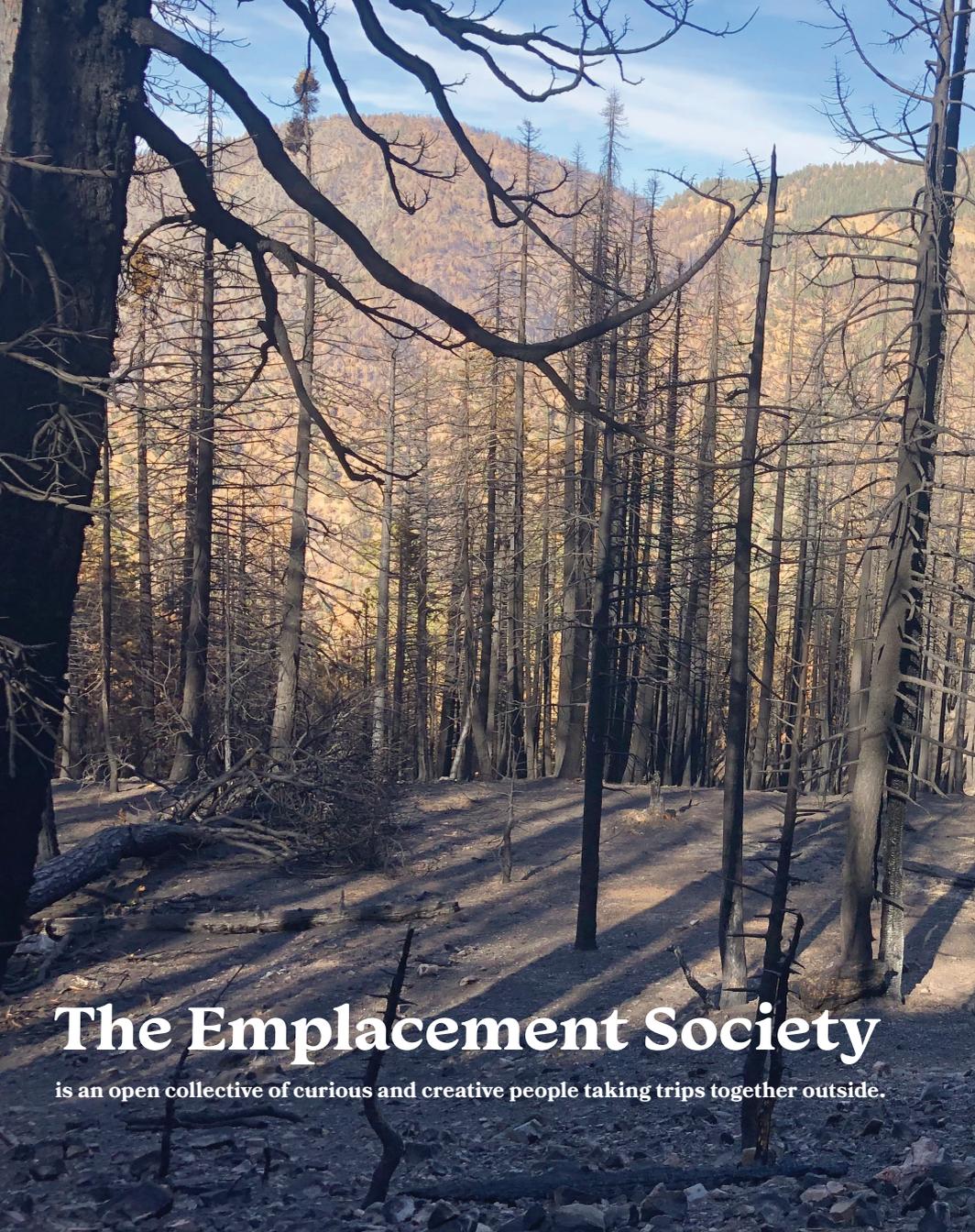
AT THE

MILING

LOONS

~~SOME~~

LAKE



The Emplacement Society

is an open collective of curious and creative people taking trips together outside.

A photograph of a forest with many dead, charred trees and a few living ones, with a mountain in the background. The word "FIRE" is overlaid in large white letters.

FIRE

Cofounded by Christina Mesiti and Sophia Flood

FIRE

APRIL 9TH - APRIL 11TH, 2021

ANGELES NATIONAL FOREST

Fire merges the organic and inorganic. It exists at the meeting point between organic fuel, the particular chemistry of our atmosphere, and the moment of ignition. In the smoke filled fire season of 2020, Los Angeles residents experienced the sensation of breathing in the ashes of the trees many of us had been hiking in for years. Grief over a perceived loss mingled with curiosity about the new landscape. As we become more familiar with the essential role fire plays in this landscape (and the devastating consequences of fire suppression), this trip was an opportunity to engage with the aftermath of combustion in an embodied, direct way.



(Top) *Trip Artifact*

ARDINA GRECO, 2020





FIRE — COLLECTED READINGS

“Queer Fire: Ecology, Combustion and Pyrosexual Desire”

Nigel Clark and Kathryn Yusoff

“Effleurage: The Stroke of Fire”

Barry Hosltun Lopez

“Dry Spell” (from *The Persimmon Tree and Other Stories*)

Audre Lorde

“Fire and Earth: Creating Combustion”

Stephen J. Pyne



(Bottom) *Video Still From Trip Artifact*

KRISTIN CAMMERMEVER, 2020

The Emplacement Society associates with the molten igneous rock that intrudes into bedrock, cools, and waits to be uncovered. In a tribute to slow time, it is an open ended project that exists to matter thoughts and excitement, physicalize questions and curiosity, and connect with other bodies. It aspires to encompass trips in the backcountry as well as walking trips close to home, workshops, conversations, shared meals, research, imagined procedures, writings, radical teaching and learning, and collaborative wayfinding. As much as we can, we prioritize creating a shared experience for each other without aestheticization. Together, we are feeling out both the processes and states of being set in place.

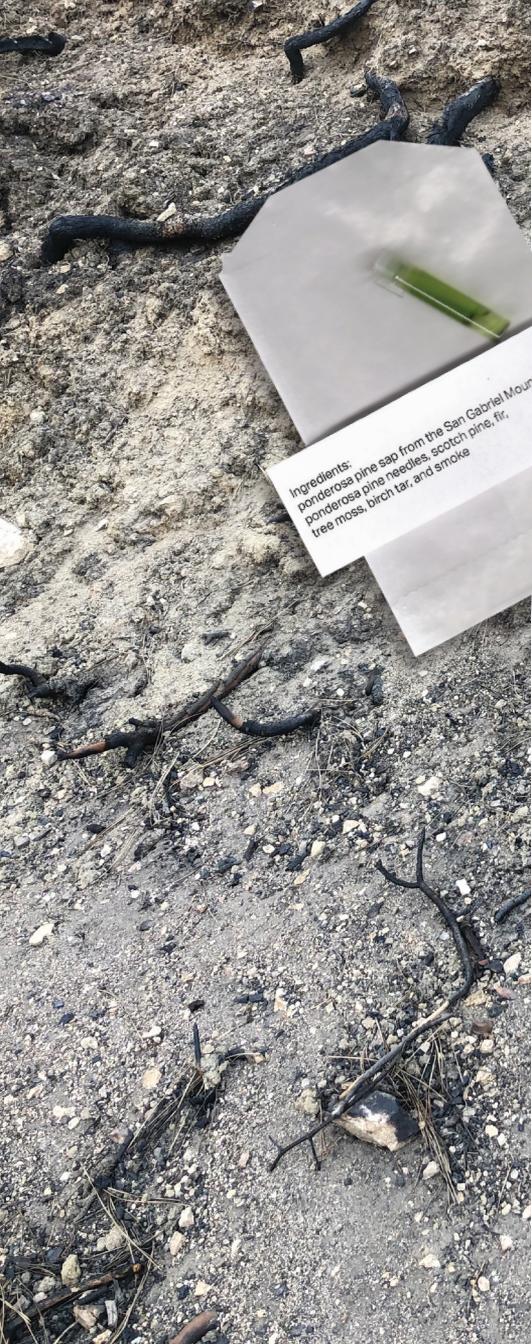
Our trips begin with a proposal: a place, and a framework for how we might



Trip Artifact

EMILY ENDO, 2020

Scent made from tinctured ponderosa pine sap, ponderosa pine needles, tree moss, and smoke collected from burn scar



Ingredients:
ponderosa pine sap from the San Gabriel Mountains,
ponderosa pine needles, scotch pine, fir,
tree moss, birch tar, and smoke

think about and experience that place. Each inquiry is pitched and organized by a leader or guide, and from there, all participants play an active role in shaping the trip. We collect “artifacts” from the group both before and after an excursion—readings, recordings, videos, questions and/or objects—that form a collective basket of knowledge we carry into the experience. On the trips, we push each other to explore embodied ways of learning, creating prompts for each other to experiment with connecting to different aspects of the place or journey through our bodies and senses. We allow time for rest and reflection together and alone and plenty of unstructured space to see what emerges.

To learn more about the Emplacement Society, visit the project at emplacementsociety.com.

CACONRAD

from The Jasmine Ascension

do not live as
though you are a
footnote to the
mention of
a wiggle
timid
hand
reaching into
morning weather
the beach in
California
feels good
because
America
is no longer
in front of us
stop thinking we
got it wrong
lovers friends and
people I hope to
never see again
keep converting
oxygen with
one breath
then the
next

would
a church
exist if our
fear of death
did not prevail
retire the invisible
arm reaching in and
out of our attention
a tree
reveals
its pulse
to the
leaning
lovers
was that you
it wasn't me
our names
materialize
on lips of
everyone
we love
a brief
frequency
holding each
syllable
midair

it is easy to
forget there
are other stars
when sunlight
fills me
to the
gills
keeping
a toe in
the dance
music our
preferred
epoxy
I do not
have enough
civic pride for
the grit in
this system
get me out
of the grime of
the sentence
earning love is
like taxing oxygen
how many times are we
asked to overthrow our desire
please say you too are sick of it



ASHLEY ELIZA WILLIAMS

Nucleus

2019, 18 x 24 in

Contributors

Sean Cho A. is the author of “American Home” (Autumn House 2021) winner of the Autumn House Press chapbook contest. His work can be future-found or ignored in *Copper Nickel*, *Prairie Schooner*, *The Massachusetts Review*, *Nashville Review*, among others. Sean is a graduate of the MFA program at The University of California Irvine and a PhD Student at the University of Cincinnati. Find him @phlat_soda.

Callum Angus is the author of the story collection *A Natural History of Transition* (Metonymy Press 2021). His work has appeared in *LA Review of Books*, *Orion*, *Catapult*, *Nat. Brut*, *The Common* and elsewhere. He has received support from Lambda Literary and Signal Fire Foundation for the Arts, and was a 2019 writer-in-residence at the H.J. Andrews Experimental Forest. He’s also worked as a bookseller at Odyssey Bookshop and Powell’s, a publicist for Catapult Book Group, and edits the journal *smoke and mold*. He holds an MFA from the University of Massachusetts Amherst in fiction.

Arno Bohlmeijer is a bilingual English and Dutch author. He is the recipient of a PEN America Grant 2021 and runner-up for the 2018 Gabo Prize. He has been published in 5 countries. His work appears in US: Houghton Mifflin, a dozen renowned Journals and Reviews, 2019 – 2021, and in *Universal Oneness: an Anthology of Magnum Opus Poems from around the World*, 2019. www.arnobohlmeijer.com

Scott Bentley is a Hugo House Fellow. He received a Master of Fine Arts in Creative Writing and Poetics at the University of Washington, Bothell. He’s been a curator of the Gamut literary series, a Mineral School resident, and an editor at *Clamor*, *Ghost Town*, and *Pacific Review*. His writing and art have appeared in *yahaw*, *Submergence: Going Below the Surface with Orca and Salmon*, *Vote the Earth*, and elsewhere.

CAConrad is the author of a new book of poems, *AMANDA PARADISE: Resurrect Extinct Vibration* (Wave Books, 2021). They have been working with the ancient technologies of poetry and ritual since 1975.

Sarah Dolan is an artist and mother living in the Washington D.C. Metro area. Her work has recently been shown at the Phillips Collection in Washington D.C., Adah Rose Gallery in Maryland, and the University of Texas Rio Grande. Sarah earned her BFA from Massachusetts College of Art and Design in Boston and her MFA from George Mason University in Virginia. Sarah is an adjunct professorial lecturer at American University in Washington D.C. Find her @sdolan_arim.

Emmalie Dropkin is a fiction writer, teacher, and activist. Her work blends speculative and literary traditions to explore human responses to the climate emergency and has appeared in *The Massachusetts Review*, *McSweeney’s Internet Tendency*, *Electric Lit*, and *the Kaaterskill Basin Literary Journal*. Emmalie is coeditor of *Strange Attractors: Lives Changed by Chance*, released in 2019 by the University of Massachusetts Press. She has taught creative writing and composition through the lens of the environmental humanities, and she serves as a VIDA Gender Count Coordinator

for VIDA: Women in Literary Arts and a coordinator for Extinction Rebellion Western Massachusetts. Emmalie lives in western Massachusetts with a dog and a cat who have finally learned to get along. www.emmaliedropkin.com

A member of the Cherokee Nation of Oklahoma, **Santee Frazier** earned a BFA from the Institute of American Indian Arts and an MFA from Syracuse University. His first collection of poems, *Dark Thirty* (2009), was published in the Sun Tracks series of the University of Arizona Press. Frazier's honors include a Fall 2009 Lannan Residency Fellowship and 2011 School for Advanced Research Indigenous Writer in Residence, and was the 2014 Native Arts and Culture Foundation literature fellow. His second collection of poems *Aurum* was released in 2019 by The University of Arizona Press.

Peter Gizzi's most recent books include *Now It's Dark* (Wesleyan, 2020) and *Archeophonics* (Wesleyan, 2016). *Sky Burial: New & Selected Poems* (Carcenet, 2020) was published in the UK.

David Greenspan is the author of *One Person Holds So Much Silence*, forthcoming from Driftwood Press. He's a PhD candidate in Creative Writing at the University of Southern Mississippi and earned an MFA from UMass Amherst. His poems have appeared, or will soon, in places like *Bellevue Literary Review*, *Crab Creek Review*, *DIAGRAM*, *Prelude*, *Sleepingfish*, and others.

Patrick Jacobs is an artist living and working in Brooklyn, NY. He is best known for his miniature and large scale dioramas, which address nature, landscape and the body. His work can be found in numerous private and public collections internationally. Patrick is a graduate of the MFA program at The School of the Art Institute of Chicago. Find him @patrick.jacobs.studio.

Sama Mirghavami is a beginning farmer and naturalist living and working on Chochenyo Ohlone Land in the San Francisco Bay Area. Sama is influenced by her heritage as a SWANA immigrant, and aspires to bring people together through cultural preservation

and creation over food and land. Find them on Instagram @farmersama where they discuss mushrooms, fire ecology, and small-scale farming.

Hannah Piette is a poet from Los Angeles, CA. She is an MFA candidate in poetry at the Iowa Writers' Workshop.

Avital Sagalyn (1925-2020) was a lifelong artist who received early recognition in New York and Paris for her paintings, drawings and sculptures. After graduating from Cooper Union School of Art, Avital was among the first women to win a Fulbright scholarship to study painting in Paris in the late 1940s. Upon return to New York, she became a resident fellow at the MacDowell artists' colony (1953) and taught art to children at the Museum of Modern Art (1950s-60s). The University Museum of Contemporary Art at UMASS-Amherst held Avital's first solo retrospective exhibition in 2019. More information can be found on her website at avitalsagalyn.com. Avital's work is represented by PULP Holyoke gallery.

Sean Sawicki lives in the South Quabbin region of Hampshire county. He has a BA from UMASS Amherst, where he studied literature and creative writing through a sociopolitical lens. Sean has a Masters of Arts in Teaching from Smith College, and works as a Special Education teacher with students on the Autism Spectrum. He is a self-taught artist, initiated into creative work through zine-making and skateboarding. He spends his time wandering the lesser known parts of the valley, searching for new perspectives on a place he has called home for 36 years. He has shown his work previously in Holyoke at the Guided Brick, has read poetry at the Headquarters, and has been a part of solo and group exhibitions at Flywheel in Easthampton. Most recently he was a part of a group show at Pulp in Holyoke, Massachusetts, the town where his family hails.

Sean's work focuses on a sincere connection to place and nature, attempting to share a high and lonesome visual perspective.

Sheida Soleimani is an Iranian-American artist, educator, and activist. The daughter of political refugees who escaped Iran in the early 1980s, Soleimani makes work that excavates the histories of violence linking Iran, the United States, and the Greater Middle East. In working across form and medium—especially photography, sculpture, collage, and film—she often appropriates source images from popular/digital media and resituates them within defamiliarizing tableaux.

The composition depends on the question at hand. For example, how can one do justice to survivor testimony and to the survivors themselves (*To Oblivion*)? What are the connections between oil, corruption, and human rights abuses among OPEC nations (*Medium of Exchange*)? How do nations work out reparations deals that often turn the ethics of historical injustice into playing fields for their own economic interests (*Reparations Packages*)? In contrast to Western news, which rarely covers these problems, Soleimani makes work that persuades spectators to address them directly and effectively. Based in Providence, Rhode Island, Soleimani is also an assistant professor of Studio Art at Brandeis University and a federally licensed wildlife rehabilitator.

Maya Weeks is a settler surfer, writer, artist, and geographer. Her current work examines ways that patriarchy, capitalism, and colonialism materialize through oceans and how these systems perform gendered violence via marine pollution. She is currently completing a Ph.D. in Geography at the University of California in Davis. She lives and works on unceded Chumash land.

Ashley Eliza Williams is an artist and amateur ecologist exploring new ways of interacting with nature and with each other. She has been an artist-in-residence at Vermont Studio Center, MASS MoCA, Sitka Center for Art and Ecology, and many other places. Her work has been shown nationally and internationally. Williams has taught at The University of Colorado and Massachusetts College of Liberal Arts. She is a member of the research-based art collective Sprechgesang Institute and currently lives in Western Massachusetts.

Collectives

Emplacement Society

Co-founded by artists Christina Mesiti and Sophia Flood, Emplacement Society is an open collective of curious and creative people taking trips together outside.

Sophia Flood is an artist living in Los Angeles California. She received a BFA from the University of Massachusetts, Amherst and an MFA from the University of Wisconsin. She was a 2016 participant at the Skowhegan school of Painting and Sculpture.

Christina Mesiti is a Los Angeles-based artist and educator. A Fulbright scholar to Mexico, she has shown in places including UCLA, Cal State Long Beach, Locust Projects, and Tyler Park Presents. In 2022, she will be Visiting Professor at Deep Springs College. She received her MFA from Claremont Graduate University.

High Altitude Bioprospecting Team

High Altitude Bioprospecting (HAB) is a long term quest to explore extreme environments and detect and capture microorganisms that may live or survive there. The exhibition draws on the expertise of collaborators who come from the worlds of science, engineering, art and maths.

The HAB team have been working together since 2008 and have exhibited their work at Birmingham Open Media (2016, Ingenious and Fearless Companions) and the Victoria and Albert Museum (Digital Design Festival 2016). In 2019, the HAB team made an expedition to Kilpisjärvi. It was an opportunity to develop ideas at the intersection of art and science as part of a collaborative laboratory, called *field_notes*, organised by the Finnish Bioart Society. Works from this

expedition were shown in the UK and Finland in 2021.

The HAB Team is: *Melissa Grant, Oliver de Peyer, Hannah Imlach, Anna Dumitriu, Alex May, Paul Shepherd, Heidi Pietarinen, Till Bovermann, Anne Yoncha and Noora Sandgren*. Photo credits: *Thom Bartley, Melissa Grant*.

Read more about our 2019 expedition here: <https://bioartsociety.fi/projects/field-notes-the-heavens/posts/hab-blog>

And learn about the HAB project at our website: <https://h-a-b.net>

the art of Michelle Samour

Photography by George Bouret.
© Michelle Samour.

Michelle Samour is a multi-media artist whose work explores the intersections between science, technology, and the natural world and the socio-political repercussions of redefining borders and boundaries. Samour has been a Scholar-in-Residence at the Tufts European Center in Talloires, France; an Artist-in-Residence at Haystack Mountain School of Crafts, Deer Island, ME; the Banff Centre, Canada and P.R.I.N.T. Press in Denton, TX. Samour's exhibitions include the deCordova Sculpture Park and Museum in Lincoln, MA; the Museum of Modern Art in Strasbourg, FR; the Kohler Art Center in Sheboygan, WI; the Houston Center for Contemporary Craft in Houston, TX; the Racine Art Museum, WI; the Fuller Craft Museum, MA, the Broad Institute MIT, MA and the Fitchburg Art Museum, Fitchburg, MA. Samour has received grants from the Massachusetts Cultural Council including a 2014 Fellowship in Drawing, a Society of Arts and Crafts New England Artist Award, and grants from the Cushman Family Fund, the Andrew W. Mellon Foundation and the Daynard Fund to study historic papermaking in France and Japan. Samour's work has been featured in *SurfaceDesign*, *FiberArts* and *Hand Papermaking* magazines, and is included in public and private collections including the deCordova Sculpture Park and Museum, International Paper Company, and the Mediatech Corporation. Samour resides in North Bennington, VT and is a Professor of the Practice at the School of the Museum of Fine Arts (SMFA) at Tufts University where she teaches historical and contemporary approaches to working with handmade paper and pulp.

Eyes of God 2011

(Cover) Gouache on pigmented abaca fiber

In *Eyes of God*, the proximity between abstract geometry and flat color blocks renders the painted scientific mesh as a three-dimensional object. What were once discrete circular works on paper become a crowd of eyes that stares back at the viewer. The circles en masse suggest issues of cloning and genetic engineering, questioning the relationship between the work's constituents and its organic original.

For thousands of years, the 'Eye of God' has been used as a symbol for the 'all-knowing God.' The 'Eye's' appearance on our dollar bill and the Great Seal of the United States, its placement within the Masonic pyramid, its illustration on the palm of the hand in numerous cultures, and its appearance on prehistoric earth mounds, affirm its presence as a potent symbol in both our spiritual and material worlds. In *Eyes of God*, the use of finely processed and pigmented plant fiber creates an organic, translucent, and transitory context for investigating the relationship between science, technology, and the natural world.

Wired Eyes 2014

(Pages 6-7) Gouache on pigmented abaca fiber, 24 in diameter

In this series, Samour uses finely processed and pigmented plant fiber creates an organic, translucent and transitory context for investigating the relationship between science, technology and the natural world. The circle becomes a symbol of the 'all knowing eye,' the eye of the telescope and microscope and the physiological eye, our first lens to the visual world. Clusters of 'cells,' (biologic, geometric, technologic and social) are held together by their proximity to one another and float on their surfaces; momentarily captured for further investigation. They reference neurons, killer viruses, microscopic radiolarian, the interchange of data by packet switching in Internet communications, links of fiber-optic cables and wireless connections. The organic becomes overlaid and interchangeable with the technological.