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Letter from the Editors
CAMILLA SZABO & JOHN J. PARMAN

Issue 42.1: *Materiality* centers on a critical discourse about the built environment, materials, and sustainability. It addresses tactile engagement with the natural world, craft as a record of time, the roles of ethics, history, and technology in material choices, and Indigenous fables about timber, territory, and extractivism, among other topics.

Materiality is a rich, sweeping theme which can’t be contained by one literal definition. It can include the ephemeral—scent, a shadow, an echo. It can be the poetry of architecture, or a photograph that leaves a trace of a history—or obstructs it altogether. It can be a clay vessel casting an incantation, acting as both a transmitter and receiver, or the discolored patina on a hand-painted cabinet after years of wear, each door a slightly different shade than the rest.

Our contributors—architects, artists, and writers from London, New York, Boston, Phoenix, Berkeley, Portland, and Seattle—have shaped the spirit of this issue: Saul Becker, Kim Clements, Madeline Cotton, Imogen Cunningham, Lisa di Donato, Marjorie Dial, Lydia Felty, Rocky Hanish, Nooria Hiyeri, Jessie Homer French, Peiting C. Li, Claire Needs, Garrett Nelli, Andrew Rabeneck, Anne-Catrin Schultz, Madeleine Stearns, Loren Supp, and Nina Wigfall.



Bus, 2024. Pinhole photograph. Finnegan Schneider

Materiality: Some Opening Thoughts

JOHN J. PARMAN

“Makers of things, e.g., painters, writers, builders, furniture makers, are present as ghosts before their works.”

—Thomas Hardy

Architects have a displaced or anticipatory relationship with materials. They address them, but is this only to inform the imaginary of their contemplation? They hold realization at a distance, preserving a visual-textual language that’s opaque even to builders. If interior designers are more closely involved with realization, their work can resemble fashion, Chanel or Zara. Both these professions often strive for a sense of place, but this attentiveness costs money, so that work is bespoke. Mass costs less, but its real costs can be externalized.

Mass and bespoke have long been paired. Each has its virtues and its drawbacks. *Veblen’s Theory of the Leisure Class* skewered what the Arts & Crafts movement kept hidden, yet we treasure its legacy. Mass is the open question of bespoke: how to bring quality to the masses. Mostly, though, volume and price govern. Materials are caught up in these tensions and contradictions. Ethics are shoved aside at both ends.

The Victorians’ *Gesamtkunstwerk* impulse reflected the exuberant iconography of its important buildings. The Arts & Crafts movement tried to dial this down, and the Bauhaus took this further, but the desire to control the whole persisted despite minimalism’s steady and reductive paring down of the material palette. Art crept in as the last bastion of variability, with artists like Richard Serra exploiting the textured, evolving patina of industrial materials, while others simply painted against the blank purity on offer. Postmodernism turned this inside-out in revulsion, but a shrinking palette left its architects without the needed craft. When it gave way to neo-classicism in some quarters, some of it revived. A few—Annabelle Selldorf is one—have made something new from this, giving the dialectic of modernism and postmodernism a different synthesis.

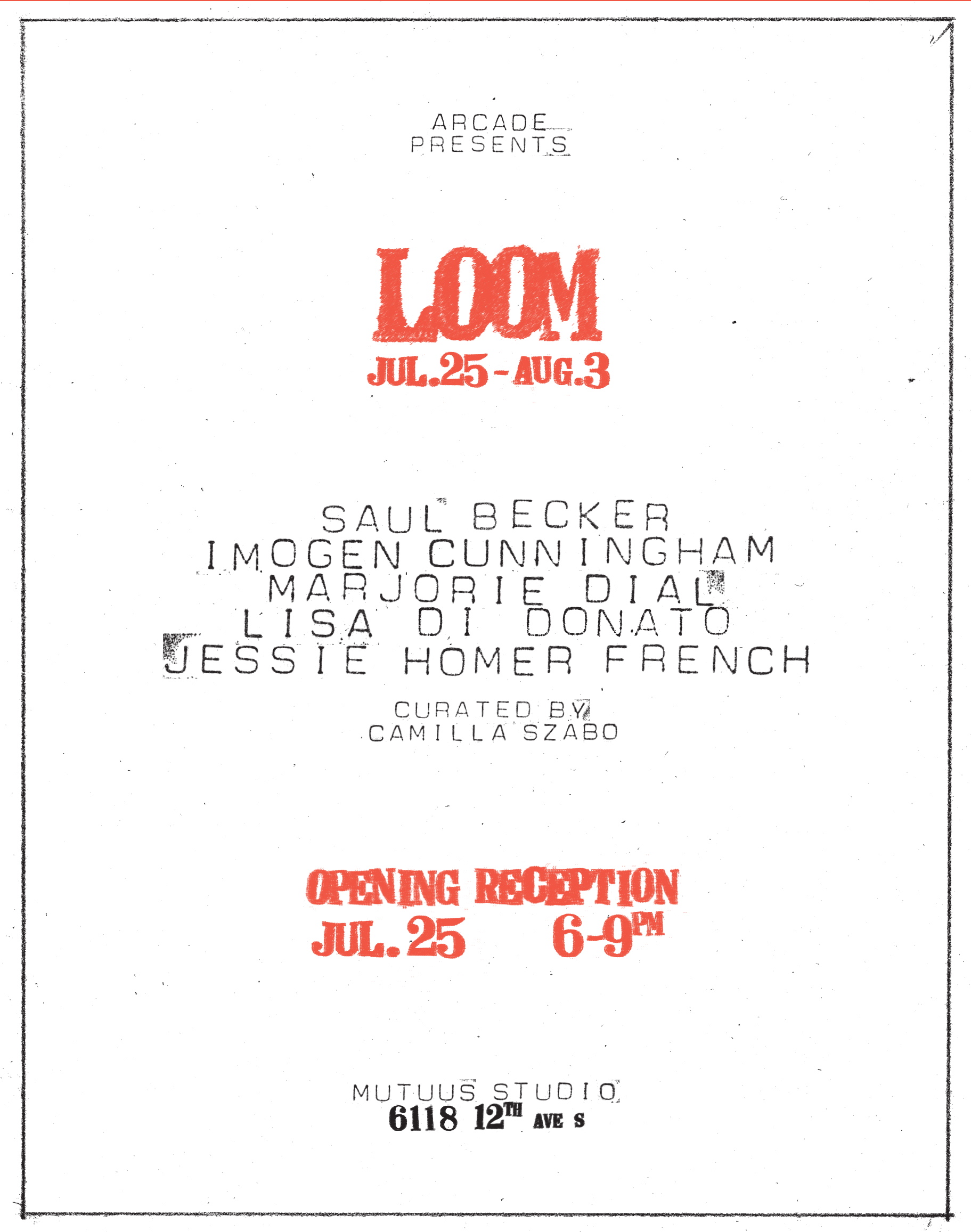
Fred A. Bernstein has made adaptive reuse a cause because buildings are masses of embedded carbon. Tearing them down releases and squanders it. Andres Duany notes that the vernacular also benefits from a willingness to renew and transform. Carriers of a demotic spirit, build-

ings accumulate myriad small acts over time, most of them anonymous. The Victorian’s penchant for “restoring” older buildings to reflect their own aesthetics led William Morris to found his Anti-Scape Society to resist this. Bernstein similarly mocked a Harvard-sponsored renovation that overloaded an old house with tech gizmos meant to run at net-zero, with no thought for embedded carbon or return on investment. Part of his point, also applicable to passive-house fanatics, is that performance should always be seen in human terms and valued accordingly.

We often make material choices from emotion, yet we need those quantitative factors to be visible and reliable. Trust is crucial, as what’s offered can be misrepresented. As James Butler wrote about the Grenfell fire tragedy, “Arconic, the cladding manufacturer, had been told before the fire that fitting a large tower block with polyethylene-core panels would be equivalent to attaching a 19,000-liter oil tanker to the outside of the building.” There’s an ethics to materials that we ignore at our peril, whether the risks are known but ignored or suppressed, immediate or impacting our descendants.

Materiality can even manifest as scent—a natural one from cedar planks or a quasi-natural one made by perfume chemists, those “architects of the invisible,” whose work does its part in keeping humanity going. We trust our noses, which is why perfume chemistry has its own ethics: “Do no harm.” Architects’ failures haunt them doggedly. If you’re going to be the ghost at your building, it’s best not to have such baleful company.

See p.87 for article citations.



Spreads on pages 44, 46, 60, 66, and 74 feature pieces from each of the artists in *Loom*.

Recreate the *Loom* exhibition using 5 copies of ARCADE Issue 42.1: *Materiality*.

Beyond the Bounds of the Material

1966 marked a distinctive point in photographer Walker Evans’ career. Staving off his classification as an FSA [Farm Security Administration] documentarian, Evans made a series of non-commissioned photographs of spaces in America. The result was a concise selection of twelve masterful photogravures, bound in a 14 x 14 inch hard-cover book, titled *Message from the Interior*.

Published by Eakins Press in 1966, it was a feat of materiality. Championing product and presentation, his twelve works were not only monuments in material, scale, and pagination, but spoke of a larger re-characterization of his identity as an artist.

In the book’s afterward, John Szarkowski remarks: “The photographs of Walker Evans pretend to reproduce—without interpretation, without feeling, almost without thoughts—the very bones and clay of the actual world.”

Evans’ photos can be interpreted as a stark material study of the world around us, reproducing intimate spaces as if one were physically there. But was Evans conscious of what he would, or could, infuse into these photographs—a seemingly objective portrayal of interior spaces?

Evans’ images state: here is our material world, and here are its traces. The texture of decaying siding, chipped and broken, revealing charred wood paneling from the unrelenting torrents of fire. A shadow cast onto wood cladding in a subject’s kitchen or living room. But the shadow, transcendent in nature yet frozen in frame, becomes alive and fleeting. A soot stained fireplace suggests years of use, a photograph hanging above a shelf where a box, mirror and clock rest—all relics of an earlier place or time. In all twelve photographs, the presence of a distinguished spirit is undeniable, and consequently, unavoidable.

To presume that no interference is possible, that one *could* present a series of interiors through a purely objective, literal

lens—one that omits its varied history and emotion—is unlikely. It is this very trick, this very “pretending” I would like to think Szarkowski speaks of. The pretending being not just Evans’ masterful ability to transmute the power of interiors, making the spaces come to life as if real—but rather Evans’ choice, conscious or not, to reject the notion that spaces *can* be reduced to a simple material understanding; one that is singular, fixed, or static. Is it really possible to reproduce the very bones and clay of the world “without interpretation,” “without feeling,” and “without thoughts”? We are almost fooled.

What, then, is the “message from the interior”? Evans calls upon the history of a space. He calls upon a “message,” yet without imposing what precisely that message is. Does the “interior” signify literal spaces, or an inner realm? Traces appear in Evans’ photographs, reminding us of the ineffable—that which trails behind or lingers, pulling us towards some center of which we have no precise definition for. We see a room with an open door leading to another which looks to be an almost identical replication of itself. A passageway or portal? But to whom—or to what—remains a mystery. It is fitting, then, for Szarkowski to write that “nothing [is] hidden except their ultimate meaning.”

What is found in darkness?

Architect Sigurd Lewerentz constructed St. Peter’s Church in Klippan, Sweden, between 1962 and 1966, an intensive project spanning four years and resulting in a profound use of materials. Instead of a sequence of photographs, Lewerentz’s masterpiece lies in a sequence of brick, the echo of water droplets, and the prevailing presence of darkness.

During the church’s construction, Lewerentz gave specific instruction that each brick be hand laid, as was traditionally done prior to the Industrial Revolution. With not a single brick cut, a wall meeting an arch where the mass of half a brick might otherwise have been structurally necessary was instead filled with a thick section of mortar. Lewerentz even had mortar smeared across the brick faces themselves, an act accentuating the labor of the craftsmen and consequently turning the building into a “living artifact.” (ArchEyes, 2023.) With the nuance of texture and form, Lewerentz imbues life into his structure.

With just a few small sources of natural light, Lewerentz emphasizes subdued light and shadow, differing from other conventional spiritual structures which instead aim to highlight a strong, consistent source of light. With minute differences depending on season and time of day, Lewerentz’s square windows filter in an irreproducible intensity of light. In Sven Blume’s film *Lewerentz Divine Darkness*, Petra Gripp explains how Lewerentz uses light “as if it had mass... as if [it was] something physical ... being pushed into a room.” (Blume, 2024, 44:46) Beyond the church’s physical construction and use of brick, Lewerentz shapes light as a material in its own right—sometimes solid and steady, other times transient or fleeting.

It is here where one finds poetry infused within the darkened, brick walls of Lewerentz’s church. Replacing what would be a traditional baptismal font, droplets fall in succession from a faucet into the mouth of a gigantic seashell. Paced with the steadiness and precision of a metronome, their profound echo is both a site to ground to our material existence and remind us of the possibility of ascension beyond.

The experience in St. Peter’s Church is one of deep connection to the material world. The bricks’ uniform quality could create the effect of a maze or labyrinth—something daunting and oppressive—but we are not

trampled by Lewerentz’s use of materials, substantive or severe as they may be. Somehow, Lewerentz’s structure reaches far beyond the bounds of the material world, offering an invitation to those who listen closely.

With St. Peter’s Church completed in 1966 and *Message from the Interior* published the same year, there’s a distinct lesson to learn from these two figures whose mystical works coincidentally align in time. Just as Evans never alluded to the exact meaning of the message, Lewerentz rarely gave interviews, leaving us with no predetermined characterization of his work to pull from. With their intentions buried behind their respective mediums, we are left with the sheer impact of their craft alone.

Evans and Lewerentz show us the potential for interiors to transcend their literal makeup or function. The material world brings us into other realms, and if we’re lucky, transmutes meanings that are deeply affecting. There exists an invitation to see beyond the primary interpretation, to be ushered into those murky, undefined, and immaterial realms; to be moved.

CAMILLA SZABO





it could be that the same history, culture, and science that makes crochet *crochet* is what has kept it from widespread research.

Baurmann learned to crochet from the traditional primary school she attended growing up in Germany, where the girls learned to crochet, knit, and sew, while the boys learned woodworking.

Gisela Baurmann dreams of ocean habitats crocheted out of kelp and avalanche barriers crocheted out of steel. Baurmann is an architect and a crocheter, and if her research is successful, she might just meld the two into a new architectural field: crochet-based construction.

She calls her research Hyperstitch, the prefix *hyper* a reference both to the physical scale of her work and to the field of hyperbolic geometry; *stitch* a reference to the building blocks of crochet. For the past two years, Baurmann, an adjunct associate professor at Pratt Institute's School of Architecture, has been working on Hyperstitch with graduate students to answer two questions: *Can we design a robotic arm that can crochet? And is there a crochet-able material with enough structural strength for large-scale construction?* If the answer to both is yes, then a crocheted sea wall may just be coming to an ocean near you.

Crochet has proven itself a strong, sustainable method for large-scale public art and even smaller-scale architectural forms. The possibilities are out there, rooted in an art form that has been commonplace for centuries. So why is its body of research so slim? The answer both feels very simple (sexism, ageism, classism, etc.) and is due to the complexity of crochet itself. In both cases,

The fiber arts—including knitting, quilting, and embroidery—have traditionally been considered feminine work of the domestic sphere, often passed through the generations as profitable trades. From crochet lacemaking in Ireland, which grew in popularity in the mid-1800s as a response to the economic hardships of the Great Famine, to the fiber arts workshops Japanese Americans organized while incarcerated at concentration camps during World War II, “domestic crafts often arose as a form of creative resilience in the face of economic hardship and oppression,” Elena Kanagy-Loux writes in her essay “My Grandma’s Doilies Are Not a Joke” (Kanagy-Loux, 2024).

Still considered mere grandmotherly hobbies in a society riddled with -isms, the fiber arts are undervalued as specialized skills and art forms—finding crochet in a fine arts museum, let alone a graduate-level architecture seminar, is rare.

For Baurmann, frustration with the gendered separation of her schooling fueled action: “I of course had to make sure I did the other thing too,” she told me. “And I worked with a carpenter for half a year after high school.” It’s no surprise that she ended up at the forefront of this innovative field, pushing the boundaries of crochet in scale and public perception alike.

But she’s not the only one.

Implications of Crochet for Large-Scale Design

“Each crochet-based architectural project or artwork is an implicit call to take vernacular art forms, and particularly *this* vernacular art form, seriously.”

Visitors to the Museum of Fine Arts in Houston, Texas, may have been surprised by Ernesto Neto’s 2021 sculpture *Sun-ForceOceanLife*: a spiral, galaxy-shaped walkway crocheted out of polymer string, suspended 12 feet in the air and spanning roughly the area of a tennis court. As they took their first tentative steps on the walkway, trepidation gave way to glee as they found that it held their weight.

Structural strength is what brought Neto to crochet for large-scale sculptures. The endless possibilities it brings captivated him: “From a single thread, you can build anything from just one line,” he told *Say Who* in a 2025 interview. “That’s very important to me” (Sansom, 2025).

That’s what brought Jin Choi and Thomas Shine of Choi+Shine Architects to crochet, too. “I started to look at lace,” Choi explained, “and there was a huge story behind it: history, tradition, the women’s struggle and labor struggle, and about femininity.” She developed a proposal for a lace canopy that would hang over the Herengracht, one of Amsterdam’s most famous canals. It was accepted for the 2016 Amsterdam Light Festival, which meant they had just one tiny problem: They hadn’t figured out a way to fabricate it.

“I thought that it would be really beneficial if I can do something with a continuous strand,” Choi said. “And there are not many methods that allow you to [do that].” Enter: crochet.

How Crochet Works

Crochet is made stitch by stitch with a continuous line of fiber (often yarn), which is pulled into loops by the curved head of a crochet hook, a thin rod about the length of a hand. Each loop builds on the last, adding to the piece until it’s the shape and size the artist intends.

Working stitch by stitch means there is only one active stitch at a time (the one you’re working on at that moment), making the resulting fabric quite strong. Each stitch is an individual building block directly and independently linked to the stitches that surround it, yielding a uniquely intricate and strong structure.

As variables change—using different variations or numbers of stitches, for example—the *local* (stitch-by-stitch) components develop a feedback loop with the *global* (fabric as a whole). Each stitch is made up of several lines that can be crocheted into, so even if the pattern stays the same, one has to ensure they’re crocheting into the

right loop. This grants an incredible sense of flexibility as the artist can add onto the design in almost any location or direction to make flat fabric into complex 3D objects, like sculptures or dolls—all while still using the same thread, just as Choi had hoped.

Math and Materiality

In 1997, mathematician Daina Taimina discovered that this meant crochet could also be used to create mathematically correct models of hyperbolic planes, which are common geometries in nature. “The hyperbolic is everything that has little curls around the edges, like cauliflower or kale,” Baumann explained, waving her fingers to demonstrate the curls.

Hyperstitch builds on Taimina’s discovery and techniques, which she taught to Baumann. Over the years, she and her students have worked toward a more precise geometry of crochet through analysis, architectural sketches, and computer modeling. They even printed 3D models of crochet. “They’re beautiful, beautiful little objects,” Baumann said. “But they’re not emergent”—printing them top-down as one piece loses the local nuance of stitch-by-stitch creation.

As Baumann and her students scale up their prototypes (currently the size of small pavilions), their aim is to identify materials that are lightweight, structurally strong, flexible enough to be crocheted, and cheap enough to readily acquire. They’ve tested steel cables (too tough on hands), basket weaving reed (has to stay wet during the process), and even garden hoses (too heavy).

The current trend is foam—insulation foam, weather-stripping foam, ducting material, and so forth—but Baumann hopes that they can find something more environmentally sustainable. “Right now in the fashion industry, they [can] use kelp to fabricate threads,” Baumann shared excitedly. “You can buy a sweater that’s made from kelp.” To bring that fabrication process, she says, “That’s my idea. That’s my fantasy.”

Also looking for sustainable alternatives, the architecture firm DUS decided to crochet a wedding chapel out of ventilation pipe in 2009. They collaborated with crochet expert Sandy de Lange on pattern design, then took three days and two kilometers of ventilation pipe to crochet an ethereal chapel that fit fifty people.

Artist Sheila Pepe likewise gave materials new life in her first outdoor exhibition in 2023. *My Neighbor’s Garden* comprised nearly 14 kilometers of nylon string, cotton

string, and household items like shoe-laces, paracord, and rubber bands, items often used until they fall apart or disappear under refrigerators and into closets.

“What’s great about crochet,” Choi shared, “is that you can always unravel ... and reuse if you wanted to.” This means that if Choi+Shine decided to retire any of the dozen or so lace-inspired public art sculptures they’ve installed around the globe, they’d not just be recyclable but reusable. Because crochet is made stitch by stitch, it can be undone the same way. There’s something beautiful about this, the knowledge that each of these works can be unraveled for the exact same reason that they’re incredibly strong: They’re made one stitch at a time. Just undo the final knot of a work and pull, and the full piece can be wound back into a ball, still a single, continuous line.

Hands and Machines

Every single project this essay has mentioned was made by hand. Actually, by many hands. I know this in part because the artists readily acknowledge the intense amount of labor these large-scale projects require. I also know it because we’ve yet to develop technology that can do it for us.

Although the first mechanical knitting machine was invented in 1589, the first prototype of a “true” crochet machine wasn’t patented until 2019. Developed by researchers at the Bielefeld University of Applied Sciences, the prototype seems promising, though its functionality is still minimal, including limited options for materials and manual adjustments to create more complex structures.

Over at Pratt, Baumann and her students have been iterating with a robotic arm, adjusting the hook design, the tool path, and even the robot itself—thanks to Greg Sheward, the professor and facilities manager overseeing robotics operations and research at the School of Architecture. Baumann is confident that one day they’ll be able to work with the robot to fabricate large-scale crochet out of everything from steel cable to a yet-to-be-developed kelp material. For now, the robot still requires a ready (human) hand to help guide and course correct.

This circumstance feels deeply in the spirit of crochet, in part because it’s a craft that’s been passed down through generations. Many crochet artists talk about not just when they learned the skill, but from whom: Sheila Pepe’s mother taught her when she was a child, while Ernesto

Neto learned after years of working with textiles as an artist. In 1984, he asked his grandmother to teach him tricot (a type of woven knitting), and his great aunt piped up from the couch, saying “Weaving, no. You have to learn crochet!” And so he did.

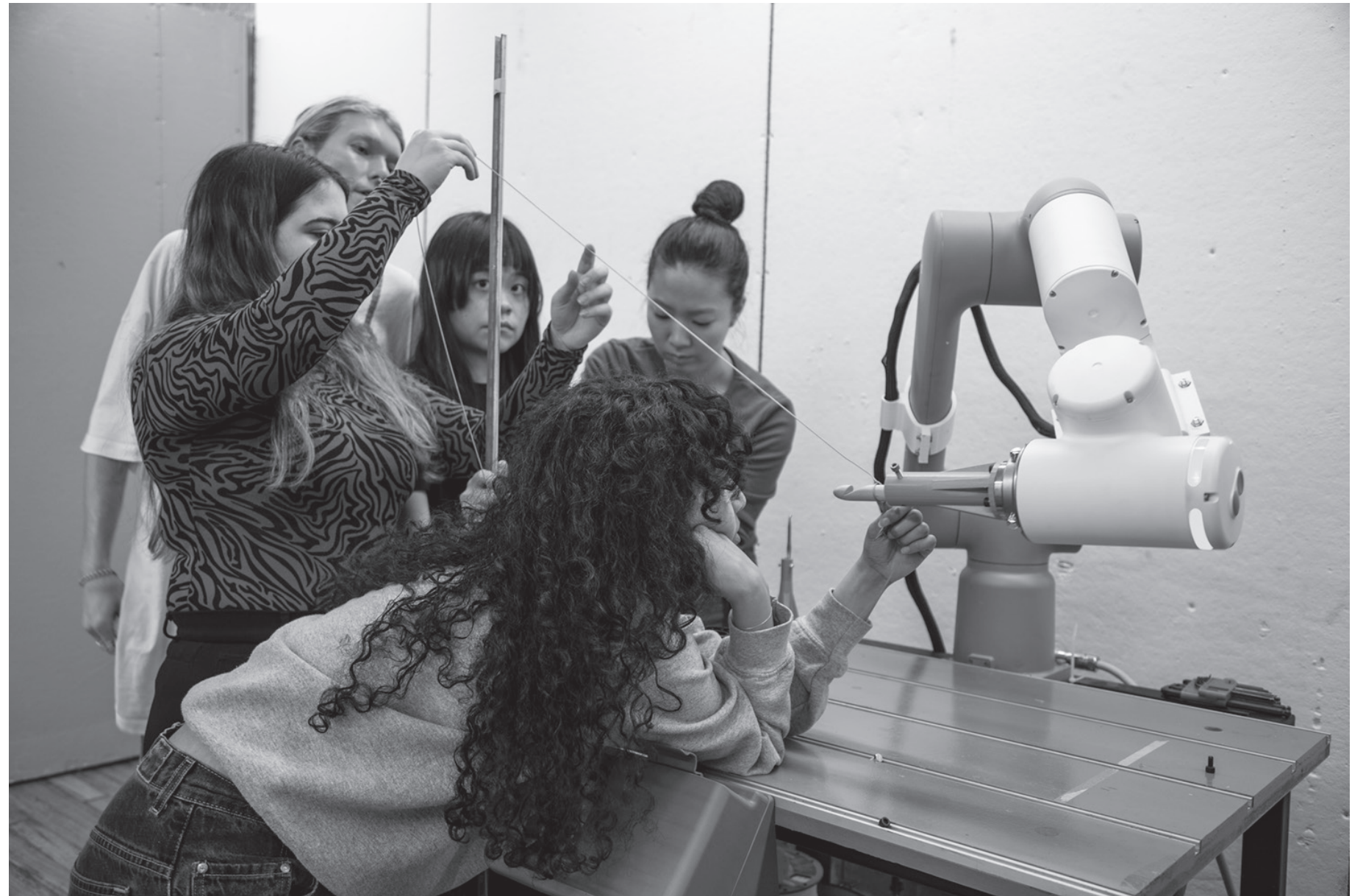
Nearly every artist statement or profile that’s focused on crochet mentions the implied femininity of the art form. Even Pratt’s website commends itself for taking crochet seriously with Hyperstitch. While it doesn’t refer to crochet in design as a new use, it does refer to Hyperstitch as “releasing the technique of its limitations to the domestic realm” (*Gisela Baumann’s Hyperstitch*).

In a way, each crochet-based architectural project or artwork is an implicit call to take vernacular art forms, and particularly *this* vernacular art form, seriously. To paraphrase DUS’s manifesto, architects have a large stage, and the scale of these pieces make crochet impossible to ignore.

That said, even DUS’s own crocheted chapel had some skeptics. One magazine put the credentials of their collaborator, Sandy de Lange, in quotation marks (“crochet expert”), suggesting that perhaps her skills don’t count as expertise. Are there any credentials that could lead de Lange and other artists to be considered experts in their own right? Expertise here is tied up in the subjective idea of “artistry,” which always seems to lie on one side of the classist, ageist, and misogynist lens that vernacular art forms are viewed through.

Choi+Shine aim to subvert these preconceived notions as they collaborate with communities on their lace-inspired artworks. As a decorative item, lace has traditionally been made by the working class and purchased by the wealthy, “reveal[ing] the divided class society.” But their art aims to bring people together “regardless of ... origin, age, socio-economical and political status,” according to one artist statement (Choi & Shine, 2024). In this cognizant shift, their work asks people to reconsider preconceived notions regarding who makes art and to whom it belongs.

This feels, to an extent, at odds with the idea of a new crochet machine. Of course we’ve had other textile machines for centuries—also often run by working class women and girls in horrifying working conditions—but the fact that robotics, like architecture, is coded as a more masculine field feels different. I do wonder if the development of a crochet machine, particularly if it can be used in construction, will help crochet be taken more seriously by demonstrating that it’s not “just” a grand-



Robot-Human Crochet Collaboration with Steel Cable
Students (from left to right): Zeynep Gorken, Jamie Latimer,
Tingyu Chang, Chai Hwang, Aisha Aljassim Algenaei
Photo by Emily Young, courtesy of the Department of
Graduate Architecture, Urban Design and
Landscape Architecture at Pratt Institute

Volunteers work together to assemble the Urchins in Barcelona
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The Urchins on display in Barcelona. © 2024 Choi+Shine Architects, LLC. All rights reserved.

motherly craft. But I also worry that if it’s “masculine” fields that serve to elevate crochet, it won’t be our foremothers who are celebrated, but the scientific fields dominated by men who finally considered their centuries-old craft to be worthy of research.

Sheila Pepe considers the layers of gender, labor, and mechanization in the roots of her work, noting that gendered expectations mean that large-scale crochet artistry can feel at odds with itself: “Up high, in my overalls and my crochet hook in hand, on top of a drivable scissor lift, it’s the funniest gender joke in the world for me,” she told *New York Times* writer Hilarie M. Sheets in 2023. “Now you’re Grandma! Now you’re Uncle Joe!”

For now, the collaborative nature of robotic crochet is comforting. It feels linked to the necessity of community, a fundamental part of crochet’s charm. This also pushes back against the prevailing cultural idea that the best art is made by a solitary genius (ideally a cis man, white, emotionally tortured despite his advantages—you know the deal). And certainly, there are some large-scale fiber artists who labor alone, the slow and painstaking work part of their process, a layer of performance art imbued in the final product.

But the crochet artists I’ve mentioned see the community aspect of their work as key, celebrating not just the work but the results of the time spent together. The acknowledgment that community is vital—or at least that teamwork is—parallels practices in the fields of architecture and construction, which are largely team-based operations (though the last century certainly does have its share of seemingly solo star-chitects). Baurmann even mentioned teamwork as a skill her students practice via Hyperstitch, knowing that they’ll collaborate with fellow architects, engineers, stakeholders, and even politicians.

In asking community members to crochet with them, each artist fully understands what they’re asking of people: free labor in a field that can be undervalued or even expected to be produced freely. It’s not uncommon, after all, for someone to ask an acquaintance to make them a sweater (“I’d pay for the yarn, of course!”) or to expect an artist to feel comfortable being paid “in exposure.” Even just acknowledging this, whether with a symbolic payment or clear artistry credits, can change the framework.

A Community, Not a Factory

For her 2023 exhibition, installed in Madison Square Park, New York City, Sheila Pepe turned to community-based work. She paid recruits fifty dollars a day (a symbolic amount more than true compensation), but was clear with her intentions: “I never wanted an art factory,” she told the *Times* (Sheets, 2023). Instead, the group operated more like a traditional crafting circle, bonding quickly as they worked alongside each other. For centuries, women have met for political purposes under the guise of “feminine pursuits,” a source of inspiration for Pepe according to Brooke Kamin Rapaport, artistic director and chief curator at the Madison Square Park Conservancy. “These sewing circles and knitting clubs and quilting bees were forums to talk about women’s rights,” she shared with the *Times*, “to propel the abolition of slavery, to create garments and blankets sold to provide income” (Sheets, 2023). This practice flips the idea of the solitary genius on its head. Part of the power of these artworks—part of the reason they’re sustainable to continue making—is that they bring people together and forge community. Jin Choi crocheted two installations almost entirely by herself before it became a crucial part of Choi+Shine’s public art to bring the community into the making

"Though rigidity is often associated with strength and malleability with weakness, crochet proves otherwise."

process. She had tried recruiting crocheters to help with the first two, but the challenge of crocheting the thick polyester cord caused even the most experienced crocheters to give up or, even worse, simply disappear without a word.

But when a *Vogue* article about their work appeared, they received hundreds of letters, postcards, and emails from crocheters asking to join in.

Now, their “crochet army,” as they call their volunteers, is fundamental to their work. They’ve mailed crochet kits across the nation, each person sending back the completed work, as well as using all local volunteers. After crocheting, they settle into a large space and spend a few days sewing all the pieces together, teaching community members, who then take ownership over the project for a few hours before passing it off to the next person.

Mistakes are rare because “[the crocheters] want to be perfect,” Choi shared. They help each other along the way, whether asking questions in the Facebook and WhatsApp groups made for remote collaboration or guiding people through in-person making. They’ve even orchestrated repairs when the works have been damaged—as in the case of a few rowdy Australians who apparently forgot they weren’t in a jungle gym.

One of Choi+Shine’s most memorable community moments came when they were working on their piece *ARIZONA!* in Scottsdale. “Most of the volunteers are grandmas,” Shine said. Imagine their surprise when a group of fraternity brothers showed up, having decided to make it their annual volunteer project.

“You had these grandmas helping these college kids put together this artwork,” Shine said. “One of the grandmas

holds up a needle and shows him how to thread it. He goes, ‘Oh, there’s a hole in it! That’s how it works!’ Then they’re helping each other and laughing.”

Whether family, friends, neighbors, or strangers, these kinds of connections with each other and the craft form itself can last for the duration of the project, or for life. Working together, participants are able to accomplish a mammoth task, each bringing a humility to learn and the readiness to pass it along.

At the eleventh hour of an installation, Choi realized that they were somehow one piece short. It would take her about seven hours without breaks to make it by herself, and she didn’t know what to do. Her volunteers listened intently as she explained, then they began volunteering to complete specific portions

“It was supposed to be one person for one motif,” Choi said. “There happened to be seven people, including myself... [All] did portions, and then we stitched them together within two hours.” The collective energy of the group meant they could be resilient, ready to adjust to the needs that arose, as malleable yet strong as crocheted fabric itself.

Malleability is what drew Baurmann to Hyperstitch and the idea of crocheted ocean habitats. The structure is “floppy and flexible and somehow harnesses the energy of its environment,” she told me. “And it’s still super resilient.” She likens it to a sailboat: “If you’re a good sailor, you can be in the craziest [storm and still sail].” Just as a skilled sailor navigates the weather to avoid damage, and just as a community comes together in challenging times, so does crochet: “It never breaks. It just keeps springing back into its original form, and that’s what I find fascinating.” Though rigidity is often associated with

strength and malleability with weakness, crochet proves otherwise. In “My grandma’s doilies are not a joke,” Elena Kanagy-Loux reminds us of this, asking, “When will we, as a culture, move beyond rigid hierarchies of value and celebrate domestic crafts in their own right?” (Kanagy-Loux, 2024). Perhaps crochet-based architecture and public art projects will be a step forward.

As much as I want Hyperstitch to succeed in its mission, I worry that only once a robot is able to crochet steel into buildings will the art form finally be considered “worth something.” Its perceived femininity will be seen as a bug, not a feature, and grandma’s doilies will be even less valued than they are today.

I worry, too, that the community-oriented energy of fiber arts will drift away, replaced by the quintessential solitary genius—or the robot who needs no extra set of hands. If that happens, we will have forgotten the ultimate metaphor and lesson of crochet. Even if we *can* do it alone, we lose so much by not embracing community as part of the artistic process.

By taking the vernacular arts more seriously, we can dream bigger, whether that dream is ocean habitats crocheted out of kelp, rowdy Australian-proof public art, or something still to come. The possibilities are out there. Perhaps as we continue to investigate them and to celebrate fiber artists, we’ll learn how to better respect crochet, and in doing so, each other.

Grenfell Tower: A Very Modern Tragedy

ANDREW RABENECK

A catastrophic fire happened because highly combustible materials were used to refurbish a 1970s residential tower by adding insulation and rainscreen cladding panels over the original reinforced concrete structure and external walls. But these materials remain in common use, continue to be specified by construction professionals, and continue to result in many fires around the world. The question is, How did the use of these materials happen? Was it a result of dishonesty, ignorance, or bureaucratic bungling?

Grenfell Tower is a twenty-four-story residential tower in North Kensington, an impoverished inner suburb of London. Designed by Clifford Wearden and Associates for the Royal Borough of Kensington and Chelsea (RBKC), it was completed in 1974 as public housing. Typical floors had six small apartments served by a single stairway and two elevators. In 2012, RBKC refurbished Grenfell Tower as part of a local area improvement scheme. The work included replacing the heating system and windows, upgrading the thermal insulation, and refreshing the exterior appearance.

The Human Context

Grenfell Tower mostly housed immigrants from Morocco. Neglectful management by the Kensington and Chelsea Tenant Management Organisation (KCTMO) led them to form the Grenfell Action Group (GAG). In 2016, GAG published an online article attacking KCTMO as an “evil, unprincipled, mini-mafia” and accusing the borough council of ignoring health and safety laws. In a blog post, GAG warned that “only a catastrophic event” would “expose [KCTMO’s] ineptitude and incompetence” and “bring an end to the dangerous living conditions and neglect of health and safety legislation” at the building. “It won’t be long before the words of this blog come back to haunt the KCTMO management... They can’t say that they haven’t been

warned!” Less than a year later, on June 14, 2017, GAG’s prophecy came true when a fire broke out that killed seventy-two of Grenfell’s residents. It was the deadliest residential fire since the Blitz in World War II. Started by an electrical fault in a refrigerator on the fourth floor, the fire quickly spread vertically and horizontally to engulf the entire tower, fueled by its highly flammable insulation and cladding material.

The Industrial Context

Efficient insulation and over-cladding materials are in great demand for new and older buildings. Climate change and sustainability led manufacturers to produce lightweight sheet materials that can be fixed on rails and brackets to provide rainscreens in front of the insulation. New materials like this, eventually written into design guidance and legislation, become part of ordinary practice. Companies like Saint Gobain and Arconic make and market their products at multiple locations around the world. Both construction products and materials today reflect globalization (Rabeneck, 2018). This means that the productive sector of the real economy is increasingly transformed through financialization by private equity investment funds with the goal of maximizing shareholder value. Success for the producers is measured in terms of market share and sales volume, with massive pressure to achieve targets for growth. Success for the investment is measured in higher valuations for the producers, achieved through share buybacks. As earnings per share rise, so too does executive compensation. This is the corporate machinery of late capitalism (Mazzucato, 2018).

The products at issue in the Grenfell catastrophe are the insulation, Saint Gobain’s Celotex RS5000, a rigid board of combustible polyisocyanurate foam insulation, and a small amount of Kingspan K15 rigid phenolic foam board. Both

were imperfectly fixed to the geometry and texture of the tower’s original concrete exterior. Weather protection was provided by Arconic’s Reynobond 55 PE, an aluminium composite material (ACM) product—two thin sheets of aluminium coil laminated with a polyethylene core to provide stiffening, folded into hook-on rainscreen “cassette” panels as the outer finish. The companies making and promoting the materials are fully aware that they are combustible and dangerous, and have long marketed them into jurisdictions with weak or fragmented regulatory and testing regimes, such as the UK.

The Regulatory Context

Following both World Wars, Western democracies invested heavily in education and scientific research to support reconstruction. In Britain, this took the form of government construction research, construction demand management through the Ministry of Public Building and Works, and direct large-scale investment in public housing and infrastructure. In the mid-1970s, a world recession and raging inflation forced Western governments to cut back drastically on key elements of the welfare state as their costs rose. Public housing was seen as unaffordable. This was accompanied by a “rolling back the state” movement. The privatization of public assets after 1987 included, in 1997, the Building Research Establishment (BRE), a world-renowned center of construction knowledge founded in 1921 (Parker, 2012, p. 386). BRE’s scientific findings were used to inform general construction practice, building regulation, construction standards, and methods of testing materials and assemblies. With privatization, its work became contractual and its results proprietary, no longer contributing to general knowledge.¹

At the same time, the evaluation of materials for regulatory compliance came

increasingly to depend on performance tests. The relationship between performance in a test and performance in the real world is normally unspecified, so manufacturers and designers tend to focus on passing the test, while regulators, inexperienced in the detailed conditions of fire safety, make the same error (Branigan, 2008). This has led to large-scale markets in dangerous materials. Grenfell Tower is a fatal example of the consequence.

The materials used at Grenfell were both compliant and noncompliant with UK safety requirements for high-rise cladding panels. The combustible insulation products were not approved in statutory guidance for use on a high-rise tower. The rainscreen cladding had obtained National Class 0 by testing in 1997 and was certified as Class 0 by the British Board of Agrément (BBA) in 2008. That classification had been fully established in law in the building regulations in 1976. However, following subsequent legislation, the Building Act of 1984, Class 0 was defined in statutory guidance in terms of a small oven test, whereby if molten or burning plastic was seen, the test was invalidated. Surface spread of flame was covered by British Standard 476, Part 7 (1987), in which samples were supported on a water-cooled frame. Neither test prevented ACM, among many other combustible products, from obtaining Class 0 certification. Indeed, the water-cooled frame made it possible for manufacturers to get their products to market. Yet, despite being warned by its own assessments of their limitations, the government continued to use BS 476 testing. Remarkably, it was only withdrawn on March 2, 2025.

The insulation manufacturers were given a way around the height restriction on their products. In 2002, BRE devised a full-scale test, BS 8414, for cladding systems to be used in refurbishing buildings over 18 meters high. As reported in the Grenfell Tower Inquiry, both Celotex and Kingspan underwent this test from 2004 to secure

Oxford, N. (2017). Grenfell Tower Fire. Wikimedia Commons. CC BY 4.0. Changes made.



ratings that they could use in marketing their products. Compliance with the performance criteria in the BRE report, *Fire performance of external thermal insulation for walls of multi-storey buildings* (BR 135), which included the BS 8414 test, signified regulatory compliance. But both companies engaged in deliberate and sustained efforts to manipulate the testing processes, misrepresent test data, and mislead the market. Dishonest claims of BS 8414 compliance were used in both firms’ marketing materials. With its commercial outlook, BRE was directly complicit in this effort in the case of the main insulation product, Celotex RS5000. None of those involved in the design of the external wall or the choice of materials at Grenfell Tower acted responsibly. Not only did they not properly understand the relevant provisions of the building regulations, but they also took a cavalier attitude toward regulation itself. From 2011, Celotex RS5000 has been sold as having Class 0 fire performance “throughout,” a claim that was false and misleading. Celotex presented RS5000 to Harley Facades, bidding for the installation work, as suitable and safe for use on Grenfell Tower, although it knew this was not the case (Grenfell Tower Inquiry, 2024).

The companies’ dishonest strategies succeeded partly because the British Board of Agrément (BBA) and Local Authority Building Control (LABC), whose certificates assured the market of their products’ quality and characteristics, failed to ensure that their product certificates were accurate and based on test evidence. The United Kingdom Accreditation Service (UKAS), which oversees the certification process, relied too much on the cooperation of the organizations being assessed and, in any case, had no powers of enforcement. All of this was aggravated by the government, which lied about the suitability of materials granted Class 0 ratings in small-scale tests, in guidance issued immediately after the Grenfell fire, ostensibly to “clarify” requirements of the building regulations (Grenfell Tower Inquiry, 2024). Yet in February 2025, facing estimates of £50 billion to remediate other towers clad in thermoplastic materials, the government’s response to the Grenfell Tower Inquiry report failed to own up to the confusion caused by its misleading regulation.

The final Grenfell Tower Inquiry report, issued in September 2024, unambiguously condemned government bungling in the wake of the privatization of the BRE and the local authorities’ practice of con-

tracting out inspections of construction: *“We conclude that the fire at Grenfell Tower was the culmination of decades of failure by central government and other bodies in positions of responsibility in the construction industry to look carefully into the danger of incorporating combustible materials into the external walls of high-rise residential buildings and to act on the information available to them.”*

(Grenfell Tower Inquiry, 2024)

The Political Context

Daybreak on June 15, 2017, revealed a severe humanitarian tragedy. Those who fled the tower congregated around its base, desperate for news of loved ones lost in the fire. RBKC was slow to react, belatedly setting up “rest centers” in local churches, mosques, and youth centers, and failed to ask nearby boroughs for help, fearing this would make it look incompetent. The police acted roughly, and an atmosphere of chaos and recrimination persisted for several weeks.

Within a few days of the fire, social landlords frantically checked the cladding on their high-rise buildings. Camden Borough found that five towers were refurbished by the same contractors used at Grenfell, employing the same materials. The government set up a service to test cladding samples, and within a few weeks, more than thirty buildings were identified. When experts noted that UK standards were laxer than Europe’s, the Class 0 standard came under scrutiny, as did the government’s failure to act on an earlier fire that claimed six lives. The day after the Grenfell fire, Prime Minister Theresa May announced a public inquiry. While it ultimately uncovered the shocking facts, “We must wait for the outcome of the inquiry” became the annoying refrain of ministers facing difficult questions in the fire’s wake (Apps, 2022, p. 283). Behind the scenes, the government prepared its defense. It could not publicly admit that its regulations were defective and that warnings were missed, so it claimed that ACM cladding was “effectively banned.” This ignored the fact that performance-based regulation does not prescriptively ban anything. It simply requires materials to “adequately resist” the spread of flame. It was the reference to the Class 0 standard achieved by some Arconic, Kingspan, and Celotex products that endorsed their use on high-rise build-

"The design team, the construction companies, the cladding subcontractors, the building inspectors, and the certification bodies involved in the refurbishment of Grenfell Tower were all caught up in this flawed new world of construction practice, a tragic but natural outcome of recent neoliberal economics."

ings, despite their deadly combustibility. The post-fire Advice Note rushed out by the government publicly claimed that combustible cladding was banned when this was patently not the case (Apps, 2022, p. 283). The note was withdrawn two years later, without any admission of error.

While it soon became clear that there was widespread use of combustible cladding across Britain, with thousands of buildings identified, the phase 1 report of the Grenfell Tower Inquiry, *Building a safer future*, did not demand a moratorium on the use of ACM cladding. Concluding that the building industry suffered from systemic failures due to ignorance about regulation and guidance, an emphasis on speed and cheapness, lack of clarity on roles and responsibilities, and inadequate regulatory oversight and enforcement tools, the report called for a radical overhaul of regulation (Hackett, 2018).

April 2022 saw a new Building Safety Act, promising new regulators for building safety and building products and some protections for homeowners affected by the flammable cladding. An independent review of construction product testing was commissioned by Industry Grandee Paul Morrell and Barrister Annaliese Day. Their report reveals the murk and muddle of British testing and regulation in detail, as well as the destructive self-harm of Britain’s decision to leave the European Union (Morrell & Day, 2023). In early 2022, a government minister, Michael Gove, promised that homeowners would not have to pay for replacing faulty cladding and urged Construction Products Association (CPA) members to assume financial responsibility. Although CPA made reassuring noises, for seven years after the disaster no cash was forthcoming, nor were legal cases brought against Arconic, Saint Gobain, or Kingspan. Excuses for the delay were rendered moot with the publication of the inquiry report.

Tragically, the recent government response to the Grenfell Tower Inquiry has been feeble and evasive. Yes, there will be a single construction regulator, but one without direct responsibility for testing and certification—that will be farmed out to private sector bodies, despite strong criticism in the report. It is the privatization of testing and certification and the evident decline in scientific standards at the privatized BRE that lie at the center of the scandal exposed by the inquiry (Apps, 2025). The response also leaves unclear whether “redress” for residents will be retrospective. If they live

in a building clad with a product mis-sold in 2012, will they be able to get compensation or must they suffer astronomical service charges and insurance premiums forever, unable to sell their property? That ball has been batted back to Parliament.

Privatization and Its Discontents

Scientific knowledge about construction is quite recent, dating from the early twentieth century. Growing industrialization soon made it indispensable for the state to keep its citizens safe, a basic obligation. This led to the establishment in 1921 of the UK’s Building Research Station (Lea, 1971, p. 9). After the first World War, reconstruction was seen to require much more than the craft empiricism that traditionally underpinned construction. Government involvement could protect people from its industrialization, and benefit from it, and the knowledge required to do this led to government-sponsored research.

The authority conferred on the knowledge that public institutions generate is clearly needed. Protected from commercial interests and political pressures, these institutions operate in the public interest. Their research findings are reflected in codes, standards, and procedures. This was the accepted model in advanced economies in the *trente glorieuses*, the postwar decades up until the oil price shocks of 1973. France had its Centre Scientifique et Technique du Bâtiment, Germany its Deutsches Institut für Bautechnik, and even America had its Institute for Applied Technology within the National Bureau of Standards.² Only the BRE privatized, testing now being a paid service with proprietary findings and research in support of government initiatives being greatly reduced. In parallel, industrialized building product and materials producers such as Saint Gobain and Arconic have increased their grip on global markets, massively aided by the deregulation of the capital markets around 1986. The resulting mobility of capital and its instruments of distribution revolutionized the political economy of construction: the extraction of raw materials; the manufacture and distribution of building materials, products, and systems of construction; the organization and execution of construction; the management of the construction workforce; and, of course, the position of architects and engineers (Rabeneck, 2016). In this new landscape, direct control over construction knowledge has moved increasingly to the supply

side of construction, while the social and cultural context of its use, construction practice, is changing. The professional system is being replaced by a bureaucratic one in which the rules are driven by the demands of large clients and the behaviors of major industrial firms. When a product manufacturer offers architects and engineers “free” downloadable BIM templates and CAD details, the knowledge and assumptions embedded within them eclipse and replace the professional function.

The design team, the construction companies, the cladding subcontractors, the building inspectors, and the certification bodies involved in the refurbishment of Grenfell Tower were all caught up in this flawed new world of construction practice, a tragic but natural outcome of recent neoliberal economics.

What’s to Be Done?

Given the new political economy of construction, with most product categories dominated by highly financialized global oligopolies, and with greatly weakened demand-side professionals, what can governments do to protect their citizens from future tragedies like the Grenfell fire?

Continuing to pretend that current relationships among research, testing, regulation, and public administration are workable is not an option. Along with the Grenfell tragedy, the lack of a satisfactory response to the Grenfell findings by the British government makes that clear. Nor can we expect the industry to suddenly work to make buildings safe; the industry just wants to sell more stuff and preserve its margins. Indeed, protecting citizens from the predations of the construction industry will be a struggle, but it’s an important one because the cost of failure is huge, as Grenfell and its aftermath have shown us.

My suggestion is for the British government to take back control of construction knowledge as it informs regulation. Put the BRE back into public ownership, give it authority over product testing and certification, and publicly commit to accepting its recommendations. This is a global battle, so it is necessary to strengthen BRE’s ties to other national construction research institutions.

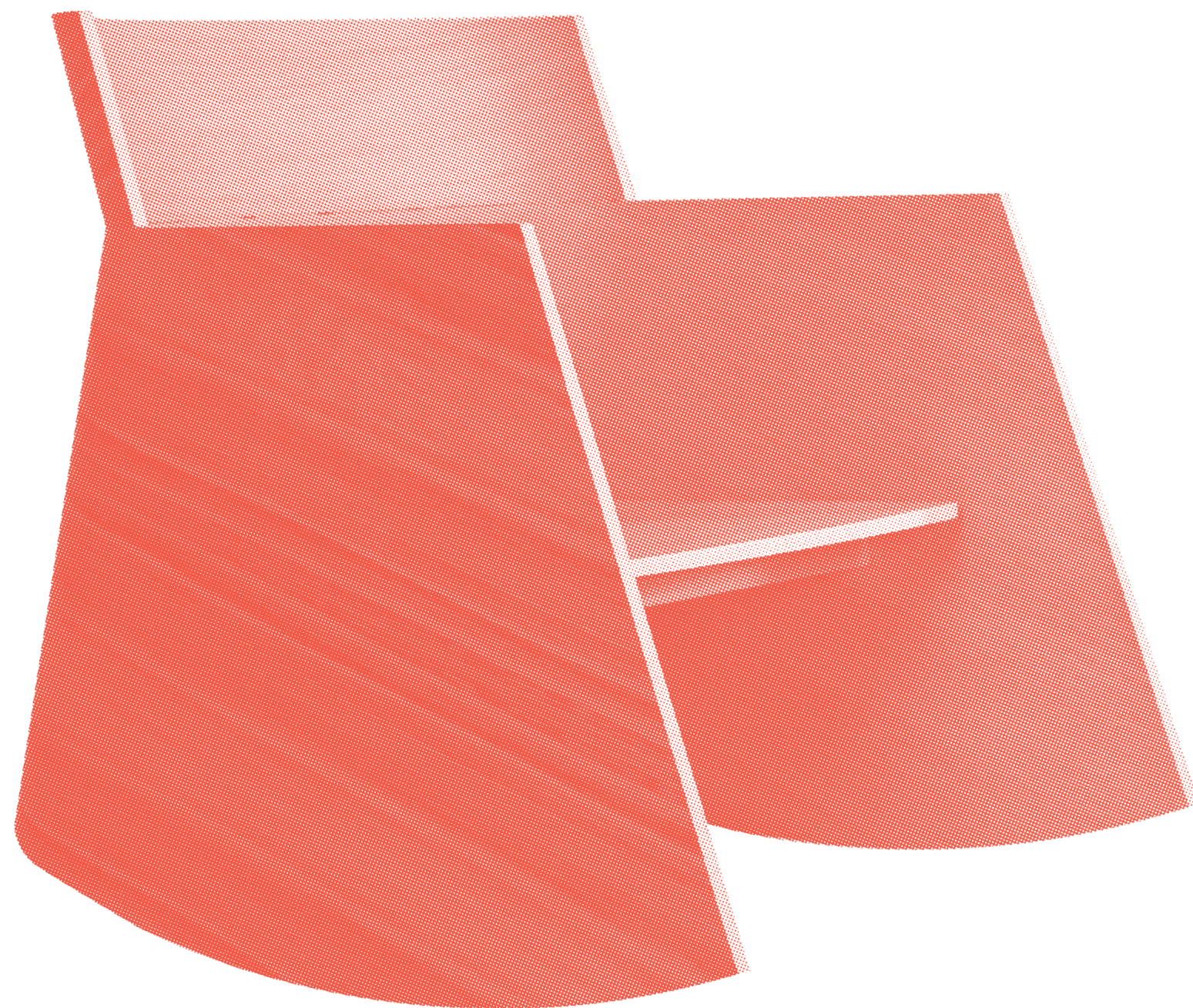
In terms of testing criteria for life-critical products, we should retreat from the regime of performance tests that has grown in force

since the 1980s. Governments adopted the performance concept eagerly, at a time when they were desperate for innovation to overcome urban decay and poor housing. It didn’t work. When we certify products for use in dangerous conditions over-cladding existing buildings, we should apply straightforward prescriptive criteria. Only materials certified as incombustible should be used. As exterior wall systems become increasingly complex and dependent on innovative materials, we have to eliminate any and all opportunities for industry to game the testing and approvals process.

These points also apply to America, where conditions are similar to those that led to the Grenfell disaster. Under the US constitution, the regulation of construction is a state right, but there are three main national model codes, coordinated by the International Codes Council (ICC). Its mission is to keep building occupants safe. To the ICC’s credit, it has published valuable position papers in the wake of Grenfell (ICC, 2020). Whether lessons can be learned, however, is another matter. Despite enormous efforts, we persistently fail to learn from catastrophic events. Gill Kernick, a risk consultant who lived in Grenfell Tower, uses the details of the tragedy as a case study in her 2021 book *Catastrophe and Systemic Change*. She makes it clear how difficult it is to achieve systemic change, as the Grenfell tragedy demands, but she insists that we must not give up hope. Neoliberalism is under pressure in America and parts of Europe. There’s a growing sense, DOGE and RFK Jr. notwithstanding, that the new global order neoliberalism engenders works against ordinary people and undermines the public institutions meant to protect them. As the British government comes to grips with the Grenfell tragedy’s implications, we must not let it give in to complacency. Systemic change is needed, urgently.

¹ A special issue of *Building Research and Information*, 25(5), 1997, published opinions on BRE’s privatization from within the research community. BRE Director Roger Courtney made the case for the government’s position. Others were more circumspect, wary of the client/customer framework proposed.

² Now the National Institute for Standards and Technology (NIST), US Department of Commerce.



BEHIND EVERY
GREAT CHAIR
IS A TREE
WITH A STORY
TO TELL

KIM CLEMENTS

Whether imagined, remembered, or dreamt, narratives can be quite literally embedded into materials. They infuse a material with spirit, inspiring those who create from it. When you enter an unassuming, utilitarian structure along the east edge of Seattle’s University of Washington (UW) campus, the potent scent of wood creates an invisible threshold that wraps around you, inviting you to breathe it in with attention and curiosity. What is stored there in neat stacks is still recognizably raw wood. Elm, oak, maple, walnut, and cedar logs are stacked between evenly milled scraps. Their cracks, knots, burls, rot, hieroglyphic insect tracks, discoloration from lean water years, and slow, patient growth reveal their histories. This remarkable trove can be found at UW’s Facilities Management Department. Well organized and painstakingly tagged, the salvaged timber invites creative reuse. Its existence reflects a fortuitous nexus of urban forestry, resource management, architecture, design, and craftsmanship. How did this happen?

Over 12,000 trees at UW are tended by staff as a part of campus grounds management. Urban foresters from the School of Environmental and Forest Sciences monitor the trees’ health and viability. Campus development

alone impacts this tree community. Combine that with death by natural causes—those casualties were historically chipped for use in campus landscaping. But when, in 2009, a massive elm in front of Gerberding Hall fell victim to Dutch Elm disease, UW Facilities and Grounds Management, led by Ed McKinley, was spurred to take a new approach. They didn’t want to see such a majestic tree end its life as wood chips, but they lacked the infrastructure and the tools to handle or store any salvaged trees.

Fortunately, after receiving a grant from the Campus Sustainability Fund in 2016, Facilities and Grounds was able to invest in a mobile sawmill for breaking down the trees and a solar kiln to season the timber. Today, dozens of planks that were once part of the university’s mature tree canopy await new form, new life, and new purpose in the Facilities storage space. The inventory includes Douglas fir, Western hemlock, Western red cedar, elm, oak, madrone, cherry, Western walnut, and maple. The reclaimed trees are cataloged on UW’s online salvaged tree map. Each dot on the map details a tree and its catalog number, species, source location, availability for use (or how it was reused), and where the final project is located. Photos of each tree

prior to felling fill out the profile. The heritage and legacy of each tree removed since 2009 is documented with care and attention, so no tree is ever lost or forgotten.

This reverence extends to the handling of the planks after they are kiln dried and milled. Cabinet makers working in UW Facilities speak in an enamored tone of the material gleaned. With pride they share the corner of the shop where plaques are stored and slabs are available for use as conference tables and benches. Each plank bears a uniquely inscribed aluminum tag identifying the species, location, age, and date harvested. Each plank, up to 6 inches thick and as wide as an average person’s stretched hands, makes its own history visible.

To demonstrate the creative potential of UW’s trove of salvaged wood, a ten-week, interactive course offers students in UW College of Built Environments’ design-build furniture studio the opportunity to transform these precious trees, once destined to be landscape mulch, into objects with purpose and meaning. This hands-on course, open to architecture and landscape architecture students, immerses students in cyclical reuse and material revival.

The studio reflects a materials-focused collaboration begun in 2022 by UW furniture studio professors Kimo Griggs and Steve Withycombe. It brings together UW’s Salvage Wood Program, its Grounds Management and Facilities Construction Unit, and the College of Built Environments. Hatched in conversations among crafters at a Georgetown brewery, this pilot program connects people across academic levels, departments, and disciplines, inspiring them to explore poetic, expressive materiality and harness the power of reuse to support, enhance, and influence the design process and production of functional objects.

Students in the ten-week course begin by working in drawings and small models, then they make full-scale mockups during design development. Salvaged timber is preselected by the professors and then purchased and provided to students free of charge. The physical attributes of the salvaged planks lead to a kind of material alchemy, enabling the students to experience and explore wood in a more intuitive and imaginative way. Once “matched” with their planks, the students come to understand the narratives of the trees. It is in this relationship building that the life of each tree influences the process

of design and making. Characteristics and imperfections, curving growth patterns, and splits give a leg or armrest a shape that otherwise might not have been considered. This kind of material influence on the final product resonates more deeply than a shopping trip to the lumber yard. Taking the experience of furniture design-build beyond a conventional understanding of wood as material, the story of the tree embeds itself in the form and meaning of the finished object. Truly bespoke, transcending practical and commercial considerations, the studio’s creative output—chairs, tables, benches, and cabinets of curiosity—descend from living trees. And their designer-makers value this legacy emotionally, environmentally, and materially.

Student work from UW’s 2023 furniture studio.
Photos by Kimo Griggs.

OLD GROWTH

TIMBER, TERRITORY, & EXTRACTIVISM

MADELINE COTTON

FABLE I: MYTHMAKING CEDAR

Lauded as a panacea for sustainable architecture, mass timber’s impact on the environment has been woefully underexplored in the architectural academy and practice. The fetishization of wood as a biophilic and carbon-negative building system externalizes the widespread impacts of industrial forestry on the natural ecosystem and ignores the historic injustices of Indigenous dispossession. To free myself from disciplinary constraints and address marginalized perspectives, I turned to Indigenous oral storytelling traditions. The following six fables are meant as a moral parable, prompting practitioners to reevaluate their relationship with natural materials and their understanding of “sustainable” architecture.

It had been a very long day and The Architect was exhausted. She looked wistfully at her long-gone-cold coffee and then back at the searing light of her computer. Her eyes began to droop. The monitor seemed to ripple, lulling her to sleep. She awoke into a dream. A man sat next to her, but he was not a man, not entirely. As if two realities overlaid, he was both a man and a tree. Disoriented, The Architect only then realized they were soaring far above the treetops on the back of a massive black bird. Before she could cry out, The Raven crooned,

“Join me, friends, and we’ll take a journey. You just might learn something.”

“This is The Raven of Creation, “the tree-being said.

“And who are you?” The Architect asked.

“They call me The Maker of Rich Women, The Long Life Maker, The Mother of the Forest, ts’úu to the Haida, catáwi? to the Coast Salish, Thuja plicata to the botanists, Western Red Cedar to the builders. I was once a man, a kind one. If someone was in need, I gave them food and clothing. When the Great Spirit saw this, he said, ‘That man has done his work; when he dies and

where he is buried, a cedar tree will grow and be useful to the people—the roots for baskets, the bark for clothing, the wood for shelter”’ (Stewart, 1995, p. 37).

“Now tell me, Architect, what is your origin?” The Cedar asked.

She stammered, unsure what to say. A mischievous glint shown in the eye of The Raven, weaving a trickster spell.

“Oh, I’m sure you can recall something.” He conjured up a vision of a time long past that The Architect saw and recounted.

“I arrived here on a ship. I was a sailor for the English Crown under Captain George Vancouver. We came to map the coast, but before we left, we felled a log so tall and straight it could be fashioned into the masts of two fine sailing vessels.”

The Cedar chuckled. “I remember seeing you there, Architect! That Captain was an unpleasant man! In those days, The People lived in the forests. They snickered at the inept newcomers who didn’t know how to live with the land. What else do you remember?”

The Architect launched into another memory. “The lumber mills in Michigan had run dry when I heard stories about massive forests out West, trees with trunks so thick they took days to cut through. We could sell those trees back East for a hoard!” The Cedar nodded. “I met you there again as you prowled my forest. By then, many of the forest giants had already been felled. Were the stories even true? Well, they used to be.”

Since National Forest Service data collection began in 1964, 925 billion board feet of lumber has been extracted from Pacific Northwest forests, enough to construct half of the US residential building stock. Since the first European colonization in the eighteenth century, old growth in the Pacific Northwest has been reduced by 85 to 90 percent. Today, industrialized forestry has universally supplanted the ecological complexity of the precolonial old-growth ecosystem. The ancient forest is gone. It is not a renewable resource and can never be returned to the dispossessed Indigenous peoples who once inhabited, created with, and worshiped it.



Stacks of lumber drying at the Seattle Cedar Lumber Manufacturing Company's mill in Ballard, circa 1919.

Webster & Stevens Photographic, Courtesy of MOHAI, PEMCO Webster & Stevens Collection, 1977.6486.41

FABLE II: GROWING CEDAR

The unlikely trio dipped downward toward a stand of orderly trunks with sparse needles. Excitement showed across The Cedar’s knobby face. “I see young ones, Change-Maker!” The Raven let out a mighty squawk and descended so low that his talons skimmed their tops. The Cedar closed his eyes in a sort of meditation.

“What are you doing?” The Architect asked.

The Cedar shook his head in resignation. “I was calling out to my young cousins, but they didn’t seem to hear me. Even the fungal friends and animal cousins are silent.”

The Architect noticed the lanky boughs. “These trees are probably older than me! They look like they were all planted at the same time.”

The Cedar laughed. “My own seed sprouted before your ancestors sailed here. These pines are children, raised for use in your buildings. They’re carefully managed, pruned, cleared of underbrush, and spaced just far enough apart that their silent, subterranean songs are lost. They’re coaxed to grow tall and straight, and then their lives are cut short once their crowns begin to mature.”

“I read that managed forests are sustainable—that they sequester carbon,” The Architect said. “But why are there only pines? Where are the other cedars?”

The Cedar shook his head. “Young sprout, pines grow like sprinters, gulping in gas your factories belch into the sky, but they slow with age. For that, they’re slaughtered. We Cedars are an even slower bunch. As we make friends with our mosses, the Pines run past us. The loggers called our lichen-draped forests ‘decadent’ and ‘over-mature.’ Those Old Men of the Forest! Now it’s only the young, cut down when it suits the forests’ exploiters, forgetting the needs of the land.”

Mature forest ecosystems offer vital but often overlooked benefits such as topsoil formation, habitat provisioning, and nitrogen cycling. When we use wood’s embodied carbon to offset the impacts of buildings, we fail to account for the ecological cost. True sustainability requires valuing natural materials not just for their utility to humans but also for the indispensable roles they play in supporting the planet’s health.

FABLE III: FELLING CEDAR

Sitting on The Raven’s back, they flew over a perfect rectangle of clear-cut trees, sawed stumps left like pock-marked scars on the landscape.

“When you fell a tree, do you ask it for permission?” The Cedar asked.

“Permission? It’s not like it could answer back,” The Architect answered. As the words left her mouth, she caught herself. “I’m just an architect. I don’t cut down trees. I don’t even know where the wood I specify comes from.”

The Cedar sighed. “When a canoe maker sought my wood, he fasted and prayed for the wisdom to select a suitable tree. When a basket weaver came for my bark, she did so as a friend, with generosity of soul and respect for my efforts. She said,

‘Look at me, friend! I come to ask for your dress. You have come to take pity on us, for there is nothing for which you cannot be used. I come to beg you for this, Long Life Maker, for I am going to make a basket for lily roots out of you. I pray, friend, to tell your friends about what I ask of you.

Keep sickness away from me that I may not be killed in sickness or in war, O friend!’” (Stewart, 1995, p. 182).

“No one cultivates friendships in my forests anymore. Could you see me as a friend, Architect?” The Cedar asked. “You wouldn’t shortchange a friend. You’d give to them as much as they gave you. Reciprocity defines a good friendship.”

The Architect nodded. “You’ve certainly been a friend to me so far.”

It’s all too easy for architects to abstract and externalize the environmental harm of material extraction. In response to such disconnection, many Indigenous communities are turning to the legal framework of Natural Personhood, which redefines nature not as a resource to be exploited but as a community member deserving of care and respect. The Ojibwe in Minnesota have successfully secured legal personhood for *manoomin* (wild rice). In Aotearoa, New Zealand, the Whanganui River is recognized as a citizen, with the rights and privileges that affords. What would architecture look like if it embraced this ethic of reciprocity—treating forests not as raw materials but as living community members with agency and dignity?

FABLE IV: EXCHANGING CEDAR

The Raven cruised over the deep waters of Puget Sound. Seattle’s glass-and-steel buildings glinted in the distance. The Cedar looked at them sadly. “I used to give my skin and heart as a gift to The People. Today, my wood is stolen and sold—looting what was once readily given. These are debts incurred against the land.”

“A debt? How do I pay it back?” The Architect asked.

“What arrogance!” The Cedar said sharply.

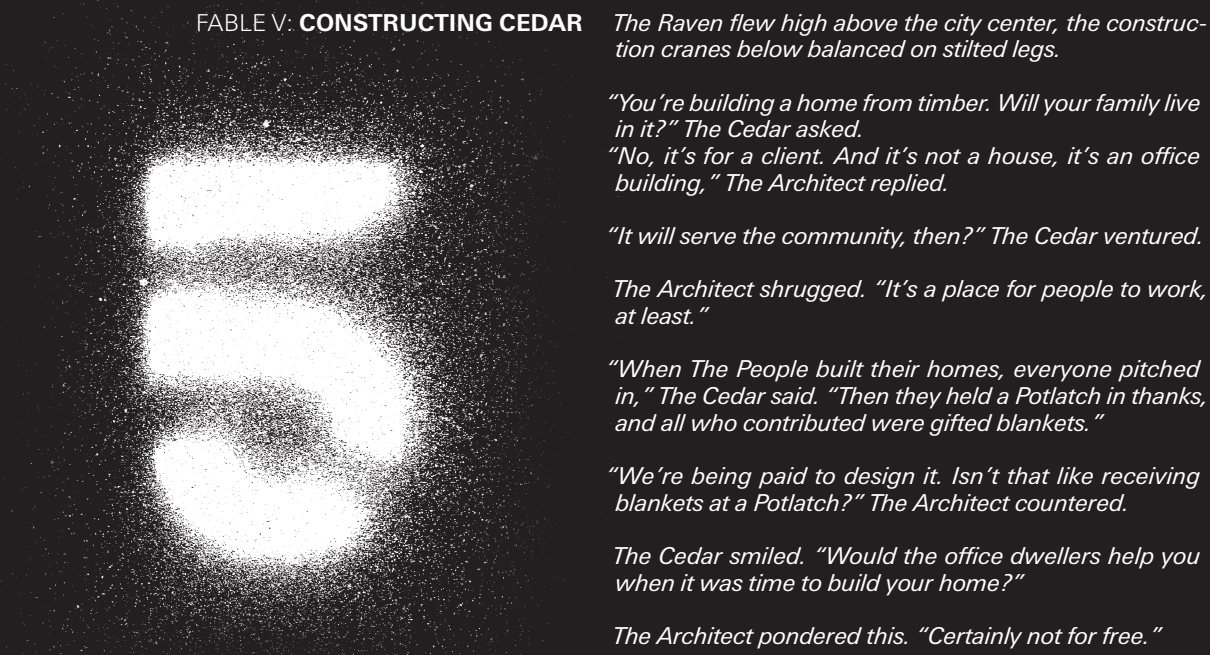
“You can only be grateful to Mother Earth for what she gives you.”

The Architect nodded, beginning to understand. “To us, wood is just something to buy and sell. What was it like before?”

“The People of this coast once lived in abundance. They had neither the will or the ability to destroy the bounty that surrounded them, so nothing was worth significantly more than anything else.” The Cedar continued,

“I was valued because of the knowledge that the land itself was breathed into being along with human consciousness. Value arose from human gratitude, so The People gave each other gifts of Cedar to celebrate life. When the colonists arrived, they brought weaponry, industry, and disease. Like the forests, The People were just another resource to be exploited.”

Many Indigenous societies did not treat natural materials like wood as commodities. In contrast, centuries of repeated deforestation in Europe transformed timber into a scarce and valuable resource. European colonists brought this scarcity mindset with them to the New World, rapidly harvesting irreplaceable old-growth forests. Their mindset of abundance enabled Indigenous societies to live sustainably with the environment. The socially constructed devaluation of natural materials persists, with destructive outcomes. To reckon with the true impacts of wood harvesting, we have to reevaluate the way we assign value to wood and timber.



FABLE V: CONSTRUCTING CEDAR

The Raven flew high above the city center, the construction cranes below balanced on stilted legs.

“You’re building a home from timber. Will your family live in it?” The Cedar asked.

“No, it’s for a client. And it’s not a house, it’s an office building,” The Architect replied.

“It will serve the community, then?” The Cedar ventured.

The Architect shrugged. “It’s a place for people to work, at least.”

“When The People built their homes, everyone pitched in,” The Cedar said. “Then they held a Potlatch in thanks, and all who contributed were gifted blankets.”

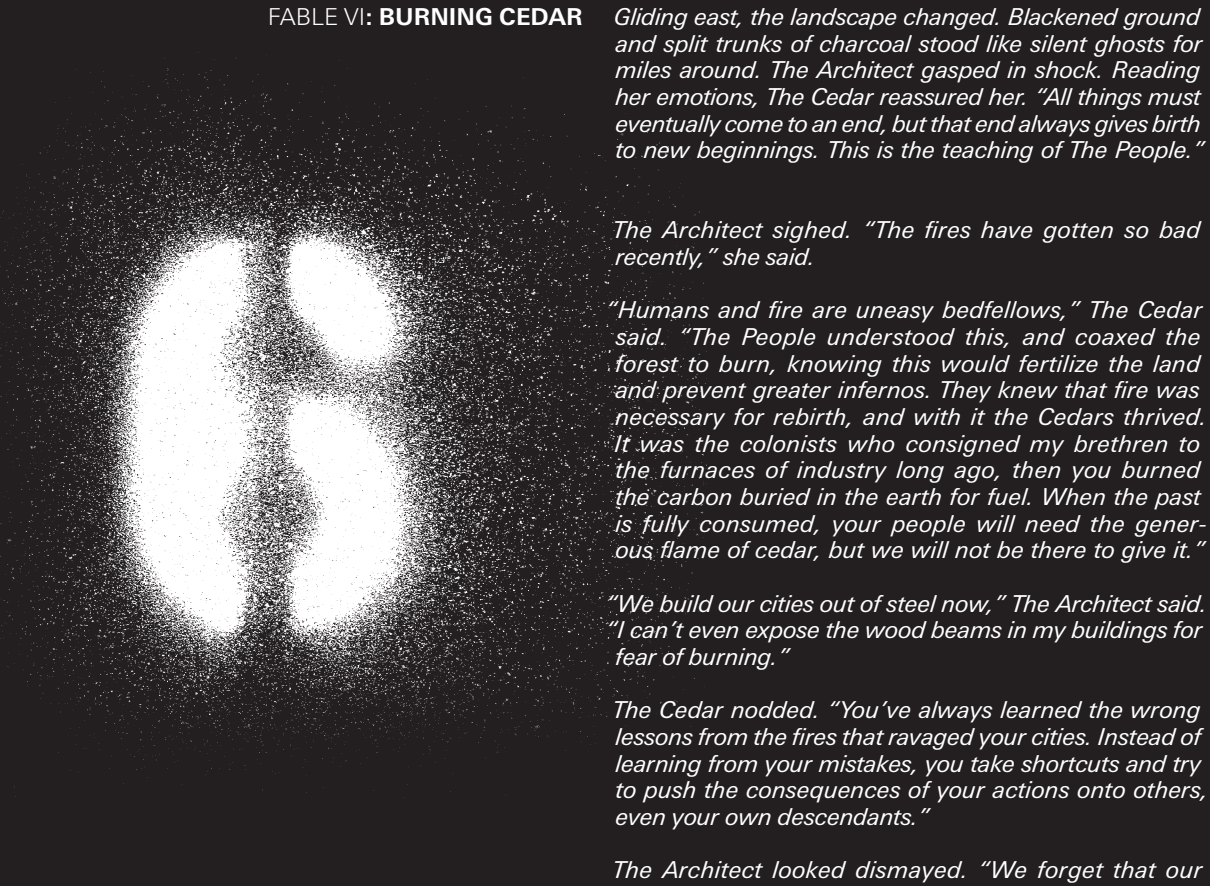
“We’re being paid to design it. Isn’t that like receiving blankets at a Potlatch?” The Architect countered.

The Cedar smiled. “Would the office dwellers help you when it was time to build your home?”

The Architect pondered this. “Certainly not for free.”

“What a shame,” The Cedar said. “When The People lived here, they built great six-beam homes facing the water. The largest beam was carved with the symbols of the family that lived there. Now your homes are built of sticks, with no totem to support them.”

In the Southern Coast Salish’s Whulshootseed language, the same words describe both human bodies and buildings. House posts are limbs, roof beams are spines, walls are skin, and sweeping is a form of healing. In a society where the family totem held up the home, physically and spiritually, great value was placed on the building and its maintenance. Claims that wood is a carbon-negative building material depend on its long-term persistence. That benefit is lost when buildings are demolished and the debris is disposed of. Sustainable architecture must be redefined to honor the full life cycle of materials, recognizing preservation as a deeply ecological act that resists the extractive logic of cyclical destruction and replacement.



FABLE VI: BURNING CEDAR

Gliding east, the landscape changed. Blackened ground and split trunks of charcoal stood like silent ghosts for miles around. The Architect gasped in shock. Reading her emotions, The Cedar reassured her. “All things must eventually come to an end, but that end always gives birth to new beginnings. This is the teaching of The People.”

The Architect sighed. “The fires have gotten so bad recently,” she said.

“Humans and fire are uneasy bedfellows,” The Cedar said. “The People understood this, and coaxed the forest to burn, knowing this would fertilize the land and prevent greater infernos. They knew that fire was necessary for rebirth, and with it the Cedars thrived. It was the colonists who consigned my brethren to the furnaces of industry long ago, then you burned the carbon buried in the earth for fuel. When the past is fully consumed, your people will need the generous flame of cedar, but we will not be there to give it.”

“We build our cities out of steel now,” The Architect said. “I can’t even expose the wood beams in my buildings for fear of burning.”

The Cedar nodded. “You’ve always learned the wrong lessons from the fires that ravaged your cities. Instead of learning from your mistakes, you take shortcuts and try to push the consequences of your actions onto others, even your own descendants.”

The Architect looked dismayed. “We forget that our

cities are clearings in the forest. What you’ve shown me today has taught me that.”

“When the smoke rises in the fall, let that be a reminder of The Cedar, Architect. Think of my perfumed bark, pressed into incense, and fires that were never allowed to burn. We Cedar need fire to renew us, to clear the zealous pines, open our cones, and make way for our thick trunks. This is our way.” The Cedar turned to the Architect. “You asked me who I was. I’ve explained my myriad meanings to the best of my ability. But I ask again, who are you?”

The Cedar’s question jarred The Architect awake, everything she’d seen and heard alive in her thoughts. But was it really just a dream?

Wildfires exemplify how industrial forestry practices impact our lives. Old-growth forests are highly resilient to fire, with thick bark, wide trunks, deep roots, and damp understory biomass mitigating destruction, while managed forests are more fragile. Clear-cutting and selective harvesting practices create flammable litter and irreversibly dry topsoil. The Great Seattle Fire of 1889 and the tragic Los Angeles wildfires in January 2025 both tell us to design our cities to curtail, not perpetuate, the externalized destruction of industrial forestry.

THE MORAL OF THE STORY

True sustainability demands more than the use of so-called renewable materials. In our current economy, the presumption of infinite growth implies infinite consumption. Treating lumber production as a climate solution ignores the reality that our planet is a closed, interdependent system, unable to support extraction at the scale of industrial forestry. Like the colonists who once stripped the Pacific Northwest of its old-growth forests, we continue to exploit natural resources in full knowledge of the damage we cause. To move beyond this toxic legacy, we must redefine how we think about sustainability in architecture. It is not an abstraction, an aesthetic, or a certification; it is care,

responsibility, and reciprocity for the environment and its materials. This redefinition of sustainability begins with each practitioner confronting their own relationship to the natural world and the systems of extraction intertwined with the act of building. Writing out these fables is how I’ve started this process, and I hope it will spark others to join in. They reflect how our assumptions about materials, our methods of production, and even our means of communication can either transcend or reinforce the history of settler colonialism embedded in our industry. Only through this individual and collective reckoning can we redefine sustainability in architecture and once again revere the old growth.

See p.85 for article citations.

Felling of a giant fir tree at the Monroe Logging Company in Carnation, WA, circa 1905.
Photographer Unknown, Courtesy of MOHAI, SHS953



Accounting for Ourselves: An Argument for Circularity

ANNE-CATRIN SCHULTZ



Eduard Suess’s map of the Schuttdecke, a material assessment of the ground under Vienna. *Boden-Karte der Stadt Wien* (1862). Map by E. Suess. Lith. Anst. v. F. Beck.

European Union Headquarters in Brussels, designed by Philippe Samyn and Partners, Studio Valle, and Büro Happold. Completed in 2017. *Europa building*. Photo by Samynandpartners. Wikimedia Commons.CC BY-SA 4.0. Changes made.

The concept of the Anthropocene traces back to the nineteenth-century naturalist Alexander von Humboldt. In his travels, especially to South America, he systematically examined geology, flora, and fauna, asserting the interconnectedness of organic and inorganic matter and graphically representing ecosystems that were clearly impacted by human presence (Humboldt & Bonpland, 1816). His Cosmos Lectures at the University of Berlin (1827–1828) laid out the mutual symbiosis of natural and cultural phenomena, identifying human interventions such as deforestation, over-cultivation, and industrialization and their possible consequences.

Three decades later, the geologist Eduard Suess investigated the intersection of human culture and geology in reference to the *Schuttdecke* in Vienna, an archaeological zone consisting of civilization’s sediments and artifacts, including demolished buildings, forming a 30-to-45-foot (or deeper) aggregate layer. Suess, the founder of geology and the coiner of the term biosphere, published his findings in 1862 (Edgeworth, 2016, p. 208).

Suess’s map of the Schuttdecke, a material assessment of the ground under Vienna, became a cultural and geological concept. From the Roman Empire (first century AD) through the Middle Ages to the present, it continues to expand.

Preservation: Layered Buildings

Nineteenth-century architecture discourse sought to define relationships between matter and form in different ways, including the influence of geology on architectural expression and production. John Ruskin and Eugène Viollet-Le-Duc both articulated the way the earth’s crust shaped architecture through a process of layering, but differed in what they considered to be a suitable approach to preservation in light of it. Viollet-Le-Duc aimed to give older buildings a completeness that they may never have had, while Ruskin sought to preserve their original character and age.

Traditionally, Western cultures assumed buildings would last a long time, so they built with long-lasting materials. While the solidity and value of historic structures led to the idea of adaptive reuse, for practical reasons older buildings also served as quarries for masonry. Stone columns were also reused due to their symbolic value, particularly as spoils to mark a successful conquest (Bilyk, 2020).

Twentieth-century architects like Carlo Scarpa exemplify creative preservation through additive approaches, encouraging layering over time. Modern preservation theories accept an ongoing interaction with existing buildings, allowing sedimentation to be preserved. As part of his facade-cleaning process, Jorge Otero-Pailos preserves a valued layer of the residue, as documented in his series *The Ethics of Dust* (Raskin, 2011). Otero-Pailos’s website describes “a cleaning process in which latex was sprayed onto the walls of a UNESCO world heritage building, then peeled off, gently lifting dirt from the surface.” This layer is Ruskin’s “golden stain of time.”

The Long Road to Circular Construction

Modern architecture favors a sense of openness, claiming light and air for all. More complex and lightweight materials, however, have resulted in buildings that are much more difficult to renew and adapt. Economic and legal frameworks and the use of less durable building materials have created a kind of disposable architecture. Parallel to this, other movements also support ecological approaches to construction and materiality. John Habraken, for example, designed Heineken’s WOBO beer bottle to be as recyclable as a self-built housing component. His “open building” concept saw buildings as “supports,” public and long-lived containers for people’s private and ephemeral lives (Habraken, 1972).

At an urban scale, Paolo Soleri established his visionary Arcosanti community in the Arizona desert in 1970 as a demonstration of *arcology*, “the ideal way to counteract difficult climactic situations.” Opposing wasteful consumption and capitalist exploitation, Soleri imagined a “reorientation of life through a process of urban implosion, wherein the city is planned in such a way as to conserve the Earth’s energy and resources (energy and geology being linked), designed to be compact and three-dimensional” (Grierson, 2016). Instead of an arrangement of individual buildings, he imagined a complex framework that becomes one with nature, its outer skin occupied by citizens—a form of layering that challenges Western urbanism’s energy-intensive relationship with the environment in a way that seems even more urgent in 2025 (Soleri, 1969).

The necessity to recast this relationship between community and ecology requires a rethinking of the layer that is architecture, agriculture, and other human production. Our impact has intensified; industrialized societies generate far more anthropogenic waste, and it is much more complex than what Eduard Suess found below Vienna. Our understanding of embedded carbon has made demolition an unsustainable strategy, increasing the need to reuse existing buildings and/or their components.

A reinforced sense of Humboldt’s assertion of interconnectedness, echoed in James Lovelock’s Gaia hypothesis, can be found in William McDonough and Michael Braungart’s cradle-to-cradle holistic circularity. McDonough and Braungart assessed the cycle of human production and, like Soleri, questioned a system of design and production rooted in the industrial revolution, one that “attempts to work by its own rules, which are contrary to those of nature.” The cradle-to-grave paradigm of this system gives us today’s *Schuttdecke*, a toxic mix of “old furniture, upholstery, carpets, televisions, clothing, shoes, telephones, computers, complex products, and plastic packaging, as well as organic materials like diapers, wood, and food waste.” Many of these products are made from materials that are wasted rather than preserved or reused (McDonough & Braungart, 2002). As Wojciech Gorgolewski (2017) put it, “Today buildings are a graveyard for materials. A building at the end of its life is an asset to be valued and that innovation and imaginative design can offer new oppor-

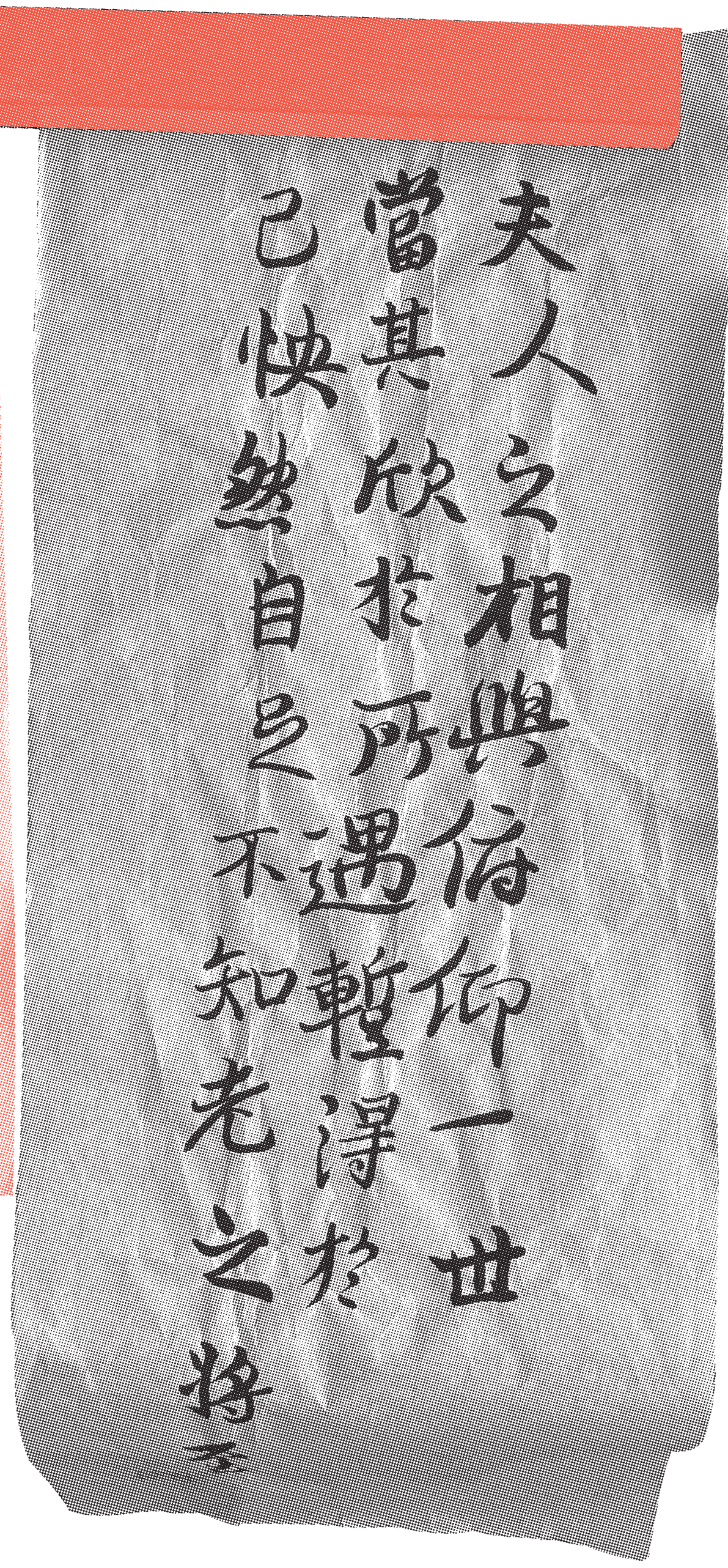
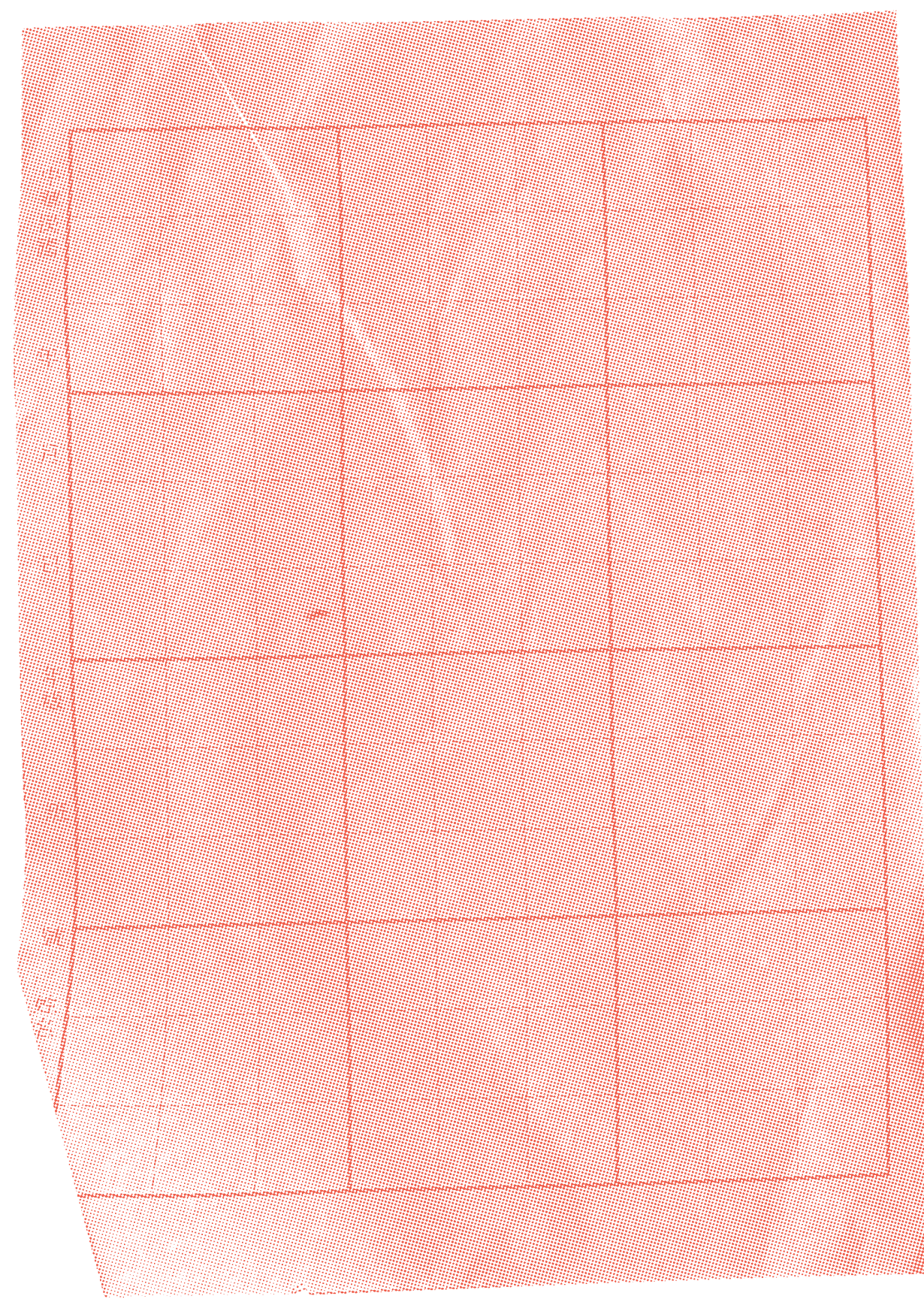
tunities for using discarded materials and components as valuable parts of buildings.” This builds on upcycling, making products of higher quality or value out of discarded materials. McDonough and Braungart applied this method to projects like their Amsterdam business park (McDonough & Braungart, 2013).

Reimagining How We Build

A greater focus on existing buildings and building components will lead to a new architectural vernacular based on the kit of parts available through reuse. Methods of fabrication and assembly will change, and with it, the role of the architect and all others involved. Expressive layering of old and new will be even more commonplace, generating meaning through the sequence of our encountering them. Construction processes will include local frameworks for deconstruction, storage, and reuse. Digital twins of buildings and digital inventory databases will simplify cataloging and retrieval.

Our aesthetic expectations will shift from a repetitive modularity based on a limited palette of mass building products and materials to the wider possibilities offered by aggregating and collaging disparate elements—a looser modularity compatible with continuous adaptation. Reusing building products and other discarded customer goods will lead to new ways to mount, arrange, and join building elements. Facades will again be inspired by textile techniques such as weaving, quilting, and layering. This is already visible in the European Union Headquarters Expansion in Brussels, which embraces reclaimed layers that symbolize the value and recovery of products. The building was completed in 2017 and designed by Philippe Samyn and Partners, Studio Valle, and Büro Happold. Its outer skin is composed of reused oak windows arranged in a modular framework, combining prefabrication and customization. This representation of the facade, made from 3,000 recycled window frames, mines the built environment for contemporary architectural expression.

The process of replacing the linear construction industry with a circular one is underway, evidenced by the European Union’s adoption of the Circular Economy Action Plan (European Commission, 2020). Experimental projects and initiatives are taking place within the industry, academia, and government, and architecture schools worldwide study reuse and transformation (Baker-Brown & Brooker, 2024). The engineering firm ARUP advertises a “modular system for circular buildings.” These initiatives exemplify the comprehensive shift to adaptive reuse, redefining waste as raw material to be recycled or upcycled and rethinking humanity’s relationship with nature. Frameworks to integrate the layering and re-layering of pasthuman production have the potential to make our technosphere a supportive part of nature and its processes. Nothing humans produce should go to waste—especially our built environment. Circularity is our only future.



Speak, Ink

PEITING C. LI

Unfortunately, these treasures present a challenge on an immediate, material level. The brush, ink, and paper are highly sensitive to the slightest change in movement, pressure, and moisture. Thus, every nervous wobble, uncertain pause, and wayward brush hair registers immediately on the paper. There is no going back to fix, no erasing. To produce even a somewhat beautifully shaped dot or a steady line requires many years, and many tears. These materials seem purposely designed to stymie those who want to write immediately and reward only those committed to many years of practice.

In the practice of many arts, once the initial stage of euphoria with tangible progress subsides, the subsequent outlay of time required to ascend to the next level of mastery deters many people from continuing. In music, learning theory and a repertoire of standards is necessary before one can break the rules and improvise as a jazz player. Similarly, in calligraphy, one must first practice basic strokes and develop fine motor control through the systematic copying of model characters by master calligraphers and various scripts—seal, clerical, standard, semi-cursive, and cursive. Only after reaching a certain level of competence and control over materials is it possible to create one's own signature style.

As both a literary and visual art, Chinese calligraphy makes a daunting set of demands to anyone who dares to fully commit themselves to its practice. Most obvious, one must possess a sophisticated understanding of a rich literary body of work that stretches back thousands of years. This was much easier before the distractions of our digital age arrived. Fortunately, the physical materials we used today for calligraphy would be recognizable to practitioners from a millennia ago. Called "Four Treasures of the Scholar's Studio" (*wenfang sibao* 文房四寶), these are *bi* 筆 brush; *mo* 墨 ink; *zhi* 紙 paper; and *yan* 硯 inkstone. Mastery of *mo* ink, is especially difficult if you decide to hew to the old ways and grind your own. Traditionally, ink is made of animal glue and soot produced from burning wood, which together are then compressed into an inkstick. This type of ink is produced via a time-consuming process whereby water is added to *yan* 硯 inkstone, and the inkstick is rubbed against the inkstone's hard surface. The ink is water resistant and quickly dries to a permanent matte finish. In early times, those wishing to enjoy the pleasure of writing poetry had to first face the drudgery of grinding their own ink. Taking time to grind ink reminds me of those hallowed moments before guitar practice: I pluck a string, listen intently to each pitch, and make

“It’s hard to make an argument against our new god of efficiency. And yet, the antiquarian in me deeply mourns the loss of sensitivity to the nuance of materials.”

minor adjustments until intervals resonate in harmony. Time stops and suddenly everything is luminous again. Just as you cannot make beautiful music on an instrument that is out of tune, neither can you write beautiful calligraphy with hastily ground, watery ink. My students sometimes ask, “How long does it take to grind enough ink? How do you know when it is ready?” I usually respond that it takes time and experience, as each inkstone and inkstick is different. In most cases the ink is too watery, and all you can do is accept the current imperfection of the state of things—your ink, the world—and just grind more.

Mo 墨 ink, is comprised of two separate characters: On the top is *hei* 黑 “black” and below is *tu* 土 “soil.” Current explanations of the character for black argue that it depicts a chimney on top of a fire used for cooking 炎, which shows two fires, *huo* 火. *Tu* 土 soil, represents a chunk of earth on the ground. In explanations now unsupported by the earliest evidence but that resonate with me nonetheless, the character *hei* 黑 black, was thought to depict a person with dots on their face. This is a reference to the penal tattooing of criminals, one of the forms of punishment in early China. The association with criminality aside, it is the permanency of tattoos that has deterred me from deliberately applying ink to my body. That said, calligraphy ink often ends up on my hands, arms, and even face. If I am guilty of any crime, it is merely that of being loath to interrupt my practice and wash the ink off.

Most people think calligraphy is primarily a visual art, but in fact it calls on the other senses as well. High-quality inksticks are slightly heavy, but a bit lighter than a stone of equal size. Avoid those inksticks that call plastic to mind; only subpar ink will issue forth. Smell and sound are also important clues. Grinding ink emits a subtle earthy scent that the ready-made stuff lacks. Inksticks and inkstones of good quality together produce a quiet but distinct sound, reminiscent of a muted singing bowl. A more expensive and ornate inkstone is not necessarily superior to a less expensive and unadorned one. Last winter, I was foolishly taken by an inkstone with a beautiful dragon carved on top. But I found after bringing it home that its surface was too smooth to produce the necessary friction for ink. Occasionally, I will give the dragon a second chance, but that serpent now mostly stays silent, rarely hearing the gentle music of inkstick against inkstone that proceeds my practice.

When confronting unruly-haired brushes, I face the clear choice of cruelty or kindness. Either submit to the gods of efficiency and jettison the recalcitrant brush, or hold out hope for rehabili-

tation and continue praying to the minor god of calligraphy brushes. Extremely stiff, split-haired brushes put me in a particularly hopeless state. Instead of cooperating smoothly with its delicate paper partner, the offending brush launches a surprise attack, fatally puncturing where it should lovingly caress. Calligraphers with more wisdom and experience than me might intuitively know when a brush has no hope, but ever the optimist and always on a budget, I admit that after two decades of practice to date I have not abandoned a single difficult brush. I am in good company with calligraphers of earlier ages who accepted the physical realities of their materials, adhering to a long-standing tradition of deliberately working with broken or frayed brushes. These are moments of authenticity.

Despite its fragility in the face of brush hair aggression, paper has surprisingly become my favorite of the four treasures. To the uninitiated, all calligraphy “rice” paper might seem the same: white, semitransparent, and pliable. But those who practice know that it is usually the paper that makes or breaks the calligraphy, skill at wielding brush and ink being equal. The quality of paper varies tremendously according to price. Cheaper paper usually has a slick, shiny surface on which the ink sits somewhat stubbornly instead of being immediately absorbed in a graceful, affectionate calligraphic hug. The dots and lines thus produced do not have the clean edges enjoyed by those lucky to be brushed on the higher-quality, albeit more expensive, paper. While you can get as many as fifty sheets of low-quality paper for less than ten dollars, the high-quality paper might cost as much as five dollars a sheet or more. I tell my students that the cheaper stuff is like bland, lukewarm gas station coffee, while the higher-quality paper resembles the nuanced single-origin pour-over coffee, full of depth and flavor, that I cut from my budget to afford my calligraphy habit.

Brush, ink, and paper do not always make a harmonious combination. In a best-case scenario, they all cooperate to form a smooth, seamless finished piece. In a worst-case scenario, it’s a hot mess of blobs. Time decides it all. Time: a repeated series of moments or encounters that in aggregate make a practice, ideally daily. This requires a little discipline and a lot of obsession. Time: a prolonged commitment over the long haul, ideally years, which in my case includes the surrender of time previously lent to other commitments.

In addition to time, the greatest sacrifice a budding calligrapher must be prepared to make is space. Blessed are those calligraphers

with houses or apartments large enough to accommodate a separate area for practice and storage. This is not the case for me. Rising cost of living, stagnant wages, and a tiny apartment have made it necessary to grudgingly accept my calligraphy materials as the roommate who makes a mess but never cleans up.

Paper proliferates in the abodes of sentimental souls like me who cannot bear to part with material signs of mastery. My calligraphy triumphs and failures are preserved for all of posterity on paper. Early exercises when control over ink, brush, and paper was tenuous live next to more skillfully formed characters that seemed utterly unattainable years ago, but that now appear with increasing regularity.

The meaning of the word used today for calligraphy, *shufa* 书法, has changed over time. *Shu* 書 “writing,” and *fa* 法 “method,” originally meant a set of writing techniques in accordance with particular standards. Only later, between the second and fifth centuries CE, did there emerge a broader notion of calligraphy as inextricably linked to individual style and self-cultivation by working with models of specific calligraphers. This concept is more closely reflected in the Japanese word for calligraphy 書道, “writing” and “path” or “tao” / “dao” *shodō*.

Historically, calligraphy has been, and even today remains, acknowledged as the highest art in Chinese culture and one of the most direct paths to cultivate the self. This is because the practice of calligraphy is, fundamentally, more about the work it does on you than the work you produce. One must be fully present in a particular moment and attendant to the whims of mood and wobble of hand, while at that exact same moment drawing upon a long, committed practice accumulated over years, in which improvement is incremental at best and imperceptible at worst. My early period of calligraphy practice was marked by many tears over blobs that seemed miles away from becoming dots and ragged stroke endings that showed no promise of elegance. Fortunately, over time the ugly caterpillar of frustration over my willful materials and lack of skill gradually transformed into a prismatic butterfly of gentle forbearance and faith in the process.

When I began practicing calligraphy I could not anticipate how much the insights from my practice would translate to handling difficulties in other facets of life. Struggles with finicky brushes have increased my capacity to deal with the people I used to find most difficult. Facing watery ink and knowing that all I can do is grind

more has helped me more quickly extricate myself out of analysis paralysis and begin the task immediately at hand. Attunement to the gradations of paper and understanding its outsize effect on outcomes reminds me to lavish time and resources where they will make a difference.

The real work for me, though, remains learning how to be fully present and live in those long moments: simultaneously working toward mastering challenging materials through practice and also accepting that despite my commitment to mastery, there is much in calligraphy—and in life—that I cannot control.

In an age when things are available to us in an instant, it often feels futile to insist on an intimate relationship with the materials of our arts. Just as many musicians will use a digital tuner to tell when a note is in tune, so too will many calligraphy practitioners use the ready-made liquid ink from a bottle.

It’s hard to make an argument against our new god of efficiency. And yet, the antiquarian in me deeply mourns the loss of sensitivity to the nuance of materials that we fall into when we rely on machines to tell us whether a pitch is perfect or to make odorless ink that is perfectly consistent yet will fade in a hundred years’ time.

I hope there will always be just enough of us holdouts against ready-made perfection to maintain the honest struggle with the physical reality of our materials that for me is the heart of calligraphy. Let us salute those musicians who continue to wield those heavy tuning forks and the calligraphers committed to laboriously grinding their own ink. For this very struggle cultivates an attunement to the subtleness of materials, which allows for more gradations in pitches and tones and many shades of black, producing music that shimmers iridescently and calligraphy that will continue to glow for centuries. Pure presence and ultimate immortality—both. Let us then continue the good fight against the passage of our materials into obsolescence in this increasingly soulless digital age, when everything comes up on a screen with a mere click of a button and when an algorithm is behind every art practice we once held sacred.

For when we submit to the demands of our materials, there we may meet ourselves again.

Four Treasures, 2025: p.32/33
Dragon Inkstone, 2024: p.35

Photos by Peiting C. Li





ARCHITECTURE OF THE INVISIBLE

Madeleine Stearns

Perfumers are the architects of the invisible. Fragrance is a metamorphosing capsule of the human experience—one that unfolds into shapes, colors, textures, and temperatures. Scent carries no physical presence, no weight, yet it unlocks archives within us that trigger extraordinary physical responses. Like architects, perfumers construct space, albeit ethereal and unconfined. This space becomes a “choose your own adventure”-like experience of the subconscious where the sensory encounter has a function dependent on the digestion of experience.

Having recently graduated from the Grasse Institute of Perfumery, located in the fragrance capital of Europe, I have noticed a major shift in the way I experience the world around me. Our education revolved around a universe of raw material producers, and Grasse, France, was at the center of the orbit. As spring faded into summer, the air grew warm and thick, suspending aroma molecules like insects in a spider web. While riding my scooter through the factory streets at any given hour, I was enveloped by the unending distillations of seaweed, hay, and tonka beans, to name a few. Each block is sheathed by its own invisible forcefield of scent—I imagine a sweetspot-like Venn diagram of materials overlapping into an atmospheric perfume, akin to the perfect seat in a concert hall or the bottom of a rainbow.

We began our education at the Grasse Institute of Perfumery with a thorough investigation of both natural and synthetic materials—the structural components of the medium. Take linalool, a molecule found in over two hundred materials—rosewood, lavender, allspice, apricot, artemisia, basil, bergamot, cardamom, carrot seed, cherimoya, jasmine, kohlrabi, wine, yarrow, and so on. Our purpose was to get to know these molecules like personalities, to understand their core identity: Alone, what are their characteristics and how do they evolve? Furthermore, how do they interact in a broader context of a formula? Similarly with friends and faux; the force of magnetization can both attract and repel. Linalool, for example, in the right context will emanate a lavender-like floralcy, but under different circumstances it will take on a sudsy and technical characteristic.

By studying the individual molecules, we gained the skills to attune to sense and articulate the subtiles of aromas among species, essential to choosing a material for a composition. In a given composition, the differences among species, terroir, and extraction method can shape the way a fragrance is experienced. For example, the artichoke facet of Damascena Rose Absolute from Morocco might play a seemingly small but significant role in the context of an earthen fragrance compared to a more lychee-jammy note deriving from a Damascena Rose Absolute from Bulgaria. Understanding the innate characteristics of molecules provides us with a deeper understanding of the interactions happening within a formula—one of the determining reasons the craft is considered a lifelong dedication, procured through trial and error.

Life began to feel like a Sherlock Holmes cosplay. We would embark on investigations to uncover the molecules in the world around us: a handful of soil, a decaying rose, chopped celery root for bolognese, chlorine dried pool hair, a stinky cheese, a walk through a wet forest. Every experience presented an opportunity for olfactory inquiry and analysis. Take salts, for instance, an element that appears transparent and unilateral. Yet even within such specificity, there exists a remarkable expansiveness, opening further avenues for exploration and interpretation: the salt of lactic acid fermentation (sauerkraut), an oyster sipped from its shell, a black olive, umeboshi plums, tears, castoreum resinoid, dried osmanthus, moss, or an orange wine aged in amphora—all of which carry distinct nuances. If we aim to encapsulate an oyster, we must ask: What sea are we hailing from? The Kumamoto oyster has a melon facet that distinguishes it from the briny Atlantic oyster or the hazelnut nuance of a belon. A touch of calone or a small dilution of 2-Methoxy-3-cis-methylpyrazine might translate these subtleties.

After spending a great deal of time in study groups, blind testing, and being humbled by the French education system, we embarked on “accords,” reconstructions of an odor, landscape, or abstract idea using two or more materials that either stand on their own or get implemented as “material” in a perfume. Throughout our program we had the absolute luxury of experimentation, as well as

continued on pg. 40



assignments to cover the classics; fruity, floral, gourmand, chypre, fougere, and amber accords were at the core of our curriculum. Price point aside, there are many reasons one might want to create an accord—to situate an existing material within a more specific context, to encapsulate a material that cannot be extracted, or to create something entirely abstract. If we aim to recreate jasmine, for example, it is important to study the evolution of the flower’s arc from day to night, as well as the origin and species, contributing to the varying levels of salicylates, the indolic and narcotic nature, and the fruitiness. Is it pear or banana? Am I picking *Jasmine sambac* at dawn in India or *Jasmine grandiflorum* growing straight off the trunk of a fig tree in a fever dream? Depending on what materials are available to us, we can aim to recreate these nuances through molecular dressing.

There are foundational accords in perfumery that lack available raw materials, such as certain fruits or *fleur muettes* (silent flowers), that cannot be transmuted. Nevertheless, these flowers remain significant players in the context of perfume. Hyacinth, lilac, and violet are a few examples. Fruit is another example of an accord made without any existing natural raw materials. Perhaps I want to make a raspberry; the aim is for something perceivable by the collective conscious with touches that contribute to the story we aim to convey. Is the fruit freshly foraged from the bush or eaten off the fingers of my cigarette-indulged lover? In my first accord class (fruit) I worked with dear friend and classmate Luis Fernando García on recreating pineapple and then fermenting it into a tepache. We aimed to articulate the scent of aliveness. Redolent and fruit forward, fermented in glass, with a pinch of clove and heavy with funk. We used dimethyl sulfide, butyrates, and esters to translate the autobiography of yeasts. In a more abstract context, one might encounter accords such as “concrete” or “adrenaline” in *Secretions Magnifiques* by Etat Libre d’Orange—an ode to our industrial landscapes.

The process of dissecting an experience into a sum of its parts raises numerous philosophical questions. When approaching a loquat accord, I begin by eating many loquats. I then document the experience and map my findings. The flesh and texture of the juice reminiscent of a cherry, benzaldehydic and balsamic syrupy drips with a zing meets the rotund flavor and skin of an apricot. How does the loquat maintain its own identity without reference to otherness? Is there anything without a reference? How can we use an apricot as a reference while an apricot is articulated through the hybridization of a peach and plum? Everything is constructed through the molecular building blocks which are shared and exist in varying gradients, amounting to a whole. Can we not ask ourselves the same? When I look at myself deeply, I contemplate how much of me is raw spirit, how much is the product of my experiences, and how much is my innateness to the collective consciousness.

In perfumery, tuberose can differentiate itself from gardenia through the presence of styrallyl acetate, yet it avoids the character of ylang-ylang by using a lighter touch of materials with a cresolic nature. You learn to describe things through other things, but how do you break them down to their original roots? Every moment in life offers a world of curiosity and reflection. At the end of the day, I imagine making accords like jazz standards. My loquat accord is essentially a “cover” of mother nature. Some creations are off-the-bat identifiable, while others might need more dissecting. Take Sam Gendel’s cover of “Let Me Love You,” an ode to Mario through a whale-song-like hook which aims to highlight a recognizable thread. Perhaps a perfumer is trying to capture the texture of the skin of the fruit, or the almondy pit, without the entire experience.

After a recent visit to the Paul McCobb museum in Los Angeles, California, I realized how greatly connected perfumery is to architecture. I was briefed in mid-century modern architecture and furniture design by Yogi Proctor, collector and expert in the field. Architecture and perfume can both func-

tion as a sort of capsule of time and place. Modular furniture in particular feels deeply connected to the building blocks of perfumes. Dominating the market in the post–World War II era, a time rich with the aspirations of the American dream. There was an integration of pop-up architecture anchored in versatility. Proctor and I dove deeply into these concepts, exploring how, despite the mass production of “sameness,” these pieces could become unique to the owner through their interchangeability. Modular furniture can be seen as a collection of individual units that, when combined, form larger installations. This concept is similar to creating an accord in perfumery, where individual elements are assembled to form a unified fragrance. However, even though two perfumes may share materials and accords, no two perfumes will ever be identical. Similarly, no two individuals will experience the same perfume in the same way; no two people will inhabit the same space in the same manner. It is amazing to see how a chair or a desk can hold so much information about an entire period in our history. In the world of perfume, there are also trends that can reflect mountains of intel on what a generation was feeling or the general spirit of the time. These art forms are essentially time capsules of our ever changing civilization.

If you ever have the chance to read the vast and at times raw universe that is the review section of *Fragrantica*, you’ll see how wonderfully different each experience is with any given perfume. From the very moment we begin our lives, we start collecting information about our world through multisensory encounters, each of which can shape our perception. We have collective understanding, but no two people will experience entirely the same thing due to our emotionally specific archives of perception. Grass, for example, an objectively green note, can expose memories rich with childhood extravaganzas, somersaults, summer lake trips, and dewy early morning walks, shaping the way we might experience, for example, Balmain’s *Vent Vert*.

As a social experiment to support this idea, I took a trip to the park and captured some videos: flowers, a dog running, and an elderly couple holding hands on a park bench. I then took one of the videos and added five drastically different types of audio. After rewatching the clips with their newly assigned soundtrack, it became clear that the video has a distinctly different feeling with each track, even though it’s objectively the same experience in observance. This shows us that although the world around us is happening, our emotional projection or mindset might set the tone for a certain experience. How does my perception of a flower change after I’ve just had a connection with god, felt success or failure, had a dream of a six-foot-tall owl, felt in connection with my soul’s purpose, ate a handful of cherries, or drank my third coffee of the day? Our subconscious shapes our archives through our innate humanness.

At the end of the day, there is something so physical to perfume, and something so ethereal about architecture. Each moment in life is a precious sensory world, and we will never experience everything (anything) exactly the same way twice. Something I have continued to hear from perfumers is that after a lifetime in this industry, they remain amazed, surprised, and curious about the fascinating and ever expanding world of perfumery. Scent is the ever changing, living architecture; I myself feel as though I have never ending questions and I pray that when I die I can pull out my mile-long scroll, look to god, and ask, Do you have a minute?

Photos by Madeleine Stearns.





Magazine clipping of Nooria's grandmother, Samira, and Nooria's father. Photo courtesy of Nooria Hiyeri.

In all our worlds, there is a plethora of rich texture around us. My world revolves around my Persian family gatherings, where touch is a sign of greeting, love, and connection. We experience touch all the time—no matter where we are, and no matter which emotions follow the sensory experience. Whether it is the gentle press of hands shaping dough into dainty, delicious Persian pastries, or the warm, fuzzy feeling of my great aunt’s embrace that lingers like the scent of rosewater on the kitchen countertops, or the soft grass under my feet as I playfully chase my little cousins in a spontaneous soccer game—touch is all around.

As I step into my family gathering, I am almost instantly enveloped in a flurry of hugs and kisses. My relatives kiss one cheek and the next, a cultural ritual of greeting that has become second nature. My aunt’s soft hands hold my face, her aromatic perfume enveloping me. Her gesture is both loud and aggressive yet gentle too. Each hug carries an unspoken yet thunderous message that says, *I’ve missed you, I’m so elated to see you, you are my family!* The warmth of these embraces linger on my skin as some sort of tangible marker of our irreplaceable connection—some sort of kindness that reverberates with every touch, whether the hands be old and wrinkly or young and soft.

Our family gatherings are immensely interactive, with everyone tangled in each other’s business, floating from person to person. The art of cuisine is one of the most tangible parts of our gatherings. The food preparation is a tactile experience, something I gain happiness from by simply standing by my elders and watching them knead *noon e barbari* (bread dough). I notice their hands pressing the dough with practiced precision. Mimicking their motions, my fingers sink into the fluffy dough, and I feel its softness and elasticity. My aunt rests her hand atop mine, thoroughly guiding my movements as I knead the dough. Her worn hands are a product of years of shaping and kneading bread, and it’s as if her strength and history is transferred through the energy of her touch. Her brow is furrowed but her smile is gentle as she kneads, an exchange of technique and tradition I am blessed to receive. The act of cooking and the preparatory process of food is more than a slight sensory experience; it is the tie to our personal and cultural identity gained by way of memory and this transferring of tradition.

Washing my hands of the sticky dough, my elders surround me as they recite never-ending stories and life lessons, curious of how I am living my life in ways different or similar to them. As I talk to my elders, my little cousins scream, “NOORI!” and yank my hand toward the back garden, leading me through the tall-ceilinged living room, my feet brushing across the Persian rugs as we scurry about the house. We make it onto the patio, feeling the grass damp from the afternoon watering my oldest cousin did. I bask in the crisp air and feel the cold between my toes as I sprint after my cousins. Their tiny hands grasp my fingers, their grips small but firm as they pull me into their world of play-pretend and make-believe. Their giddy excitement is like a pulse, like an electric current built of joy. Here, touch is everlastingly free. After the wind is knocked out of me and the smile on my face is permanent from playing with the younger ones, I sit with my older cousins. We speak in broken Farsi, lying beneath my grandmother’s paintings which adorn the walls. We braid each other’s hair, feeling the ultimate sense of calm as our fingers weave through thick curly strands in an intimate, even meditative, way. I am reminded of the sensation of a velvety blanket, or of sand sifting through fingers. My favorite cousin’s fingers press against my scalp as she finishes the braid, an intimate gesture that speaks of love in a language words could never do justice.

The warm sunlight trickles through the glass as my mom picks grapes through the kitchen window—the vine wrapping around the old pomegranate tree in the backyard. Both fruits signify deep cultural rootage. The fruit trees wrap around the house just as they do in the old courtyard-sharing houses in Iran, the perfect example of families living within a community and sharing a general courtyard where people come together to mingle. My family’s gatherings act in the same format, with the epicenter and courtyard of our lives being the living room. Among the furniture is the table that has held every Persian new year, *Nowruz*, from the time I was born.

The unfolding night means the uncles and brothers play chess and backgammon, while the aunts and sisters mingle with one another. We come together to sip *chai* (tea). The hot glass presses into my hands and creates a sense of warmth that flows through me. My brother holds out a family picture album from when my elders were our age. They hit each other in laughter and scream over the others as they tell stories for the young generations to hear. The house which gathers my extensive family is not solely an enclosure in which we reside—it is one that brings us to life, back home. The walls hold the imprint of our loud laughter. The faded marks on furniture and the loose stitches on the woven couches mark the use of beloved objects that have been passed down through generations. Every corner of the house is flooded with nostalgia: shoes forming a pyramid to obey the bare feet rule, the chipped wood on the patio reminding us of the wear of time. Every corner is kissed with traces of the family members who came before me.

This house was decorated decades ago with the intention of recreating the robust and vibrant energy of my family’s homeland prior to the Iranian Revolution. Intricate Persian rugs cover the house, rugs that have witnessed everything from dancing and celebrating to crying and mourning. I sit on the soft wool to rest and drink tea, tracing the detailed patterns of flowers, animals, and shapes woven around the perimeter of the rug. The scorching hot glass is an embrace to my hands and engulfs my face in steam. The fog travels up the heavy green and gold velvet curtains, fabrics my aunt brought from her favorite store in Iran. The stained glass beneath these curtains casts beams of light onto my grandmother’s oil paintings, which she painted back in her studio on a mountainside of Iran. Her paintbrush has danced across the canvases blanketing the interior of every room in our home. They cover the tall walls, the lengthy height making the energy of the room feel lifted and grand, a parallel to our stories and voices. The crystal chandelier sparkles a nostalgic grandeur, one that serves as a reminder of our ancestors’ former home in the motherland. Coat closets and living room cabinets are filled with frames, photo albums, and tapes of old weddings and family trips. My favorite photo album is the yellow, worn-out book from Tehran in the 1970s, before the exile redrew the ways of life of our family tree entirely.

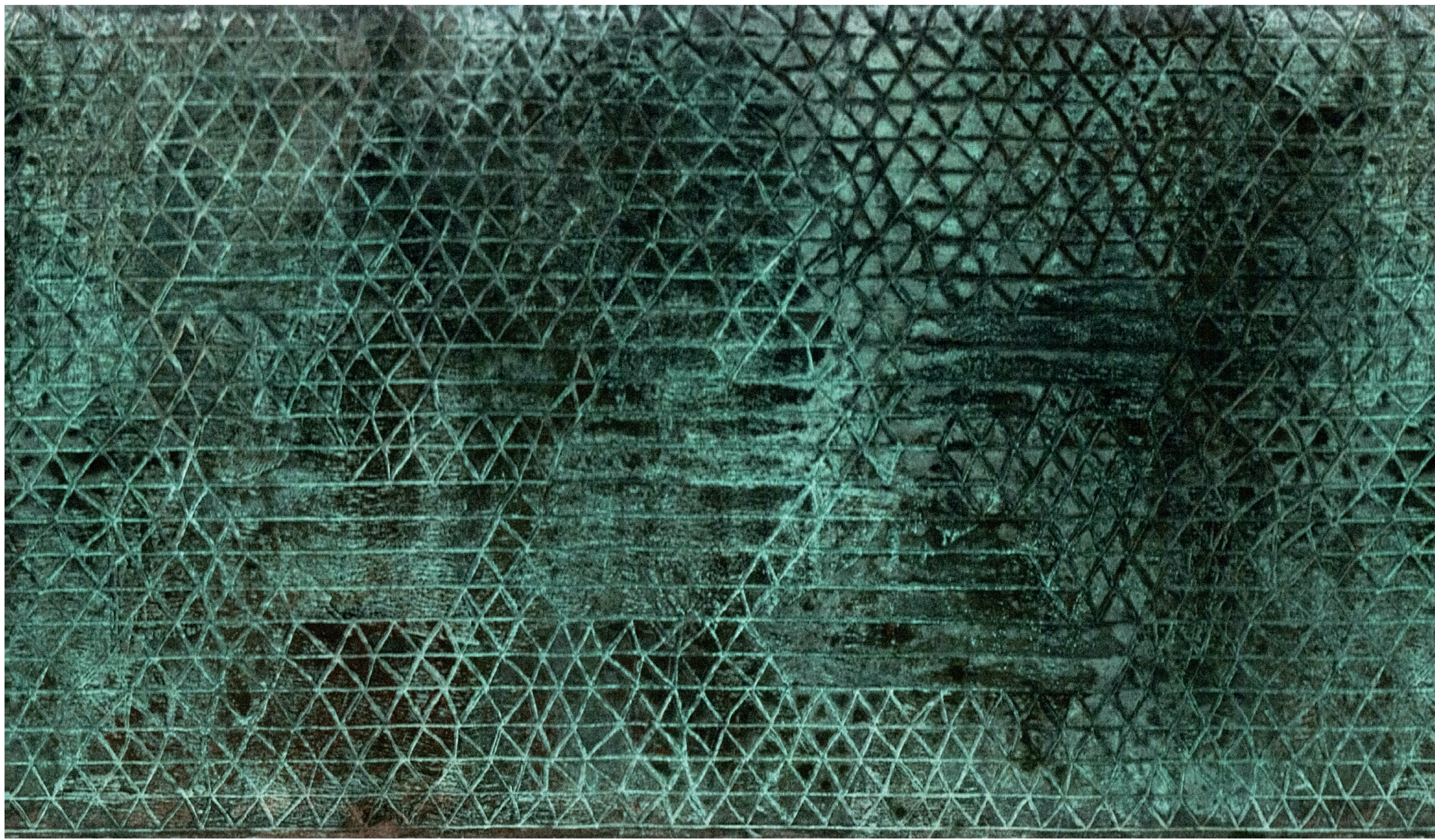
In our family gatherings, touch is celebratory. As I have grown up, I recognize this sort of intimacy is not universally experienced within every community. The lingering of a hug before letting go, the touch of calloused fingers holding an entire history, and the tactile embodiment of Persian culture are all affirmations of connection. Touch is broader than just a sensation—it holds personal and generational identity, memories, and meaning all blended into the soft palm of a hand or the light brush of a cheek. In Persian culture, touch is never forgotten. Instead, it is an affirmation of our oneness.



Nooria's grandmother, Samira, painting outside. Photo courtesy of Nooria Hiyeri.

THE ART OF TOUCH

A Persian American Lens



Copper vase unrolled #1, 2025. Etched copper. Saul Becker. Image courtesy of Finnegan Schneider.





Image courtesy of Finnegan Schneider

FRAMING CHOICE

“Adding surveillance to assistance is all too easy: extracting knowledge from the creative labor of designers in order to later replace them with AI.”

ROCKY HANISH

Clicking through cascading menus of material color options for a project I’m working on, I begin to wonder: how does this particular metal trim perform in prolonged exposure to ultraviolet light? What’s its actual durability? If only there were a reliable way to learn more. Enter Acelab and Grace Farm’s collaboration titled “Materials Hub,” a new digital platform developed to assist designers in navigating the labyrinthine world of material selection, offering data-driven insight into the performance and availability of an ever-expanding catalog. At first glance, the promise is enticing—leverage computational power to streamline material decision-making. But can this be done well? What are the implications of centralizing information into an accessible database in this way? How accessible is it exactly?

Tools seem to advance slowly in our field, so it remains to be seen if architects will gravitate towards this systematized way of organizing material libraries. The interface appears to be similar to the logic Autodesk employs in its endless sets of menus, settings, and disconnected pages of project information. Some may appreciate all the metadata embedded in it, however.

In the vast constellation of design professions, materials are not neutral characters. Like the term “space,” they come with cultural, environmental, and political implications. The means we employ to achieve our end goals intrinsically carry meaning along the way.

Tools and materials alike matter profoundly, even poetically, to those who shape the built environment, and they are always in the process of reformulating themselves. To quote Doreen Massey (2005) in the opening chapter of “For Space”:

“...we recognize space as always under construction. Precisely because space on this reading is a product of relations-between, relations which are necessarily embedded material practices which have to be carried out, it is always in the process of being made. It is never finished; never closed. Perhaps we could imagine space as a simultaneity of stories-so-far” (pp. 9-10).

For generations, toolsets have been iteratively understood through embodied experience and tested application. That knowledge resides in people, practice, and place, not just in databases. A well-designed tool might help synthesize or surface those layers, but too often tools

introduce unnecessary complexity under the guise of efficiency and innovation—in short: systems over people. Materials Hub’s interface is Exhibit A. Rather than simplifying access, it substitutes walled logic and hidden assumptions for open-source clarity. It’s not clear how to add or modify the database of materials. This lack of edit-ability (perhaps Wikipedia has spoiled us) fails to inspire trust the way a seasoned product representative or industry colleague who understands nuance, risk, context, and consequence might. That embedded knowledge could be all-too-easily lost in our rush to codify materials into a singular digital interface.

When we open a modeling or drafting program, we expect UI/UX consistency and a stability that supports creative flow. No such standard exists for material knowledge. It is still, largely, tacit and localized. And perhaps it should be. Interfaces shape the way we imagine possibility. Picking up a handful of soil tells us something a filtered database never could. The relationship between muscle memory, cultural continuity, and material experimentation is not trivial—it is foundational to design thinking. New tools should amplify this, not obscure it.

Moreover, material selection isn’t incidental to the design process, it is the compositional substrate of the future we are building. In an era of climate disruption, political volatility, and economic precarity, how we choose materials, and what choices we believe are available, are questions of ethical and ecological gravity. Materials Hub’s answers raise more questions. Does it help create a mental map of locality, elevating traditional practice’s feel for the vernacular, or does it erase this in favor of global averages and standardized products? Does it reflect the cultural and environmental constraints of place, or flatten them into abstract data points? Even before AI came into the scene, materiality was being divorced from its narrative potential—its backstory, speaking to where it came from and how (and by whom) it was made, rendered generic algorithms prioritizing optimization over meaning.

This challenge may yet be overcome. The problem is not cataloging per se, but the ethos behind it. Materials Hub risks becoming a tool of extractive logic. Designers are asked to input critical project parameters—budget, performance goals, and aesthetic criteria—with no clear sense of reciprocity. What do they get in return? A sortable table of materials’ stock keeping units? Worse,

what’s to prevent this data from being used to model and commodify design intention itself? Adding surveillance to assistance is all too easy: extracting knowledge from the creative labor of designers in order to later replace them with AI.

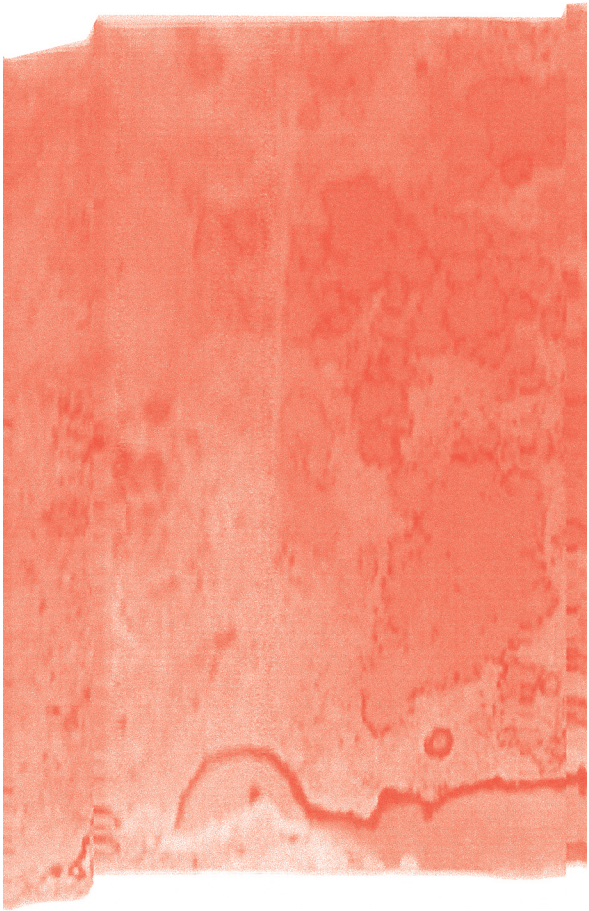
As Paul Makovsky hyped it in Architect Magazine:

“The platform’s inception is rooted in a simple yet profound realization: the traditional ways of handling architectural materials were inefficient and often ineffective. By harnessing over 100,000 building materials, Materials Hub offers comprehensive analyses based on aesthetics, performance, and sustainability, moving beyond simple keyword searches to understand the intent behind each query” (2025).

While Materials Hub may indeed improve visibility across material options, we must ask—whose intent is being understood, and for whose benefit? If optimization is the metric, we risk prioritizing market logic over human-centered spaces designed for habitation, wellness, and other human imprints on space. When a single interface defines how we discover, evaluate, and select materials, what will happen to improvisation, place-based experimentation, and a designer’s constant push for difference?

The notion that over one hundred thousand licensed architects in the U.S. might align around a singular system for material selection is both intriguing and alarming. To be useful, such a system must be porous, adaptable, and deeply attuned to local practices not just in material availability, but in how we teach, share, and value materials themselves. If not, we risk turning creative practice into a closed system incapable of growth and change.

Materials are carriers of meaning, not just commodities. For the profession to move beyond the extractive or imposed narratives emergent in recent decades, it must resist the temptation to treat design as a problem of data alone. This means valuing the relationships behind material knowledge, between designers, builders, communities, and ecologies. Instead of building ever-expanding libraries in the cloud, let’s ask which stories our materials still have to tell, and how we can listen more effectively.



"AN ESSENTIAL
QUALITY OF
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PATINA
IS NOT
FINISHED SAUL
BECKER

As a painter, I’ve always been drawn to surface. Not a superficial surface, but more like the surface of the ocean—a membrane that reflects the depths below. A thin layer that communicates something deep and material. When my partners and I started an architecture firm, Mutuus Studio, just over eight years ago, I struggled to understand how this sensitivity to surface could express itself within such a technical and structural discipline. Around the studio, the word “patina” surfaced as an important idea. We purposely set out to create a new model for our practice—integrating architecture with interior design, custom handmade fabrication, and public art. In those early days, our clients would often ask why we talked so much about patina, and what it meant to us. Clearly, it was a word that touched on something essential, but what did it really mean? It was flexible and evocative, yet its meaning often felt elusive.

- In classic form, let’s see what Merriam-Webster says:
- 1) a) *a usually green film formed naturally on copper or bronze by long exposure or artificially (as by acids) and often valued aesthetically for its color*
 - b) *a surface appearance of something grown beautiful especially with age or use*
 - 2) *an appearance or aura that is derived from association, habit, or established character*
 - 3) *a superficial covering or exterior*

So “patina” can refer to a physical surface altered by time or chemicals, a kind of aura developed through long-term use or memory, or simply a superficial finish. It can be both fact and fiction. What a slippery word.

When I think of patina, I often return to one of my favorite definitions of art, popularized by the critic Michael Fried. In his 1967 essay “Art and Objecthood,” Fried argued that art is about the conditions of its own making. The materials used, the political climate, the tools, the dialogue of the time, and the artist’s intent all shape the work. One of my favorite examples of this is Robert Morris’s piece *Box with the Sound of Its Own Making*. It’s a simple wooden box that plays a recording of the sounds made during its construction—an acknowledgment that no material object exists outside of time and that time itself adds meaning and dimension.

In its first definition, patina is an accumulation of time. Copper, bronze, and other metals react with air and chemicals in the environment to form a thin layer of change. It’s an honest record of substance interacting with context—a “live finish” that continues to evolve. One of the outdoor lights we make at the studio is left as raw copper. After six months of rain, it develops a remarkable multicolored patina from the acidity of the Pacific Northwest’s weather. The environment literally imprints itself on the object. Its location becomes part of it, grounding it in place and time. I’ve come to relish this process. Lately, I hesitate to polish away solder marks or torch scars. Instead, I leave them visible—evidence of fabrication. Sometimes I’ll heat an object with a torch and place it in wet grass, moss, and pine needles to cool, letting the landscape take a swipe at the design.

Nature tends to make its own aesthetic decisions, whether we ask for them or not. I’ve been thinking a lot about lichen lately. Lichen is slow, stubborn, and quietly spectacular. It’s like nature’s version of graffiti: totally uninvited, but somehow better than what was there before. It doesn’t just sit on the surface—it fuses, integrates. Lichen is the long game.

Same goes for the bark of fruit trees. Out in my yard, the pear and apple trees wear these complicated coats of color—slate gray with orange, hints of green or even lavender if the light hits it right. Bark records frost and sun and the occasional rogue squirrel. It’s not trying to be pretty, but it ends up being a map of everything the tree has been through. That, to me, is the best kind of surface—unintended design that’s earned over time. As a painter, it seems masterful.

I’ve been slightly obsessed with this concept of submerging my metal light fixtures in saltwater to grow barnacles on them. Is it over the top? Definitely. But the idea of handing something off to the ocean and letting it have its way is incredibly appealing. It would come back crusted in a way I could never plan—a sort of oceanic collaboration. Would it be functional? Probably not. But it would be honest. That’s the kind of patina you can’t fake. It’s a full surrender to time, tide, and tiny sea creatures. I, in fact, did suspend four fixtures from a buoy at our cabin in the Hood Canal. Unfortunately, they broke free and sank in 40 feet of water. My son and I have gone magnet fishing trying to find them. Someday I’ll scuba down, and I’m sure they will be epic.

When I remodeled my kitchen, I made a custom stain for the cabinets. Between raising two young kids and building a new business, the project stretched on for three years, to my wife’s understandable frustration. By the end, the stain had concentrated and cured unevenly, leaving each cabinet a slightly different tone. Though I have some OCD tendencies (I call it CDO—alphabetical order, of course), I chose not to redo them. Instead, I embraced the patchwork result as an honest timeline of the work. In this way, the narrative is embedded in the space. Patina wasn’t easy to accept at first, but parent-

ing is a shortcut to embracing scrapes, scuffs, dings, and gray hairs. After refinishing our wood floors for the third time, one of my kids dropped a pair of scissors, point-down like darts. They stuck into the floor. I sighed and accepted imperfection for good. This year I severed several tendons in my hand and gained some new patina in the form of scars. The world imprints itself on us too.

Years ago, I worked as an art handler maintaining outdoor sculptures throughout Seattle. I learned a lot about how different chemicals react with bronze to create specific colors. We used colored waxes to blend repairs. Most of the time, we were trying to preserve an artist’s intended finish, protecting it against time—and seagull poop. In these cases, patina wasn’t a byproduct; it was the finish itself, deliberately developed for preservation. That process opened a world of archaic chemistry for me. I still keep a book of patina recipes that I use to create custom finishes for clients—on metalwork, hardware, and lighting. I’ve probably raised a few flags with all the lab gear and obscure chemicals I’ve purchased. But I’ve always liked the saying that magic is just technology we don’t understand yet. The reverse is also true. The alchemy of the past can seem just as mysterious as the promise of the future. As these old techniques recede from everyday use, they develop their own patina of mystery.

An essential quality of any material is that it must endure time. Patina makes that endurance visible. A dusty bottle of port in a Portuguese wine shop is charming; the same bottle on a grocery shelf can feel suspect. Context shapes perception. I once flew on a plane in Russia that had a little too much patina—hand-painted wooden tray tables, threadbare seats, unexplained sirens. It was unnerving.

Like all things, patina requires discretion. It’s not about decay, but about understanding how time affects surface, substance, and perception. In our studio, we often mix vintage elements with new work to build a sense of layered time, placing our clients in a continuum. When done right, this can be deeply comforting. Surface as substance.

The word “finish” is tricky. It can refer to a process, a coating, or an ending. And patina, depending on how you see it, can be all three—or none. Many modern finishes aim for stability, economy, ease. Often, that’s appropriate. But sometimes, it feels like a denial of time. Materiality is not static. I hope to always find beauty in the way time wears on the world. From well-worn jeans, Japanese Boro fabrics, and deeply grooved stairs to Restomod cars and the scars on my hands, I want to keep honoring the substance of surface as an essential quality of material. As a painter, this is still my way into the world: through the depths of surface.



“One thing about interiors—they exist in different timeframes.”

NINA WIGFALL

INTERVIEW BY
JOHN J. PARMAN

Nina Wigfall is an interior designer based in London. After graduating from a drama and theater studies program at the University of Kent, she earned a diploma in spatial design from London's University of the Arts and then worked with Softroom Architects and Studioilse. In 2021, she set up as a one-woman practice. Her passion is materials, but Wigfall is a designer, working on teams led by architects like Alma-nac and Chris Bagot, in concert with artists, artisans, vendors, and suppliers. She spoke over Zoom from the southeast edge of London with John Parman in Berkeley, California, where she lived as a child.

John J. Parman: You wrote that you were really busy. How is it going?

Nina Wigfall: It's good, just very intense right now and pressured. I'm currently working on two quite big projects, both with their own specific demands. The first is a collaboration with Alma-nac working on a project for Dulwich College School. We've been engaged to oversee the restoration of various parts of the Barry Building, the oldest part of the school dating back to 1869, designed by Charles Barry Junior, the son of the architect who designed the Houses of Parliament. It's Grade II* listed and extremely beautiful. Looming summer vacations are adding to the pressure. I have to finalize the specifications for all the FF&E [furniture, fixtures, and effects], which is meticulous, focused work. On top of that, I've got a new project to design a series of holiday cottages for a client up in Scotland, with Chris Bagot Architects. It's at the concept stage. Chris and I go way back, to my first job at Softroom, where he was a director.

JP: Say more about your new project.

NW: The client plans to renovate a number of dwellings, in various states of disrepair, and turn them into holiday rentals. When we were brought in, work had already started on the first one, so straightaway we were asked if we wanted to make any changes while the contractors were on site. After a hasty site visit, we're now rushing to make those changes. We're developing an overall concept for the project.

JP: Can you describe how you work?

NW: I'm an FF&E designer—furniture, fixtures, and effects. It's a very broad role with many facets to it. My work starts at the very beginning, when we're coming up with a design vision for a project. That means looking at colors and materiality, furniture and lighting—all those layers we want to incorporate to make that space feel good. We work in tandem. I'll often brainstorm and come up with an initial presentation,

a concept board or mood board, while others focus on the architecture and spatial design—very much a fluid conversation, which I love.

Once that stage is done, I'll turn my attention to selecting the furniture, fabrics, lighting, etcetera, and calculating costs. Everything has to be sampled to ensure that it meets the requirements for durability and complies with regulations, such as fire retardancy. Once it's all approved, it's scheduled, checking lead times to confirm that orders can be fulfilled. Only then can I take a breather, as my role is largely done until, right at the very end, I might oversee the installation and styling. It's a hugely creative role, with an enormous amount of decision making, but it demands a very high level of attention and focus.

JP: How did you learn about materials?

NW: I fell quite naturally into becoming Softroom's materials librarian, with a particular love for the tactical side and away from the technology. I also enjoyed the social aspect of it—the regular meetings with manufacturers and suppliers, the visits to factories to see how things were made, attending design fairs, etcetera. I became the go-to person for ideas and advice on materials, and I kept the library well-stocked and current. My knowledge grew from there. I was supported and encouraged to do it.

When Softroom closed, I offered to take the library off their hands. I've got some forty crates of materials, but it's all in storage at the moment. I thought that if I freelanced with smaller practices, I could use this resource on a shared basis. My dream is to get it back in one place. I'd love now to lease a small shop where people could see and use it. People are drawn to materials, wanting to pick them up, touch them, put them side by side. It would be fun to run workshops using them, helping people design their own spaces.

JP: In your work you must encounter aesthetics different from your own. How do you deal with that?

NW: You do, for sure, and sometimes it's nice to be pushed outside of my comfort zone. When I started out, I was helping to design the Wahaca restaurants, founded by chef Thomasina Miers. Their brand is vibrant and colorful, and we played with different patterns and materials in very fun and original ways. It was at odds with my much quieter sensibility, but it was great to train my eye and my mind in that way. You begin to spot things all over the place—"Oh, that's very Wahaca!" Years later, I'm still doing it.

JP: What about designing in historic buildings or spaces?

NW: In Paris recently, I visited the Eurostar Lounge at Gare du Nord Station, which Chris designed with Softroom. It's really held up, and that's partly to do with its architectural bones. I've worked on projects at the British Museum, the V&A, the Royal Albert Hall, and now at Dulwich College—all great historical institutions. Projects like that are an enormous privilege but also a great responsibility. You want to bring it into the contemporary, but you're hugely sensitive to what was there before. With Alma-nac, we're furnishing the Master's Library at Dulwich College, and oh my god, it's such a beautiful space! Timber panels lined with old books, a creaky parquet floor, all this old furniture—I thought, "Don't change anything!" We felt really conflicted. What can we put here that won't feel too new and won't lose that magic? It's led us to design something quite classical. The colors—deep browns, and dark greens and blues, feel suitably traditional, whilst the furniture is quietly modern and beautifully crafted. The plan is to replace the old parquet floor, too worn and damaged to restore. I'll miss its creaks and unevenness. The wobbly-wobbly standing lamps, which had their charm, will now stand straight. As time goes by, new layers will be added to it, of course. A floor is a palimpsest.

The presumption is that everyone tasked to redesign a space believes they're making the right choices. Sometimes, though, you ask your-

self, "Why did they do that?" The existing Lower Hall at Dulwich College is a perfect example. There are these classical columns, and in the last redesign they were painted oxblood red. It's so heavy and oppressive! I know the Victorians liked this red, but it was a strange choice. In our research, we discovered a very early illustration of the Lower Hall in the RIBA archive. Back then it had a very light color palette, very fresh, and that informed our decision to erase the red.

JP: William Morris opposed the Victorians' penchant for imposing their own view of what was proper when they restored an old building or interior. It's like your oxblood columns.

NW: Change is fine to keep a place relevant, but it's good to know how it was. Your mentioning Morris makes me think of London's Victorian brick terrace houses. People buy them and spend a lot of money cleaning up the brickwork. I lived on one such street and I felt its history was being erased, making it look brand spanking new. Of course, it looked that way once, so it's strange really that I was so offended by it.

JP: We expect the materiality of our everyday to have a patina to it. We want to see time around us, and buildings are markers of time in some sense. When you erase it, it's jarring.

NW: That sense of time, or its passage, is interesting in relation to the material choices I make as a designer. It often comes up with sustainability, choosing one material over another if you know it will stand the test of time. An example is faux leather versus real leather. Many see faux leather as the more sustainable and ethical choice, yet it's so much more nuanced than that! Real leather ages beautifully; it's part of a circular economy, made from a byproduct of the food industry, and it can be restored and repaired. Often it looks and feels better the older it gets. Faux will never age gracefully—it rips, and before you know it, it has to be replaced. So which is the more sustainable option? The longevity of real leather argues for it, while defaulting to faux

leather as the sustainable choice strikes me as tokenism. If you don't want the real thing, then don't bother. I always prefer to use the real material, not something that's trying to mimic something else, like timber-effect tiles for example. They might deceive the eye initially, but as soon as you touch them, they feel wrong. The greatest gift I can give my clients is to help them make smart, informed, and thoughtful choices about materials. The way they feel and the sense of quality we unconsciously absorb from them, that emotional connection, is something I emphasize.

JP: Do questions about sourcing come up in your work—who made it and where did it come from?

NW: Most clients are concerned by how it looks and what it costs. As the one who's helping them, there's responsibility there for me, but I'm not working in isolation. I know my suppliers and trust them to do their best on issues like this. Whenever possible, I also source locally. With the project in Scotland, my natural instinct is to focus on Scottish craft and materials. There is fallen timber on the estate, which they're happy for us to use. The quality of local making is really good, so the client is encouraging it. The goal is to root the cottages in their setting. This means using the local timber, incorporating textiles woven in local mills, thinking about the colors and rugged textures of the estate, and using these different elements to weave together the authentic feeling and atmosphere of that place.

JP: Where does an FF&E designer find inspiration?

NW: Kettle's Yard in Cambridge is a really special place, filled with beautiful paintings and artwork. There are also collections of natural things, presented with such consideration and care—pebbles arranged tonally in a spiral on a table, for example, or dried leaves and bracken on a window ledge, their textures drawn out by the sun. These small details catch my eye, and they've inspired my thinking about how to bring the Scottish estate's remarkable landscape in as an element in the cottages' design and styling.

JP: Charles Handy, the late management consultant, coined the term "portfolio work" in the 1990s, giving freelancing a big boost. I did it for fourteen years. What's your experience been with it?

NW: I made a conscious choice when I became a mother that I wanted to keep working but it was important to me to be able to drop [everything] and pick up my daughter at the school gate. Juggling work in a busy studio and fighting London's unreliable trains ended up being too much. I was stressed and exhausted. It led me to take the plunge and go freelance. Looking back now, it was the best thing I could have done. The pandemic helped because it forced that working-from-home thing. I now have the flexibility to handle work and life simultaneously, and not feel that either is having to take second fiddle to the other. Not that many careers allow that. My work is very stimulating. I'm very lucky in that sense, too. But it did take some getting used to. It's great when it's going well, but when it's slow, it's very easy to start panicking.

You sent me an article from the *Financial Times* about consultants who rid houses of negative energy. That's one thing I believe, that there are these energies in the world and you have to put the positive ones out there. It's when you do that things come. My husband Emile Rafael and I often talk about this. He's a filmmaker, and the industry at the moment is pretty dire. He was just saying that he wants to make a music video, a self-project he's doing for love. "As soon as I start it, I bet all this new client work will suddenly appear," he told me. "Well, get to work," I said. That kind of energy!

Drawing of the New College, Dulwich College, London: View of staircase from entrance hall. Courtesy of RIBA Collections.

Dulwich College, Lower Hall. Photo by Nina Wigfall.

Scottish Landscape. Photo by Nina Wigfall.

A SELECTION OF PHOTOGRAPHS FROM
THE IMOGEN CUNNINGHAM TRUST

56	<i>Hand with Snake</i> , 1967-68
58	<i>Aiko's Hands</i> , 1971
60	<i>Banana Flower</i> , 1920s

"I always focus on the hands."
—Imogen Cunningham



Hand with Snake, 1967-68 © Imogen Cunningham Trust

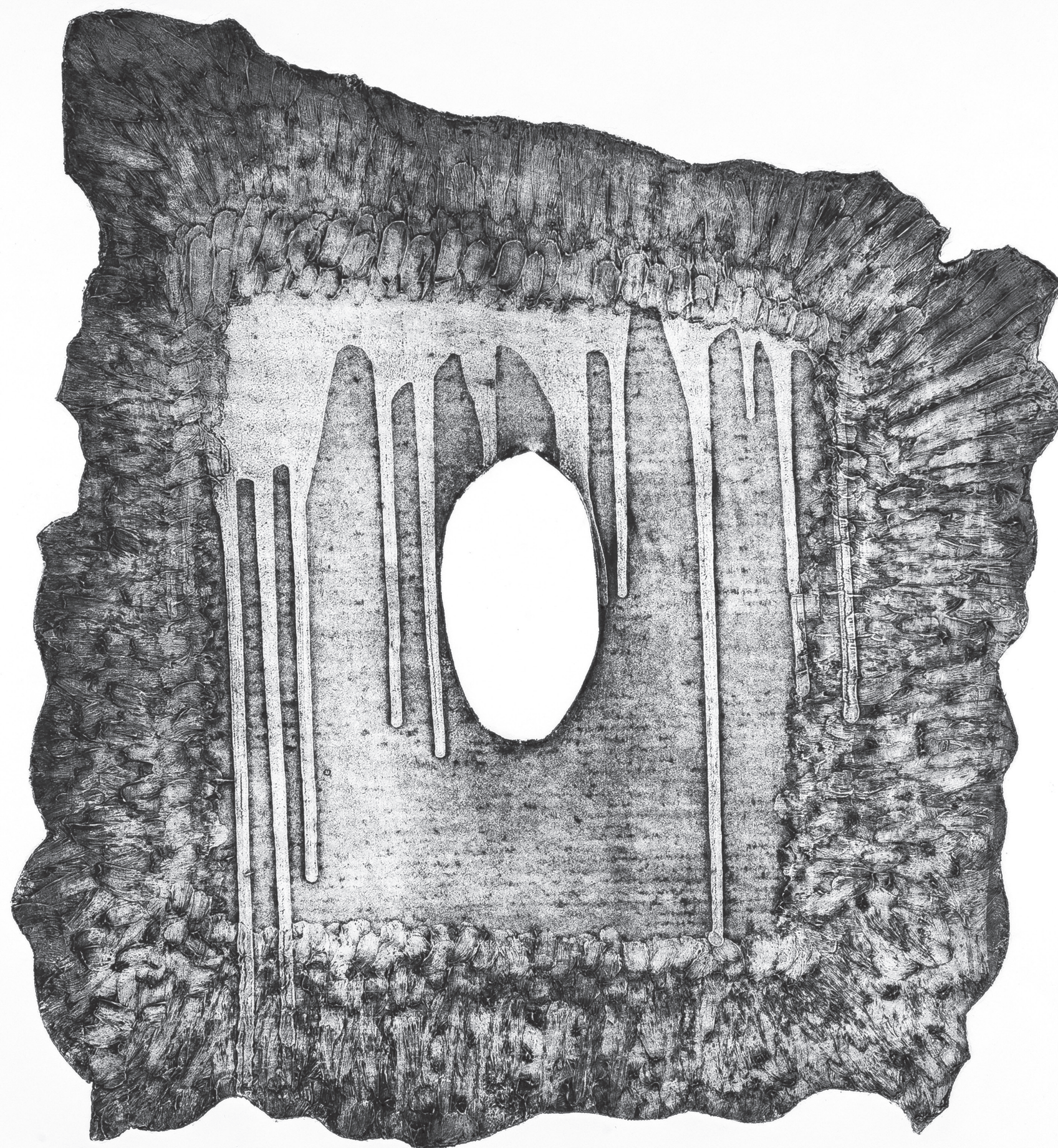




AQBAWI ARTIST

MARJORIE
DIAL

INTERVIEW BY
CAMILLA SZABO





A



E

Marjorie gathers ash from her wood stove and labels it by season. She crushes wine bottles for glass and uses gemstones her mother collected in North Carolina. She constructs forms out of clay, then makes charcoal rubbings of them, finding new ways of seeing and interpreting the work.

Marjorie Dial is an artist and writer based in Portland, OR. She was born in Columbia, SC, and earned a BA from Yale University in 1994 and an MFA in Craft from Oregon College of Art and Craft (OCAC) in 2019. Dial's multidisciplinary practice consists of sculpture, writing, and print-making, and her collaboration with various materials is integral to her making.



G



C



F



D



B

A: *Auspice II*, 2020
Ceramic and oxide
17" x 6" x 17" h

B: *Auspice III*, 2020
Ceramic and oxide
16" x 6" x 22" h

C: *When you are gone I*, 2024
Glazed ceramic panel
23 3/4" x 16" x 5"

D: *Resonant Chain IV*, 2024
Ceramic with ash glaze and stones
21" x 19" x 19"

E: *Summer Provisions*, 2023
Ceramic with ash glaze
18" x 12 1/2" x 12 1/2"

F: *Thrum*, 2022
Glazed ceramic
16" x 8" x 8"

G: *By the bird song*, 2024
Glazed stoneware and glass
5 1/2" x 19" x 19"

Print on pg.63
Haint, 2019
Intaglio print
22" x 30"

Photos courtesy of
Mario Gallucci
and Marjorie Dial

Camilla Szabo: You talk about feeling “unprogrammed” growing up spending summers in the Cowee Mountains in South Carolina, immersed in play and the wildness of the woods. Do you see a correlation between your childhood and your draw to a malleable and free-form material like clay? Is there a connection between your childhood and your desire to create objects that act as vessels—be it to the natural world, a spiritual calling or quest, or an inner child?

Marjorie Dial: Yes, absolutely. There’s a direct link between that lack of inhibition I felt as a child and the freedom I found in clay. Being in the studio is a free space—there is an element of play and a profound strangeness. I protect it fiercely and have worked to facilitate and offer this kind of space to artists through the residency I founded in North Carolina called Township10.

As a kid, I spent summers wandering the woods, burying stolen trinkets from my house, and writing songs in the backs of cookbooks. The boundary between inner world and outer world was porous. Working with materials reactivates that permeability. It lets me follow instinct, gesture, and improvisation. I’m not trying to recover my childhood or inner child in art practice. It is more a full encounter with that time, like an accordion fold that presses my present up against childhood quite literally.

CS: The ability of clay forms to expand beyond the physical world to convey something of interior or interpersonal life is a recurring theme in your work. Can you talk about how these ideas manifest for you?

MD: For me, the act of making is a collaboration between my inner life and the material in front of me. My interior sources are closely held—I don’t offer them up fully. Tim Ingold, the British anthropologist, writes about making as points of convergence between the flow of human consciousness and the flow of materials. This resonates with how I work in the studio—interior life intertwining with clay, ash, and ink.

My work is often cyclical. I tend to operate on that edge between vulnerability and containment. I draw from materials that feel urgent or hard to articulate—desire, fear, intimacy—and structure them within recurring forms. Over time, I’ve developed a lexicon of vessels: transmitters, receivers, warnings, storage vessels. They act as carriers, as communicators. It took some time, but I now feel comfortable in the knowledge that the work is self-sustaining and leads to the next or returns.

A turning point was my installation *Sky Inside*, on Sauvie Island. It was in a broken-down concrete building with no roof—just bare walls and water channels. I started to think of the structure as a kind of circuit and placed large ceramic vessels in formation, like a communicative grid. It helped me realize that my work is not just

about making objects—it’s about creating conditions for presence, for transmission.

CS: What does it mean for material objects to harness ephemeral—or fleeting—emotions, desires, or impulses? How can ritual vessels become conscious through imbued meaning?

MD: This is one of the core reasons I am drawn to clay. The ceramic vessel has such a long and varied history, well-documented in the archeological record—for commemoration, for storage, for decoration, and on. What holds my attention is the ritual vessel: an object made to speak from our humanity. Vessels for protection, invocation, mourning, offering. That lineage speaks to me.

Two specific examples that have influenced me are Mimbres bowls from the peoples of the Mimbres Valley of New Mexico from the ninth to the twelfth century, which were pierced and buried over the faces of the dead, and Aramaic spell bowls—ceramic pieces inscribed with protective text, then placed upside down under the threshold of a home. There’s power in that act of making—not just the object, but what the object is asked to do. There is this theory in linguistics called the illocutionary act, where to say something is to do it. Like “I forgive you.” Or “I promise.” The act of saying makes it so. I think making objects can be like that too—a kind of material speech act. You create form, it is received, and throughout that process meaning is activated.

CS: How much is your process about the act of making versus the final outcome? What happens to a piece once it’s been completed?

MD: My process is centered on the act of making. This is really where I believe the power and agency of art lives. The entanglement with materials and meaning in the studio is what fuels my return to the studio over and over, despite inevitable failures and frustrations and doubts.

I’ve noticed that the way I work—moving between different forms—keeps me destabilized. I don’t want to become efficient, or perfect, or (god forbid) didactic. My recent show *When you are gone* taught me a lot about this—I made large-scale slab wall panels for the first time, developed new glazes that were unpredictable, and melted raw materials (glass, crushed rocks, gemstones) onto the surfaces at varying temperatures.

Once I finish a body of work, I don’t show everything. I photograph the work, move it around, do rubbings off it in charcoal—try to see it differently. Sometimes this leads to another iteration. There’s a feeling of relief when a piece leaves the studio. I think of it like writing music—once it’s done, it’s meant to be played and have its own trajectory.

CS: What does your work teach you?

MD: Honestly, it taught me how to stay. Before I found clay, I had a hard time being in my body or in the moment. I felt like I was skimming the surface of things. But when I’m making, I drop in. I listen differently. I move differently. It’s a way of being in relation. At a fundamental level, making has taught me that communication and change is possible. I think I felt really alone and shut down and disappointed in my before-times. Making gave me a language, something embodied that makes space for urgency and ambiguity and resistance to the messed-up collapsing world.

The work also keeps me humble. Ceramics in particular—it doesn’t let you get too confident. You can spend weeks on something and lose it in the kiln. Or the glaze cracks in a way you didn’t expect. You have to adapt. You have to start again. That kind of failure has schooled me.

And then there’s the community part. Sharing work, receiving feedback, hearing from someone who connected with a piece—that’s been incredibly meaningful. It reminds me that the work doesn’t end with me. That’s actually one of the most moving parts: when someone tells me they saw themselves in something I made. It’s like the object becomes a bridge. This brings me back to the topic of agency. Making has taught me that communication is possible at a deeper frequency.

CS: Do you see yourself expanding into other mediums? Are there other materials that speak to you?

MD: Yes—I also work in printmaking. That grew out of the sculpture, actually. I started tracing the shadows of pieces during graduate school at OCAC, doing rubbings off their surfaces, and then those gest-ures became their own body of work. I use intaglio, pochoir, collagraph—whatever lets me translate the dimensional onto paper and then sometimes back again.

I like the back-and-forth between two-dimensional and three-dimensional. It helps me see the work from new angles. And it slows me down. There’s an intimacy and immediacy in printmaking.

And—I’ve never really said this out loud—but I’m dying to work with hot glass someday. There’s something about molten glass being poured into molds that calls to me—the clarity, the heat. It feels like the cousin of clay that went off to live a more dramatic life. I’d love to get to know it better.



Song of the Siren I, 2018. Ceramic, 29" x 18" x 6". Marjorie Dial.

RECOMPOSE

CLAIRE NEEDS

Designing for a Natural Death

As a child raised in Western Idaho I would road trip with my family to Yellowstone each summer, stopping to visit fish hatcheries along the way. The large tanks are each separated by maturity, progressing in size as you walk along the pavement. I'd watch fish big and small flounder as my father paused to explain each stage of life and their journey ahead once released, traveling miles through saltwater to their freshwater birthplace. The hatcheries were critical conservation efforts for endangered salmon species. I remember struggling to conceptualize the purpose of their lifelong journey: to die and become a part of a larger natural cycle.

Death is an intrinsically natural process, yet modern Western funeral practice bars it from being so. Graves set in metal and concrete and the conversion of our bodies to dust through cremation present physical barriers to natural transformation.

Katrina Spade, an architect by practice, founded her deathcare company Recompose with the intention of rethinking how humans can be integrated with nature after they die. Recompose is the world's first human composting service created for urban settings. This specific process called Natural Organic Reduction, or NOR, was legalized in Washington in 2019, and is now legal in twelve subsequent states.

Through Recompose, a body can transform into a cubic yard of soil over the course of two to four months, sequestering carbon rather than releasing it into the air as a pollutant, as is done with cremation. This process saves an estimated 1.4 metric tons of carbon per person, retaining valuable nutrients in an organic natural cycle. For Recompose, design performs best when

en directly informed by nature. Moments of ritual and connection are created to directly mirror natural cycles.

Raised in rural New Hampshire, Spade moved to Vermont with her young family to caretake for her grandparents, who could no longer live alone in their home. She enrolled at Yestermorrow, a local design-build school, and felt motivated by the school's focus on natural building materials and its empowerment of architects to pursue a tactile approach in their work. Spade noted their relevant tagline, "Build with your hands."

Katrina pursued her Master of Architecture at UMass Amherst, where she began contemplating methods of sustainable deathcare and how design can inform this practice. She fell in love with the idea of natural burial, a common deathcare practice in rural regions, involving laying the deceased to rest in a field or sprawling natural space. The biggest hurdle with natural burial in cities is that space is limited, but as Spade noted, "there is lots of plant life to be nourished," and we shouldn't have to leave the cities we love after we die. Katrina's "Urban Death Project" was formed as a thesis project and early phase of Recompose, the name aptly describing the company's intention: bringing nature, and a more general embrace of death, to our cities.

Her background in architecture, combined with an undergraduate degree in anthropology, helped Katrina envision a vehicle for sustainable deathcare while rethinking the preexisting funeral system.

Researching the American funeral industry in her free time, Spade sensed an "overriding draining of any agency that the family [of the deceased] might have, when

in fact each of us has the capacity to be with the dead body of the person we love."

Before founding her company, Spade held home funerals and natural burials for multiple family members, noting the honor of "being able to care for their bodies." Autonomy and consideration of grieving individuals are threads of Recompose, largely inspired by Spade's personal experience. While researching composting methods, Katrina looked to farming. Livestock mortality composting offered a promising model, as farmers would place an animal in a field with a mixture of hay and additional plant life that help break down the body. This process, however, requires acreage and time, taking up to a year for the animal to fully decompose.

Postgrad, Spade moved to Seattle, determined to actualize her vision through design. Early into her move, she was introduced to Alan Maskin, an owner and principal of architecture firm Olson Kundig.

"[Alan was] interested in the same things I was," Spade said, "which is, how do you bring ritual into this new deathcare option?" Alan noted that he had always been taken by the Buddhist notion of impermanence, and he was interested in its relation and complication by Katrina's proposal of a new kind of permanence after death: not memorialized by a gravestone, but embedded within the forest floor. He added, "Katrina wanted to change the way we think about death, and the fact that we don't talk about it, we don't deal with it." Their partnership seemed kismet.

As a "test pilot" of Olson Kundig's visiting residency program, Katrina, Alan, and his collaborative partner Blair Payson worked in tandem to create the Recompose composting vessel—a hexagonal rotating pod filled with a mixture of wood chips, alfalfa, and straw, informed by Spade's studies of the farming industry. Recompose's composting pods are hexagons for efficiency purposes, as composting in the middle of a city requires space maximization. But stacked together, the pods form a beehive-like structure. Natural form

continued to shape Recompose's design. In 2019, after the composting process received legal status in the state of Washington, Katrina reconnected with Olson Kundig to design Recompose's flagship facility in Seattle's SoDo neighborhood. The facility opened its doors in August of 2020.

The team started to ideate how the design could provide comfort to grieving visitors, especially when the process itself was so new.

At Recompose, grieving families may partake in a "laying in" ceremony, an alternative funeral where they can play music, say words to the departed, and spend time in their company. Recompose's ceremony space is positioned alongside the greenhouse, where the hive of vessels create soil. Alan ideated the moment of transition from ceremony to facility, calling it the "threshold vessel," a unique composting system designated for ceremonies. At the end of service, the vessel is moved through a circular portal in the wall and into the greenhouse space as a final gesture, sending the deceased to transform. The vessel features an engraved interior poem for the deceased, written by a member of Spade's team—the kind of consideration that has made a concept as initially abstract as Recompose feel grounded and intentional.

"Much like the cycle the body goes through in the Recompose process, there is a cycle that the visitors go through, where they're continually reminded in subtle ways of what their loved one will become," Maskin said.

The building's exterior presents a natural mural, a near exact depiction of Recompose's product: soil and plant life, surrounded by a garden that partially utilizes donated soil from their vessels. Inside, slot windows glazed green and yellow filter light through the building as though you're immersed in a forest—Alan's idea after spending time in the forests of Port Townsend on the Olympic Peninsula.

Direct translations of natural phenomena to Recompose's design were intentional. "[Alan] and I shared the opinion that being pretty direct with the design is important

when you're dealing with something so raw and potentially heart wrenching as someone's death," Spade said.

She noted, "When someone is grieving and walking into the space for the first time, they don't need extra things to ponder. They don't need to wonder what the design is supposed to symbolize." The building's design is intended to comfort through its forwardness.

Transparency, as a consideration for both the deceased and grieving visitors, is embedded in Recompose's process and design. Katrina felt it was important to offer a space in their facility, named Cedar, for loved ones to bathe and care for the deceased. "From the sink to the botanicals to the hairbrush, it's really made to be a place where family and friends can take some extra time with the person's body," Spade said.

Spade felt that providing the opportunity for ritual was meaningful in itself; clients have the option to donate their soil to a partnered land trust, or Recompose can provide loved ones with the compost to distribute at their own pace. It's this opportunity for ritual, in ceremony and post-compost, that makes Recompose unique. Sometimes, as Spade mentioned, "it's nice to have someone else do that work [of deathcare]. But at the same time, what's lost when you make that a hyper-professionalized process?" About 40 percent of people who use Recompose's services partake in some form of ceremony. "The offering of it is key" to helping their clients and families feel supported, Katrina said.

"I do think it is a bit of a gift to have a ceremony when it's extremely raw, and then come back to us or receive the soil from us two months later," Spade said. "For many people, that's a moment where they can re-remember their person, or do something with that soil that becomes their own ritual, and we might not make the time for that otherwise." Recompose provides the framework to think of ourselves, one day, becoming an embedded material factor of not only the city but the parts we love most: parks, green spaces, and gardens.

"Recompose provides the framework to think of ourselves, one day, becoming an embedded material factor of not only the city but the parts we love most: parks, green spaces, and gardens."

One of Katrina's favorite client stories is from a family who brought a whole cubic yard of their loved one's soil back to his home in the city. They not only spread the compost in his garden, which he had tended to his whole life, but they also planted out the parking strip with the soil, and neighbors came by with buckets to bring it home.

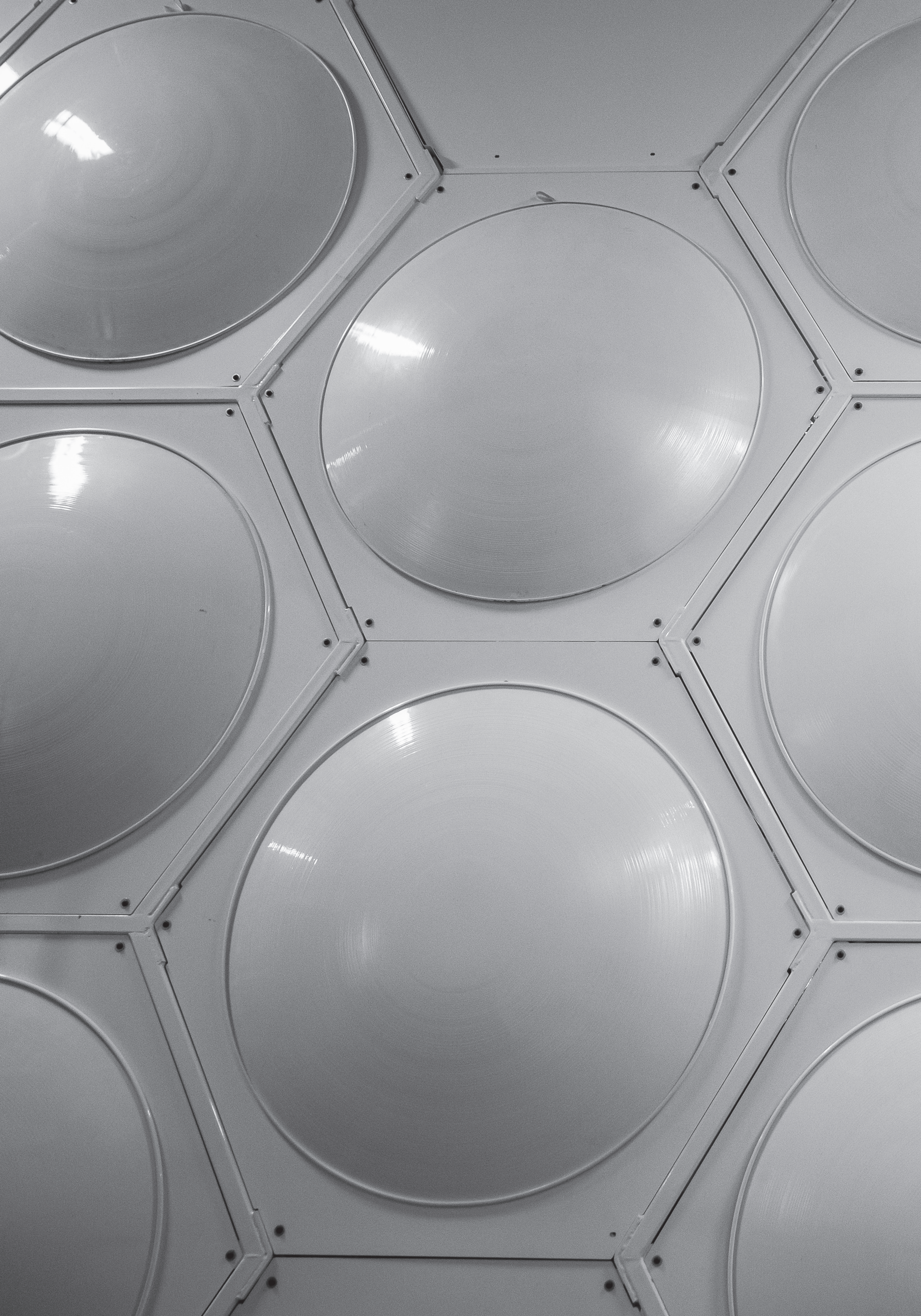
If a client alternatively opts for soil donation, the Recompose Land Program offers their soil to larger conservation efforts in Washington. The Skagit Land Trust, a partner of the Recompose Land Program, is primarily volunteer led, stewarding and cultivating our most at-risk ecosystems. A large part of this effort has included sequestering carbon within nutrient-deficient land. The Trust shared that the Skagit River is slowly returning to the natural conditions that once supported salmon runs.

I was reunited with salmon at Seattle's Ballard Locks last summer, watching them jump up a ladder on the final leg of their Cedar River journey. The ladder, situated in a beautiful public waterfront park with a British botanical garden, is designed to mimic the salmon's natural patterns, serving as an aid to transport them on their journey toward end of life. With Recompose, we can partake in the cycle, providing one last carbon exhale into the soil—nature has already laid out the blueprint to do so.

"There's something so ethereal about our spirits going to another place, no matter how you interpret that. There is something about the spirit's last move, to do something really positive that could have a tremendous effect on generations ahead," Maskin said.



Entering the composting vessel. Photo by Austin Wilson





Ontic Glow #10, 2019. Tintype, 8"x10." Lisa di Donato.

LISA DI DONATO

ONTIC GLOW

Material Photography in
an Immaterial Landscape

"When abstraction sets to killing you, you've got to get busy with it."

Albert Camus

This quote has appeared to me in various contexts and sources so many times that, at this point, it and its meaning can no longer be abstract. Taken from the 1947 novel *The Plague*, Camus's words unsettle with their cool remove from any certain meaning because abstraction is, essentially, a concept without content. Its imminence lies in its constant change, remaining outside of time and place, producing a continual awareness that a vague something just beyond your reach could actually reach you and cause the demise of some or all of you and your reality. Even if it were to find you, the analgesia of indifference, to which modern human beings are prone to enjoying, would render the occurrence as a disturbance to be endured more than a crisis to be confronted. By the time we could be bothered to move, it would be too late.

This individual and societal tendency, of course, is hardly revelatory anymore. While *The Plague* points to disturbingly brutal events, namely the Nazi invasion of Europe, as allegorized through a quasi-fictional cholera outbreak, the novel's sociological and philosophical themes of detachment and alienation find resonance in a less outwardly dramatic yet no less seismic shift in contemporary society: the inescapability of technology. Since the Industrial Revolution, more than a few authors, philosophers, and theorists have described how the creep of technology has irrevocably affected the ways in which we think about and relate to the world, extending and augmenting our human sensory abilities until digital technologies became the

very structures of our perceptions. The line has been blurred to the point that there is no longer a world that exists outside of technology. Our insatiable appetite for stimulation is matched only by our desire for control and comfort, resulting in a reliance on technologies whose purpose is to reveal to us the nature of our world.

But what of the world, or technology, do we understand with any substance? The devices that act as our perceptual and interpretive proxies are fantastically complex and surely not neutral; yet, we plunge further in, the problems that our existence has created having long outstripped our human capacity to resolve them. Consider Google Earth, a tool so powerful for visualizing and measuring our world that "truth" seems to be self-evident in its commanding views and emanates from the software's name: "Earth" rather than "globe" is purposeful; the latter refers to modeling or mapping, both understood as abstractions of a real thing. Even the operations of numerous aerial sensing apparatuses, relaying geographical information to automated servers to create a seamless, high-resolution visualization of the Earth, hardly seem questionable when there is the thrill of being virtually anywhere in the world, all from the convenience of your living room.

Armchair travel has existed for almost as long as photography has. Monuments and ruins were an early focus of photographic practitioners, the advent of the image coinciding with nineteenth-century preservationist movements that sought to construct notions of patri-



mony, historical heritage, national identity, and imperial mission. Reproduced as prints and postcards to be consumed by scholars, aspiring future tourists, and citizens back home, these visual testimonies of domestic territories and the cradles of ancient civilizations contributed to the formation of our collective imagination and the sense of an overarching view of our world. As photographic technology developed to be more convenient, populations also became more mobile, and more sights were chronicled and shared. Prior to digital platforms, our perceptions of places never before visited were a mosaic of cultural memories, books, maps, and anecdotes or vacation photos from acquaintances that were synthesized into a form of precognition, an image of reality that would, perhaps, one day find recognition in a snapshot we would make exactly there, abstract knowledge aligning with our experience. For images to be made of the world, we still had to go out into it.

Technology has now made all aspects of life visible to us at any time, but the oversaturation of media and information has not brought the world any closer to us, nor have we come any closer to it. Not only have people transformed our entire world into images, but the world is also capable of creating images of itself. The power of the human imaginary has been eclipsed by that of machines, which continually map and remap our complex visual domain as a remarkably consistent and universal field. Google Earth shows us everything in astonishing detail, but what can we know when the appearance of our environment tells us so little about its meaning and functions? Perhaps there is a clue in the algorithmically assembled forms that lay motionless and dispossessed, occupying a world conspicuously devoid of human presence.

Born from observation, this planetary double paradoxically sits in a new beyond unaffected by observers, at least conscious ones. At a distance, depictions of earthly objects and spaces are passable as representations of our world, but upon approach, reality retreats behind angular distortions and blurred details, remaining a promise waiting elusively on the horizon. In its continual slippage between semblance and nonresemblance, the object challenges meanings around use-value and form itself. Without apprehendable things, all we are left with is vague effect.

Engaging with this immaterial, networked landscape constructed from billions of images, material photography possesses a distinctive capacity to enter into a dialectic with algorithmic erasure. My series *Ontic Glow* combines two unpredictable processes: wet plate collodion and machine vision. Irregularities inherent to the photograph's physical chemistry interact with digital artifacts generated by the computational operations of abstraction and reconstitution, while the direct-positive tintype images raise and blur the distinction between the indexical photographic reproduction of reality and the generation of pictures without a discrete referent.

Google Earth is situated like a para-site over the reality we occupy, taking everything as its frontier. The omnipresence of the invisible eye of technological surveillance is as oppressive as the relentlessly blue, spotless sky, always set at solar noon. It is tempting enough to see the world's treasures, the places that leave one without words, but asking Google to show us what to know before we see it for ourselves so that everywhere is familiar yet estranged is precisely the technological not-thinking that produced this very

situation. The only real option is to stray because the alternatives are desiring, belonging, or declining, all of which are anticipated moves here and would not allow technology to condition or reveal something about our desires and their object. Walk through immaterial thickets and cut across highways to move away from the banality of (former) population centers, already progressing in the machine's imagination, constricting to produce representations that, while technically more accurate, are less moving as projections of something other than what is already known. Look for the last thing anyone would want to look at. The peripheral terrains, not yet of a high enough fidelity for true commodification, are the last refuge.

Industrial spaces and energy infrastructure are alien forms in an alienating world, postindustrial-era ghosts representing the pirating of natural resources as well as the world's appearance being mined and extracted. Walls and topography are nothing more than surface skins that hide nothing and everything, supported by the substructure of a universal mesh through which the cosmos can be glimpsed. Rendered against darkness or swirling haze, the fragmented and malformed architectures and landscapes have a hallucinatory effect as they contort in space. Their uncertain status collapses time, merging the past and the future in the present moment.

Reified as unique, handmade photo objects, the spaces and places depicted become artifacts retrieved from the ceaseless torrents of information, more real than before in their unrepeatability and complicated by the question of our human relationship to this thoroughly unhuman world. When assembled into grids with open-ended aspect ratios, the tintypes form maps without territories, becoming endless panoramas of information that reflect our inability to locate ourselves in a simultaneous and aspatial environment. The photographic framing of these encounters and occurrences emphasizes their monumental impermanence, their unraveling signifying that these structures are nothing more than representations of representations. They are conceits that evolve through data and information that may or may not be directly related to any given site.

There is a sense that something has been lost here, but what exactly is it? The wild unraveling of digital structures, which vaguely correspond in space and time to our own existence, exposes their essential nature: the instability of their existence, a lucid view that is hardly tragic. That they may ultimately be condemned to become well-behaved architectures sounds more senseless and sad. There is shared ground here found through sympathetic imagination, which, absurd as it sounds, comprehends that our technologies oppose the aberrant and unpredictable. We may have already become inured to the ache of alienation from our sensual world or from one another, but we can still recognize it in digital visualizations. The world is what we see, and we must learn to see it.



Ontic Glow #28, 2021. Tintype, 8"x10". Lisa di Donato.

PIXEL & STONE

GARRETT NELLI

Amid the lunch rush in the midday winter sun, I pace around a column fragment with my phone in hand. Ducking and weaving, I capture hundreds of photos from every conceivable angle. Around me, others mirror my movements: phones raised, framing scenes [of people] posing on the steps of Piazza San Donato or down a garden alley offering views over the Calanchi Valley hundreds of feet below. Each photo becomes a memento, shared online or kept private—a digital footprint of our time in Civita di Bagnoregio.

Unlike those passing tourists' photos, my images won't remain static. Instead, they'll be stitched together and processed to reconstruct the Roman column, bathed in warm Mediterranean light, within a three-dimensional environment—a digital twin accessible to anyone with an internet connection. This digital scanning process converts physical matter into its virtual counterpart, turning stone into pixels to ensure preservation, fidelity, and continued access, albeit within a virtual space.

As the Civita Institute's 2024 Cultural Landscape Fellow, I spent one month meticulously capturing the Italian hilltop town of Civita di Bagnoregio through drone photography, handheld camera imagery, and terrestrial LiDAR (Light Detection and Ranging) scans to create a comprehensive digital record of this fragile heritage site. Civita is a fairytale-like town, shaped by two-and-a-half millennia of human occupation, sitting atop a tuff mesa at constant risk of erosion, landslides, and seismic activity. It is a place where time is palpable, where the weight of history presses against the fragility of the present.

Producing digital twins—a form of what might be called cyber-archaeology—involves collecting and preserving archaeological data in digital form, enabling access, visualization, and analysis through a workflow defined by four key steps: digital capture, curation, analysis, and dissemination. Using a combination of photography, LiDAR, and GIS data, complex and variegated environments can be processed into high-fidelity reconstructions. Within these immersive models, details can be examined with millimeter precision. This level of accuracy is transforming how we conserve, interpret, and experience cultural heritage. After the 2019 fire at Notre-Dame de Paris, pre-existing laser scans proved essential to restoration, guiding the exact rebuilding of damaged elements such as the ribbed vaults and stained glass. At Mount Rushmore, digital reconstructions have

revealed previously undetectable fractures in the granite, enabling conservators to monitor structural shifts in the rock. In the Amazon, airborne LiDAR surveys have uncovered vast ancient settlements hidden beneath dense forest canopy, detecting extensive man-made topographies that have rewritten assumptions about the scale and complexity of pre-Columbian civilizations in the Americas. At St. Peter's Basilica in Vatican City, ultra-high-resolution scans now offer virtual access to architectural areas long closed to the public, including upper galleries and internal staircases, opening new opportunities for education and remote exploration. These case studies illustrate how digital preservation doesn't merely archive what exists—it reveals what's been hidden and restores what's been lost.

One of the primary goals of my fellowship was to use drone photography and photogrammetry to reconstruct the rock foundation on which Civita rests. Persistent seismic activity has eroded the town's built footprint, with a series of major earthquakes, some reaching magnitude 7 or higher in 1695, causing the loss of an entire neighborhood block in the northeastern quadrant. The once-booming Renaissance town saw an exodus of residents and wealth until the population stabilized in the low teens that it supports today. The town's edges are sharply defined by exposed volcanic tuff, a porous rock formed from ancient volcanic ash. Over millions of years, rainfall has stripped away softer soils surrounding this tuff plateau, leaving Civita's dramatic cliff faces fully exposed. Beneath these cliffs lie unstable, plastic layers of blue-gray clay from the Pliocene-Pleistocene epoch, when the valley lay beneath the Tyrrhenian Sea. Each seismic event further destabilizes clay layers through exposure, leading to quicker erosion and landslides, perpetuating a destructive cycle that endangers the town's future.

Creating a 3D model of Civita's cliff face provides an unique aerial perspective of the extensive vegetative cloak covering Civita's gardens and cliffs, demonstrating nature's gradual reclamation of the margins. Ancient Etruscan caves, cellars, and columbaria, carved centuries ago, contrast in dark shadow against the surrounding rock's vibrant orange and yellow hues. The cliff reads less like a geological formation and more like a monument layered with history and transformation. With this model, future researchers and fellows have a tool to analyze Civita's geological structure, predict areas susceptible to erosion and landslides, and propose informed strategies to mitigate future risks. Should a seismic event or landslide damage Civita's

buildings or erode the cliff face, this model could serve as a detailed reference for studying lost elements or guiding sensitive reconstruction efforts. The scan provides a baseline for longitudinal analysis, allowing future comparisons that could reveal structural shifts, cliff retreat, or the spread of vegetation across decades.

But this model offers more than analytical value—it holds a deeply human one: a record of how Civita felt and functioned at a particular moment in time. A midday walk captured with a LiDAR scanner renders the town in vivid realism—color, detail, and spatial character all captured. Civita may feel like a living museum, with over one million tourists visiting yearly, but its history and traditions still pulse today. Locals adorn their *profferlo*, the town's distinctive elevated entry staircases, with flowering pots that spill over in bloom. The bell of San Donato tolls hourly from seven to seven, and the piazza fills with people during seasonal celebrations. These socio-spatial rhythms are elusive to document; where drawing and photography often fail to capture their dynamism, digital twins can bridge that perceptual gap. Digital preservation is not limited to grand landscapes or monuments alone; it can also serve personal purposes. Who wouldn't want to preserve their childhood home, a beloved family vacation destination, or that secret childhood hideaway built with friends? Digital preservation thus becomes digital memory cabinets populated with the intimate geographies of our lives.



3D Model of Civita di Bagnoregio by Garrett Nelli



Views of Rome: The Aqueduct of Nero by Giovanni Battista Piranesi, 1775. Etching and engraving. Cleveland Museum of Art. Gift of the family of Mr. and Mrs. Peter M. Hitchcock. Wikimedia Commons CC0 1.0 Universal.

Nature is inexorable; as things fall apart, new forms of life emerge from their remains. Civita di Bagnoregio poignantly embodies this truth. The town's near-Edenic appearance—vines cascading down cliffs, floral gardens spilling into stone alleys—portrays erosion not as destruction but as the slow but persistent creep of natural reclamation. The ability of nature to rework human construction is vividly captured in Giovanni Battista Piranesi's eighteenth-century etchings of Roman ruins. In these images, humanity stands as a spectator witnessing nature consume ancient Rome's marvels. Vegetation overtakes broken columns; cracks widen under the weight of time. Piranesi's framing of ruins symbolically halt their dissolution, transforming the ongoing process of ruination into an object of aesthetic contemplation. His renderings exist somewhere between nature and culture, less concerned with historical accuracy than with evoking an emotional and intellectual response. In doing so, Piranesi demonstrates the life-giving power of the artistic medium to sustain memory and preserve the past. While Piranesi's etchings are bound to the tactility of copper plate and ink, their power lies not only in what they depict but how they reframe ruination as an artistic and historical subject. In contrast to Piranesi's etchings, digital scanning lacks a tactile presence—pixels instead of etched grooves—but offers something else: scale, access, and interactivity. Where Piranesi immortalized ruins through a singular artistic vision, digital reconstructions invite multiplicity. They are not artifacts alone, but platforms open to reinterpretation and collective exploration. Digital scanning captures Civita in flux, documenting erosion, overgrowth, and even the marks of tourism and time.

Consider, for instance, the origin of “ruin.” The term comes from the Latin *ruere*, meaning “to

fall,” long associated with crumbled stones and collapse. When we frame an object as a ruin, we reclaim it from descent into decay, inviting cultural attention and care that, paradoxically, elevates its value. With this framing the past is preserved—not only through material restoration but the deliberate gaze which resists forgetting. Always teetering on the edge of erasure, ruins demand our care; yet if we intervene too much, their status as a ruin dissolves. Ruins persist not entirely whole, but not entirely gone.

Digitally reconstructing Civita di Bagnoregio provides an opportunity to both confront and embrace its inevitable transformation while recognizing that preservation is fundamentally intertwined with change. In translating the town's fragile physicality into pixels and data points, we ensure that its stories, histories, and textures remain accessible, engaging, and vital for future generations. It reminds us that to preserve is not to fix something in time, but to attend to its unfolding. As sites of architectural and ecological significance increasingly face the threat of climate change, violence, over-tourism, and neglect, digital reconstructions offer an alternative: light-touch visitation. These technologies replicate the experience of being there while sparing fragile sites the wear of constant foot traffic. They invite global engagement without erosion—access without impact.

This hybrid approach underscores the essential dialogue between digital technology and physical materiality, offering a resilient strategy for safeguarding cultural memory in the Anthropocene. Given the scale of these threats and humanity's consumptive and extractive tendencies, prioritizing the digital recording of our built and natural heritage becomes not just a tool for preservation but an ethical imperative. It is how we ensure that

future generations may still experience, learn from, and care for what we risk losing today.

During my stay in Civita, and in my reflections since returning to Seattle, I keep returning to the Etruscan concept of *saeculum*. This term refers to the span of time defined by a human life—within which memories persist through those who experienced events firsthand, maintaining their relevance and direct connection to the present. A local guide named Cinzia shared stories of her grandfather, born in Civita in the early 1900s. His daily rhythms—journeys into the valley to gather water, rear livestock, and harvest olives—mimicked those of his ancestors a century earlier, capturing a timeless pastoral Lazio now largely vanished. Yet even for Cinzia, those scenes feel impossibly distant. With her grandfather's passing, the clarity and solidity of these memories have faded, juxtaposed sharply against Civita's transformation into a global attraction he could never have imagined. This raises an essential question for our time: Do we have a cultural and archaeological responsibility to keep material memories alive and accessible, now that we have the technological means to do so?

In our *saeculum*, where physical matter can be translated into virtual space as millions of data points, the human lifespan no longer constrains our collective memory. Instead, it is extended by the longevity and fidelity of our data. Civita di Bagnoregio provides a quiet counterpoint to the rapid transformations unfolding beyond its edges; even as it gradually recedes, it stoically persists. In the interplay of stone and pixel, ruin and renewal, Civita endures—its virtual counterpart standing resolute, freed from the erosive forces of nature and time.



Civitia Di Bagnoregio – Lixel



Civitia Di Bagnoregio – Aerial

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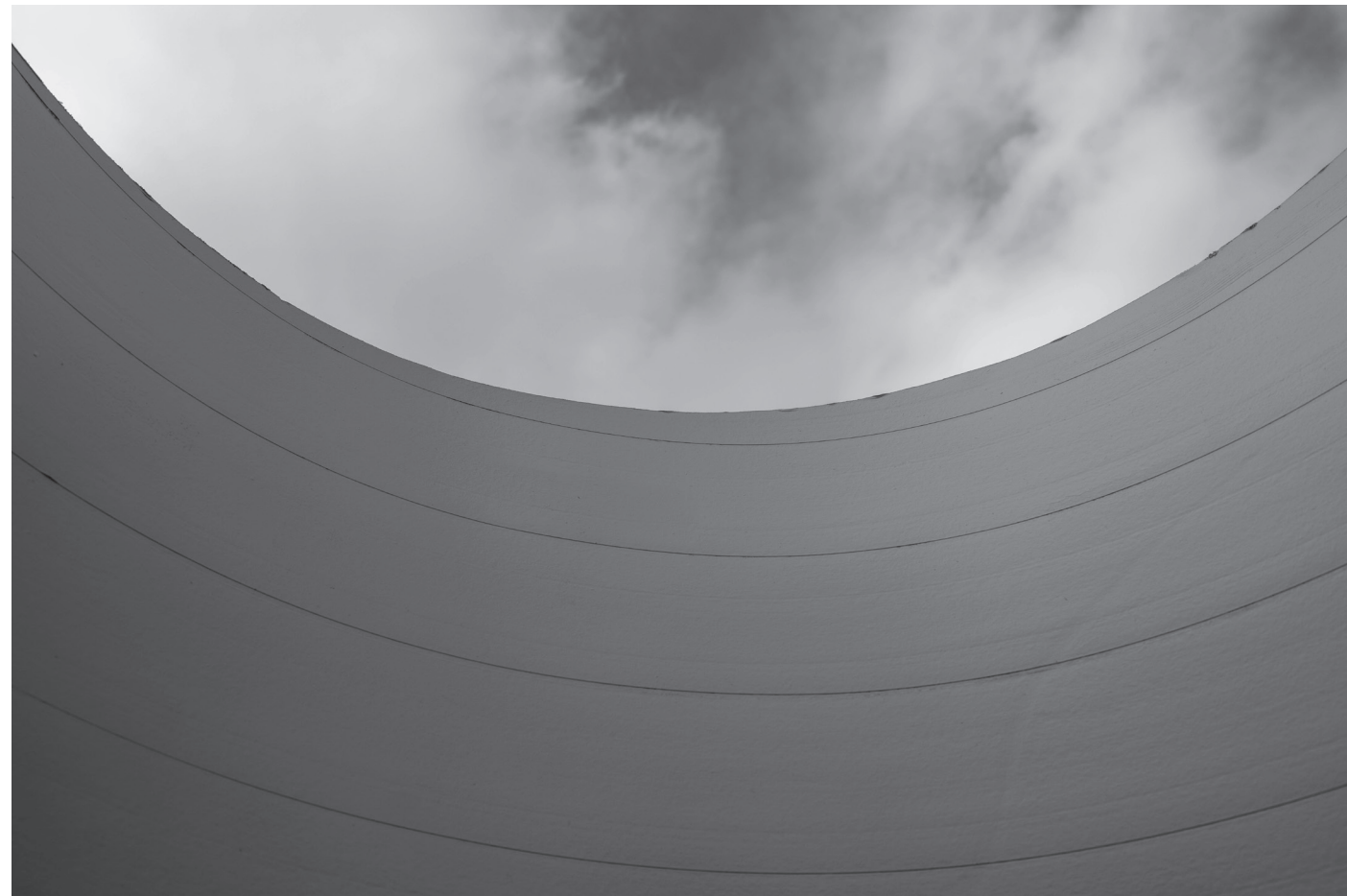
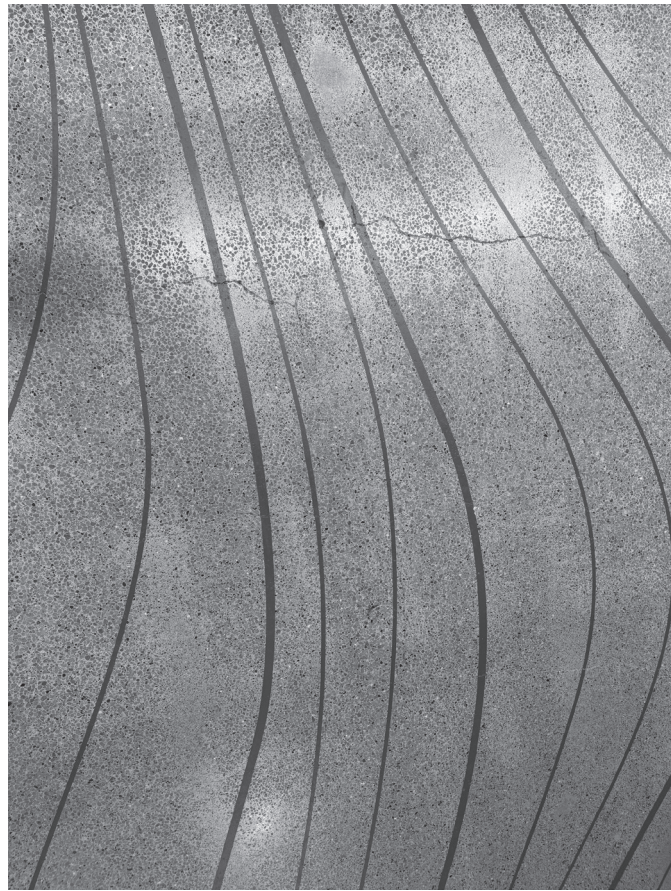
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From top to bottom:

1. Chapel at the Western State Hospital, designed by HOK.
2. Polished concrete floor with contour lines, HOK Office.
3. View from inside HOK's 2021 Seattle Design Festival installation.

Photos courtesy of HOK.

In design, we don't merely envision space in the abstract; we engage with it tangibly. The sensations of light, texture, and the haptic experiences of surface and volume form the foundation of how we comprehend the built world. To design is to curate this experience, to sculpt the interactions between body and material, and to give weight to the intangible through the physical. It is within this context that architects translate vision into reality, shaping environments that surround and engage.

We call this lived, tactile quality of space materiality. We experience it through the passage of time, the immediacy of touch, and the persistent interplay of entropy and sensation we feel in any environment. In this way, architecture becomes a four-dimensional medium manifest in sensation and time. *Materiality* enables it to extend beyond the object and become a conduit for human connection. It's how the artificial takes on the warmth and depth of the natural world, and how space is transformed from something inert into something alive with intention. More than the backdrop of experience, materiality is experience itself: the cold weight of stone, the comforting grain of wood, and the way light softens a textured wall. It gives space its scale and its sense of invitation or resistance, of warmth or sterility. It's our most fundamental tool to bridge the gap between the unfamiliar and the intimately known, the artificial and the real.

How, then, should we work with it? How can we master the interplay of sight, touch, and memory to affect individualized experience? How can we design spaces as curated and intentionally purposeful experiences—especially given the prevalence of a generic and placeless “efficiency”? My approach is to apply what I call *hyper-efficacy* to architecture's spatial elements. Floors, rooms, hallways, staircases, et cetera are considered and explored beyond their technical roles of function and delineation. This purposefulness generates a constructed experience that enriches daily life even as it meets its functional requirements. This is best understood through the work itself, so here are three projects of different scales and types. Their intentionality and purposefulness argue for my approach, which I believe is an ethical as well as a creative way to address materiality.

Through the Fog

Each year, my HOK Seattle team participates in the Seattle Design Festival, a two-day public celebration of architecture and design thinking. We design a temporary pavilion, an open-ended medium for exploration and experimentation.

In 2021, the theme for the Seattle Design Festival was “emerge.” Held in August, the festival marked a turning point in our collective emergence from COVID-19. Our team looked at the previous eighteen months as an interpersonal fog. Unease and absence left humanity (mostly) alone, facing a nebulous and uncertain future with feelings of helplessness. Yet the emergence from it had an almost surreal calm, like being in the eye of a hurricane. With this in mind, we set out to design our 16' x 16' installation.

Ultimately, we unified our two thematic

ideas into a single concept: a multilayered veil of translucency as “fog” encircling and enveloping a calm inner space with an unobstructed view of the sky above. Fog's unsettling quality is due to its transitional and unexpected decrease in transparency. At moments, you can see right through it, while a slight shift in position or time can completely obscure even your hand held out in front of you. That varying, unpredictable opacity became the fundamental characteristic and material quality we wanted to replicate experientially. Experimenting with plastics and fabrics, we found that layering thin white fabric curtains was ideal for mimicking fog. The installation's swirling layout was up to twelve layers deep.

The calm “eye of the storm” was trickier. Removing curtains from the center wouldn't work, as people pushing through the fabric layers would disrupt the defined edges needed to express that moment of calm. In the end, we made use of 5' diameter cardboard Sonotube supporting the roof plane. Painting the inside blue visually expanded the feeling of sky above, while painting the outside white blended it in with the fog. A discreet portal cut in the tube lets visitors “happen upon” a way to escape from the fog into a zone of sky-connected serenity. A gentle soundtrack magnified that peaceful moment.

Western State Hospital

Concepts of materiality operate at all scales. In 2022, our HOK team designed a 350-bed behavioral health facility at the State of Washington's Western State Hospital in Lakewood. We used the patient treatment model as both program and inspiration. Our approach shifted the new building from a traditional focus on efficiency and proximity to a dynamic, patient-centric environment emphasizing healing and rehabilitation. We established a network of interconnected 26-bed inpatient units (IPUs) as the initial building component. Patients can move freely between their bedrooms and smaller accessory spaces they use during the day. These are linked by daylit skybridges to form “neighborhoods” where acutely ill patients are treated. They can have their meals with others in the central “downtown” on the ground floor. Stabilized patients can engage with others at a café, a gym, a chapel, and a library. This mirrors the rhythms of everyday urban life, and their materiality reinforces this: familiar, calming, and safe but conducive to a sense of connection.

While the material choices conform to the hospital's security requirements, their scale and texture increase in visual and material richness as patients move from the simplicity and subtlety of the IPUs to the greater visual complexity “downtown” that helps prepare them to reenter the world outside. A minimalist material approach is used throughout, reducing the range of stimuli in favor of giving a restorative quality to each space. Warm wood slats and panels featured “downtown” vary subtly in color or grain by our choices of species and finishes. In the café and other common areas, a smooth concrete floor gives a grounded sense of stability. A white oak wall with solid panels at the base and thin wood planks above bifurcate and flow through the space. Open wood slats on the ceiling plane give

it added height and visual richness while reducing ambient noise. The chapel is a singular space encircled in walnut panels, digitally fabricated to reveal daylight. Set against a white coved ceiling and a smooth concrete floor, the panels and their integrated cabinets define a calming space for meditation with storage built in.

Wood's textural qualities are carried through with other materials on the exterior. We wanted it to feel like a museum, not an institution, which led us to design a modular veil—a three-dimensional weave of aluminum inspired by Salish basket patterning. It ties the building to its setting and provides a varyingly transparent and solid lattice across the facade that screens the repeated cadence of small high-impact windows, one for each patient room, that traditionally mark a forensic psychiatric hospital. By removing that visual stigma, we help the patients heal and reconnect with their community.

Rooted in Place

In 2024, we had the opportunity to design a new space for our growing HOK office in downtown Seattle. The “first impression” best exemplifies materiality and its role in placemaking. We used this moment to tell a story about our location in the city and how the history of the Pacific Northwest influences how we work. Seattle's legacy of logging and shipbuilding has engendered a rich culture of craft and making that is very much reflected in our practice. Craft as the interplay of natural and artificial is essential to the best material phenomena in architecture. This is most apparent in the manipulation of natural materials using the latest fabrication processes and other techniques. This is the lens through which my colleagues and I approach design, and it's clearly evident in our new office's spaces and materiality.

The elevator lobby sits at the center of our building, giving visitors two directions of access: The back door, primarily for staff and vendors, leads to our materials library; the front door leads to our reception area. We used a common visual language for both and emphasized the “this is where you go” aspect of the front door for way-finding. This is reflected on the floor, where polished concrete with exposed aggregate texture (the natural) was given a patterned overlay (the crafted). The pattern speaks to topography. Contour lines are an ideal means to tell the story—a visual language that provides clarity of place and directionality. While a simple addition, the material effect is dramatic. The contour lines extend in both directions.

The new reception desk, inspired by shipbuilding, forms one terminus with a clear line of sight from the elevator lobby. Here, the contours on the floor are plied outward, flowing around the desk like water around a ship's hull. The large, rippling wood slat and formed Corian desk anchors the reception and office gathering spaces. A large wood-paneled frame around them makes it obvious where visitors should enter. This same frame marks the other gathering spaces in the office. The lobby desk expresses how digitally facilitated craft riffs off of Seattle's long history of using the warmth of wood to express welcome. The flowing layers of apple plywood have

a fluidity made possible through digital fabrication, which unlocks wood's potential through precise cutting and stacking and makes something that's entirely new.

Though the contour-patterned concrete extends through the staff door, the library is hidden behind an articulated visual barrier of wood—a natural counter to the inviting nature of the reception desk and open common area. A wall of rippling wood slats maintains the material language established in reception with a softness and warmth that bookends the lobby experience. The undulating slats are perceived differently depending on one's position and proximity. From a distance, at the elevator lobby, the wall has a moiré pattern that is difficult to contextualize. Closer up, from a hallway, for example, it has a richness and sense of movement that makes it feel special and intentional.

An Ethic of Materiality

A common thread in these three projects is their prioritization of experiential intentionality through material phenomena and effect. This involves both the composition of space and the orchestration of its meaning and purpose through the physical presence the space expresses. At a time when standardization, efficiency, and simplification—for reasons of cost and ease of mass production—threaten the urbanity of our cities, the architect's role as a curator of embodied experience is more critical. This is a paradoxical cultural moment: On one hand, the proliferation of generic, hyper-adaptable typologies threatens to erase the nuances that root architecture to place; on the other, there is a persistent desire for spaces that are emotionally resonant, contextually grounded, and experientially rich. Materiality is architecture's most powerful means to navigate this terrain. Through texture, weight, temperature, and light, architecture engages the body and stimulates memory. These sensorial dimensions are central to how space is truly known, understood, and inhabited. Materiality grounds architecture in time as well as place; it reveals entropy, patina, and weathering, imbuing it with human presence and natural processes.

This practice of material exploration and intentionality constitutes an ethic that resists placelessness, insists on legibility, and honors the capacity of architecture to contribute to individual and collective well-being. It demands that design must be understood not only as the resolution of programmatic and technical challenges, but as a full-bodied response to the affective and psychological dimensions of our surroundings. The decisions we make in material selection, spatial sequencing, and sensory modulation are central to how architecture engages its users and sustains its meanings over time. It's less about what a building does and more about how it feels and communicates and the values it embodies. Materiality, in short, is of foundational concern. It enables architecture to move convincingly from the abstract to the experiential and from intention to lived reality. Materiality's three lenses—sensation, experience, and purpose—give architecture its most vital relevance.

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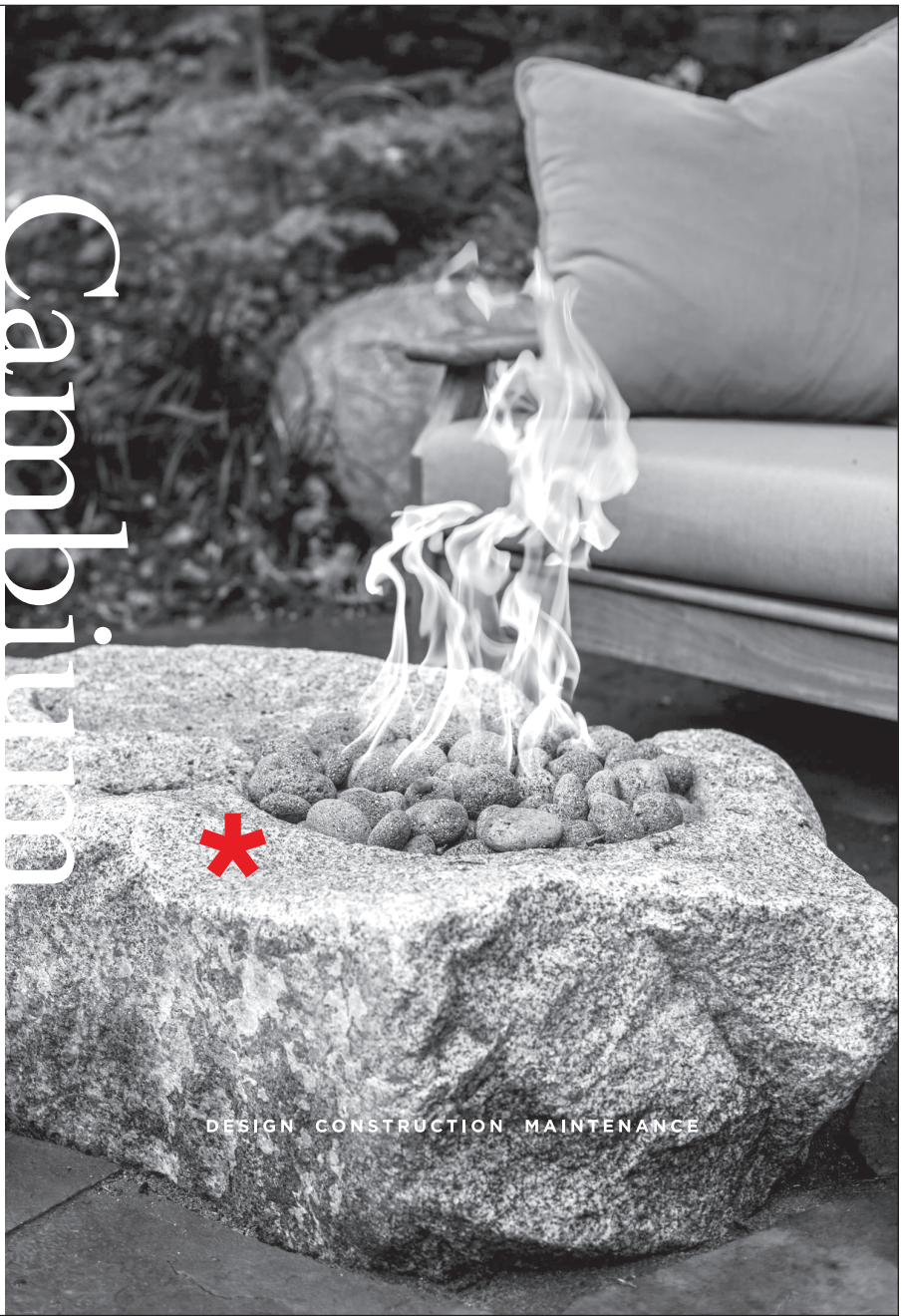



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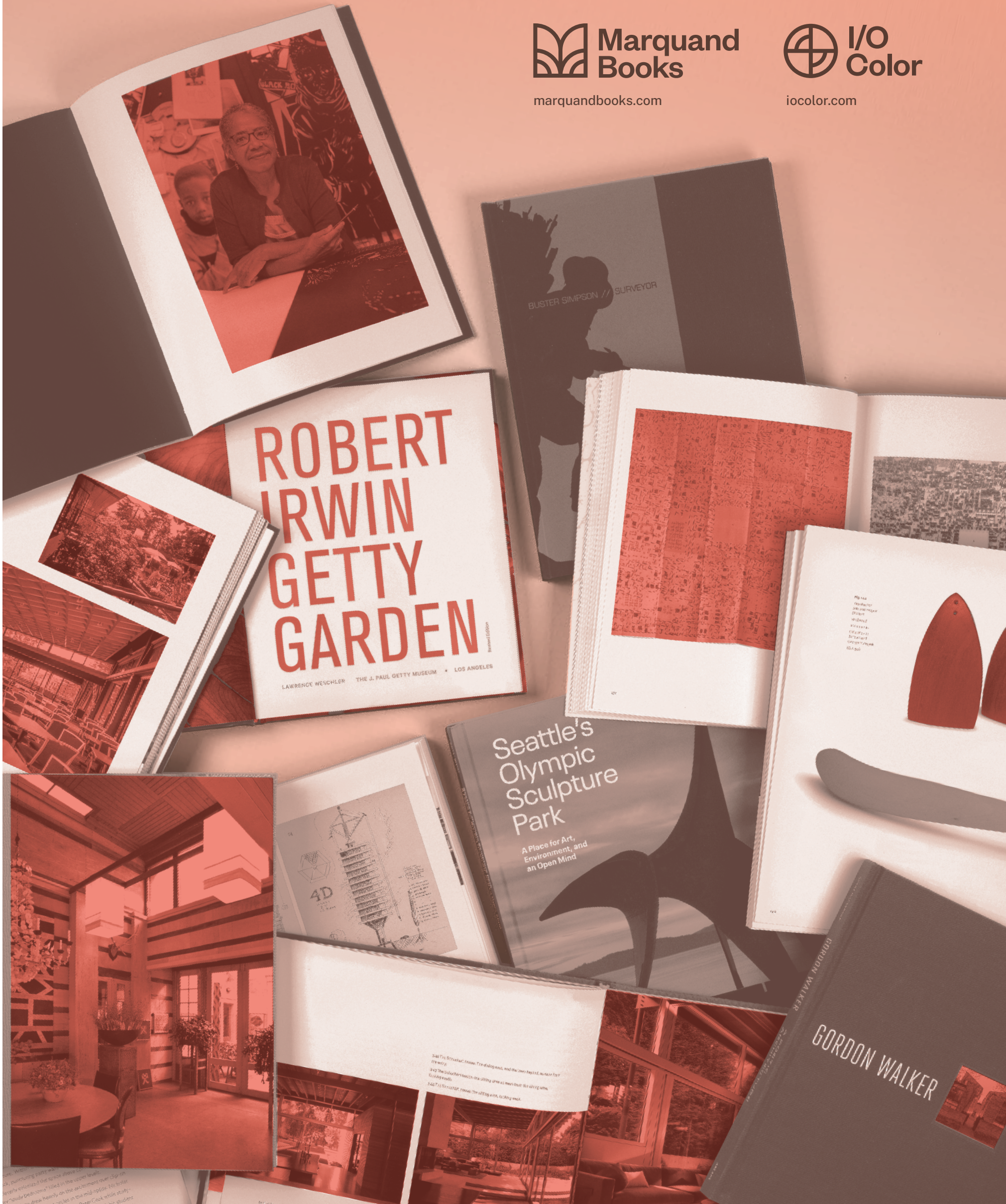
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John J. Parman is a senior editor of ARCADE. He directs the Urban Construction Laboratory, a Berkeley think-tank focused on urban issues. He is an editorial advisor to AR+D, ORO Editions’ research imprint, and Built Form, an urban morphology journal. He was a visiting scholar at U.C. Berkeley’s College of Environmental Design until 2023 and the editorial director at Gensler until 2017. He and Elizabeth Snowden are partners in Snowden & Parman, an editorial consultancy. He and Laurie Snowden founded and published Design Book Review from 1983 through 1997.

Camilla Szabo (b. 1999 in Toronto and raised in Portland, OR) is a writer, editor, and photographer. She holds a BFA in Photography & Imaging and Art & Public Policy from Tisch School of the Arts, NYU. She lived and worked in New York City before recently relocating to Seattle, WA, where she is the Managing Editor at ARCADE.

Finnegan Schneider grew up in Seattle, WA. In 2022 he received a BFA in Photography and Imaging from Tisch School of The Arts, NYU. Now, back in the Pacific Northwest, his day-to-day blends photography, design, carpentry, and cooking among other personal projects and odd-jobs.

Lydia Felty is a Midwestern transplant to Seattle who writes about the intersection of design, history, and our sociocultural landscape.

Andrew Rabeneck is a retired architect and construction historian living in London. He is a graduate of U.C.Berkely and worked for ten years in San Francisco, CA. His recent publications concern the political economy of construction, the effects of globalisation on construction, and the position of architecture in the new economy.

Kim Clements, creative director and co-owner, founded JAS Design/Build in September of 1992 with her husband Joseph Schneider. Kim’s connection to the design-build world started in architecture and design school. In her role at JAS, Kim is able to continue developing a passion for homes and how we live in them while exploring just how beauty and creativity can live alongside reality and functionality.

Madeline Cotton is an architectural designer at NBBJ in Seattle, where her work explores the intersection of computation and sustainability. She holds a Bachelor of Architecture from Carnegie Mellon University with concentrations in architectural history and building performance. In addition to her architectural practice, Madeline is a ceramicist and is currently completing a three-year artist residency at Seward Park Clay Studio.

Peiting C. Li received a PhD in modern Chinese History from UC Berkeley where her research focused on print culture and medicine in 1920s Shanghai. She currently teaches Chinese Calligraphy at the UC Berkeley Art Studio and is working on a book about medicine and art from a cross-cultural perspective.

Madeleine Stearns, aka Moss, can be found driving through the San Bernardino Mountains with apricot pits in the ashtay, a cassette tape playing at half-speed, and a stash of green pinyon pine cones destined to be spun into an ice cream. A perfumer and fermenter, her work is charged by an insatiable curiosity around olfaction and its power to encapsulate time and space. In awe of the mysteries of our existence, Moss explores how the ephemeral becomes tangible through the alchemy of aroma.

Nooria Hiyeri is a student at the University of Washington. Her passions lie in writing, painting, and anything in the creative realm.

Rocky Hanish (Associate AIA) is a designer, educator, and writer storyteller whose work bridges architecture, construction, and representation. With a background in visualization, design/build, and architectural education, he brings a hands-on, interdisciplinary approach to projects ranging from higher education and cultural institutions to multimedia installations and furniture design. His design philosophy centers on the intersection of narrative, sustainability, and spatial quality, guided by interests in architectural theory, urban design, and emerging technologies. Rocky explores tools like advanced modeling and virtual reality to communicate design intent and expand what’s possible across scales. Committed to thoughtful and performative architecture, he integrates user-centered sustainability strategies into both practice and pedagogy, fostering richer design outcomes and more engaged occupants.

Saul Becker lives and works in Burien, Washington. Originally trained as a painter, he is a multidisciplinary artist and a founding partner at Mutuus Studio, a Seattle-based practice that blends architecture, interiors, custom fabrication, and public art. His solo exhibitions have been presented at Horton Gallery in Chelsea, and his work has been featured at Artists Space, the Horticultural Society of New York, and Socrates Sculpture Park. Recent projects include Awe of the Arctic at the New York Public Library and A Peculiar Garden, currently on view at the Natural History Museum of Los Angeles County. He holds an MFA from Virginia Commonwealth University and a BFA from NSCAD University in Halifax, Nova Scotia. Saul has received fellowships from the Virginia Museum of Fine Arts, Artist Trust, and the New York Foundation for the Arts. He has participated in residencies at the Bemis Center for Contemporary Arts, The Arctic Circle, Gros Morne National Park, and others. His work has been covered in publications including The New York Times, The New Yorker, and The Seattle Times.

Jessie Homer French (b. 1940, New York) lives and works in Oak View, California. Her paintings comment on our natural world in both timeless and timely manners, often depicting themes of modern human impact on the earth and its inhabitants. Her paintings are included in the collections of the Palm Springs Art Museum, the Smithsonian American Art Museum, and the Museum of Contemporary Art, Los Angeles.

Nina Wigfall was born in Blackheath, London, and spent part of her childhood in Berkeley, San Francisco. After studying Drama and Theatre Studies, she transitioned to Interior Design, graduating with distinction from the London College of Communication (University of the Arts London). Nina started her career at the award-winning studio Softroom, where she became Lead FF&E Designer and Material Specialist. She later joined StudioIlse before moving into freelance work. Her multidisciplinary background informs a distinctive approach to interiors, crafting spaces that feel rich, emotive, and sensitively curated.

Imogen Cunningham was born in Portland, OR in 1883 and was raised in Seattle, WA. She bought her first camera in 1901 when she was 18 years old, and photographed up until her death in 1976 at the age of 93. Largely a portrait photographer, Imogen captured some of the most notable figures of the 20th century, but is equally renowned for her striking botanical and still-life imagery. Her work lives on through the Imogen Cunningham Trust which she established towards the end of her life. Through the Trust, she envisioned remaining an active voice in the photography community, enabling her work to reach new audiences through exhibitions, publications, and thoughtful acquisitions. Imogen’s largest and most recent retrospective was held at the Getty Museum in 2022.

Meg Partridge, Imogen Cunningham’s granddaughter, is the Director of the Imogen Cunningham Trust. Her passion and early exposure to photography began as a child in her father, Rondal Partridge’s darkroom, rocking the developer tray and waiting for the image to appear on the silver photographic paper. As a teenage she assisted Imogen, spotting prints for her and getting to know Imogen’s working professional life. In the 1980s, filmmaking became her focus, directing and producing her own films while working as a cinematographer in the San Francisco Bay Area. In 2009 she returned to the photographic world to manage the family-run Trust.

Marjorie Dial is a multi-disciplinary artist whose practice includes sculpture, print-making, and writing. She graduated from Yale where she studied history and later in life earned an MFA from Oregon College of Art and Craft. Dial’s work incorporates her knowledge of history and reflects her practices of writing and research, often possessing a philosophical, narrative nature. In 2018, Dial founded an artist residency in North Carolina called Township10 which offers artists, writers, and art professionals an intimate, private retreat to deepen their creative practice. She is part of a lineage of women who have built a space for artists.

Claire Needs is a Seattle-based writer, editor and communications specialist, and has worked for publications and organizations across architecture, art and design. Raised in Northern California, Claire holds a BA in Communications and Media from Seattle University. She is the Communications Coordinator for AIA Seattle + Seattle Design Festival.

Katrina Spade developed the concept of human composting while earning her Master of Architecture from University of Massachusetts Amherst in 2013. Katrina went on to invent a system that transforms the dead into soil. In 2017, she founded Recompose, a company based in Seattle, WA. Recompose led the successful legalization of human composting in Washington State in 2019 and began providing the service to the public in 2020. Katrina earned a Bachelor of Art from Haverford College in 1999, majoring in Cultural Anthropology. In 2025, the school conferred an honorary doctorate upon her. Since founding Recompose, she and her team have been featured in Fast Company, NPR, BBC, and the New York Times. Katrina is an Echoing Green Fellow, an Ashoka fellow, and a Harvard Kennedy School Visiting Social Innovator. Her TED Talk about changing the end-of-life experience has been viewed over 1.5 million times.

Alan Maskin, Principal and Owner of Olson Kundig, has designed iconic museums and cultural spaces around the world, including The Century Project at the Space Needle, the Bob Dylan Center in Tulsa, Oklahoma, and a new museum addition at the Jewish Museum Berlin. Many of his projects pursue unexpected challenges, such as Recompose, the world’s first full-service funeral home to offer human composting as a sustainable alternative to burial or cremation. Alan’s work has contributed to the firm’s reputation as one of the world’s most innovative companies, as recognized by Fast Company and Architizer, and his projects have been widely recognized, including multiple Honor Awards from the American Institute of Architects and the Chicago Athenaeum Museum of Architecture and Design.

Anne-Catrin Schultz is a German-born architect, architectural historian, and author. She is a professor at Wentworth Institute of Technology where she teaches history and theory courses in addition to research studios. Her primary research focuses on the work of Italian architect Carlo Scarpa and the phenomenon of layering in architecture. Anne-Catrin’s publications include *Carlo Scarpa—Layers* (2007) and *Time, and Material—The Mechanics of Layering in Architecture* (2015), both exploring layering as a framework for architectural transformation. Her 2020 book, *Real and Fake in Architecture—Close to the Original, Far from Authentic?*, examines the blurred boundaries between reality, propaganda, and imagination in architecture. She is a member of the editorial board of Technology|Architecture+Design (TAD) and a council member of International Organization for Structures and Architecture (IASA).

Lisa di Donato is a visual artist based in New York. She works with mapping, mirroring, entropy and displacement through photographic processes ranging from the historic to 3D photogrammetry and machine vision. Architecture, landscape, anatomy, and artifacts are depicted as being no longer, nor have they become something else, yet; realized with a certain autonomy from any previously known thing. She studied painting at the Rhode Island School of Design, receiving her Bachelor of Fine Arts. She is a 2022 NYSCA/NYFA Artist Fellow in Photography. Recent exhibitions include the Brooklyn Artists Exhibition, Brooklyn Museum, 2024; site-specific installations at SITU Festival #5, Modica (IT), 2024; MEET Digital Culture Centre, Milano (IT) with the artist group One&Seven, 2022; and The Makeable Mind, Noorderlicht Festival (NL), 2021. Her work has been featured in Tied to Light Vol 2, Urbanautica, Der Greif, Lenscratch, Fragmented Magazine, and New Observations, to which she has also contributed writing. She is the Associate Director at Penumbra Foundation, New York.

Garrett Nelli is an architect, researcher, and maker at Signal Architecture + Research in Seattle, WA. His work sits at the intersection of architecture, sociology, and ecological activism—leveraging spatial data acquisition tools to deepen our understanding of place. Garrett has traveled throughout the Pacific Northwest, England, Italy, and northern Norway to create digital twins of ecologically and architecturally sensitive landscapes in support of research, preservation, and regenerative design.

Loren Supp (AIA, NCARB, Principal - Design HOK) leads design for HOK’s Seattle practice as an architect with over 20 years of experience in a wide range of project types including aviation, office, medical, corporate headquarters, sports facilities and cultural hubs. This wide range of experience and knowledge is central to Loren’s innovative approach to design. Regardless of project type, site or budget constraints, Loren takes immense pride in delivering works of discovery and imagination that transcend expectations. He is a registered architect in both New York and Washington State, and has an expansive portfolio of built work in both the US and abroad.

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