

Seeing Extraction: the Production and Reproduction of Energy Culture

AUTHOR BIO

Jacob Goessling holds a PhD in Literary and Cultural Studies from Carnegie Mellon University (2019). His research examines how fossil fuel extraction and its wastes appear in contemporary culture by focusing on the human experience of declining infrastructure wherever energy is extracted and produced.

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ABSTRACT

Extractive waste is a socioecological process that conditions humans and the more-than-human world. This article considers contemporary visual culture that foregrounds the violence of resource extraction in places where waste perpetuates environmental injustice for the reproduction of fossil energy culture. The three artists I examine each engage with coal waste in particular as a form of extractive violence: J Henry Fair's photography project *Industrial Scars*, Raina Martens' ceramics project *Transcorporeal Trash Communion*, and John Sabraw's painting series *Chroma*. While these artists call attention to the spaces where waste is present, Martens and Sabraw concentrate on social practices and ecological processes that connect situated experiences of environmental injustice. I conclude by suggesting that contemporary visual artists and cultural theorists convey uneven experiences of extractive violence when they centre cultural production alongside socioecological reproduction within the global energy culture.

KEYWORDS

environmental justice, ecological art and activism, extraction, waste, energy humanities

At first glance, Little Blue Run Lake is breathtaking. It sits alongside the Ohio River, crossing the western edge of Pennsylvania into the northern tip of West Virginia. Muted gray shores blend into seafoam green waters ribboned with midnight blue hues. Thin leafless trees reach up from below the surface, and when fog rolls in from the river it takes on a hazy glow. Little Blue Run Lake's appearance is deceptive, however. Containing the fly ash that remains after coal is burned at the nearby Bruce Mansfield Power Plant, Little Blue Run Lake held twenty billion gallons of spent carbon, heavy metals, and other toxic substances when active disposal stopped in 2017. When the decades-long reclamation process mandated by the Pennsylvania Department of Environmental Protection concludes, traces of coal ash will continue to infiltrate the surrounding ecosystem. In nearby communities, water and soil will bear the trace of Little Blue Run Lake for decades to come, if not longer.

The waste products of fossil fuel extraction continue to accumulate. Limiting our consideration to just one form of concentrated sunlight – coal – we can follow its transformation from underground rock to electric current through the residue left behind. Coal extraction produces slag heaps and slurry ponds near mine sites. Combustion creates fly ash, carbon dioxide, and a range of heavy metals. Underground mines that ceased operation nearly a century ago generate acid mine drainage whenever rainwater passes through fractured bedrock and mine shafts closed-off long ago. The matter that remains from energy produced in the past is distributed across time and space. It conditions present and future experience in communities and ecosystems sacrificed for the carbon-based energy systems around which the modern world is built.

As the number of toxic energy landscapes like Little Blue Run grows, contemporary visual culture can play a critical role in conveying the threat to human and non-human life in extractive spaces. As the environmental justice scholar Julie Sze has argued, art has the potential to “facilitate a politics of seeing that also expands cultural recognition by foregrounding the lives and experiences of those *hardest hit* by ecological injustice and those with the *least responsibility* for the problems” (par. 3). Representing experiences of environmental injustice in the heat of a warming planet requires making extractive violence sensible in ways that move beyond the technoscientific discourse that surrounds climate change at the present moment. To use visual culture to contribute – in any way – to disrupting the uneven destruction of extractive capitalism, contemporary artists must reconsider the effects of representational strategies that have filled popular culture with images that freeze environmental destruction rather than reflect extractive social and ecological relations. After all, making images of places like Little Blue Run Lake appear more frequently in popular culture has proven insufficient for achieving environmental justice thus far.

Despite their ubiquity, images of emaciated wildlife and hurricane-ravaged coastlines have not led to a global transformation in the fossil energy system that creates such conditions. Seeking alternatives to the particularity of these image types, environmental humanities scholars have explored how visual techniques like data visualization and digital mapping are used to communicate environmental change at massive scales, helping to make sense of the seemingly endless stream of data that informs our understanding of global

[1] Heather Houser's examination of climate visualizations stands out among several recent examples in the environmental humanities. See Houser, "Climate Visualizations: Making Data Experiential," 358-368. For a more critical view of the visual culture of climate change see Emily Eliza Scott, "Archives of the Present-Future: On Climate Change and Representational Breakdown," 132-136.

[2] As Nixon argues, "A major challenge is representational: how to devise arresting stories, images, and symbols adequate to the pervasive but elusive violence of delayed effects" (3). Nixon recognizes that images can tend towards the spectacular, and for this reason he turns to literary concerns such as the figure of the environmental writer-activist and the memoir.

environmental change. [1] However, as art historian TJ Demos argues, such methods of visual representation "frequently act as a mechanism of universalization, albeit complexly mediated and distributed among various agents, which enables the military-state-corporate apparatus to disavow responsibility for the differentiated impacts of climate change" (17). Moreover, as literary theorist Rob Nixon has shown, the political, economic, and social relations that reproduce fossil-fueled capitalism depend on slow forms of violence that take place according to disparate spatial and temporal scales. For this reason, the slow violence of resource extraction is particularly difficult to communicate through visual culture. [2] Considering how injustice is unevenly distributed temporally as well as spatially, contemporary visual artists who engage with the politics of environmental justice run against this increasingly difficult expressive challenge.

In this essay, I consider three artists who feature coal waste to show how contemporary visual responses to extractive violence must extend beyond documentary representation. Using J Henry Fair's photography project *Industrial Scars* (2017), Raina Martens' ceramics project *Transcorporeal Trash Communion* (2015), and John Sabraw's *Chroma* series of paintings (2016-Present), I ask what extractive waste communicates when it is the subject – and for Martens and Sabraw, the substance – of contemporary visual culture. Though these three artists go about their work with the intent of making an environmental impact, their visions for how to make an impact depart significantly. In the face of a global energy culture overdetermined by fossil fuels, Fair uses his striking visual photography to call attention to contemporary consumer practice as a way of transforming global energy culture. Martens, by contrast, isolates a repeated action necessary for maintaining the body – drinking liquid from a vessel – to demonstrate how some communities experience extractive violence more directly than others; at the same time, she refuses to offer the kind of simple consumer-based solutions that Fair directs our attention towards. Sabraw provides us with the fullest vision of extractive violence by diverting attention from his artworks to a form of cultural practice that puts forward a collaborative response to a concrete situation. Using these three visual artists as examples, I argue that attending to situated agencies and the kinds of practices that reproduce extractivist conditions can help us conceive of other forms of creative expression that bridge unjust socioecological experiences, leading to the kinds of transformative cultural practices needed to survive on a much warmer planet.

Extractive Violence as the Spectacle of Energy Culture

In his photography project *Industrial Scars*, collected in a single photobook under the extended title *Industrial Scars: The Hidden Costs of Consumption* (2017), J Henry Fair uses aerial photography to link spectacular imagery to slow forms of environment violence. When documenting sites like Little Blue Run, Fair calls attention to landscapes that are kept far from the public's view by those in control of the productive forces that create them. His work seeks to make visible the immense scales at which the extractive mode of energy production has transformed the environment. Along with Edward Burtynsky's

[3] For a fuller examination of this photographic style than I can provide here, see Demos, *Against the Anthropocene* and Michael Truscello, “The New Topographics, Dark Ecology, and the Energy Infrastructure of Nations: Considering Agency in the Photographs of Edward Burtynsky and Mitch Epstein from a Post-Anarchist Perspective.”

[4] The creative and critical impulse of the toxic sublime is simple enough. Peeples suggests that if an audience is formally disoriented, they will engage with the image more closely in order to decipher the nature of the scene depicted. However, as ecocritic Jill Gatlin argues, the idea that the toxic sublime can lead to widespread change oversimplifies the contemporary situation because these images “focus on whether or not the toxic sublime is disturbing – not what it disturbs” (717-718). Instead, Gatlin considers how the photobooks that contain these images can be used to pursue an environmental justice politics.

manufactured landscapes, David Hanson’s waste lands, and other similar attempts to photograph the earth’s surface from above, Fair’s industrial scars are among the most frequently reproduced images of extractive wastes. [3] In addition to numerous international exhibits, photographs from the *Industrial Scars* project have appeared in popular magazines like *Audubon*, *National Geographic*, *Oxford American*, *Time*, and *Wired*. Fair has appeared twice at TEDx events to describe his project, both of which are available for streaming in public archives. Using his art and platform, Fair calls attention to the perils of rampant consumption by urging audiences to ponder their personal culpability in creating these scenes.

By connecting the machines of industry to toxic contamination, Fair’s project demonstrates how waste is inseparable from production. His image types fall into two main categories. Most memorable are his vibrant images of toxic landscapes devoid of nearly all life. These scenes are captured from high above the Earth’s surface, but the scale of distance is only decipherable when one locates a familiar object hidden within the frame, such as a dead tree or section of pipeline. Images in this style are most often intended to evoke conflicting emotions, such as the simultaneous experience of both beauty and terror. These “toxic sublime” photographs, to use a phrase introduced by environmental rhetorician Jennifer Peeples, rely on such contradictory responses to inspire strong emotions in the audiences, often in hopes of sparking individual reflection and perhaps even changes in material practice. [4] In contrast, the images that fall into Fair’s second category are more legible. In the photobook version of *Industrial Scars* in particular, Fair intersperses toxic sublime images with industrial photographs featuring heavy machines, pipelines, and other sites along the productive chain. Juxtaposed against each other, these image types cover the planet’s surface, presenting the infrastructures of energy extraction as both universal and permanent.

Humans are absent from either category of image, shown neither as community members or landowners nor as workers in extractive industries. Though it might only take a moment to imagine a general connection between toxic landscapes and human bodies, the political, social, and cultural structures that condition global energy culture hide behind a spectacle of aestheticized waste. Whether one is looking at coal slurry in Germany or coal ash in Appalachia, tar sands in Alberta or copper mines in Spain – among other landscapes photographed by Fair – each image elicits an ambivalent yet generic response. Describing the intent behind this reaction, Peeples argues the toxic sublime includes a “sense of marvel at human accomplishments” similar to what accompanies images of humanity’s technological progress while it adds a level of internal reflection that “calls into question the personal, social and environmental ethics that allows these places of contamination to exist” (380). In short, toxic sublime images rely on a belief that aesthetic reflection can inspire audiences to change their daily practices, and that individual change can lessen extractive violence’s impact.

This consumer-driven approach to seeing extraction in contemporary visual culture universalizes responsibility for extractive waste, thus letting those most responsible for the existence of particular sites evade responsibility. In a 2013 interview, Fair describes the machines whose destruction he documents as

humanity's "highest expressions" and "the pinnacles of our tool-making abilities." He admits, "I mean an offshore oilrig, as horrible as what it does is, is a beautiful thing" (Kreiger). Considered in this way, the machinery of extractive violence has inherent aesthetic value that can be separated from its destructive purpose; a machine can be just as visually appealing as a sublime landscape. While Fair asks audiences to encounter beauty in machines, he translates the more-than-human world into contemporary human concepts. His artist statement describes the environment as "a series of complex natural systems" made up of "'public assets' [that] are taken for granted, precisely because we do not pay for them" (25). Fair applies the post-industrial logic of financialization to industrial destruction, thus reducing his work's message to a single statement: "We have developed an economic model that allows some to utilise, profiteer and even diminish these valuable assets without paying for them" (25). If only we would consider the impact of what we buy, according to Fair, industrial scars like the ones he documents might not be so numerous nor so massive.

By presenting the toxic landscapes he documents in terms of public ownership, Fair distributes culpability for the creation of very real sites among a universal audience hailed as rational consumers, with each consumer equally capable of inspiring change. Place names are obscured by Fair, as are the companies. "I know what company it is I'm photographing [and] keep databases of the emissions of that facility," he admits (Kreiger). By removing such information from the public-facing presentation of his photographs, Fair illustrates the tendency in contemporary mass culture to view consumption as a form of political engagement. But as TJ Demos suggests in *Against the Anthropocene*, "consumer-based participation" is "part of the ruse that universalizes responsibility for climate disruption, diverting attention from the fact of corporate petroculture's enormous economic influence on global politics that keeps us all locked in its clutches" (65). As if he has Fair's withholding of culpable names and addresses in mind, Demos calls attention to the often-unintended consequences of artists like Fair who strip images of their socioecological situation.

It is still worth pointing out that countless individuals have witnessed the spectacle of slow, extractive violence through Fair's images. But while consumers may react strongly to Fair's use of the toxic sublime, his work contributes to a universalizing consumer logic that further obscures the root causes of extractive violence. Art theorist and energy humanist Amanda Boetzkes describes the challenge contemporary visual artists face as one where "the ubiquity and momentum of global petroculture suggests an aesthetic regime that has anticipated and precluded the efficacy of dissensus, thus neutralizing a longstanding tradition of artistic critique" (222). Boetzkes sees the issue at hand as "not simply about the availability of information but, rather, the terms by which the public is capable of interpreting and responding to what it sees" (223). Images of the toxic sublime too often deny their documentary quality by stripping any sense of context from an image.

In order to aestheticize waste, Fair and other photographers relying on this popular representational mode work against the notion of vastly different levels of culpability, thus obscuring the uneven agencies that have led to

climate change. Any sense of political agency outside the individual subject lies fractured. We are only able to experience a “perverse enjoyment” when gazing at “images of our own annihilation” because we are separated from the direct transformation of the landscapes documented by artists like Fair (Demos 70). Audiences do not, of course, enjoy images of their own annihilation in any personal sense. Any beauty derived from Fair’s images is the result of knowing that the scene being depicted is not a direct threat to one’s own well-being. To see how extractive waste is felt through human experience, we must look elsewhere.

Extractive Violence as Daily Practice

To see extraction in terms of its immediate threat to human and non-human life – a necessary task with planetary stakes – I suggest that we are better served to consider how artists produce work that conveys extractive waste as more than a passive yet beautiful residue to be dealt with elsewhere. How might visual culture convey the experience of extractive violence in a way that can more effectively question the systems that perpetuate it? And how might contemporary artists and theorists, in the words of art historian Emily Eliza Scott, “advocate for perspectives that are highly situated, yet move across registers and scales – both spatial (e.g. the so-called local and global) and temporal (e.g. historical time, evolutionary time, and media time)” (136)? The ubiquity of fossil energy culture at a global level requires modes of visual expression that shift registers and scales, yet we should not lose sight of the humans most affected. Nor can we afford to lose sight of the human agencies (including individual persons and corporate bodies) most responsible for extractive violence. Otherwise, such agencies will continue reproducing the productive structures that perpetuate such violence.

[5] The political philosopher Jane Bennett’s book *Vibrant Matter* has inaugurated a wave of new materialisms that foreground the non-human agency of matter. Though my human-centered approach takes issue with flat ontologies promoted after Bennett’s book was published, it remains a significant exploration into the public life of nonhuman matter (2).

[6] The Martin County, Kentucky coal slurry dam rupture that occurred in 2000, for example, was 30 times larger than the Exxon Valdez oil spill. In the aftermath of the dam’s failure, over 300 million gallons of coal slurry drained into the Big Sandy River, a tributary of the Ohio River, which impacted 90 miles of streams, contaminated the water of 2,700 residents, and killed 1.6 million fish. For an account of this spill that also examines the history of such events in the Appalachian region of the US, see the documentary *Sludge* (2005), directed by Robert Salyer.

There are more ways of representing the material qualities of extractive waste than just featuring sunlight reflected off its surface, after all. Fossil energy waste is a slippery substance both physically and conceptually. Whenever coal is extracted, processed, and transformed into electric power, slurries, ash, and other forms of waste can appear inert at one moment and vibrant the next. [5] Near mine sites, for example, crushed coal is cast aside and remains motionless until mixed with water. Once transformed into a liquid slurry, either through rain or human intervention, waste seeps into local ecologies. Even if it sits relatively undisturbed in carefully lined containment ponds for decades it can break containment at any moment. Impoundments are monitored infrequently and most often held together by dams constructed out of unsettled overburden. Heavy rain can lead to slurry floods in surrounding communities; slurry dams often fail, leading to significant environmental disaster. [6] Coal ash ponds located near coal-burning power plants are just as dangerous and often built in closer proximity to dense populations. In 2008, for example, a coal ash dam broke at the Kingston Fossil Plant in Tennessee, spilling 1.1 billion gallons of toxic water into the local environment (Hatmaker).

Not only an image, extractive waste actively drives social and ecological processes. When substances like slurry, ash, and acid mine drainage infiltrate local ecologies, the subsequent web of interactions that take place at a

molecular level are near impossible to track. In her 2015 ceramics project *Transcorporeal Trash Communion*, studio artist Raina Martens isolates a particular encounter with waste that is dangerous but also mundane. Drawing inspiration from a coal ash spill that dumped 82,000 tons of waste into North Carolina's Dan River, Martens uses coal ash to make common household containers that aid the reproduction of daily life, like the coffee mugs and tea bowls that bring energy to millions of people each day. Martens' ceramic objects give physical form to the days, weeks, and months in the aftermath of Dan River, transforming an experience of environmental disaster into a repeatable encounter with extractive waste. In short, *Transcorporeal Trash Communion* registers the human experience of waste as regular daily practice rather than spectacular violence.

Fig. 1 *Transcorporeal Trash Communion* (2015). Photo courtesy of Raina Martens.



Consider a representative object from Martens' collection (fig. 1), a bowl made from coal ash dripping in an earthy-green glaze. Rather than asking us to confront the abstract beauty of toxicity, Martens isolates the concrete exchange between a body and one damaged ecology in condensed form. By holding an object from the project in our hands, we experience the same chemical mix that blanketed habitats after the Dan River flood; by holding a cup to our lips, we reenact the same toxic threat faced by those who woke up one morning to find their drinking water tainted with coal ash. Martens intends for her audience to "experience the terror of the porosity of bodies" when handling each figure, as she writes in her artist statement. She details her own experience with the threat of extractive waste: "throughout the collecting, sieving, measuring, and mixing, I found myself imagining how much radiation, mercury, and lead I was absorbing... [it] forced me to attend to the unknowns of the material" ("*Transcorporeal Trash Communion*"). Central to Martens' project, this theme of transcorporeality "opens up a mobile space that acknowledges the often unpredictable and unwanted actions of human bodies, nonhuman creatures, ecological systems, chemical agents, and other actors,"

as ecocritic Stacey Alaimo argues (2). Calling attention to a situated transcorporeality of extractive violence, Martens' work figures the dominant energy culture as concrete bodies interacting with matter in concrete space on a daily basis. Her project conveys an embodied experience – in this case, the result of physical entanglements that took place in the wake of human failure somewhere in the Dan River watershed on February 2nd, 2014.

The uneven distribution of risk is integral to extraction's slow violence, yet this aspect is incredibly difficult to communicate through visual culture. If a consumer knows that there is a reasonable chance their body will encounter toxic matter while using a product, they are unlikely to do so; even if a consumer knows of the uneven spatiotemporal dispersal of waste this knowledge rarely generates more than a passing thought. But as Martens begins her project statement, "Not all bodies are forced to engage with this reality with the same intimacy; some can make it go 'away'" ("Transcorporeal Trash Communion"). The "Temporary Domestic Repository Project" that took place during *Transcorporeal Trash Communion's* exhibition communicates the everyday quality of extractive violence by underscoring the toxic risk of encountering matter. As Martens explains to those willing to take a ceramic object home:

Congratulations on opening your home to coal ash as a temporary waste repository site! You'll be housing the Aluminum, Calcium, Iron, Silicon, Magnesium, Potassium, Sodium, Sulfur, Titanium, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Strontium, Thallium, Uranium, Vanadium, and Zinc enclosed in your tea bowl. (Martens "Temporary Domestic Repository Project")

By contrasting minerals that are more familiar because of their role in sustaining the human body (such as calcium, iron, and zinc) with matter that directly threatens bodily function (sulfur, arsenic, and uranium), Martens obscures the boundaries between what is safe and unsafe, what can be known and what remains unknown, thus smoothing the reproduction of extractivist energy culture.

Martens' project reflects upon uneven experiences with waste by isolating the decision whether to consume from one of the project's contaminated objects. Choosing to take home a coal ash ceramic requires a conscious decision to foreground the threat of toxic contamination in daily life. Below the materials list that accompanies each object Martens explains, "The tea bowl you have chosen will not tell you if it is safe to drink from: those who live with and near the coal ash in North Carolina are not privileged to this information either. Who doesn't get to choose when to bear the weight of coal ash as a daily bodily reality in North Carolina?" (Martens "Temporary Domestic Repository Project"). Martens' use of the phrase "daily bodily reality" is significant here. An alternative formulation like "daily bodily choice" would present risk assessment as an informed decision made by individuals, like an audience member choosing to take one of Martens' objects home. The material interactions that take place near extractive waste are entirely different from the person choosing one of Martens' objects, however. Between these two very

different types of encounters within the same global energy culture, Martens' work shows that "daily bodily reality" consists of an endless chain of material interactions that are irreducible to an individual's rational assessment of consumer risk, especially in spaces like the Dan River. By isolating a single type of choice, *Transcorporeal Trash Communion* conveys the severity of the lack of choice faced by those experiencing environmental injustice, shedding light on how uneven social relations perpetuate extractive violence.

Transcorporeal Trash Communion's participatory aspect centers a particular material standpoint at the same time that it registers an experience repeated throughout dominant energy culture. Martens' project centers the kind of daily habits that, at least in the modern world, rely on material transformations that take place far away. If energy has a capacity to shape "both the forces of production... [and] *the forces of reproduction* (dishwashers, sanitation, food systems, electrification, the digital)" (par. 7), as Jeff Diamanti argues, then the waste produced while generating this energy is part of this social reproduction process as well. To register these interconnections during early exhibitions, Martens asked gallery participants to take home individual objects for two weeks at a time to interact with it. Her instructions to participants were simple: "1. Choose a tea bowl; 2. Fill out information form; 3. Take your tea bowl home; 4. After two weeks, share feedback on your experience and return or purchase tea bowl" (Martens, "Temporary Domestic Repository Project"). Like Fair, these instructions recall a consumer activity repeated in mainstream culture. Just as one might pick a piece of dining ware to purchase off the shelf at a big-box store, Martens asks audiences to select an object, assess its quality by using it for a short amount of time, and then decide if it is a worthwhile investment. Unlike Fair, Martens calls attention to how environmental violence is experienced by restaging a normal consumer exchange featuring the extractive waste underlying our daily habits. Yet Martens refuses to offer consumer practice as path to asserting individual agency. Like drinking ethically sourced coffee, taking a ceramic cup home from an art gallery to ponder extractive violence does not end these unjust conditions. By denying the comfort of thinking that one can make an impact as an isolated individual, Martens distinguishes individual acts of personal consumption from collective political action.

[7] Naomi Klein defines sacrifice areas as "places that, to their extractors, somehow don't count and therefore can be poisoned, drained, or otherwise destroyed, for the supposed greater good of economic progress" (169).

By engaging with waste as a daily social process, Martens ties extractive violence to the daily production and reproduction of fossil energy culture. Environmental writers have described places where communities face the threat of environmental violence as "sacrifice zones" [7]. This sacrifice can result from the type of spectacular environmental threats that are often visible in contemporary visual culture. But sacrifice zones frequently result from the slow accumulation of toxins over time, as matter infiltrates the bodies that make up a threatened community. In Fair's photographs, the transcorporeal quality of extractive waste is kept outside the frame, as such intimacy is incompatible with universal visions of aesthetic beauty. Instead, sacrifice becomes the result of actions undertaken by all, so all of us must make daily sacrifices in order to correct the conditions that result from our personal actions. Martens' ceramics project, on the other hand, embraces waste's transcorporeal intimacy by restaging the context in which it is encountered. The sacrifice of one's body to extraction is visceral and connects directly to

one's sense of bodily autonomy beyond what is mediated by consumer exchange; human encounters with extractive waste are dispersed over a range of locations over long periods of time. By repeating an experience that would otherwise remain contained within only those homes impacted by environmental violence, *Transcorporeal Trash Communion* centers the situated reality of one geographical area sacrificed to perpetuate the uninterrupted reproduction of fossil energy culture.

The Reproduction of Extractive Space

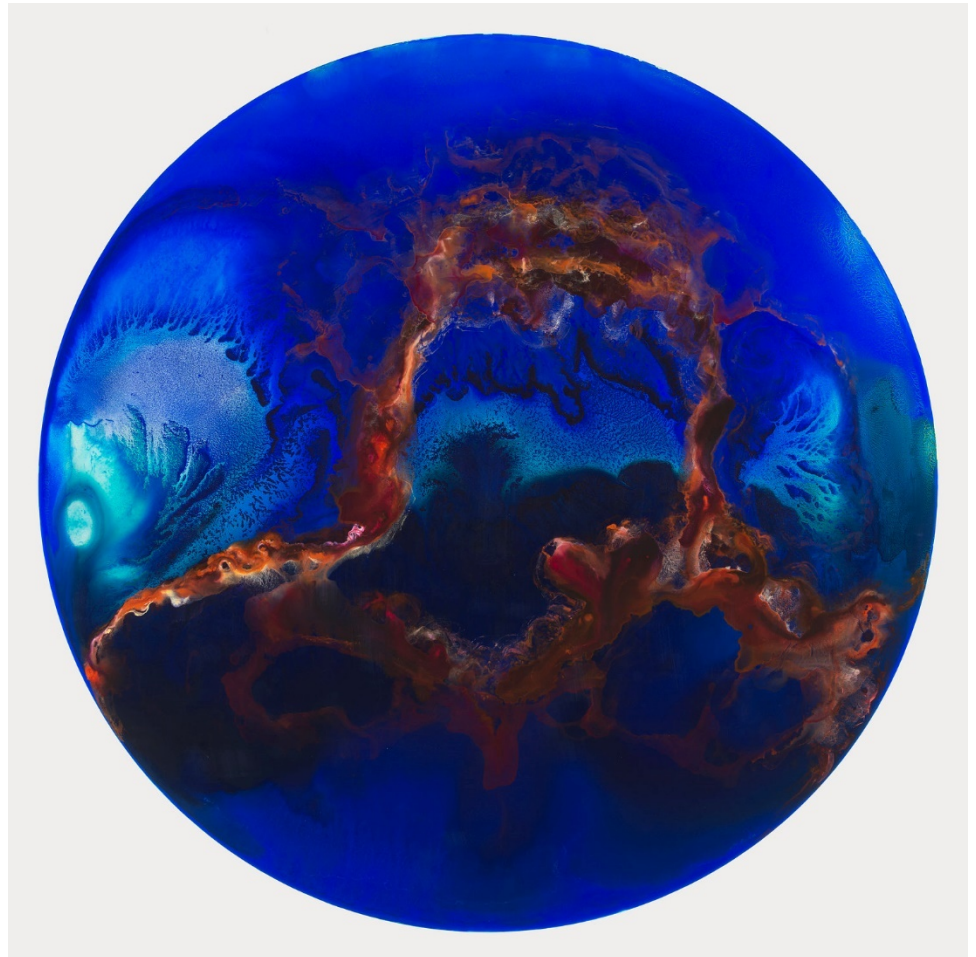
In contrast to Martens' microscopic view of extractive violence, John Sabraw's method of producing and applying acid mine drainage-based paint extends our sight beyond individual experience. Sabraw's visual style, represented by the ongoing painting series *Chroma* (2016-Present), features paints created from acid mine drainage collected near his southern Ohio studio. A material expression of extractive socioecological relations, acid mine drainage (AMD hereafter) is a waste process that moves especially slowly. Found in most extractive and post-extractive landscapes, AMD forms from minor interactions that take place over long periods of time. When water runs over a surface, such as the floor of a mine shaft or fissures cracked open by explosive vibrations, sulfuric acid and iron oxide combine with other heavy metals waiting underground (these heavy metals can be either naturally occurring minerals or substances introduced while mining). As with other forms of extractive waste, AMD kills flora and fauna and upsets local food chains, threatening any form of life that depends on clean water. Creating lasting evidence of extractive violence, acid mine drainage leaves a residue that remains long past the life of a single mining operation. Sabraw's project responds to this unmanageable situation by demonstrating the extent to which collective action is a necessary component of any mode of visual expression that rises to the challenge of transforming global energy culture.

Even though Sabraw's method leads to fascinating visual artifacts, he creates aesthetic objects in order to draw attention to the material process of cultural production. Working alongside environmental engineer Guy Riefler and a team of other artists and researchers, Sabraw conducts a process that transforms AMD into the pigments showcased through his art. By intercepting AMD, Sabraw and his collaborators remove it from the local ecosystem, helping to remediate streams in the process. As Sabraw details on his website, "Some of the seeps we work with release over one million gallons of polluted water a day. This water can have a final pH below 2 and carry over 2000 lbs. of iron. It is like junking a car in the stream every day" (Sabraw). Once inside his studio, Sabraw lets the collected AMD settle while neutralizing the water's acidity and introducing other chemical reactions that separate matter. The remaining iron oxide is dried in a kiln, which Sabraw grinds into a powder and tints with acrylics or oils.

Sabraw uses AMD pigments across his body of work, yet the most visually striking is his *Chroma* series of paintings. "We've made pigments with quality hue, lightfastness, stability, grind, transparency and feel," Sabraw explains, "But we also needed an expressive visual that told the pigments' story"

(Sabraw). For this series, Sabraw adds water back into his pigments. He uses water bottles and eyedroppers to disperse the tinted water onto one- to three-meter-wide aluminum circles; eventually, liquid accumulates on the canvas to form a convex meniscus. Sabraw estimates that a one-meter wide painting can hold up to a gallon of water before it is left to settle. Surface tension holds the artwork together over the weeks it takes for each piece to dry. The meniscus itself serves as a small-scale ecology for a moment in time, adding a more-than-human contingency to the final work of art. At times, the surface tension ruptures, and the work of art fails to materialize. Yet even in failure, this unique artistic practice conveys the risk of sudden disaster that shadows extractive space.

Fig. 2 *Chroma S4 Dragon* (2017).
Photo courtesy of John Sabraw.



The process of combining water, matter, and heat over time results in aesthetic objects that capture materials that have transformed from useful matter (as fossil energy) to waste (as AMD) then back to useful matter (as an art object). These physical transformations are not unlike the geological motions that once left the planet with carbon-based fuel sources, though Sabraw performs these actions at a less-than-planetary scale. Take *Chroma S4 Dragon* for example (fig. 2). The life-affirming blue hues that anchor this piece stand in stark contrast to an invasive streak of rust; at the same time, we know that hue is the only distinguishing quality since extractive waste covers the painting entirely. This central visual tension results from artistic direction combined with imperceptible collisions. Each artwork's shared performance of human agency

and ecological contingency provides a glimpse into the types of more-than-human transformations that take place over long periods of time. More works from the series adapt this tension: *Chroma S4 Blue River* reverses the pattern into a sense of ecological emergence among ruin; *Chroma S4 Nebula* presents a rare moment of balance. Other paintings outside the *Chroma* series draw from additional methods to form hybrid visual expressions of extraction and waste that deserve more attention than I can provide here.

Still, individual works of art from the *Chroma* collection share the aesthetic sensibilities that characterize Fair's most popular work. Sabraw describes his own art as attempting to "express the sublimity of nature" while conveying "the fragility of our relationship with it." Connecting aesthetic experience to shifting spatial awareness, Sabraw explains how "Everything is intertwined. The streams these pigments come from connect to other streams, rivers, and eventually the ocean" (Sabraw). However, I want to suggest that Sabraw's contribution to contemporary visual culture is best understood in terms of its expanded vision of cultural practice as a way of transforming extractive space. Each time Sabraw and his team harvest AMD, they intervene in the regular reproduction of concrete conditions that lead to slow extractive violence (fig. 3). The transformation of these places abandoned by industry raises the possibility of production methods that can help other kinds of spaces outlast fossil energy culture, perhaps even leading to a future where life is not so encumbered with extractive waste.

Fig. 3 A photograph featured on Sabraw's website taken at the Bat Gate acid mine seep. Photo courtesy of John Sabraw.



Audiences can glimpse the interconnected social, cultural, and ecological relations that inform this practice on Sabraw's personal webpage, which serves as an archive for the creative and technical transformations that take place in

his work. By locating transformative practice away from contemporary art institutions, Sabraw places value on modes of artistic production and reproduction that best centre situated socioecological relations unique to a given time and place. Embracing the local conditions of collective struggle that connect extractive regions worldwide, Sabraw envisions a reproducible method of cultural production that adapts to shifts in scale and responds to changing material conditions. At the time of writing, Sabraw is in the process of developing a pilot facility for manufacturing acid mine drainage paint, which he hopes will generate revenue to support additional cleanup projects. Bridging research, industry, and cultural production, the plans would ideally be used to construct similar pigment-producing sites in other communities facing extractive violence from waste. If successful, we might even imagine a future when the project reflects Walter Benjamin's well-known call for an "exemplary character of production, which is able first to induce other producers to produce, and second to put an improved apparatus at their disposal" (223). By expanding into an "exportable technology that could clean an area for generations" (Szita), Sabraw's project models contemporary visual practice as a vehicle for conducting collaborative research into socioecological practices that will help us identify – and more importantly, help us respond – to situated experiences of extractive violence.

Since its beginning, the extractive mode of energy production has relied on the slow violence of waste to keep the value of land and human life low. Class inequality may have been the most significant factor in making the fossil fuel industry profitable at first, but waste has been a tool for maintaining inequality – including social, economic, and environmental inequalities – over long periods of time in the form of substances like AMD. From this perspective, Sabraw cannot offer any single solution for stemming extractive violence, nor should he fall into the trap of trying to offer a universal solution. Instead, by calling attention to a situated experience of extractive violence that requires collaborative place-based solutions, Sabraw engages in what political theorist Jodi Dean calls the "anamorphic politics of climate change," a strategic group engagement that approaches extractive capitalism "from the side of its infrastructural supports" to produce "counterpower infrastructure" (n.p.). Emily Eliza Scott adds that an anamorphic politics in the context of contemporary visual culture features art that "does not coalesce into a single picture... [and] entails a series of non-monumental acts, each performed with great care" (140). Located between Dean's activist disruptions and Scott's assembled archives, Sabraw shows the pursuit of socioecological transformation does not begin from shared aesthetic experience or by identifying actions that every person can take part in. Rather, Sabraw and his associates pursue socioecological transformation by centering a collaborative cultural practice that starts from the perspective of a single problem embedded in concrete space and time and then expands to encompass similar experiences of the slow violence of resource extraction as further connections emerge.

Conclusion

In order to tackle the slow violence of resource extraction, contemporary visual artists must avoid using creative expression to universalize disparate

human experiences of planetary-scale environmental change, and aspire to more than extracting powerful aesthetic experiences from visually striking places. Responding to the slow violence of resource extraction requires cultural practices that are able to register how humans maintain situated entanglements with waste over long periods of time; it also forces recognition that the temporality of extractive violence is experienced according to local factors including waste's materiality (contrast sludge sticking to plants with flows of acid mine drainage after every rain) and spatial relations (compare a massive ash pond near a major river with iron oxides filtering through hundreds of acres). Contemporary visual culture seeking to convey the slow violence of resource extraction must be attuned to situated human encounters with a wide range of extractive wastes. Accomplishing this task will require more work to foreground creative expressions that emerge out of the slow violence of resource extraction, to underscore that our experiences of fossil energy culture are vastly unequal.

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