

Fixed Capital and the Flow

Water Power, Steam Power,
and *The Mill on the Floss**Elizabeth Carolyn Miller*

George Eliot's novel *The Mill on the Floss* (1860) inhabits dual temporalities at many different levels, formally as well as thematically, as previous critics have discussed. Thinking in world-historical terms, critics such as Suzanne Graver and Nathan K. Hensley have established the novel's investments in epochal shift and in "a theory of time," as Hensley puts it, "with two categories, old and new."¹ John Plotz, in his recent work on the provincial novel, has instead approached the novel's duality in meta-temporal terms, focusing on the famous passage in Eliot's opening chapter where the narrator awakens from a dream-like reverie—"Ah! my arms are really benumbed. I have been pressing my elbows on the arms of my chair, and dreaming that I was standing on the bridge in front of Dorlcote Mill, as it looked one February afternoon many years ago"—to suggest that the strangely doubled temporality inhabited by the novel's narrator, who is half in the past leaning on the bridge near the mill and half in the present seated in an armchair at home, exemplifies "the sort of semi-detached relationship that the reader . . . is meant to have to the text itself."² Sally Shuttleworth, meanwhile, has drawn attention to the novel's opening sentence—"A wide plain, where the broadening Floss hurries on between its green banks to the sea, and the

loving tide, rushing to meet it, checks its passage with an impetuous embrace" (51)—to show how the narrator "disturbs temporal perspective" and to argue, ultimately, in geological-temporal terms that the novel's dual structure is poised between the cyclical and the progressive.³ *The Mill on the Floss* is temporally double in other, more obvious ways, too: It is a historical novel set in and around 1830 but published in 1860, and the temporal arc of its narrative is curiously bifurcated, with the first part focused on Maggie Tulliver's childhood and the latter part focused on her young adulthood (while remaining, as Deanna Kreisel puts it, "conspicuously silent" about the intervening years in the middle).⁴

My purpose in this essay is to reexamine *The Mill on the Floss*'s temporal structure from the perspective of energy and ecology and to argue that Eliot's well-established interest in dual temporalities and epochal shift extends to a searching and prescient inquiry into the temporality of energy and energy regime transition. For the novel is set at a water-powered mill in the historical moment that saw an unprecedented energy transition in British industry from water power to coal-fired steam power, and it distinguishes between the distinct temporalities of these two energy regimes. This is the moment that saw the birth of what Andreas Malm calls "the fossil economy," when Britain made a "qualitative leap in the manner of coal consumption" that led, more or less directly, to "an economy of self-sustaining growth predicated in the growing consumption of fossil fuels, and therefore generating a sustained growth in emissions of carbon dioxide."⁵ Discussion of the possible conversion of Dorlcote Mill from water-powered to steam-powered courses through the novel, and while Eliot was ignorant of the rise in carbon emissions that would accompany the rise of steam, I argue that she recognizes and emphasizes the distinct temporality of a steam-generated economy as opposed to a water-generated one. Time emerges in *The Mill on the Floss* as one vector of human-natural coadaptation, and the novel's temporal doubleness is closely related to its climate and energy imaginary. Along the way, as I make this case, I hope to connect *The Mill on the Floss*'s dual temporality to our present moment of ecological crisis and its demand that we, as critics, shift not so much from an eco-historicism to an eco-presentism, but toward a temporally doubled methodology that inhabits the present and the past dialectically.

A River's a River: Water Power and the Flow

Let us first recall the extent to which water rights, water power, and the transition to coal-fired steam pervade *The Mill on the Floss*. An 1860 review

of the novel in *The Spectator* begins with the observation, "The new story by the author of *Adam Bede* is full of power," and this is true in more ways than one.⁶ The opening lines of the novel draw a picture of ships laden with the "dark glitter of coal," moving down the Floss to the town of St. Ogg's (51). We soon learn, in these opening pages, that the father of the novel's heroine, Maggie Tulliver, has a fatal flaw: He is "susceptible in respect of his right to water-power" (55). Dependent on the flow of water to power Dorlcote Mill—a mill that has been in his family "a hundred year and better"—Mr. Tulliver has, at the beginning of the novel, successfully fought off a neighbor's attempt to dam the river, but he is now engaging in a new legal entanglement against Mr. Pivart, a farmer setting up an irrigation scheme farther up the river. "I'll Pivart him!" he vows.

Tulliver is convinced that Pivart's irrigation will interfere with his mill. He is convinced of this on the tautological principle "that water was water," a principle he repeats so often as to effectively square its tautology. Water, he says, is "a very particular thing—you can't pick it up with a pitchfork. That's why it's been nuts to Old Harry and the lawyers. It's plain enough what's the rights and the wrongs of water, if you look at it straightforrard; for a river's a river, and if you've got a mill, you must have water to turn it; and it's no use telling me, Pivart's erigation and nonsense won't stop my wheel; I know what belongs to water better than that" (191). Countering Tulliver's irascible and oft-repeated reasoning, Jules Law has examined Riparian doctrine ("the body of laws and precedent concerning water rights") in relation to Eliot's novel to argue that both irrigation technology and the laws governing it were in their infancy at this time, and that it would have been impossible for Tulliver to know how his water-powered mill would be affected by an irrigation system upstream or to predict the outcome of the legal case that eventually ruins him.⁷ Still, it is possible Tulliver may be on to something, for, as W. Jeffrey Bolster demonstrates in *The Mortal Sea: Fishing the Atlantic in the Age of Sail*, nineteenth-century laws around water lagged significantly behind the observations of those who worked the waters in terms of recognizing the need for regulation.⁸

Regardless of whether Pivart's irrigation represents a real threat to his mill, Tulliver's legal woes and his oft-repeated claim that "water is water" point to a fundamental problem at work in the novel and in the broader energy transition happening at the time the novel is set: Water is both spatially and temporally unsuited to privatization, and thus to capitalization on a large scale.⁹ As Tulliver says, "you can't pick it up with a pitchfork." Water power, with wind and solar, sits within the energy category that Andreas Malm calls "the flow." The formal properties of the flow are

better suited to collectivization than privatization. Water, for example, is difficult to contain within the bounds of private property: "It respected no deeds or titles, bowed to no monetary transactions; it continued on its course, unmoved by conceptions of private property because it was always in motion."¹⁰ Even if one owns the land on which a stream of water flows, that stream is subject to the actions of other landowners upstream or downstream, which is precisely why the laws around water's use were a matter of dispute at the time the novel is set. Large-scale reservoir schemes developed in the early-nineteenth century, Malm has shown, held the promise of greatly expanding the scale and might of water power in this period, but they would have required a degree of cooperation and coordination among energy users that capitalist competition made unfeasible.¹¹

More significant for my argument, water power is also *temporally* unsuited to capitalization at a large scale because it is subject to fluctuations based on the weather and the calendar. Early in the novel, when Maggie goes inside Dorlcote Mill, she hears "the resolute din, the unrelenting motion of the great stones," as though the mill's power is ceaseless, yet she also senses "the presence of an uncontrollable force," and indeed, the force powering the mill is, in a real way, not fully controllable (72). Water power entails a human harnessing of the river, but dry weather as well as wet weather and storms can impact its capacity. As Jean-Claude Debeir, Jean-Paul Deléage, and Daniel Hémerly explain, "if the water was too abundant, the level rose, flooding and immobilizing the wheels; in a drought or in freezing weather, the wheels were again immobilized."¹² And while, as Malm puts it, "traditionally, weak streams during dry summers were no more aberrant or maddening than the fact that grain could not be harvested in midwinter or ploughed in a thunderstorm," such "indulgence toward erratic rivers" had an inverse relationship with the rise of global capitalism. With "the production of commodities for export" and "the maximization of profits through sale on markets detached from the British calendar," the temporal ebb and flow of water power became newly intolerable for 1830s manufacturers, despite the fact that water power was such a cheap and easy means of producing energy in water-rich England.¹³

Debeir, Deléage, and Hémerly have shown how, in eighteenth-century England, water power "drove the textile industry to volumes of output previously unknown"—a good reminder that rural capitalism held sway in England long before the rise of steam, as Raymond Williams among others has established.¹⁴ But as with so many issues in the history of capitalist ecology, the question is one of scale. As the water-powered textile industry sought to "meet new needs" and reach new markets, it became more of a problem "when there were freezing temperatures or the stream reached its

low-water mark."¹⁵ Coal was not cheap in the time that Eliot's novel is set, as we are reminded when Mrs. Tulliver chides her husband for breaking a large piece of coal in the fireplace: "Mr Tulliver, what can you be thinking of? . . . it's very wasteful, breaking the coal, and we've got hardly any large coal left" (289). Though expensive to run, coal-fired steam engines won out over water power because they better suited the abstractions of time and space that accompanied the rise of global capitalism; they offered a release from the temporal oscillations of water, which varied with the seasons and the weather.¹⁶

Eliot's novel ties water power and the flow closely to the temporal arc of the calendar by situating the devastating flood at the end of the novel—the flood that destroys the mill and kills Maggie and her brother—in the second week of September, around the time of the autumnal equinox. A long-held folk belief in the so-called "equinoctial storm," which held that "a severe storm is due at or near the date of the equinox," was gradually debunked with the improvement of meteorological science in the late nineteenth century.¹⁷ In Eliot's novel, however, the equinoctial storm serves as a climatic and climactic event that ties together weather, time, and water, establishing the temporality of water power as seasonally variable, bound to the calendar, and occasionally catastrophic. Because the equinox marks a moment of equivalence between night and day, the event would seem to evoke temporal balance and stability, but Eliot's depiction of a disastrous equinoctial storm instead suggests that even moments of apparent balance can be moments of historical rupture. This rhymes with Hensley's reading of the novel as registering "a moment of transfigured revolutionary violence (the flood)" within "the midst of a gradualist, organic historical model," but here I read the river's violence not as transfigured revolutionary violence, but, more directly, as a mark of water's potentially calamitous temporality.¹⁸ Such a temporality, characterized by latent disaster, is evident in the narrator's frequent references to the semi-regular flooding of the Floss, euphemistically termed in one passage "the visitation of the floods." Even the town's name refers to a legendary figure, St. Ogg, whose boat was blessed by the Virgin Mary so that "when the floods came, many were saved by reason of that blessing on the boat" (155).

Indeed, the narrator's frequent musings on floods and flooding exemplify another way in which the novel inhabits dual temporalities: The focus of the narrative is on the life of Maggie Tulliver, but the narrator is often given to foreshadowing a future ravaged by flood and disaster. At times, the narrator takes on an apocalyptic, almost post-human perspective, imagining a postdiluvian earth washed clean of human life.¹⁹ At the beginning of Book Four, for example, the narrator recalls experiences on two other

rivers—the Rhone and the Rhine—to parallel *The Mill on the Floss's* account of “this old-fashioned family life on the banks of the Floss”:

Journeying down the Rhone on a summer's day, you have perhaps felt the sunshine made dreary by those ruined villages which stud the banks in certain parts of its course, telling how the swift river once rose, like an angry, destroying god, sweeping down the feeble generations whose breath is in their nostrils, and making their dwellings a desolation. . . . [T]hese dead-tinted, hollow-eyed, angular skeletons of villages on the Rhone oppress me with the feeling that human life—very much of it—is a narrow, ugly, grovelling existence, which even calamity does not elevate, but rather tends to exhibit in all its bare vulgarity of conception; and I have a cruel conviction that the lives these ruins are the traces of, were part of a gross sum of obscure vitality, that will be swept into the same oblivion with the generations of ants and beavers. (292–93)

The passage is one of many in the novel that foreshadow the novel's tragic ending, the flood that sweeps Maggie and Tom Tulliver “into the same oblivion” as the beavers, ants, and villagers destroyed by the floods of the Rhone.²⁰ And yet, while critics have debated the extent to which the novel sufficiently prepares us for its final, ruinous flood—sometimes arguing, as Jules Law aptly puts it, that “not every foreshadowed ending is an adequately motivated one”—I am more interested in the ways that this foreshadowing requires the narrator to inhabit an eschatological, postdiluvian temporality.²¹ Just as the narrator at the beginning of the novel is resting *both* on the bridge overlooking Dorlcote Mill in the past *and* in a chair at home in the present, in this passage the narrator is both on the Rhone surveying the aftermath of catastrophic flooding and on the Floss previewing the flood and destruction to come (and on a third river, the Rhine, in yet another section of the passage). The realistic, quotidian course of Maggie's life on the Floss is set in contrast with a postdiluvian future in which the earth goes on despite the human life that has left it. Human life becomes, from this perspective, but “a narrow, ugly, grovelling existence,” “a gross sum of obscure vitality.” Such contrasting temporalities could be said to represent human scale versus historical scale, realist time versus the sweep of the epic, or, as Sally Shuttleworth and Jonathan Smith would argue, geological catastrophism versus uniformitarianism.²² What is particularly notable for my purposes, however, is the extent to which flood and catastrophe are associated with the temporal rhythms of water and water power.

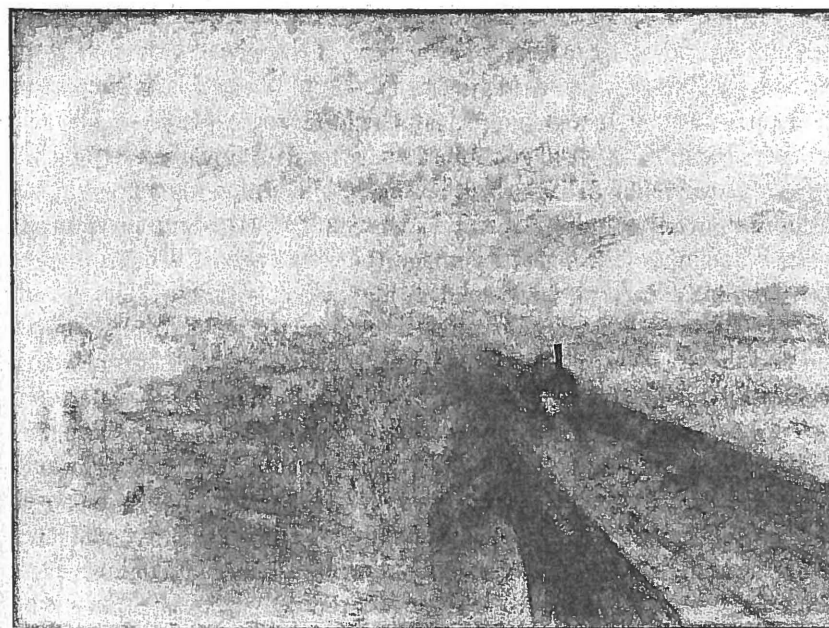


Figure 1. Joseph Mallord William Turner, *Rain, Steam, and Speed—The Great Western Railway* (1844). (Image © The National Gallery, London.)

Every Wheel Double Pace: Steam and Speed

If the equinoctial storm exemplifies the temporality of water power, which is tied to the vagaries of the seasons and the weather and liable to occasional catastrophe, Eliot's novel also identifies and inhabits the temporality of steam. Many critics have associated steam with that general sense of a quickening in the pace of life that we have come to call “modernity.” Mary Hammond, for example, refers to the steam engine as “modernity's symbol,” and for the editors of a recent special issue on the topic of the energy humanities, steam and speed collapse into “fossil-fueled modernity.”²³ One need only look at J. M. W. Turner's painting *Rain, Steam, and Speed* (1844) to see this symbolic relation being visually forged (see Figure 1).

Turner's steam-powered locomotive speeds along a bridge in the face of a driving rain, dwarfing the tiny boat in the river beneath it. The painting depicts the power of steam overcoming the power of water, and its title points to the new temporal regime that accompanied this energy transition to steam.²⁴

Eliot's novel likewise ascribes the accelerating tempo of modern life—i.e., modernity—to the rise of steam power. If the wheel of the mill previously defined the rhythm of life on the Floss, time's wheel is quickening its pace under a new energy regime, as Uncle Deane explains to Maggie's brother, Tom: "The world goes on at a smarter pace now than it did when I was a young fellow." Back then, he says, "The looms went slowish, and fashions didn't alter quite so fast: I'd a best suit that lasted me six years. . . . It's this steam, you see, that has made the difference: it drives on every wheel double pace, and the wheel of fortune along with 'em." Deane connects steam's accelerated temporality directly to the rise of global capitalism and its attendant increase in the production of commodities: "Trade, sir, opens a man's eyes. . . . Somebody has said it's a fine thing to make two ears of corn grow where only one grew before; but, sir, it's a fine thing, too, to further the exchange of commodities" (403–4).²⁵ This sense of a world speeding up on the back of steam-powered capitalism pervades the novel, as when the narrator reflects on the temporal differences between an older economy and a newer one, contrasting "the industrious men of business of a former generation, who made their fortunes slowly," with "these days of rapid moneygetting" (159). And when Bob Jakin asks Tom if he had thought of "making money by trading a bit," Tom is "well pleased with the prospect of a speculation that might change the slow process of addition into multiplication" (328–29). References to speculation, alongside references to "the wheel of fortune" spinning ever more quickly under steam's power, suggest that the temporal profile of steam is accelerated but also risk-prone.

If the steam engine has occasioned a general acceleration of human life and a speeding up of the business of making and getting, it has also, as we know now, simultaneously effected a slowing down in the pace of natural catastrophe. For if the violent flooding of the river Floss is a semi-regular, seasonal event, the violence of the coal-fired steam engine is, as Rob Nixon has eloquently phrased it, a slow violence, "a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all."²⁶ This slow violence is, in part, the violence of climate change—a violence that now seems, perhaps, far less slow than it did even when Nixon's book was published in 2011. In fact the slow violence of carbon accumulation is accelerated and not at all slow from the perspective of geological time, but from the very limited perspective of human time, even its acceleration is obscurely gradual.²⁷ While water power is associated with a catastrophic temporality in *The Mill on the Floss* because of the river's propensity for occasional, destructive flooding,

we can now say, then, that an even more disastrous temporality inheres in steam power, albeit one that is slow-building—so slow that it was not grasped for many decades after the transition to steam. Water power's destructive capacity is, we might say, related to capitalism in its pre-steam phase: After all, the reason that Dorlcote Mill is located on the river and is in danger of flooding in the first place is because it relies on the energy provided by the river. But if the mill's water-powered business is acknowledged by Uncle Deane to be "a good one," he considers it only a worthy speculation for his firm if it "might be increased by the addition of steam-power" (270). Here, as elsewhere in the novel, steam produces quantitative effects that ultimately become qualitative by virtue of scale.

Despite the fact that Eliot lacked a full understanding of the accretional effects of steam power across time, her novel does, in its reflections on energy regimes and water power, speak to a fundamental problem therein: the limitations of individual human perspective. Humans are ill-equipped to understand the longer temporal arcs of the energy systems they use, Eliot suggests, because of their short lifespan and transient memories. Indeed, while many critics have fixated on the flood at the end of the novel as a form of unwarranted punishment for Maggie Tulliver, I want to think of it, instead, in the critical terms of the Anthropocene, where we are tasked with rethinking human agency beyond the individual subject. For the catastrophic flood at the end of the novel wreaks havoc on humans like Maggie and Tom in part because of a lapse of human memory across generations. Before the flood begins, the older residents along the Floss have a sense of what is coming, but the young, with their foreshortened memory and experience, fail to take these warnings seriously: "the rains on this lower course of the river had been incessant, so that the old men had shaken their heads and talked of sixty years ago, when the same sort of weather, happening about the equinox, brought on the great floods, which swept the bridge away, and reduced the town to great misery. But the younger generation, who had seen several small floods, thought lightly of these sombre recollections and forebodings" (508). Such a reaction is foreshadowed earlier in the novel when Tom tells Bob Jakin, "there was a big flood once, when the Round Pool was made. I know there was, 'cause father says so." Jakin replies, "I don't care about a flood comin' . . . I don't mind the water . . . I'd swim—I would" (92). Here the italicized "I"s convey the insufficiency of individual human understanding in the face of the long timeline of the floods and the protracted intervals between them. Eliot's notes on flooding, in her research for the novel, circle around this point by documenting accounts of various floods and how they compare to the memories and records of the local communities.²⁸

The tragedy at the novel's end thus represents a failure of human collectivity, but also a failure of human cognition—one that the temporal form of *The Mill on the Floss*, I would suggest, is bent on redressing. For at the novel's conclusion, Eliot's narrator is poised between the future and the past, reading them in relation to one another, and such narration seems to call for a reader with a similarly dialectical temporal orientation. Surveying the land that the waters once engulfed from the standpoint of the future, the narrator observes: "Nature repairs her ravages—repairs them with her sunshine, and with human labour. The desolation wrought by that flood, had left little visible trace on the face of the earth, five years after." Moving five years into the future, Eliot's narrator here inhabits a version of the post-Darwinian utopian ecological vision that Benjamin Morgan identifies with William Morris and Samuel Butler, one that foregrounds "the complex interactions between human and nonhuman system," for the repair, the narrator insists, is a joint project of "sunshine" and "human labour."²⁹ But the narrator goes on to restate the point more precisely: "Nature repairs her ravages—but not all. The uptorn trees are not rooted again; the parted hills are left scarred; if there is a new growth, the trees are not the same as the old, and the hills underneath their green vesture bear the marks of the past rending. *To the eyes that have dwelt on the past, there is no thorough repair*" (522, emphasis added). Far from reiterating a nostalgic vision of pastoral fixity—a stable point of natural homeostasis at some undetermined moment in the past—Eliot describes instead something akin to the shifting baseline discussed by Bolster, the phenomenon in which "each generation imagine[s] that what it saw first was normal, and that subsequent declines were aberrant. But no generation imagined how profound the changes had been prior to their own careers."³⁰ The point, then, isn't simply that there is no normal in the natural world; it is that the human tendency to assert a normal actually has the effect of masking how profound humanity's impacts on the natural world have been.

Previously, the narrator established that "the mind of St Ogg's did not look extensively before or after. It inherited a long past without thinking of it, and had no eyes for the spirits that walk the streets" (156). But at the end of the novel, the narrator insists that a longer view is possible. There may be "little visible trace" of the flood's destruction, but the trace is there for those who see with an eye to the past as well as the present. Crucially, this temporally dialectical perspective encouraged by the narrator is one that refuses the consolation and recompense of a cyclical temporality. Trees will grow back, *but not the same trees*. Eliot was, as she wrote *The Mill on the Floss*, grappling with the concept of nonprogressive temporality that

she encountered in geological and evolutionary theory. *The Origin of Species* appeared during the time that Eliot was writing and, as Smith notes, was read by Eliot and Lewes "within a month of its appearance"; previously, Eliot had also been influenced by the work of geologist Charles Lyell, who denied "that the earth's history was directional" and "that it was cyclical."³¹ Shuttleworth has argued that *The Mill on the Floss* is, like *The Origin of Species* itself, "internally divided" between a historical vision of "ordered social growth" and a "simultaneous revelation" of the "contradictions such a historical perspective conceals."³² Growth was a fantasy that Darwin had difficulty letting go of; Shuttleworth suggests that the same is true for Eliot's novel. Clearly, such an internal division has stakes for the novel's representation of capitalist growth and its attendant energy regimes, too. Indeed, Eliot's probing of energy and capital in the novel is, we might say, the ecological-economic version of her related probing of progress, history, and time.

Conclusion

I have suggested that Eliot's novel inhabits dual temporalities and that it distinguishes between the temporal profiles of two distinct energy regimes—water and steam. Water power's temporal profile is cyclical and seasonal, bound to the calendar and prone to occasional catastrophic flooding; steam power is associated with accelerated modernity and the temporal abstractions of capitalism, but, in a way not fully grasped by Eliot, also effects a peculiarly slow form of accretional devastation that is difficult to witness across human intervals of time. Eliot's novel concludes in a spectacular example of the catastrophic flooding that inheres in water power, and yet the narrator insists on the impossibility of a full recovery from the flood: "Nature repairs her ravages—but not all." The end of the novel thus seems to convey both the cyclical, catastrophic temporality of water power and the irreparable, non-progressive destruction of the steam engine.

Many critics have discussed the need for ecocriticism today to apprehend literature with new, larger time scales, and Timothy Clark has recently suggested more specifically that we read the past with attention to its unintended consequences and with an awareness of our present limited understanding of events and their futurity. This is precisely the mode of reading that the dual temporalities of *The Mill on the Floss* encourage us to take, and that I have aimed to take with this essay. Although Clark finds the realist novel at a disadvantage in grasping the new scale of human agency in the Anthropocene age—"Can the Leviathan of humanity en masse, as

a geological force, be represented? No, at least not in the realist mode still dominant in the novel”—he also finds fault with cli-fi novels that “evade most of the present-day moral, political dilemmas” by resorting “to dystopian or apocalyptic scenarios, with a focus on future environmental disaster such as devastating flooding.”³³ It is precisely, however, the intertwining of these two narrative modes and two narrative temporalities—the realist mode and the disaster mode—that makes *The Mill on the Floss* unusually resonant for Anthropocene readers. For while the novel is focused on the daily life of Maggie Tulliver, the narrator is forever reminding us of the limited time scale of Maggie’s individual human life, and, indeed, of all human life. Such reminders serve to foreshadow the novel’s tragic end, but their function is not limited to this narrative effect.

Beyond foreshadowing, the narrator’s orientation toward the future positions the story within a much longer temporal scope, one that extends backward as well as forward. St. Ogg’s, where the novel is set, is described as “one of those old, old towns which impress one as a continuation and outgrowth of nature, as much as the nests of the bower-birds or the winding galleries of the white ants: a town which carries the traces of its long growth and history like a millennial tree” (153–54). Viewed through a wide enough temporal lens, the passage suggests, the social life of humans becomes simply a part of the natural world, not separate from it.³⁴ The necessity of such a wide lens in criticism today has been urged most recently by Jason Moore, who writes that “the dualism of Nature/Society . . . is complicit in the violence of modernity at its core” and that “this dualism drips with blood and dirt, from its sixteenth-century origins to capitalism in its twilight.” In place of such dualism, he challenges us to “look at the history of modernity as co-produced, *all the way down and through*,” to think of “nature” as a relation where “species make environments, and environments make species.” While I view coal and the steam engine as more exceptional in the history of capitalist ecology than Moore would allow, his historical emphasis on the ways in which “the work/energy of the web of life is incorporated into the relations of power” nevertheless provides a useful frame for approaching the rival energy regimes and their temporal representation in *The Mill on the Floss*.³⁵

In this way, reading backward as well as forward, we might say that the flood at the end of Eliot’s novel has the effect of connecting water’s formal resistance to capital with the broader resistance of ecology to capitalism that we are forced to confront in the age of climate change. And indeed, while *The Mill on the Floss*’s title suggests that it is a novel about fixed capital, it is also a novel about running water, which Malm has called “the flowing com-

mons” due to its spatial and temporal qualities that resist privatization.³⁶ I want to conclude, then, with the suggestion that Eliot’s novel connects water and steam power with distinct ways of thinking about capital and ecology that are likewise at work in the novel’s temporal dialectic. For while *The Mill on the Floss* is a historical novel with a temporally bifurcated narrative and a narrator who incessantly moves from present to future and past to present, it is also a novel with an overriding interest in property, capital, and the creed of economic growth. As a fictional account of the transition from water power to steam, it is presciently attentive to the temporal limitations of individual understanding at this key historical juncture, especially as those limitations relate to the steam-fueled fantasy of permanent growth. At one point in the novel, a character asks Mr. Deane about his “intentions concerning steam,” but the narrator of *The Mill on the Floss* has already reminded us of the great gap between human intention and its outcomes in the world: “gentlemen with broad chests and ambitious intentions do sometimes disappoint their friends by failing to carry the world before them” (459, 204). By way of the novel’s dual temporal perspectives, the energy transition happening around and through such characters assumes, proleptically, its due historical weight.

Notes

1. Nathan K. Hensley, *Forms of Empire: The Poetics of Victorian Sovereignty* (Oxford: Oxford University Press, 2017), 47. Graver describes Eliot’s close study of German social theorist Ferdinand Tönnies, who articulated the social transition from *Gemeinschaft* (“local, organic, agricultural communities that are modeled on the family and rooted in the traditional and sacred”) to *Gesellschaft* (“urban, heterogenous, industrial societies that are culturally sophisticated and shaped by the rational pursuit of self-interest in a capitalistic and secular environment”) in the era of industrialism. Graver writes, “It is this England—one in which *Gemeinschaft* was giving way to *Gesellschaft*—that George Eliot dramatizes” in *The Mill on the Floss* and in other works that take place in the period around the Reform Bill of 1832, including *Middlemarch*. Suzanne Graver, *George Eliot and Community: A Study in Social Theory and Fictional Form* (Berkeley: University of California Press, 1984), 14, 94.
2. George Eliot, *The Mill on the Floss*, 1860 (Peterborough, ON: Broadview, 2007): 52–53. Hereafter cited parenthetically in the text. John Plotz, “The Provincial Novel,” *A Companion to the English Novel*, ed. Stephen Arata, Madigan Haley, J. Paul Hunter, and Jennifer Wicke (Chichester: Wiley Blackwell, 2015), 364.

3. Sally Shuttleworth, *George Eliot and Nineteenth-Century Science: The Make-Believe of a Beginning* (Cambridge: Cambridge University Press, 1984), 51, 76.
4. Deanna Kreisel, "Superfluity and Suction: The Problem with Saving in *The Mill on the Floss*," *Novel* (Fall 2001): 92.
5. Andreas Malm, *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming* (London: Verso, 2016), 16, 11.
6. Review of *The Mill on the Floss* in the *Spectator* (April 7, 1860), rpt. in Eliot, *The Mill on the Floss*, Appendix B, 547.
7. Jules Law, *The Social Life of Fluids: Blood, Milk, and Water in the Victorian Novel* (Ithaca, N.Y.: Cornell University Press, 2010), 79.
8. Bolster makes the case for the prescient understanding of water workers over legislators when it came to nineteenth-century laws about water: "It was primarily fishermen, hand-hardened and relatively unlettered, who argued that the watery world they knew firsthand was changing, and not for the better," but their "statements regarding depletion, diminution, and degradation fell on deaf ears." Bolster also notes—in line with Tulliver's suspicions—that "riparian engineering" can affect "the flow and situation of estuarine rivers." W. Jeffrey Bolster, *The Mortal Sea: Fishing the Atlantic in the Age of Sail* (Cambridge: Harvard University Press, 2012), 168, 3.
9. Perhaps this unsuitability has contributed to the enduring assumption, exploded in Bolster's study, that "the ocean exists outside history." Bolster, *Mortal Sea*, 7.
10. Malm, *Fossil Capital*, 117.
11. *Ibid.*, 118.
12. Jean-Claude Debeir, Jean-Paul Deléage, and Daniel Hémery, *In the Servitude of Power: Energy and Civilization through the Ages*, trans. John Barzman (London: Zed, 1991), 75.
13. Malm, *Fossil Capital*, 166.
14. Debeir et al., *Servitude of Power*, 100; Raymond Williams, *The Country and the City* (New York: Oxford, 1973).
15. Debeir et al., *Servitude of Power*, 101.
16. Eliot would have been familiar with these oscillations because she carefully researched river flooding and inundation while preparing to write the novel. George Eliot, *A Writer's Notebook, 1854–1879, and Uncollected Writings*, ed. Joseph Wiesenfarth (Charlottesville: University of Virginia Press, 1981), 36–38.
17. "Equinoctial Storm, or Gale," *The New International Encyclopaedia*, Vol. 7 (New York: Dodd, Mead and Co., 1907), 166.
18. Hensley, *Forms of Empire*, 42.
19. Mary Wilson Carpenter has argued that both *The Mill on the Floss* and *Romola* "are built on subversive appropriations of an apocalyptic structure" of

history. Mary Wilson Carpenter, *George Eliot and the Landscape of Time: Narrative Form and Protestant Apocalyptic History* (Chapel Hill: University of North Carolina Press, 1986), 102.

20. Significantly, the three species destroyed in this passage are all builders—ants, beavers, and people—but their edifices cannot save them from annihilation.

21. Law, *Social Life of Fluids*, 84. Critical debate about the climactic flood is longstanding. Henry James, in an oft-quoted 1866 review, called the novel's conclusion a "defect" of a "serious" order since "the story is told as if it were destined to have, if not a strictly happy termination, at least one within ordinary probabilities." I agree with Hensley that the critical dispute over whether or not the flood is immanent to the novel's development overlooks the novel's larger question of "what counts as 'ordinary.'" It is ordinary for rivers to flood, as Eliot found in her research on flooding; but from the standpoint of abstract capitalist time, this ordinary propensity meant that water power was irregular and erratic. Henry James, "The Novels of George Eliot," *The Atlantic Monthly* (October 1866), rpt. in Eliot, Appendix B: 565–66; Hensley, *Forms of Empire*, 72.

22. Shuttleworth argues that the novel's "concluding flood does not conform to theories of organic evolution but rather to the historical schema of catastrophism, a geological theory discredited by the 1860s that postulated a series of world disasters and successive creations in order to perpetuate the theory of the fixity of species in the face of evidence for their extinction." Smith argues, relatedly but in contrast, that while "the mere existence of a flood suggests catastrophism," in fact the novel "works to place the flood in a local, uniformitarian context." Shuttleworth, *George Eliot*, 53. Jonathan Smith, *Fact and Feeling: Baconian Science and the Nineteenth-Century Literary Imagination* (Madison: University of Wisconsin Press, 1994): 141, 143.

23. Mary Hammond, *Reading, Publishing and the Formation of Literary Taste in England, 1880–1914* (Aldershot: Ashgate, 2006), 51. Brent Ryan Bellamy and Jeff Diamanti, "Editor's Introduction: Envisioning the Energy Humanities," *Reviews in Cultural Theory* 6, no. 3 (2016): 2.

24. While Eliot's novel is not directly concerned with the railway, it is worth noting that both Turner's painting and *The Mill on the Floss* are set in the period when the steam railroad was quite literally changing public notions of speed: The Liverpool & Manchester Railway, Britain's first steam-operated railway line, opened in 1830, and London was connected to the railway network in 1842. Aileen Fyfe, *Steam-Powered Knowledge: William Chambers and the Business of Publishing, 1820–1860* (Chicago: University of Chicago Press, 2012), 102.

25. The "two ears of corn" allusion refers to Jonathan Swift's *Gulliver's Travels*.

26. Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge: Harvard University Press, 2011), 2.
27. I am grateful to Jesse Oak Taylor for this observation.
28. Eliot, *Writer's Notebook*, 36–38.
29. Benjamin Morgan, “How We Might Live: Utopian Ecology in William Morris and Samuel Butler,” this volume, 141.
30. Bolster, 10.
31. Smith, *Fact and Feeling*, 122, 131.
32. Shuttleworth, *George Eliot*, 62.
33. Timothy Clark, *Ecocriticism on the Edge: The Anthropocene as a Threshold Concept* (London: Bloomsbury, 2015), 73, 79, 78.
34. The persistence of this point within Eliot’s *oeuvre* positions her, intriguingly, in a post-Darwinian literary trajectory that includes decadence, for Benjamin Morgan has recently made the case for decadence as a “strategic conflation of the natural and artificial,” which “represents both a point of origin for and persistent logic of world-ecological discourses that seek to situate economic and political systems more fully within the parameters of natural processes.” Benjamin Morgan, “Fin du Globe: On Decadent Planets,” *Victorian Studies* 58, no. 4 (2016): 609–35.
35. Jason W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (London: Verso, 2015), 4, 7, 15.
36. Malm, *Fossil Capital*, 117. Recall that Maggie herself seeks out a common early in the novel when she decides to leave her family and run away to the gypsies, an incident that conveys her yearning for collective union. While Maggie searches for the common, the narrator moves in and out of free indirect discourse; the demarcations between Maggie’s perspective and the narrator’s are not clearly marked, but rather flow from one to another, and indeed, I would note that the narrator’s frequent use of free indirect discourse in this novel formally conveys a hazy distinction between self and other—a “flowing commons” of another sort. Eliot, *Mill on the Floss*, 144.

CHAPTER 5

“Form Against Force”

Sustainability and Organicism in
the Work of John Ruskin

Deanna K. Kreisel

Nature is finite. Capital is premised on the infinite.

—JASON W. MOORE, *Capitalism in the Web of Life*

In a recent manifesto in *PMLA*, environmental-humanities scholar Stacy Alaimo critiques the sustainability discourse of the past few decades, noting that it “echoes the discourse of conservation at the turn of the twentieth century, especially in its tendency to render the lively world a storehouse of supplies for the elite.”¹ Alaimo’s analysis does not stretch as far back as the nineteenth century, which is where we can find both the origin of the sustainability concept in its contemporary form and the entanglement of sustainability and colonialism implied in Alaimo’s remark. While the association of the world-as-storehouse-of-supplies idea and imperial exploitation originated with the mercantilists of the sixteenth century (who saw colonial expansion as a solution to the problem of combining economic growth and national protectionism), it reached its full modern articulation in the nineteenth century, when the explosion of European colonization went hand-in-hand with calls for new global markets to stave off economic stagnation.²

In this essay, I will extend, develop, and nuance this critique by tracing the tensions and paradoxes of sustainability discourse back to the nineteenth century, particularly to the work of Victorian art critic, environmental