A Forest of Energy: Settler Colonialism, Knowledge Production, and Sugar Maple Kinship in the Menominee Community

Gregory Hitch, Marcus Grignon

American Quarterly, Volume 75, Number 2, June 2023, pp. 251-277 (Article)

Published by Johns Hopkins University Press
DOI: https://doi.org/10.1353/aq.2023.a898159

A Forest of Energy: Settler Colonialism, Knowledge Production, and Sugar Maple Kinship in the Menominee Community

Gregory Hitch and Marcus Grignon

> Everything has a spirit, and everything has that energy . . . [when] we grow something, and we eat that, that energy comes out of there. All of that had to happen in order for us to have that corncob, and eat that corn off of there. And the sun, and all of the things that have [to happen] in order for that corn to grow. We take it for granted.
>
> —Tony Brown, Menominee Elder, October 31, 2019

Every spring, when the sun shines a little warmer and the snow starts to melt, the Menominee forest awakens from a long winter. Marcus Grignon, a Menominee community organizer, has tapped maple trees his whole life and has understood maple sugaring as something more than food production: "Maple sugaring to a Menominee means an opportunity to come out of winter hibernation and socialize with your kin. The energy that extends and rekindles the earth again is profound. . . . The socializing is a big part of maple sugar; not just with your fellow Menominee, but also the animals and trees. There is a transfer of energy that occurs which also plays a role in the flow of sap."[1] Marcus wanted to share this experience with his friend Gregory Hitch, and brought him to a sugaring event on the reservation. Greg, as a white settler who grew up on the Menominee's ancestral lands, had quite a lot to learn. Years later, after starting his PhD and developing relationships with several Menominees, Greg joined a group of community organizers engaged in the age-old practice of boiling maple syrup on a farm with Menīkānaehkem, roughly glossed as "community rebuilders." The farm—which abuts the only large and intact old-growth forest in the area due to generations of regenerative forestry management by the Menominee Tribe—supports the grassroots nonprofit in their movement for food sovereignty, cultural revitalization, and environmental justice. Anahkwet, Menīkānaehkem's executive director, in a red hat embossed with "Make America Native Again," greeted Greg with his characteristic smile and enthusiasm, beckoning him over to learn the process. After feeding the boiler, they sat back to take a break, breathing in the very welcome humidity after a long, dry Wisconsin winter.

Figure 1.
Anahkwet tending the fire in the Sugar Shack. Courtesy of Gregory Hitch.

Watching the sap froth, bubble, and respire above the roaring fire, one can imagine the energy flows of the ecosystem. The maple tree converts energy from the sun into sugar, mixing it with water and minerals drawn from the soil, which worms, microbes, fungi, rocks, and thousands of years of maple leaf decay built up. The wood burning under the boiling sap releases its stored energy as heat and CO_2, only to be absorbed again by the maples' budding leaves later that spring. When boiled down to its granular form, maple sugar literally embodies the sun's energy, which, when eaten, transforms into human cells. Greg understood that all energy flowing through ecosystems, plants and animals, and ourselves has been harnessed from our closest star through the all-important process for nearly all life on earth: photosynthesis.[2] But Greg quickly learned that maple sugar is more than caloric energy derived chemically from the sun. It represents the energetic lifeways that flow through Menominee sugaring practices as ecological knowledge, ceremonies, and sociality.

The Menominee have long understood the sun as that which produces "energy" in their environment and thus imbues beings with power. But unlike dominant science that abstracts and flattens energy with the term *thermodynamics*, or *the ability to do work*, many Menominees understand energy as a set of social relations among all beings.[3] Having long tapped into and cocre-

ated these energy flows, Menominees have developed reciprocal relationships with maple trees, understanding them not as resources but as relatives. For thousands of years Menominees have interacted with energy flows from this grounded, relational perspective, guided by an ethical system of reciprocity and an intellectual tradition of interconnectedness. When tapping into a maple, the Menominee enter into a reciprocal relationship with their forest kin, bound by ceremony, respect, and consent. In return, maple trees historically provided a calorie-dense food at a critical moment between seasons, when winter food stores grew thin and spring fish runs hadn't yet begun. But the long hours of tapping, collecting, and boiling sap also provide time for Menominees to come together for extended periods to share stories, meals, and build community. The Menominee, over many generations, have reciprocated by offering tobacco and protecting maple groves from major disturbances such as fires or Euro-American clear-cutting.

Since their first treaty with the United States in 1827, the Menominee and their more-than-human kin experienced catastrophic changes that threatened many of their ancestral practices. Forced treaties allowed settlers to violently appropriate nearly all Menominee land and terraform it by damming rivers, clear-cutting forests, and plowing under prairies to extract the energy contained in these ecosystems.[4] In 1854 and 1856, the United States forced the Menominee onto a reservation of 234,000 acres, less than 1 percent of their ancestral territory, in effect decimating their economy and governance systems.[5] As Patrick Wolfe argues, settler colonialism is "premised on the securing—the obtaining and maintaining—of territory. This logic certainly requires the elimination of the owners of that territory, but not in any particular way."[6] Settler colonialism, in fact, differs from resource colonialism, as "settler colonizers come to stay; invasion is a structure not an event."[7] The settler colonial project is by definition interested in the acquisition of territory and its "natural resources," or material energy, by dispossessing Indigenous peoples and installing new systems of engaging with these ecosystems. The colonialization of Menominee lands, moreover, coincided with changes in how Euro-Americans understood the concept of energy.

As Cara New Daggett argues in *The Birth of Energy*, a constellation of factors in the 1840s, including "fossil fuels, steam engines, global capitalism, human terraforming, the slave trade, climate systems, [and] empires" destabilized European paradigms of energy as merely a social concept, forcing scientists and industrialists alike to reimagine energy as thermodynamics, or "the ability to do work."[8] The confluence of material inventions like the coal-burning steam engine alongside capitalist ideological conventions that reduced all value

to that of the market thus produced a powerful abstraction to quantify and manipulate material flows. The idea of "waste" in capitalist economic systems, moreover, encouraged thermodynamic industrial efficiency.[9] As Andreas Malm argues, however, capitalists' transition from waterpower to steam power was not necessarily done to increase energy efficiency but to more easily control the emerging labor movements of mid-nineteenth-century England.[10] This European conception of energy growing out of the Industrial Revolution, therefore, reified efficient "work" and "production" as the primary purpose of human and more-than-human beings, flattening and erasing the many relationships that exist in these interactions. Importing this European conception of energy to the United States, then, settlers reconstituted the ecosystems with which the Menominee once held reciprocal interagencies into thermodynamic systems for industry.

Indigenous studies scholars, however, have documented how various Indigenous communities around the world embrace(d) knowledgeways and ethical frameworks that underscore the interconnectivity and reciprocity of energy flows in the more-than-human world. The Nuu-chah-nulth, according to E. Richard Atleo, understand their world from the perspective of Tsawalk, or "one," which recognizes "interrelationships between all life forms—humans, plants, and animals."[11] As Noelani Goodyear-Ka'ōpua expresses in *The Seeds We Planted*, "Kānaka 'Ōiwi . . . recognize all beings—birds, rocks, insects, plants, winds, waters—as familial relations. All are part of interrelated, living systems."[12] As Goodyear-Ka'ōpua continues, however, "It is through action, through practicing aloha ʻāina, that we produce ourselves in relation to and as part of ʻāina."[13] Similarly, Glen Coulthard terms these types of actions *grounded normativity*, or "the modalities of Indigenous land-connected practices and longstanding experiential knowledge that inform and structure our ethical engagements with the world and our relationships with human and nonhuman others over time."[14] And Jeff Corntassel argues that Indigenous sustainable self-determination, or sovereignty, is not simply a right; it entails reciprocal responsibilities to one's human and more-than-human communities that support their sustained durability. This sustainable self-determination, moreover, offers a framework for rebuilding Indigenous systems that colonialism attempted to destroy.[15] As these Indigenous studies scholars illustrate, action is foundational to advancing Indigenous sovereignty, knowledge production, and ethical engagements with the more-than-human world.

American Quarterly's special issue "Energy Pasts and Futures in American Studies" presented a generative and critical discussion of energy studies, of-

fering compelling reasons to include perspectives from American studies in humanistic and social-science energy research. The nascent field of energy studies, moreover, has critically examined how societies and cultures are entangled with energy systems in productive and boundary-pushing ways.[16] Although the majority of energy studies research focuses on fossil fuels and uranium, some environmental historians have, importantly, studied energy flowing through ecosystems, as well.[17] As the special issue's editors, Michael Ziser, Natasha Zaretsky, and Julie Sze, point out, however, not enough attention has been paid to settler colonial histories of energy extraction, an area where American studies scholars might offer critical research and "help energy scholars in their efforts to 'indigenize' the field."[18] Indigenous studies scholars, however, have already contributed important research regarding energy and relationality, which the fields of American studies and energy studies would benefit from engaging with. Analyzing a proposed renewable energy transition, Goodyear-Ka'ōpua and Mary Tuti Baker forward a Native Hawaiian worldview that recognizes "the creative and nurturing power of our 'āina [land] as the foundation of life. Drinkable water, fertile soil, fruit-bearing trees, and all forms of natural energy sources are produced through the organic productivity of our ecosystems."[19] The Indigenous scholars Robin Wall Kimmerer and Leanne Betasamosake Simpson have also actively connected Indigenous knowledges, energy flows, and relational responsibilities specifically to maple sugaring, with Kimmerer writing of the gifts maples provided to her Potawatomi ancestors, and Simpson writing of Nishnaabeg knowledge production as active, reciprocal engagement with maple trees.[20]

Adding to the important research done thus far in Indigenous studies and energy studies, we therefore propose that American studies scholars, and energy scholars generally, not only document Indigenous experiences and reactions to settler colonial energy extraction from the perspective of thermodynamics but integrate Indigenous ways of understanding the concept of energy. Thermodynamics itself is an abstract settler-capitalist theory that influenced the plunder of Indigenous lands and lives. If used solely in our analyses, therefore, the science of thermodynamics is liable to obscure the diversity of Indigenous relationships with more-than-human beings as well as their constitutive knowledge systems of the energies flowing within their worlds, thereby re-creating the epistemic injustices we purport to be writing against. This does not mean that thermodynamics is not an important analytic category, as contemporary Menominees have also incorporated this abstraction into their own knowledgeways. Rather, we as energy scholars ought to broaden our analytic lenses

to accommodate multiple ways of understanding how "energy" exerts itself. We thus aim to illustrate in this essay that energy studies would benefit from a robust engagement with knowledge production systems that understand this thing we call "energy" as not simply *the ability to do work* but a Menominee understanding of "energy" as *that which imbues all beings with life and entangles living beings into a constitutive web of reciprocal relationships*.

In the Menominee language, energy flows are translated as *Ahpīhciwaeqtaw*, "he, she, it (animate) acts, works with a degree of strength, energy."[21] In other instances, the Menominee have explained these energy flows as *ahpēhtesewen*, or "power."[22] Menominee ancestral teachings, moreover, indicate that *Māēc Awāētok*, or the Supreme Power, was understood as the sun but was vaguely mistranslated as an immaterial "Great Spirit" in English by early settlers.[23] Translated another way, the sun, or *kēsoq*, is understood as the main life giver.[24] These interpretations of energy, however, are difficult to describe in the abstract. So, when the ethnographer James Slotkin asked a Menominee man in 1957 what *ahpēhtesewen* looked like, the man pointed up to a sunbeam, and told him, "see; that's a power."[25] Reflecting on this story, Marcus explained how the Menominee forest, and its connections with the Wolf River watershed, collects and distributes this immense power, which can then be harnessed to facilitate justice or fairness, or conversely used for nefarious purposes, like colonization, capitalism, and racism.[26] As Marcus further explained,

> The natural world is made up of energy. There is energy in plants, animals, trees, and humans. Together we create a web of energy that connects us. In school, we are taught about the web of life through a linear lens. Through a Menominee lens, we see the interconnected energy that is passed from plant to animal to human. Look at it from this point of view: you walk through a field of crops; along your path you see a bear paw and a hawk feather. One perspective could be animals frequent the field. A Menominee perspective would see the animals, or *manitowac*, visit the field. The feather could mean a message to the individual who finds it; possibly a message traveling through the energy web of the natural world they were searching for. The bear paw would mean that where the bear walks, there's power. Power ties into energy. You could possess an item with immense amount of energy and when shown to the public translates into power. A turquoise necklace, for example, with silver and bear claws is a powerful piece of jewelry. A necklace displayed in public on an individual's chest carries the energy of the artist who created the necklace and the symbolism of leadership it bestows on perceptions.[27]

The Menominee have long understood the world through a lens that puts things together, agentively enmeshes them, and respects their autonomy. For example, when asked what place more-than-human beings have in the Menominee community, Anahkwet responded, "They're in all of it . . . there's not even

[a] separation. When I look out to the forest . . . I look out into me."[28] Gary Besaw, the former chairperson of the Menominee Nation, expanded on this idea: "We're all made of that same energy. You know. We are. Everybody is. We're all connected . . . So if I was out picking blackberries . . . out hunting and shot a deer . . . and was going to eat it. That stuff, more than likely that same energy of that deer was fed by those acorns from that tree that were fed from my ancestors that have decomposed over those years. So to us, you're part of the world . . . We turn into a lot of that energy that's feeding everything in a part of this whole big circle."[29]

Menominee knowledge production systems are complex, nuanced, and adaptable to new information and insights. By utilizing a knowledge system adaptive to new problems, the Menominee have also long appropriated and integrated dominant science and technology into their intellectual and economic systems. This techno-epistemic hybridity, therefore, has allowed the Menominee to simultaneously continue their ancestral lifeways and develop innovative solutions while operating within a settler society. Indeed, as we argue, Menominees' understanding of energy as a richer, more capacious concept than thermodynamics alone was often at the center of these innovations.

We have decided to focus on maple trees, or sōpomāhtek in the Menominee language, to gravitate around one human / more-than-human engagement and catch a manageable glimpse into the multivalent violence of settler colonialism, as well as the Menominee's adroit responses to change. We propose that thinking with energy allows a view into the flows that undergird politics, economics, and lifeways. We do not intend, however, for this to be a totalizing theory. Rather, energy as an analytic or heuristic category allows us to track the flows of power and agency in ways that illuminate often hidden stories, meanings, or relationships.[30] The story of the Menominee's relationship to maple trees allows for exactly this type of analysis. It is a story of agency, both human and more-than-human, a story of power, both losing and retaining it, and, finally, it's a story of hope.

Reciprocity and Relational Research Practices in Action

Research is always collaborative. Marcus first introduced Greg to the Menominee community, set up initial meetings, and shared extensive Menominee knowledge during various conversations for well over a decade, in particular Menominee theories of "energy" or "power." Through Marcus and Greg's friendship, they shared meals together, chatted while gardening, hiked in the forest, and hung out around a bonfire more times than they can count. Although

Greg planned, researched, and wrote the majority of this essay, it would have never existed without all the time, knowledge, and coediting that Marcus so generously provided. It would be impossible to cite all the conversations Marcus and Greg had within the strict conventions of academic publishing. Marcus is therefore included as an author to honor the relational and intellectual energy that academe so often takes for granted or erases, particularly when interacting with Indigenous communities. We hope that this style of authorship as "accompaniment" offers an example of how ethical academic publishing ought to function.[31]

Although Greg does not embody the Menominee experience and does not purport to speak for them, he does endeavor to conduct research ethically and hopefully tell *one* story—not *the* story—of the Menominee that does justice to their experience and worldview as it has been told to him both by those living as well as in the historical record. Greg also decided to reciprocate in a way that makes a *material* difference. In addition to volunteering in the community, he also managed fundraising and grant-writing campaigns that resulted in solar energy installations at two Menominee nonprofits. Lastly, the Menominee Nation's Language and Culture Commission (MLCC) approved Greg's community-based participatory research methods, which drew on archival and ethnographic source materials, and also approved the publication of this essay.

Thinking with a Forest

Long ago, a sōpomāhtek seed descended from a branch, pirouetted through the air as it was caught by the wind, and finally landed among the damp, decaying leaves under the canopy of its ancestors. This was a lucky seed, as heavy snow that winter ensured the ground would be wet enough to allow for germination. Northern hardwood forests, which sugar maples thrive in, are vitally dependent on the rich soils slowly building since the last Ice Age. But the soil also depends on the trees. According to soil scientists, the top layers of soil contain a diverse assemblage of tiny invertebrates like springtails and mites, as well as bacteria and fungi, that eat through the leaf litter and woody biomass on the forest floor. In so doing, this bountiful micro-ecosystem underground recycles the trees' matter into the nutrients they rely upon. Sugar maples in particular are vitally dependent on soil rich in nitrogen, which is why they tend to keep their roots in the shallow upper-layers of soil where it is most easily attained.[32]

As this seed sprouted into a young sōpomāhtek and pushed its way through the leaf litter and into the organic layer of soil, its fine feeding roots flared out and entangled with the mycelial fungi that linked all the maples in this com-

munity together. So this seed was not detached for long; as soon as the root hairs linked with the fungi, electrical messages started coming in from all the trees in the forest through the mycelial web. Perhaps the first message received was from an elder maple, anxiously waiting to hear which, if any, of her offspring survived and germinated. Once the message was received and sōpomāhtek sent a message back, the elder started sending sugars and minerals through the fungal connections to help the newcomer along. Menominees understand that in any forest area there is the oldest and wisest tree among them that cares for the health and vitality of the other trees and the wider plant community. Jeff Grignon, a Menominee regeneration forester and archaeologist, expressed how "elders are deep-rooted plants and trees. They take on responsibility of their own communities. . . . As this community ages, gets older, this elder retains more and more knowledge."[33] According to the prominent forest scientist Suzanne Simard, these trees tend also to have the most interconnections with other trees through both root grafting and mycelial fungi.[34]

For many years the young sōpomāhtek unfurled its new leaves and harvested what little sunlight reached the forest floor early every spring before the overstory filled in with leaves. This takes a tremendous amount of carbohydrates, however, and it is difficult for a sapling to do this on its own. Elder trees at this point were just starting to wake up, so sōpomāhtek had to look elsewhere. Fortunately, the very moment when saplings need this boost of energy most, spring ephemerals, like the trout lily, have just about filled their underground storage reservoirs from the spring sunshine, and are almost ready to go dormant again. But before they do, the ancient mycelial web connected to both species' roots conducts a negotiation, and the trout lily starts sending excess starches to the sapling so it can take advantage of the interstice of early spring and quickly grow before the shade of summer comes again. The elder tree's mycelia, however, ensure that this is a reciprocal relationship, and come autumn transport the sapling's excess carbohydrates to the trout lily's roots for use the following spring.[35]

This reciprocity in the ecosystem extends to animals as well. For years sōpomāhtek provided energy in the form of carbohydrates to the deer that browsed within the sugar maple grove. This initially stunted sōpomāhtek's growth. The forest community, however, understood the deer's place, and knew that the deer would give back throughout its lifecycle by returning nutrients to the soil in its droppings and at the end of its life as it decomposed and returned to the earth, and was once again taken up by the trees. Indeed, the cyclical energetic reciprocity of the ecosystem governs all, and those who pay

attention can learn to operate within these systems and understand their place. Tony Waupochick, the Menominee's head silvicultural forester, points out how "there's a connectedness between not only the animals and the trees, but the trees and the smaller trees, and the other shrub layers, bushes, everything they all have their place. . . . They're communicating and they're doing a degree of taking care of each other."[36]

In time, sōpomāhtek understood that the elder tree was preparing to return once again to the earth, when nitrogen, carbon, and other nutrients started flowing into sōpomāhtek's roots at an accelerated rate. Sugar maples are known to live for three hundred to four hundred years, stretch one hundred feet into the air, and grow to over three feet wide.[37] As Jeff discusses, elder trees tend to provide a punctuated equilibrium to the forest community, and know that when they fall, the other trees will need the energy to fill their place. At the crack of lightning early one summer, the messages started ringing out and vibrated through the mycelial web to all the trees, warning them to put up their defenses. As the wind howled and pushed at the maples' limbs, the elder tree finally toppled and thudded onto the forest floor. When the skies cleared the following morning, the sun bathed sōpomāhtek in a brilliant glow of summer rays through the hole in the canopy once filled by the elder's vast crown. Sōpomāhtek's leaves readjusted their position to maximize their photosynthetic energy production, pulling in carbon dioxide to build its woody biomass. Thanks to the nutritional boost both from the direct sunlight and the elder tree's bequest, sōpomāhtek quickly grew up and out to ensure the most efficient solar exposure and, in time, protect the moist microclimate of the maple community. Although the elder tree had fallen, the forest did not lose her knowledge, as the root system and associated neural-like pathways of the mycelium remained, and the stump of the elder maple continued to live on as the other trees nourished her.[38] Sōpomāhtek grew, stretching its roots out farther and farther through the forest, making new connections, learning the rhythms of drought years and wet years, and remembering the knowledge passed on from earlier generations.

Figure 2.
Elder Maple Tree in the Menominee Forest. Courtesy of Gregory Hitch.

Menominees have understood for quite some time that trees are interconnected underground, are social, feel pain, something akin to joy, and share nutrients and minerals. For many Menominee, the understanding that other species have agency and are related to humans appears as self-evident. Unlike the English language, most more-than-human "things" are considered animate

nouns, or are expressed in a verb form in the Menominee language. To take the current study, the noun for a sugar maple tree, sōpomāhtek, is animate.[39] As Robin Kimmerer has persuasively written, when one understands the world through the linguistic lens of more-than-human animacy, one can see these items as not mere "things" but as agentic; as kin.[40] Being in one place for thousands of years roots one's human relatives in the soil as well. Napos has often found himself explaining these interconnections. At a forestry meeting he was asked why trees are ancestors, and he responded, "Because [my ancestors] are buried out there. They're part of the world now, they're part of the earth, they're part of those trees. That's who they are. . . . Because we return to that earth and we become the soil again, and the trees and the plants use that soil."[41] The kinship and reciprocal responsibilities many Menominee feel with more-than-humans also informs how knowledge is produced and interpreted.

After spending a considerable amount of time with Menominee foresters, botanists, and knowledge keepers, it becomes clear that much of this knowledge is situated within the ecosystems, which Jeff Grignon argues is "taught by the plants themselves."[42] Jeff explained how "there's a lot of Indigenous knowledge on the plants that hasn't been published that's very useful—a lot of stories I consult with the plants. A lot of these stories have knowledge of what the plants went through during that 12,000 year lifetime here on the reservation."[43] Jeff's interest in bringing forth more Indigenous knowledges corresponds to the energetic information transfers many Menominee refer to from plant to human. Instead of merely a human acting upon the world, the plants are equally, if not more, agentic in what the observer learns from them. Walking in the woods with a Menominee knowledge keeper makes this especially clear, as the plants or landscapes they perceive (i.e., see, hear, touch, smell) appear to reignite a memory in them or produce a new interpretation. Much of this knowledge is also contained in the Menominee's living language, as Jeff expressed regarding their ancestors: "The way they spoke, even the way the words are pronounced have so much information contained in it."[44] Discussing the energetic knowledge transfers from plants to humans, Anahkwet explained how all trees "have a story. They all have history . . . they have a story to tell as well. And it's not all the time spoken to you in a way in which you understand, it's like, you have to get into that vibration. Our trees and plants move at a much different vibration than us. It's much slower. And if you can slow your rhythm down to that, and just go sit by a tree. . . . Try to slow it, slow your energy, and watch. Because things will come to you . . . and it's just that energy."[45]

The animacy of the more-than-human world has long proved difficult to accurately translate into the English language, however. So Menominees tend to appropriate sciences to help explain their Indigenous ways of knowing the world. As Beth Waukechon expressed regarding plant communities, "There's a deeper awareness and understanding that exists in their world . . . there are parts of their DNA that we share . . . they know who they are, and they know what to do, and I think we as humans, we've forgotten our relationship with them . . . when you realize that those seeds are spirits, that the seeds have a genetic story . . . these are actual beings."[46] Gary Besaw explained how contemporary Menominee practices of regenerative forestry, protecting water, and respecting ecosystems and all the beings that constitute them exemplify "a different paradigm."[47] The Menominee "don't even have a word for resources, natural resources, because then it commodifies things, then all of a sudden it's—if you call it that and see it like that—then it's something to be bought and sold. It's a whole different approach."[48] Many Menominee for generations have felt that they must preserve the integrity of human and more-than-human systems for generations into the future.[49] In other words, "We have no choice. It's an ethical, moral responsibility."[50] The Menominee's rich knowledge systems and the reciprocal interagencies they have held with more-than-humans enabled the community to thrive in their ancestral homeland. This knowledge and ethical engagement is illustrated by their long relationship with sugar maple trees.

According to the Menominee, they have tapped sugar maple trees since time immemorial. Although the exact origin of tapping has fallen out of the oral record, all sources claim that the Menominee have long understood maple sugar as a gift from the creator. Menominees do not forget that maples provided in their time of greatest need, as Kristin Welch explained: "They saved us first . . . that's where that medicine came from. When we were near death, and they started giving us that medicine."[51] Although most accounts document the Menominee as well-nourished and healthy, times did occur when winter stores grew thin and hunting proved unreliable. The arrival of maple syrup, then, was indeed a gift to sustain them until the sturgeon started running. After a long, cold winter, Menominees presumably very much anticipated the coming of the "Sugar Moon." When a slow fog drifted across the snow and the crows migrated from the south, it was time to break winter camp and head to the sugar bush.[52] This time usually corresponded to late March or early April. Sugar bushes were located in densely growing communities of maples, most likely near spring fishing and summer camps.[53] Women controlled the functioning of the sugar bush, and usufructuary rights were passed down matrilineally.[54] Many

families occupied the same sugar bush, and after a long, isolating winter, maple sugaring camps burst open many months of pent-up social energy. Children played, teenagers flirted, and adults traded stories, gossip, new knowledge, and encounters with the unknown. One does not need to stretch the imagination far to understand just what relief sugar moon elicited after months of winter.[55]

During the festive atmosphere, quite a lot of relational energy, as well as ecological and technological knowledge, was expended in the execution of a successful sugaring season. The moon cycle and phenological indicators helped predict the beginning of the sugaring season, but how long the sap flowed ranged anywhere from two to eight weeks, depending on how quickly warm weather arrived and all the snow melted. Prolonging the sugaring season thus emerged as an essential element to success. According to the archaeologist Margaret Holman, Indigenous groups of the upper Great Lakes region strategically placed their sugar bushes on rocky hills where maples grow best and they could take advantage of the temperature fluctuations and heavy snow. Sugar maples need a consistent freeze-thaw cycle in order to produce quality sap. When temperatures dip too low, the maples on the southern- and western-facing hillsides will continue to flow as the sun warms them. Tall hills or mountains also maintain greater temperature swings above and below freezing at night. So trees lower on the hill might start running earlier than those on the top, prolonging the tapping season by simply moving up the hill as spring progresses.[56]

Cutting enough wood to keep up a strong boil was difficult, but the Menominee understood how to tap into other forms of energy besides the carbon held in trees. As birchbark receptacles filled up, the sap was poured into long and shallow basswood troughs. Understanding the cycles of their environment and the gifts that the forest provided, the Menominee constructed these troughs to ensure the most surface area for the sap. Operating within the freeze-thaw cycle of the sugar moon allowed the more-than-human world to exert some of its energy. At night, when the maples stopped flowing, the cold air got to work on the collected sap, freezing the top layer and concentrating the sugar in the liquid horizon. Throughout the night or the following morning, fire tenders would crack and remove the ice, increasing the sugar content. Using the change in atmospheric temperature saved a tremendous amount of wood needed to boil the syrup.[57] The conservation of wood not only saved labor energy but also ensured that not too much was taken from the maple-forest ecosystem. Sap boiling could be accomplished by the fuel gifted by mature maples, who dropped their dried-out limbs.

The fire in the sugar shack anchored what Cynthia Fowler has termed a "pyrosphere," or the social relationships that accompany the building and maintaining of a fire.[58] It is hard to overstate the importance of fire for the Menominee. Fire enabled living in a northern-latitude climate by warming their lodges. Fire cooked their food and boiled maple sap. And fire formed the basis of a large-scale permaculture the Menominee employed, burning the land to promote prairie grasses and flowers that fed large herds of bison, elk, and deer.[59] These fires swept through forest ecosystems as well, promoting the growth of blueberries and raspberries.[60] Yet the Menominee spared fire-intolerant sugar-maple groves from burning, indicating not only an extensive knowledge of the ecological conditions in which maples thrive but also a close kinship.[61] The Menominee language, moreover, does not have a noun form for the word *fire* but has several verbs associated with it. Indeed, fire is an active participant in the pyrosphere, not simply an object to gather around. This particular pyrosphere centers on processing a food source. But seeing it only as such leaves out the vast multitude of social interactions, memories, stories, ecological knowledge, and oral histories that the fire elicits. The immense time and energy that goes into maple sugaring ensures that families and friends have ample opportunity to delve deeply into topics, rekindle relationships, and socialize their youth in the customs and practices of the wider community.

When the sap had a high-enough sugar consistency, it was poured into a birchbark or wooden container and then boiled down by placing red-hot rocks in it or hanging the container directly over the coals of the fire.[62] The first cup of warm maple syrup the families drank must have filled them with immense joy. The syrup not consumed onsite was made into candies by pouring it into molds, or into sugar by pounding it into fine grains. This was then stored in birch-bark *makkahs*, whose antimicrobial properties helped preserve the sugar for at least a year.[63] Generation after generation, from the reestablishment of maple trees postglaciation until the fur trade in the sixteenth century, the Menominee interacted with maple trees this way, graciously accepting their gifts and reciprocating in any way they could. When a strange new people arrived on their shores, however, these relationships started to change.

Settler Invasion

The Menominee traditionally inhabited up to ten million acres in the western Great Lakes region, developing protocols to govern usufructuary rights and dispute resolution.[64] Although the Menominee were the first humans to occupy the land, this did not permit them sole tenancy. As the historian David

R. M. Beck writes, although the Menominee at times restricted hunting and gathering on their lands, they also allowed others to "'sit down upon' (*apekin ahkihih*) or utilize Menominee lands in times of need. Likewise, with permission, Menominee tribal members could not only pass through but hunt on neighboring tribes' lands."[65] Warfare was generally uncommon, as diplomacy usually prevailed. However, at times the Menominee found it necessary to use violence to expel interlopers in their territory who had violated usufructuary agreements or transgressed in some way. Borders were thus rather fluid, and perceptions of "ownership" did not appear to exist.[66]

When the United States claimed title over Menominee lands in 1815, however, it forced a new governance regime over people and more-than-humans. In 1827, the US seized 200,000 acres of land surrounding the town of Green Bay, paying only $15,682 worth of goods.[67] The treaties of 1831 and 1832 forced the Menominee to sell 500,000 acres to Tribes dislocated from the state of New York, as well as 2.5 million acres to the United States.[68] In these treaties the US government paid only 5 cents per acre for some of the Menominee's most ecologically energetic lands and waters that contained many sugar maple groves.[69] The US government agents, moreover, pitted dislocated Indigenous communities against the Menominee. The Menominee believed that they had granted the Oneida and Stockbridge-Munsee access to their lands to farm, not usufructuary rights. This was in keeping with their governance structure of *apekin ahkihih*, where they had given up the land but maintained the right to hunt, fish, and gather. Kaushkannaniew, a Menominee negotiator, tried to explain this to Colonel Stambaugh: "We did not think we were to give the N.Y. Indians the right to make sugar on our land: and cut down our maple trees."[70] Stambaugh, however, surreptitiously inserted language in the treaty, allowing the US government to sell the land in full.[71]

In the late eighteenth and early nineteenth centuries, prominent figures promoted maple sugar as an inchoate American agricultural export. Thomas Jefferson advocated for such a trade, writing, "Though large countries within our Union are covered with the Sugar maple as heavily as can be concieved [*sic*], and that this tree yeilds [*sic*] a sugar equal to the best from the cane, yeilds [*sic*] it in great quantity . . . that we can not only supply our own demand, but make for exportation."[72] Abolitionists promoted the replacement of cane sugar with maple sugar as well, particularly Benjamin Rush, who expressed, "I cannot help contemplating a sugar maple tree with a species of affection and even veneration, for I have persuaded myself to behold in it the happy means of rendering the commerce and slavery of our African brethren in the sugar islands as unnecessary."[73] The sugar maple tree thus arose in the new republic

as a multivalent symbol of progress, both commercial and emancipatory. Maple trees emerged as one of the few nondomesticated indigenous species actively incorporated into the landscapes that settlers created in Wisconsin. Unlike wild rice or other edibles that settlers deliberately or inadvertently eradicated, maple trees remained a part of the new domesticated landscape and later even became of the state tree of Wisconsin. Like many American ideological symbols, though, the employment of maple trees as a conveyance of progress was predicated on the violent dispossession of Indigenous peoples' lands.

In the mid-nineteenth-century the United States increased its territorial possessions, requiring a political economy promoting westward settlement to both defend and terraform the land. Mapping and delineating private property thus emerged as a crucial technology of the settler colonial project. The general land survey of Wisconsin divided land into six-mile square townships and one-mile square sections, depicting a simple grid pattern from which smaller square parcels could be divided. These maps offer a useful glimpse into the importance of sugar maples to settlers. A surveyor working in the Green Bay area in November 1844 devoted considerable attention to plotting the location of each settler's maple camps. The surveyor's notes record passing several times into sugar camps and sugar houses, and describe the land as "1st rate, rolling-good soil. Maple pine, well watered."[74] The accompanying map sketches out several sugar shacks, replete with smoke billowing from the chimney, and dotted squares delineating sugar camps labeled with the owner's names: "Josate's sugar camp . . . Vanderberg's . . . Gloud's . . . Alhey's . . . A. Corville's."[75] Most other maps in the land surveys do not depict such minute details, suggesting sugaring as an important economic venture.

The work of abstracting physical space and the energies flowing through it allowed the US to simplify the rambunctious world of ecologies, oral agreements, and interagencies into legible metrics that could then be sold, taxed, and put to work in the interest of the state. In place of the collectively governed commons where the Menominee, their allies, and more-than-human species negotiated the sustainable use of food, fuel, and building materials, the United States' new land regime created an abstract scarcity of "natural resources" to coax settlement and economic growth. These maps did not only abstract and simplify this land but opened it to capitalist transformation. Settlers quickly moved to capture the energy in this land, packaging it and shipping it out of its ecological area, transmogrifying white pines into board feet of lumber, prairie meadows into linear rows of wheat, and schools of whitefish into canned protein.[76]

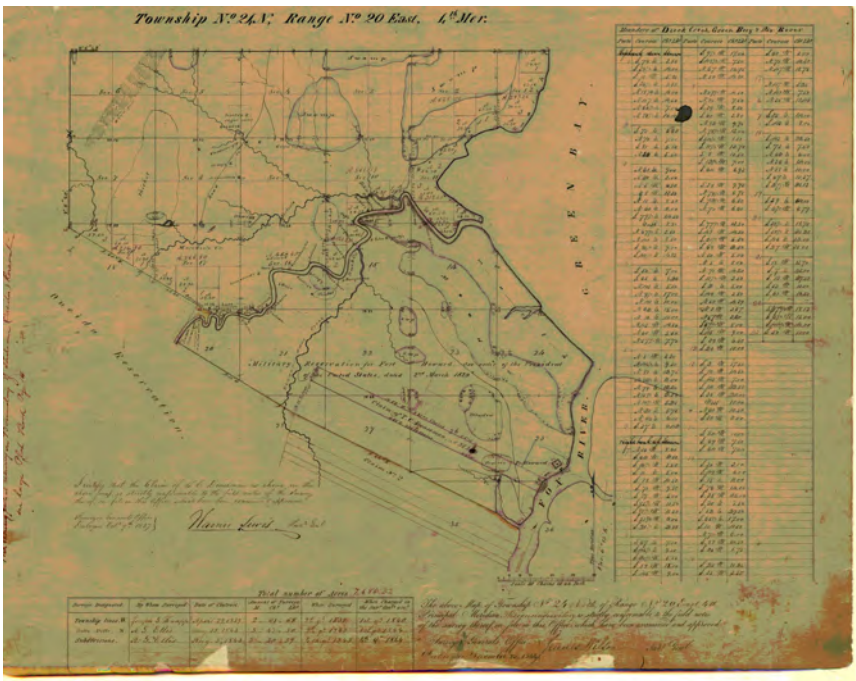

Figure 3.
Wisconsin Land Survey map depicting multiple maple sugaring sites near the town of Green Bay, 1844.

Within this new political-economic regime, maple sugar indeed emerged as an important commodity on the settler frontier, as cane sugar was expensive to import so far inland. Much of the maple sugar was sold in the town of Green Bay, the central economic and governmental node of the territory.[77] Ebenezer Childs, an early settler of Green Bay, described the industry of the French inhabitants who "made immense quantities of maple sugar at the proper season. In the spring the entire settlement would remove to their sugar-camps, often remain two months, each family making eight or ten hundred pounds of the finest sugar I ever saw."[78] Elizabeth Baird added that "all who were able possessed a sugar camp."[79] Although some sugar camps surely operated for individual consumption, many others in the area were commercial. The local "Farmer's Store" in Green Bay regularly advertised maple sugar in the *Green Bay Republican* newspaper throughout 1844.[80] And maple sugaring in and around Green Bay appears to have continued as a business throughout the nineteenth century. In the *State Gazette*'s Green Bay City Notes, the paper remarked how "two dealers in the town of Lincoln, Kewaunee Co. brought into this market last week nearly eight tons of maple sugar."[81]

This sort of abstracting of land and its various more-than-human species was a totally new experience for the maple trees the Menominee once tapped. A new hybridized European-influenced camp culture formed around maple communities. An annual Easter festival coincided with maple sugaring, during which the settlers in Green Bay reportedly "celebrated among their French and half-breed entertainers in the depth of the great maple woods, in their commodious sugar-houses."[82] The forest would ring out "with strains of the merry violin" as well as dancing and picnicking.[83]

Maples no longer anchored ecological forest communities but were subsumed into the gridded agricultural landscape, existing in patches as another crop on the farm. Farmers in the town of Lawrence along the Fox River, for example, emerged as large maple sugar producers by 1870. Maple sugar, however, remained only one of several commodities sold by these farmers, including butter, wool, and miscellaneous "forest products." Census records also indicate these farms as owning several "swine," presumably for subsistence.[84] As settlers cut trees seen as better utilized for fuel or "forest products," maples started losing their diversified subterranean fungal connections. Pigs or cattle presumably grazed the maple community's understory, curtailing the growth of the spring ephemerals with whom saplings shared carbohydrates.[85] As settlers transformed maples from relatives to crops—from a giver of gifts to a source of capital—the complex ecologies of reciprocity in this particular geography simplified. As simplification, abstraction, and monoculture agriculture progressively subsumed small farms, settlers rarely stitched their energy consumption and waste into the ecological fabric of the land. Under a settler system of ecological governance, capitalist economics ensured that energy no longer was regularly recycled locally in the constant exchange of life, death, and regrowth but was often exported to far-off markets, divorcing and foreclosing the reciprocity that largely governed interactions among the Menominee and more-than-humans since time immemorial.

The Menominee sold maple sugar in the second half of the nineteenth century as well, but were confined to their reservation to produce it. Having lost access to nearly all their ancestral lands, the Menominee relied on maple sugar as a critical lifeline. As Antoine Marie Gachet, a missionary, expressed in visiting a Menominee sugar camp in March 1860, "during a famine, sugar is the only means of subsistence. In a short time the maple sugar makes the Indians overweight, having entered the sugar camp with real Lenten figures."[86] The Menominee, however, also turned to maple sugaring as an economic venture to afford the new foods and clothing they were forced to buy. Indeed, maple sugar commoditization in the Menominee community reflected a need

to survive within the violence of settler colonialism, as the newfound reservation boundaries restricted their subsistence and economic movements over a large tract of land.

Starting with the fur trade in the seventeenth century, the Menominee traded pelts for European tools. Using iron kettles and metal axes to increase their productive capacity, in 1862 the Menominee reportedly "manufactured not less than 45 tons of maple sugar, mostly of an excellent quality. Three-fourths of this is disposed of to traders at an average of about eight cents per pound, paid in goods."[87] Menominees also elaborately designed *makkahs* with dyed porcupine quills stitched into birchbark, alongside elegant maple candies and toffee, which reportedly sold well in American cities.[88] Maples again gave generously when the Menominee needed them most. In time, however, settlers' industrialization of maple syrup production with plastic tubing and propane boilers eclipsed the Menominee's small-scale operations. In the twenty-first century, as it happens, maple syrup production and sales are dominated by settlers.[89] The Menominee, however, continue to practice their relational responsibility on the lands they still hold.

Conclusion

Today, come every sugar moon, the Menominee forest is filled with families tapping maple trees on sites passed down for generations.[90] Maple communities still exist in such abundance on the reservation due to the Menominee's persistence in protecting the forest from clear-cutting. There is an energy when maple sugaring time arrives, and as Anahkwet recounted, "It's so exciting . . . I don't even really like maple syrup . . . it's not even about that, it's just about being out there and doing something that's been done for thousands of years and connecting with the forest and giving thanks."[91] Anahkwet, in his role as community organizer, is now trying to bring that experience to others who were not fortunate enough to experience it.

Maple tapping events that Menīkānaehkem organizes are concerned with more than subsistence; they want to revitalize ancestral teachings and connections to their forest relatives that years of settler occupation and acculturation have severed for many Menominees, especially those who grew up off-reservation. At a maple tapping event, Anahkwet put down tobacco as an offering to the trees and then said a prayer in the Menominee language. After recounting the Menominee's maple sugar origin story, Anahkwet and his children tapped the first tree. Although the tools had changed, as drills and plastic bags replaced axes and birchbark containers, the tapping process remained the same. Tony

Figure 4.
Tapped Maple Tree in the Menominee Forest. Courtesy of Gregory Hitch.

Brown conveyed the importance of treating these trees with respect, and instructed Greg to ask their name, ask if he could tap them.[92] Offering tobacco and asking for consent remains an important ceremony for ensuring a good relationship and to reciprocate in a small way. Tobacco is understood to open up dialogue with the more-than-human world, providing a conduit to express intentionality.[93]

This reciprocity with maples extends to honoring their gift by taking only as much as necessary, sharing it, and not wasting any. As Marcus expressed, "Whenever I have maple syrup that does go bad, I usually bring it back to the source, and I gave it back to the trees because I usually say I'm sorry that I did this and that it won't happen again. You got to learn from it, first year learning how to run a whole canning operation, it's trial and error."[94] Simpson writes similarly of Nishnaabeg knowledge production concerning maple sugaring, arguing that knowledge comes from the land through reciprocal and respectful interactions: "Answers to how to rebuild and how to resurge are therefore derived from a web of consensual relationships that is infused with movement (kinetic) through lived experience and embodiment."[95]

Sugar moon still takes on a festive atmosphere and remains a time of community (re)connection. Many Menominees look back at maple sugaring in

their youth as some of their most cherished memories and want to pass that on to their own children. Anahkwet recounted, "When I first started doing syruping, we camped right out there. We'd be out there for like weeks at a time. . . . when my kids would be out there with us . . . they wanted to stay out in sugar camp all the time, 'cause there'd be a bunch of other kids, all playing in the woods."[96] Sitting in the sugar shack at Menīkānaehkem, one feels the sense of community. We could hear the children gleefully occupied by a snowball fight. An elder stopped by and told stories. Anahkwet drummed on the floorboards with a makeshift drumstick, singing out a powwow song. Jokes and gentle teasing bridged one topic of conversation to the next. Occasionally, Anahkwet, serving as fire keeper, would add more logs and then methodically skim off the foam from the boiling sap. The rekindling of the pyrosphere's energy flowed through the sugar shack, imbuing us all with energy.

Marcus expressed how "Menominee oral tradition has passed down from generation to generation since time immemorial to prepare every generation with the knowledge about future climate change. Our ancestors foretold of this time we are in now. They spoke of the maple sugar trees and medicinal plants that would leave us."[97] Ecologists and climate scientists are now concluding that human-caused climate change threatens sugar maple trees in the Menominee's homeland.[98] Menominee foresters see climate change as a new challenge that threatens maples, but they also understand the power the forest community holds. As an old-growth ecological community, the Menominee forest holds millennia of knowledge and collective agency, according to Jeff Grignon: "With these well-established communities, as that knowledge grows, it's able to withstand climate change."[99] Since the forest community is so ecologically healthy, diverse, and relationally intact, maples have a good chance at adapting, living on in what might be the last maple refuge in the area. "The maple tree has been our caretaker and elder for centuries," Marcus explains, and either way, "the Menominee will adapt when the time comes for the maple to leave our world and a new plant/tree will take its place." Maple trees are long-lived beings that bear witness for centuries to the changes around them. We have presented energy from a Menominee perspective to tell these stories of injustice, renewal, and hope in a way that illuminates instead of occludes the lives of more-than-human beings. Maples embody the energy that sustained the Menominee in multiple ways: metabolically through calories in sugar, thermally through the fuel that burned in their hearths, and culturally through the stories, knowledge, and social environment constructed around these trees. Maple trees are more than mere thermodynamics; they are a constitutive being in a dynamic forest of energy.

Menominees commonly remark that humans are the youngest of all the beings on the earth, hold the least knowledge, and are thus the most dependent on the generosity of the more-than-human world. The Menominee have lived in what is currently Wisconsin longer than any other Indigenous community. Their ancestors inhabited this land during the last Ice Age and have adapted to ecological and climatic changes over the centuries. Change is nothing new.[100] But the onslaught of settler colonialism and capitalism exerted profound pressure on the Menominee and their more-than-human kin. The Menominee have always successfully adapted to change, however, by holding on to ancestral knowledge while integrating new technologies and ways of knowing the world. We have argued that the Menominee have done so via a techno-epistemic hybridity that allowed them to simultaneously hold on to their ancestral knowledges, lifeways, and interspecies ethical frameworks while appropriating dominant science and technologies to further their goals. The ability to simultaneously adapt and remember is probably their greatest strength, and will be going forward. By slowing down and listening to a forest, the Menominee demonstrate one way to live an honorable (co)existence, in the face of ever-mounting change.

Notes

Gregory Hitch: I must first thank the Menominee community for the opportunity to do this research with them. In particular, I must thank Anahkwet, Francisco Alegria, Joey Awonohopay, John Awonohopay, Gary Besaw, Chris Caldwell, Rebecca Edler, Jennifer Gauthier, Ben Grignon, Jeff Grignon, Maria Haskins, Adrienne Miller, Jonsey Miller, Kimberly Oshkeshequoam, Marshall Pecore, Dolly Potts, Adam Shultz, Cherie Thunder, Brooke Waukau, Beth Waukechon, Bryant Waupoose, Tony Waupochick, Ron Waukau, Mary Webster, Sara Wescott, and Kristin Welch. I am especially grateful to the Menominee Language and Culture Commission for providing important feedback throughout the research and writing of this essay. A very special Waewaenen (thank you) to Napos and Tony Brown. You both enriched my understanding of the Menominee community and taught me how to research and write with my heart as well as my head. I would also like to thank all the members of the 2020–2021 Fellows Seminar at Brown University's Cogut Institute for the Humanities for their thoughtful critiques and insights on an early draft of this essay. I am also forever grateful to Bathsheba Demuth and Lukas Rieppel for commenting on several drafts and making this a much stronger article. Parker VanValkenburgh provided useful feedback late in the writing process that certainly sharpened our argument. Thank you to the two anonymous reviewers for pushing us to refine our argument and introducing us to scholarship that put this piece into conversation with a broader audience. Lastly, thank you to *American Quarterly* editor Mari Yoshihara and the Editorial Board for their productive critiques as well as for stewarding the editing and publication of this essay.

Marcus Grignon: I want to extend a very special Waewaenen (thank you) to the Grignon family: Raymond "Manny" Sr., Josephine Nahwahquaw, Cecil, Wilfred, Raymond Jr., Robert, Mary, Myrna, Dennis "Ear." David, Linda Thompson, David, Pamjowen, Jeff, Ruth, Ben, Brandon, Dan, Brittany, Desirae, Stevie, Evelynn, Kenew, Agoshee, Namakesa, Clarence, and Jacob "Prodigy." Each one has

helped the research and holds the historical perspective to our cultural catalyst we will utilize in the twenty-first century for all future generations of Menominee as well as our non-Menominee allies.

1. Marcus Grignon, pers. comm., May 14, 2020.
2. For a clear discussion of this idea from a dominant science perspective, see William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: W. W. Norton, 1991), 150.
3. Taking our cue from Max Liboiron, we use "dominant science" instead of "Western science," to underscore how certain parts of Western science have become "dominant to the point that other ways of knowing, doing, and being are deemed illegitimate or erased" (*Pollution Is Colonialism* [Durham, NC: Duke University Press, 2021], 20–21).
4. Heather Davis and Zoe Todd, "On the Importance of a Date, or, Decolonizing the Anthropocene," *ACME: An International Journal for Critical Geographies* 16.4 (2017): 770–71; Michael Dockry and Kyle Whyte, "Improving on Nature: The Legend Lake Development, Menominee Resistance, and the Ecological Dynamics of Settler Colonialism," *American Indian Quarterly* 45.2 (2021).
5. United States Statutes At Large, "Treaty with the Menominee Indians" (1854); United States Statutes At Large, "Treaty with the Menominee Indians" (1856); David Beck, *Siege and Survival: History of the Menominee Indians, 1634–1856* (Lincoln: University of Nebraska Press, 2002).
6. Patrick Wolfe, "Settler Colonialism and the Elimination of the Native," *Journal of Genocide Research* 8.4 (2006): 402.
7. Wolfe, 388.
8. Cara New Daggett, *The Birth of Energy: Fossil Fuels, Thermodynamics, and the Politics of Work* (Durham, NC: Duke University Press, 2019), 16; Crosbie Smith and M. Norton Wise, *Energy and Empire: A Biographical Study of Lord Kelvin* (Cambridge: Cambridge University Press, 1989).
9. Daggett, *Birth of Energy*, 35.
10. Andreas Malm, *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming* (Brooklyn: Verso Books, 2016).
11. E. Richard Atleo, *Tsawalk: A Nuu-chah-nulth Worldview* (Vancouver: UBC Press, 2007), ix.
12. Noelani Goodyear-Kaʻōpua, *The Seeds We Planted: Portraits of a Native Hawaiian Charter School* (Minneapolis: University of Minnesota Press, 2013), 32.
13. Goodyear-Kaʻōpua, 33.
14. Glen Sean Coulthard, *Red Skin, White Masks: Rejecting the Colonial Politics of Recognition* (Minneapolis: University of Minnesota Press, 2014), 13.
15. Jeff Corntassel, "Toward Sustainable Self-Determination: Rethinking the Contemporary Indigenous-Rights Discourse," *Alternatives: Global, Local, Political* 33.1 (2008): 105–32.
16. See, e.g., Christopher F. Jones, *Routes of Power* (Cambridge, MA: Harvard University Press, 2014); Stephanie LeMenager, *Living Oil: Petroleum Culture in the American Century* (New York: Oxford University Press, 2013); and Traci Brynne Voyles, *Wastelanding: Legacies of Uranium Mining in Navajo Country* (Minneapolis: University of Minnesota Press, 2015).
17. Cronon, *Nature's Metropolis*; Bathsheba Demuth, *Floating Coast: An Environmental History of the Bering Strait* (New York: W. W. Norton, 2019); Richard White, *The Organic Machine: The Remaking of the Columbia River* (New York: Hill and Wang, 2011).
18. Michael Ziser, Natasha Zaretsky, and Julie Sze, "Perpetual Motion: Energy and American Studies," *American Quarterly* 72.3 (2020): 543–57.
19. Noelani Goodyear-Kaʻōpua and Mary Tuti Baker, "The Great Shift: Moving beyond a Fossil Fuel–Based Economy," *Hūlili: Multidisciplinary Research on Hawaiian Well-Being* 8 (2012): 138.
20. Robin Wall Kimmerer, *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* (Minneapolis: Milkweed Editions, 2013), 63–71; Leanne Betasamosake Simpson, *As We Have Always Done: Indigenous Freedom through Radical Resistance* (Minneapolis: University of Minnesota Press, 2017).
21. Monica Macaulay, *Omāēqnomenēweqnaesen Wēhcekanan, Menominee Dictionary* (Keshena: The Menominee Indian Tribe of Wisconsin, 2012).
22. Macaulay.
23. Beck, *Siege and Survival*, 4.
24. Napos, interview by author, October 21, 2019.
25. James Sydney Slotkin, *The Menomini Powwow: A Study of Cultural Decay*, Milwaukee Public Museum Publications in Anthropology, No. 4 (Milwaukee, 1957), 25.

26. Marcus Grignon, pers. comm., November 25, 2020.
27. Marcus Grignon, pers. comm., May 14, 2021.
28. Anahkwet, interview with author, July 29, 2020.
29. Gary Besaw, interview with author, August 19, 2021.
30. Greg is indebted to Myles Lennon, who helped his framing of energy in this way. See Lennon, "Decolonizing Energy: Black Lives Matter and Technoscientific Expertise amid Solar Transitions," *Energy Research & Social Science* 30 (2017): 18–27.
31. Barbara Tomlinson and George Lipsitz, "American Studies as Accompaniment," *American Quarterly* 65.1 (2013): 1–30.
32. S. B. Horsely and R. P. Long, eds., *Sugar Maple Ecology and Health: Proceedings of an International Symposium*, General Technical Report NE-261 (1999), 2; Peter Wohlleben, *The Hidden Life of Trees: What They Feel, How They Communicate—Discoveries from a Secret World* (Vancouver: Greystone Books, 2016), 85–92.
33. Jeff Grignon, pers. comm., June 8, 2017, College of Menominee Nation's Indigenous Planning Summer Institute.
34. For general discussions about mycelium and trees, see Wohlleben, *Hidden Life of Trees*, 6–18, 31–36. For scientific papers, see citations throughout and Suzanne W. Simard and Daniel M. Durall, "Mycorrhizal Networks: A Review of Their Extent, Function, and Importance," *Canadian Journal of Botany* 82.8 (2004): 1140–65; Kevin J. Beiler et al., "Architecture of the Wood-Wide Web: Rhizopogon Spp. Genets Link Multiple Douglas-Fir Cohorts," *New Phytologist* 185.2 (2010): 543–53.
35. Sylvain Lerat et al., "14 C Transfer between the Spring Ephemeral Erythronium americanum and Sugar Maple Saplings via Arbuscular Mycorrhizal Fungi in Natural Stands," *Oecologia* 132.2 (2002): 181–87.
36. Tony Waupochick, interview by author, July 1, 2020.
37. Horsely and Long, *Sugar Maple Ecology and Health*, 4.
38. Jeff Grignon, pers. comm., June 8, 2017; Wohlleben, *Hidden Life of Trees*, 1–5, 34, 247–50.
39. Macaulay, *Omāēqnomenēweqnaesen Wēhcekanan*; Leonard Bloomfield, *The Menomini Language* (New Haven, CT: Yale University Press, 1962).
40. Kimmerer, *Braiding Sweetgrass*, 48–59.
41. Napos, interview by author, October 21, 2019.
42. Jeff Grignon and Robin Wall Kimmerer, "Listening to the Forest," in *Wildness: Relations of People and Place*, ed. Gavin Van Horn and John Hausdoerffer (Chicago: University of Chicago Press, 2017), 67–74.
43. Jeff Grignon, pers. comm., June 8, 2017, College of Menominee Nation's Indigenous Planning Summer Institute.
44. Grignon.
45. Anahkwet, interview by author, July 29, 2020.
46. Beth Waukechon, interview by author, April 2, 2020.
47. Gary Besaw, interview by author, August 19, 2021.
48. Besaw.
49. Besaw.
50. Besaw.
51. Kristin Welch, interview by author, August 18, 2020.
52. Napos, interview by author, October 21, 2019; Marcus Grignon, interview by author, July, 17, 2019; Sara Wescott, interview by author, April 19, 2020; Walter James Hoffman, *The Menomini Indians*, vol. 14, no. 1 (US Government Printing Office, 1896), 288.
53. Margaret B. Holman, "The Identification of Late Woodland Maple Sugaring Sites in the Upper Great Lakes," *Midcontinental Journal of Archaeology* 9.1 (1984): 63–89.
54. Hoffman, *Menomini Indians*, 288.
55. This paragraph draws from Hoffman, *Menomini Indians*, 287–90; Skinner, "Material Culture of the Menomini Indians," 164–72, as well as Frances Densmore, *How Indians Use Wild Plants for Food, Medicine, and Crafts* (New York: Dover, 2012), 308–13, based on ethnographic research with the Menominee's close neighbors, the Ojibwe, with whom they shared knowledge, ceremonies, and social events.
56. Holman, "Identification of Late Woodland Maple Sugaring Sites," 63–89; Helen Nearing and Scott Nearing, *The Maple Sugar Book* (White River Junction, VT: Chelsea Green, 2000 [1950]), 72–74.

57. Holman, "Identification of Late Woodland Maple Sugaring Sites." For discussions of freezing sap, see Kimmerer, *Braiding Sweetgrass*, 67; Holman, "Identification of Late Woodland Maple Sugaring Sites," 69; and Margaret B. Holman and Kathryn C. Egan, "Processing Maple Sap with Prehistoric Techniques," *Journal of Ethnobiology* 5.1 (1985): 61–75.
58. Cynthia Fowler, *Ignition Stories: Indigenous Fire Ecology in the Indo-Australian Monsoon Zone* (Durham, NC: Carolina Academic Press, 2013).
59. Beck, *Siege and Survival*; Stephen J. Pyne, *Fire in America: A Cultural History of Wildland and Rural Fire* (Seattle: University of Washington Press, 2017).
60. Felix Maxwell Keesing, *The Menomini Indians of Wisconsin: A Study of Three Centuries of Cultural Contact and Change* (Madison: University of Wisconsin Press, 1987), 162–63; Cheryl H. Dorney and John R. Dorney, "An Unusual Oak Savanna in Northeastern Wisconsin: The Effect of Indian-Caused Fire," *American Midland Naturalist* (1989): 103–13.
61. Lawrence A. Leitner et al., "Effects of Site, Landscape Features, and Fire Regime on Vegetation Patterns in Presettlement Southern Wisconsin," *Landscape Ecology* 5.4 (1991): 203–17.
62. Marcus Grignon, interview by author, July, 17, 2019; Napos, interview by author, October 23, 2019; Holman, "Processing Maple Sap with Prehistoric Techniques"; Skinner, "Material Culture of the Menomini Indians," 164–72.
63. Skinner, "Material Culture of the Menomini Indians," 164–72.
64. Beck, *Siege and Survival*; Keesing, *Menomini Indians of Wisconsin*.
65. Beck, *Siege and Survival*, 17.
66. Napos, interview by author, October 21, 2019; Beck, *Siege and Survival*, 17–20.
67. Beck, *Siege and Survival*, 103.
68. Beck, 107.
69. Beck, 108.
70. Ratified treaty no. 179, documents relating to the negotiation of the treaty of October 27, 1832, with the Menominee Indians (Washington, DC: National Archives, October 27, 1832).
71. Beck, *Siege and Survival*, 111–13.
72. "From Thomas Jefferson to Benjamin Vaughan, 27 June 1790," Founders Online, National Archives, https://founders.archives.gov/documents/Jefferson/01-16-02-0342. The original source is *The Papers of Thomas Jefferson*, vol. 16, *30 November 1789–4 July 1790*, ed. Julian P. Boyd (Princeton, NJ: Princeton University Press, 1961), 578–80.
73. Benjamin Rush, *An Account of the Sugar Maple-Tree* (London: Philadelphia printed: London reprinted: by J. Phillips, George-Yard, Lombard-Street, 1792), 179. For further reading on colonialism, capitalism, and cane sugar, see Sidney W. Mintz, *Sweetness and Power: The Place of Sugar in Modern History* (New York: Penguin, 1986).
74. United States General Land Office, "Wisconsin Public Land Survey Records: Original Field Notes and Plat Maps" (Wisconsin Board of Commissioners of Public Lands and the University of Wisconsin Board of Regents), "Exterior Field Notes T24 N R20 E—General Description."
75. United States General Land Office.
76. James C. Scott, *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, CT: Yale University Press, 1998). For detailed accounts of early capitalism in the Menominee's lands and waters, see Margaret Beattie Bogue, *Fishing the Great Lakes: An Environmental History, 1783–1933* (Madison: University of Wisconsin Press, 2001); and Cronon, *Nature's Metropolis*.
77. Elizabeth Therese Baird, *O-de-jit-wa-win-ning, or, Contes du temps passe: The Memoirs of Elizabeth T. Baird* (Green Bay: Heritage Hill Foundation, 1998), 10.
78. Ebenezer Childs, "Recollections of Wisconsin since 1820," in *Wisconsin Historical Collections, Volume IV*, Wisconsin State Historical Society, 1859, 16.
79. Baird, *O-de-jit-wa-win-ning, or, Contes du temps passe*.
80. Nathan Goodell, "Famer's Store," *Green Bay Republican*, January 30, 1844.
81. "City Notes," *State Gazette*, April 29, 1871.
82. Albert G. Ellis, "General Ellis's Recollections," in *Wisconsin Historical Collections, Volume VII* (Madison: Wisconsin State Historical Society, 1908), 221.
83. Ellis, 222.
84. "Brown County (Wis.). Clerk. Census schedules 1850, 1860, 1870, 1905," Brown Series: 30, vol. 2 (1870), SHSW, Green Bay Area Research Center, Cofrin Library—Special Collections, University of Wisconsin–Green Bay.

85. The 1888 Wisconsin Farmer's Institute Bulletin contains a tutorial by a Geo. Wylie, who reproaches farmers for allowing their pigs to scavenge, as well as an article by Theo Louis, who admonishes farmers that pigs "should not be allowed to stray all over the farm and in adjoining woodlots" in search of food. See Wisconsin Farmers' Institutes, and University of Wisconsin—Madison, Libraries, Bulletin (*Wisconsin Farmers' Institutes*) (Madison: Wisconsin Farmers' Institutes, 1888), 254–62.
86. Sylvia S. Kasprycki, Anton Rotzetter, and François Ruegg, *Five Years in America: The Menominee Collection of Antoine Marie Gachet* (Fribourg, Switzerland: Pro Ethnographi©a, 2018), 68.
87. United States, "Annual Report of the Commissioner of Indian Affairs for the Year 1862," 332, HathiTrust, https://hdl.handle.net/2027/mdp.39015019116998.
88. Kasprycki, Rotzetter, and Ruegg, *Five Years in America*, 69–71.
89. Matthew M. Thomas, "Where the Forest Meets the Farm: A Comparison of Spatial and Historical Change in the Euro-American and American Indian Maple Production Landscape" (PhD diss., University of Wisconsin–Madison, 2004).
90. Thomas Pecore Weso, *Good Seeds: A Menominee Indian Food Memoir*, Wisconsin Historical Society, 2016, 61–66.
91. Anahkwet, interview with author, July 29, 2020.
92. Tony Brown, pers. comm., March 24, 2019.
93. Tony Brown, Interview with author, October 31, 2019..
94. Marcus Grignon, interview by Hitch, July, 17, 2019.
95. Simpson, *As We Have Always Done*, 162.
96. Anahkwet, interview with author, July 29, 2020.
97. Marcus Grignon, pers. comm., May 14, 2020.
98. Maria K. Janowiak et al., "Forest Ecosystem Vulnerability Assessment and Synthesis for Northern Wisconsin and Western Upper Michigan: A Report from the Northwoods Climate Change Response Framework Project," General Technical Report NRS-136 (Newtown Square, PA: US Department of Agriculture, Forest Service, Northern Research Station, 2014), 92–96.
99. Quoted in Becca Dower, "The Land Is a Teacher: A Conversation with Jeff Grignon," Edge Effects, last modified October 12, 2020, https://edgeeffects.net/jeff-grignon/.
100. David F. Overstreet, "The Mero Complex and the Menominee Tribe-Prospects for a Territorial Ethnicity," *Wisconsin Archeologist* 90 (2009): 179–224.