George Eliot's Estuarial Form

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THIS is an essay about the waters in George Eliot's *The Mill on the Floss* (1860). This is not in a primary sense an essay about the concluding flood, but because it is an essay about water, it can't help discussing the flood in one form or another. After all, the diluvial dénouement looms so large over the plot that nearly everyone who writes about *The Mill on the Floss* winds up writing about the flood at some point. Even F. R. Leavis, who dismisses the novel as an underdeveloped work on the novelist's road to greatness, stops to remark that the flood washes away the novel's primary sentimental defect—its emphasis on Maggie Tulliver's "immaturity"—thereby drawing a "gloriously tragic curtain" over the proceedings.[1] I cite Leavis's heavily discussed work to draw attention to the comparison of the flood to a curtain, a metaphor that is unusually revealing. Analogizing the flood to the material object that signals the end of a stage play alienates the flood from its status as an environmental phenomenon while at once lending a retroactive coherence to the novel itself. My aim here is to reverse-engineer the novel's ostensible formal coherence by showing how the hydrography of St. Ogg's is characterized by nonlinear dynamics of entangled flows, and how those entanglements at the heart of the novel's most prominent environmental feature structure the novel's formal presentation of the ecological change forced upon the region by global capitalism. The flood will always be there, looming at the novel's end, but the waters of the novel are present for hundreds of pages before they spill over the banks of the River Floss. This essay is about how changing how we read water opens up the formal ecology of the whole novel.

When I refer to ecology in this novel, I refer to the many intertwined relations between the environments and communities of St. Ogg's, Dorlcote Mill, and the surrounding area. I discuss ecology as a system of localized environmental-communal relations so as to show how the specific layout and movements of the different waters idiosyncratically

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characteristic of the area—that is, its hydrography—provide the formal scaffolding upon which the social world of the novel is constructed. In other words, this essay practices what Nathan K. Hensley and Philip Steer have recently termed "ecological formalism," which they describe as "an approach that reconsiders Victorian literary structures in light of emergent and ongoing environmental catastrophe [and] coordinates these 'natural' questions with social ones."[2] In my reading of *The Mill on the Floss*, that ongoing catastrophe is not the flood, which occurs once (though as we will see, Eliot suggests that floods of this type can happen cyclically). Rather, the catastrophe is the pervasive development projects advanced by corporations looking to take advantage of the North Sea's penetration of the Lincolnshire coast at the port of St. Ogg's. Those projects' destructive transformations of communal relations in the name of development are rooted in a relationship to land characteristic of the rapacious capitalism of globalization.[3] By attending to the inland and maritime provenances and the types of flow of the St. Ogg's area's hydrography, this essay appraises different kinds of waters as integral to the novel's formal structuring, showing how the meeting point of those waters engenders the internationalization of provincial economics, and thereby the coordinated transformation of St. Ogg's from a primarily agrarian community to an inland port town whose value to global capital derives from the navigability of both its maritime and inland waterways. From the perspective of the land's interactions with water—a perspective implied by the novel's title as well as by the narrator's foundational hydrographic descriptions—*The Mill on the Floss* is driven by mixture rather than by linear movement, contestations that push what might seem a prototypically English provincial locale to a place more closely resembling a developed rural port whose environment and society function as adjuncts to an incipient form of globalization.

An ecological perspective that emphasizes the openness of entanglement changes how we see the novel's water—or, rather, its multiple waters. Past readers of *The Mill on the Floss* have oddly overlooked that the primary aquatic site of the novel is less a river than an estuary—that is, an inlet where fresh water and salt water meet. The novel's conception of its hydrography is particularly estuarial because the meeting of these waters takes place inland at a location where the meeting of current and tide can be directly observed, and where the water level is prone to fluctuation.[4] I take this observation as a point of departure for my argument, claiming here that the estuarial hydrography of St. Ogg's is

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the primary ecological model for the novel's form. Eliot's estuarial form structures the area's ecological change in two entangled ways: first, its status as a global mercantile gateway makes the terraforming of rural development possible; and more broadly, the continual opposition of the interflowing currents and tides portends the ecological catastrophe spurred by this development's catastrophic inexorability. Tom and Maggie's "embrace never to be parted" and their shared grave at the story's end have been seen as postdiluvial reminders of their ultimately entwined fates.[5] Here, I claim that the novel's prediluvian depiction of St. Ogg's' relations to the waters show how the community's acquiescence to outside capital's transformation of their banksides and waterways refashions their agrarian society into a mercantile one set continually at odds with the estuarial hydrography that drew external economic interests to the area in the first place.

Estuarial form refers to a novelistic structure characterized by ecological entanglement. For the purposes of this analysis, the difference between an estuary and a bay, gulf, or fen is that the meeting of freshwater and saltwater in those other locations is broadly dispersed, whereas in an estuary the site of aquatic entanglement is contained. In Eliot's novel, the inland meeting place of the current and tide characteristic of an estuary allows the entanglements at the heart of the area's hydrography to be localized. Because the narrator can point to the area where the river and sea meet from the novel's opening pages and easily apprehend it—as we will see, a description of this entanglement comprises most of the novel's first paragraph—the broader systemic forces that the waters bring to St. Ogg's can be traced back at some point to the estuary, and the shape of their interactions tends to flow back and forth, like the waters themselves. The interrelations of hydrographic, social, and economic spheres comprise Eliot's novelistic ecology, and in attempting to exploit these open entanglements, global capitalist enterprises develop the area to facilitate the import of fossil capital and biomass (the glittering coal, "fresh-scented" lumber, and Russian linseed of the novel's introductory paragraph, respectively [9]) through the port set on the St. Ogg's estuary. These mercantile activities threaten what Ernst Haeckel (adopting a phrase from Charles Darwin) would call the "conditions of existence" in his original 1866 definition of the concept of ecology, destabilizing the complex interrelations that make up the ecology of St. Ogg's in an attempt to transform the Lincolnshire coast.[6] This view of the novel is explicitly nonteleological. Acquiescing to the spectacular force of the flood at the novel's end apprehends *The Mill on the Floss* as a closed

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system, a diluvial experiment to be run over and over every time the novel is read. I want to open the novel's ecological form by centering critical attention on the meeting of the River Floss and the North Sea rather than on the concluding flood.[7] By abjuring the tendency to explain the flood's final meaning, we resist closing the novel's ecology off from modernity and avoid the "organic wholism" that, as Devin Griffiths and Deanna Kreisel explain in the introduction to this issue, lends a retroactive coherence to the literary object. Instead, we apprehend the novel's ecology as open and therefore frequently disharmonious and subject to the changeable whims of both characterological sentiment and international markets. This reading of Eliot's novel apprehends its form as "*nonprogrammatic*," in Griffiths and Kreisel's formulation: "emergent rather than predefined or autotelic; their patterns and futures are unpredictable, chancy."[8] It feels intuitively bizarre to call a novel capped by such a famous deus ex machina "unpredictable," as how could the novel proceed toward anything but the final catastrophe? As I show, the area's specific hydrographic layout makes its maritime-to-inland navigability a valuable resource in itself. The local development projects demanded by international markets manipulate the landscape and thereby set in motion an ongoing ecological catastrophe (to modify Hensley and Steer's phrase), of which the flood is merely a spectacular instantiation.

From the vantage point of this full hydrographic picture of Eliot's fictionalized Lincolnshire, I claim that the entanglement of different types of water structures the novel at the deepest level. Attention to overlapping types of mixture—between current and tide, land and water, development and stasis, agrarian traditions and inflowing capital, and province and world at once—provides a full picture of the novel's open ecology as characterized by the interpenetration of, on the one hand, those anthropogenic institutions and their familiar structuring powers (society, economics) with, on the other hand, the actual physical geography and its description in novelistic narrative. Edward Said has powerfully demonstrated that the exposure of rural English locales and communities to the world through the mercantilism that rode on the back of imperialism demands that we see the spaces of the nineteenth-century novel as indicators of structure and ideology—which he calls in his analysis of *Mansfield Park* "Austen's moral geography," where "our reading of the novel begins to open up."[9] This openness admits that novelistic form can be messy even as it is constructed: as we will see, the long-tenured residents of St. Ogg's have dealt with the

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development around the port in wildly different ways, making *The Mill on the Floss* feel typified less by systematization (as in an ecosystem) than by interaction, vacillation, and error. This open-ecological reading of Eliot's novel enriches the ecocritical discourse of those critics such as Jason W. Moore, who has argued that anthropogenic manipulations of the natural world set the historical conditions for the globalization of capitalism. In Moore's account, the terms of ecology's interpenetration with capital depend on the entanglement of the local community, its specific geography, and the international marketplace.[10]

By discussing hydrography as a key aspect of novelistic form, this essay demonstrates how the ecological transformation central to the structuring of the novel's narrative entails figuring St. Ogg's as a zone of overlapping boundary conditions. Borrowing a term from field biologists, Rob Nixon calls this an "ecotone," an area where the movement across boundaries—saline to fresh, mill owner to businessman—creates "edge effects," the changes from one ecological condition to another that, according to Griffiths and Kreisel, fluctuate rather than move in one direction.[11] Though I discuss ecological change and, eventually, destruction, I eschew the temptation to suture a narrative of decline onto the strong pull of the plot's catastrophic telos in favor of an open approach to the interactions between the natural, communal, and economic spheres. John MacNeill Miller has recently suggested that ecocriticism which fully inhabits and explores ecological decline can "reject the linear apocalypticism of so much environmental storytelling" and "overcome the closure of anthropocentric narrative."[12] My focus on the ecological change centered around St. Ogg's takes the novel's initial invocation of bodies of water, trade, and the port built at the mouth of the estuary as a serious injunction to explore the interactions of those forces—rather than the flood itself—as primary loci of formal meaning. We know the flood will come crashing down in the last pages, but I show how from the novel's first pages, the narrator invites us to consider the ways in which estuarial entanglement can provide a formal model for understanding how global capitalism affects the local ecology of St. Ogg's, an invitation this essay accepts. Accordingly, I base my analysis of the novel on close attention to bodies of water, their flows, and the claims agrarian residents and businessmen stake to their use. I first show how the key estuarial dynamic of entanglement causes instability in social relations. Then, I explore how characters' misunderstandings of bodies of water, especially types of flow, expose them to exploitation by representatives of global trade. Lastly, my analysis of Maggie and

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Tom's disastrous courtship voyage demonstrates how inland waterways reveal the boundary conditions whose trespass occasions types of natural and social damage distinct from the final flood. From my aquatic readings, I demonstrate that the progression of ecological change at the St. Ogg's estuary exerts a circumscribing pressure on the types of characterological development possible. In this way, the novel's exploration of provincial development also conceptually charts the provincial futures available to the St. Ogg's community and its waters—waters that have both made their way of life possible and put their corner of Lincolnshire on the map.

Unstable Entanglements at the Provincial Port

In the opening paragraph, Eliot's narrator describes the hydrographic basis for the novel's estuarial form, situating St. Ogg's within sailing distance of the wider world, but well inland across the Lincolnshire fens from the actual source of the tide:

> 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. On this mighty tide the black ships—laden with the fresh-scented fir-planks, with rounded sacks of oil-bearing seed, or with the dark glitter of coal—are borne along to the town of St. Ogg's, which shows its aged, fluted red roofs and the broad gables of its wharves between the low wooded hill and the river brink, tinging the water with a soft purple hue under the transient glance of this February sun. (9)

Of course, the "impetuous embrace" of the first sentence presages the "embrace never to be parted" that Maggie and Tom Tulliver share in their death at the novel's end (542). But before we actually meet either Maggie or Tom, we come to know the novel's first embrace as one between "the broadening Floss" and "the sea," between "its [the Floss's] passage" and "the loving tide" of the sea. That is, not only is the novel about an embrace between "Boy and Girl," as the novel's first volume is titled, but also in a primary sense about the specific entanglements of different aspects of the local environment—specifically, different types of water *and* the forces that move those waters. The narrator adds an economic aspect to ecological entanglement when, in the next sentence, the port's mercantile activities occasion the blurring together of water and land. This process occurs in discrete stages. First, the merchants' ships "are borne along to the town of St. Ogg's, which shows

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its aged, fluted red roofs and the broad gables of its wharves between the low wooded hill and the river brink," the narrator's eye moving down from the broad descriptive view from roof to gable and then from hill to bank, each pairing associating the topographical ("red roofs" and "low wooded hill") with the maritime ("broad gables of its wharves" and "river brink," respectively). Subsequently, in the sentence's last clause, this blending occurs on the surface of the river itself. With the surface made reflective by the "transient glance of this February sun," the red roofs and wooded hills "ting[e]" the blue water with a "soft purple hue." This mixing takes place on the surface of the water that is reflective only seasonally—the "transient glance" attributed to the particular month of winter light—suggesting that the types of land-water entanglement in St. Ogg's are subject to periodic change in the conditions of the water itself. In this first moment of hydrographic description before the advent of human presence in the novel, the narrator depicts the environment structurally central to the novel in the opening passage's most richly evocative language, prioritizing from the outset the hydrographic grounding of the novel's ecological vision over the mercantile function it also serves.

In the midst of this scene is the raw material of rural development. Brought to St. Ogg's by the "mighty tide," traders' ships come "laden with the fresh-scented fir-planks, with rounded sacks of oil-bearing seed, or with the dark glitter of coal": that is, lumber, flaxseed, and fuel, three resources crucial to the operations of Guest & Co. and the construction of Mr. Pivart's irritation works upstream from Dorlcote Mill. Before introducing the resource-laden ships, though, the narrator describes the origins of those ships: the sea. In Eliot's original manuscript, "the sea" was instead "Northern Sea," the body of water off the east coast of Britain between the island and northern Europe (551n.9a). Later, the provenance of the linseed is identified as Russian (126). As the narrator presents the area's mercantile activities in visually arresting terms (that "dark glitter of coal" especially), it becomes clear that the hydrographic situation of St. Ogg's will also be a primary staging area of the conflict between global capitalism and rural ecology.

It is common for criticism of *The Mill on the Floss* to discuss this opening especially in terms of its potential for foreshadowing. An exemplary reading by Jules Law, for instance, connects the "impetuous embrace" of the first sentence with the "seed" of the resource trio to cannily claim that in the opening "[t]he proleptic overlapping of the novel's sexual, social, and economic narratives of destruction is accomplished through the

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dominant, ubiquitous figure of water."[13] Another reading discusses several real-life rivers in the Midlands and the East of England, and suggests that the Floss's tidal nature mirrors the River Trent's propensity to flood twice a year.[14] These compelling readings add substantially to our understanding of rural development and tidal cycles, respectively, and do much to situate the ending and the flood in relevant contexts. While building on the substantial research of approaches like these, I want to disentangle the progression of our criticism from that of the novel's plot. From the perspective of its local ecology, the novel's narrative embraces from its first sentences the instability brought to St. Ogg's by the developmental pressure of international markets. To that end, the spatial and temporal situating of St. Ogg's begun in the novel's opening paragraph becomes the foundation for the novel's estuarial form. If Griffiths and Kreisel's ascription of "radical openness to the world and the complex vectors of its interactions" to *Middlemarch*'s "web of life" can be viewed as the positive side of open ecology, my analysis of *The Mill on the Floss* represents the darker side of that coin.[15] This isn't because the flood kills Tom and Maggie at the novel's end. Rather, it is because in Eliot's earlier novel the primary ecological space—the estuary—provides a model of relationality in the natural world (interflowing saline and freshwater), but in its social instantiation this constant intermingling makes both environmental and human interactions fundamentally unstable. The poison pill is the global capital regimes whose three nautical emissaries glide into the novel at its outset bearing commodities that prefigure development projects which spur anthropogenic change.

By situating a port on estuarial waters, Eliot encodes hydrographic instability into *The Mill on the Floss* from the novel's very first sentences. As mentioned, estuaries did not occupy as prominent a place in the cultural imagination as other spaces where geography, the social, and globalization and imperialism interact (such as cities or the sea). The estuarial feature that caught the eye of Charles Lyell in his *Principles of Geology* was the potential for rapid geologic change, especially among estuaries on the English east coast. This is because "there is not a large body of river-water" in the region, and, combined with powerful, volatile winds from the North Sea (referred to as the "German Ocean" in Lyell), the pace of erosion and, crucially, the potentials for flooding as well as sea and riverbed change increase dramatically.[16] Lyell's broad evocations of estuarial regions' volatility stands in contrast to the less unpredictable mode of Victorian natural histories—including G. H. Lewes's own *Sea-Side Studies* (published two years before Eliot's novel), which does

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not discuss estuaries at significant length.[17] Despite the low profile of estuaries in Victorian thought, the ecology of *The Mill on the Floss* reflects the instability Lyell ascribes to estuarial zones, only with a broader water table, and which first manifests socially long before it does environmentally. Eschewing the eroding sands of the Severn or Medway estuaries, as in Lyell, Eliot shifts this instability onto the novel's communal relations, especially the tumult of Maggie's courtship and the fragmentation of the Tulliver family. The St. Ogg's estuary is where the social world of the novel gains the relational changeability of the aquatic entanglement dynamics beneath the surface: nearly everyone in St. Ogg's is drawn into interrelation with everyone else, though communal ties shift as often as the tide goes out. Under the pressure of global trade, the openness of this system's interlacing of the natural world with social affairs shoots Eliot's estuarial form through with communal upheaval. Rather than rend the novel apart, these relational vicissitudes become naturalized into the narrative language. We can see this in the novel's very first sentence, which is replete with the rhetoric of fast embraces and strong affect: as "the broadening Floss hurries on [. . .] to the sea," that same sea "rush[es] to meet it," the hurrying of the current "check[ed]" by the "loving tide," later the "mighty tide," the "impetuous embrace" of current and tide, of fresh and saline waters at one of the novelistic sites where provincial ecology can most clearly be seen structuring novelistic narrative.

The port at St. Ogg's is provincial in how it feels at once distanced from (but inexorably related to) the currents of the ocean that connect it to global marketplaces while also seeming rooted in its own sense of time and place. Josephine McDonagh's recent work on the novelistic provincial in the mid-nineteenth century—which she defines as a sense of being entrenched in a place that is always aware of its remove from other places—resonates with Eliot's novel, where spatial awareness implies connection and detachment in equivalent measure.[18] While neither McDonagh's sense of distance nor John Plotz's "semi-detach[ment]" or "portab[ility]" concepts evoke temporal distance that would support a more typical conception of provincial timelessness (an ideal hewed to by Mr. Tulliver), they both deny that the spatial distancing inherent in provincial locales entails isolation from the wider world.[19] In *The Mill on the Floss*, this sense of spatiotemporal rootedness combined with the proximate distancing from the North Sea grounds the interweaving of the natural and the social that takes place at the St. Ogg's estuary. The internationalism of the area's North Sea exposure may seem alien to

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such a remote, rural area, but as McDonagh claims, the novelistic provincial is typified by its relation to global power centers, not urban ones. "[T]he provincial in the mid-nineteenth century is not the subordinate partner of a metropolitan/provincial binary," she writes, "but rather is a term that is rooted from its beginning in emerging global networks."[20] In Eliot's novel, this implication in global networks is already well underway. The characters in the novel exacerbate the instability inherent in estuarial entanglements due to their inability to apprehend the full geographic scale of attachments in which the novel's waters implicate them. As we will see subsequently, the misapprehension of the nature of water in the novel becomes a consistent catalyst of ecological change.

"You Can't Pick It up with a Pitchfork"

Though *The Mill on the Floss* is well remembered for the tragedy of Maggie and Tom's all-too-late reconciliation, Mr. Tulliver is an earlier victim of the novel's harsh logic, which punishes those who misunderstand the extent of water's role in the novel's open ecology. The Tulliver patriarch understands the river in terms of a classical conception of provincial timelessness and spatial parochialism, and this misunderstanding of the river as static—and thereby unaffected hydrographically or economically by its oceanic exchanges—costs him his claim to its waters. His misunderstanding, in its implication in the loss of Dorlcote Mill as well as in his family's fracturing and eventual destruction, provides a useful object lesson in how estuarial form operates in the world of the novel.

Early in book 2 of Eliot's novel, Mr. Tulliver discusses the extent of his entitlements to the river with his extended family. Mr. Pivart, a newcomer to the area, has purchased land upstream from Dorlcote Mill that he plans to irrigate. The concern, as the narrator phrases it, is that upstream irrigation "either were or would be or were bound to be (on the principle that water was water) an infringement on Mr. Tulliver's legitimate share of water-power" (163). Mr. Tulliver had previously enlisted his lawyer acquaintance Mr. Wakem to bully Dix, another upstream neighbor, into abandoning less extensive irrigation plans. "Law was a sort of cock-fight in which it was the business of injured honesty to get a game bird with the best pluck and the strongest spurs," the narrator writes of Mr. Tulliver's view of the arbitration process governing water rights (164). "Dorlcote Mill's been in our family a hundred year and better, and nobody ever heard of a Pivart meddling with the

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river," Mr. Tulliver himself says to Mrs. Moss, his sister. "But I'll *Pivart* him!" (163, emphasis in original).

The twisting of his neighbor's own name into a hex resonates with the narrator's free-indirect uptake of Mr. Tulliver's repeated tautology, "water's water." Early in the novel, the narrator characterizes the dispute as having been "a tangled business somehow, for all it seemed—look at it one way—as plain as water's water," later repeated as "the principle that water was water" as Mr. Tulliver holds forth to his family (18, 163). The narrator repeats Tulliver's tautology first preceded by that arch aside ("—look at it one way—") to cast aspersion on the idea's "plainness" and, a second time, in a parenthesis, as though the narrator is ascribing the tautology to Tulliver's earlier statement. Couching Tulliver's fallacies in this way creates distance between the broken idea and the narrator's sympathetic eye to Tulliver's well-meaning but naïve stewardship of his family's claim to the Floss. According to Jordan Brower, these aquatic tautologies refer to Mr. Tulliver's "natural riparian rights," and though his ideas are logical fallacies, he nonetheless would likely have had the legal upper hand had the law of the day been followed to the letter.[21] Of course, these riparian rights aren't followed to the letter. The "cock-fight" of the law instead dispossesses Mr. Tulliver of his property, and the water he seems to know so well eventually destroys the mill and his family. The Tulliver patriarch understands water rights as a closed system: because he owns a mill downstream, he by law dictates what upstream residents can and cannot have. Rather, as a feature of St. Ogg's' ecology, water is an open resource, a part of communal dealings just like neighborly relations, courtship, and civic responsibility. Mr. Tulliver's misunderstanding of his own area's ecology sets neighbor against neighbor and first makes him and his family vulnerable to losing the ancestral mill he is trying to protect.

Two of Mr. Tulliver's gravest misunderstandings reveal themselves when he employs his aquatic tautology in an elaboration of his view of St. Ogg's' ecology. Around the table with his extended family, he exclaims to his sister and her husband:

> "Gore's no fool—you needn't tell me that," he observed presently, in a pugnacious tone, as if poor Gritty had been urging that lawyer's capabilities, "but, you see, he isn't up to the law as Wakem is. And water's a very particular thing—you can't pick it up with a pitchfork. That's why it's been nuts to Old Harry [the Devil] and the lawyers. It's plain enough what's the rights and the wrongs of water, if you look at it straight forrard; 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,

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> Pivart's erigation and nonsense won't stop my wheel: I know what belongs to water better than that. Talk to me o' what th' engineers say! I say it's common sense, as Pivart's dykes must do me an injury. But if that's their engineering, I'll put Tom to it by and by, and he shall see if he can't find a bit more sense in th' engineering business than what *that* comes to." (164, emphasis in original)

In an immediate sense, Mr. Tulliver is right about one thing: "Pivart's erigation and nonsense won't stop my wheel." The mill does keep turning until the flood destroys it. But this statement more damningly reveals a lack of knowledge of irrigation methods, or at least a refusal to open up his understanding of the agricultural works next door, and speaks therefore to his constrained ecological perspective. Paying attention only to his corner of the Ripple, Mr. Tulliver fails to fully grasp the estuarial nature of his ancestral region. Further, Mr. Tulliver's concern that the mill might stop reveals a telling preconception about the functioning of waterways. By linking the construction of irrigation canals—that is, the anthropogenic creation of additional miles of usable water—to the reduction of the amount of available water for him and his neighbors—the "injury" the irrigation canals threaten to do him—Mr. Tulliver appraises water as a precious natural resource with a finite supply, subject to a kind of scarcity generally attributed to resources extracted from the earth, such as gold or silver. When he refers to Pivart's irrigation canals as "dykes," Mr. Tulliver uses the original Old English sense of the word, referring to a narrow ditch.[22] These upstream projects, to Mr. Tulliver, fundamentally misunderstand what water is in the St. Ogg's area. By feeding a farm that might grow wheat that you *can* "pick [. . .] up with a pitchfork," irrigation's removal of water from the river disqualifies that water from being seen as water at all. Water, according to Mr. Tulliver, must follow its own unidirectional current in order to register in his folk understanding of how this precious resource can be allotted.

Because he can only apprehend the importance of the Ripple to Dorlcote Mill, Mr. Tulliver has a unidirectional conception of flow—the Ripple's current running into the Floss—and fails to understand the open hydrography of St. Ogg's and its environs. In his voicing of his aquatic tautology, Tulliver characterizes his own viewpoint as "straight forrard," which resonates with his blinkered ecological understanding: "It's plain enough what's the rights and the wrongs of water, if you look at it straight forrard; for a river's a river" (164). By naming the body of water, Mr. Tulliver not only misidentifies the Ripple, calling it a river instead of a tributary, but also doubles down on his view of

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water as static, like a kind of property protected by generational custom rather than deed and title and law.[23] But the inheritance of resource rights is a closed, unidirectional system. Eliot's estuarial form brings different social and natural forces into interrelation, and Mr. Tulliver's resistance to the openness of that ecological model marks him as outmoded. His commitment to a unidirectional understanding of water blinds him to the estuarial nature of the area's hydrography that, long before the flood, attracts those agents of change which wrest his family's mill from his grasp.

These concerns about water rights and one-way currents ignore the other powerful aquatic force in the area: the tide. To the extent that Mr. Tulliver's understanding of water is fatally flawed, his failure—and even his family's generational failure—to recognize the area's water as characterized by estuarial flow and mixture is the most fatal of those flaws. In addition to the fact that St. Ogg's' maritime exposure draws the capital of ecological speculators like Pivart and the Guest family to the area, the tension at the heart of Mr. Tulliver's position is fundamentally caused by the collision of two different kinds of water powered by two different kinds of flow, both of which are described in the novel's opening sentences: river water "hurrie[d]" by "a lively current," and seawater "rushing" with "the loving tide" (9). The current's and the tide's rapid interflowing is reproduced in the legal clash between Mr. Tulliver and Mr. Pivart. The former's outmoded understanding of the water blinds him to the real ecological damage done by those who do understand the economic potential of the long stretches of navigable waterways on either side of the port. Throughout the novel, the estuarial wells up from the novel's formal ecology into its social world. From the Tulliver and Guest families' interchanges throughout the novel, including Maggie and Stephen's ill-fated courtship, to the provincial attachments to outdated ways of life being set against the modernization represented by global trade, the novel is replete with instances of entanglements turned to social disasters by the fundamental misapprehension of the scale of the geographic networks in which the estuary's waters are implicated.

Water wreaks destructive havoc on communal relations, from the Tulliver family's destruction during the flood to the tide's crucial role in the disastrous turn taken by Maggie and Stephen's journey down an inland waterway. Estuarial form's persistent social manifestation is, I think, what makes the novel's plot so troublingly sententious: on a repeat reading, nearly anything seems like a candidate to explain the meaning

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behind the flood. But reading water as an open structure instead of a plot device allows us to see the novel's estuarial hydrography as a collection of ecological boundary conditions (the edge effects of intersecting flows) running into a combined edge ecology, one implicated from the novel's first lines in the social and environmental upheavals occasioned by the economic systems that drive trade and development through and around St. Ogg's. The ability to move goods inland through freshwater transportation and shipping lanes is as crucial to the port's value to global trade as its maritime exposure. But as I will discuss subsequently, as we journey upriver from the port, we also move closer to the boundaries of ecological form, where distance from town occasions the wholesale breakdown of the social order. Recognizing these multiple valences of Eliot's estuarial form thereby leads us to an ecological suggestion for the flood's cause that takes Mr. Tulliver's understanding of water as a scarce resource and turns it on its head.

What if Mr. Tulliver is not downstream at all and is instead peritidal? Whereas the more familiar term "intertidal" refers to a coastal area covered at high tide, "peritidal" indicates a wider hydrography encompassing areas both permanently covered by the tide and also areas typically above the high-water mark. The highest and furthest inland areas of peritidal zones are situated "somewhat above [the] highest storm or spring tides."[24] Taking into account that the flood at the novel's end is meant to be especially severe and, as I discuss below, is strictly speaking not caused by a storm but rather by a biannual tidal pattern, Mr. Tulliver's position would indeed seem to be peritidal: within the tidal basin, but on its edges. Though estuaries did not occupy a prominent place in the Victorian imagination, the exception was the Thames Estuary (perhaps most memorably depicted at the beginning of Joseph Conrad's *Heart of Darkness*). The nineteenth-century literary evocation of that estuary and its adjacent coastline, according to Len Platt, followed a tradition beginning in the seventeenth century of associating the Thames and its flow to the sea with London and its metropolitan status as the center of the British Empire.[25] While also evoking international realms, Eliot's provincial estuary does not point solely outward. Rather, the St. Ogg's estuary negotiates between the wider world and agrarian rootedness.

Eliot's novel performs this negotiation by attending to the different types of flow associated with the Floss and the North Sea, extensively describing the hydrography in which these flows intermingle and delineating the consequences of estuarial ecology for communal life in St. Ogg's. From the outset, Eliot delineates the inland current and

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tidal patterns of the area around St. Ogg's and Dorlcote Mill, patterns that are characteristic specifically of estuaries. According to coastal environmental specialist Terry R. Healy, "Central to the concept [of an estuary] is that *estuaries are the tidal mouths of rivers*." Healy settles on "tidal river" as a term to describe the freshwater half of an estuary and the effects its sea exposure has on its flow and water level.[26] This description typifies the St. Ogg's hydrography from the very beginning of Eliot's novel. Recall the novel's first 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." Here, at the tidal mouth of a river, the sea meets the current at the site of an estuary, well within the rising and falling tide. The narrator subsequently broadens the perspective to move us to the edges of the tidal zone: "Far away on each hand stretch the rich pastures and the patches of dark earth, made ready for the seed of broad-leaved green crops, or touched already with the tint of the tender-bladed autumn-sown corn" (9). As the view of the area broadens, the seasonality of agriculture is drawn closer to the movement of the estuary's conjoined flows. Within sight of but somewhat distanced from the site of aquatic entanglement, the narrator introduces the Ripple and Dorlcote Mill, expanding the water table and adding a nontidal freshwater element to the scene: "Just by the red-roofed town the tributary Ripple flows with a lively current into the Floss." Significantly, this is the only time that "current" is used in the novel to refer directly to the movement of freshwater until the flood in the dénouement. (The novel intermediately uses "current" to refer to strong emotion and at times metaphorically uses aquatic imagery to convey the vicissitudes of sentiment.)[27] After the narrator cuts into the scene—"I remember those large dipping willows . . . I remember the stone bridge"—the mill that is close to the Floss, but not strictly speaking *on* the Floss, is named: "And this is Dorlcote Mill" (9). The narrator's movement outward from the port to the mill tracks a shift from estuarial to riparian hydrodynamics. This shift adds an ecological valence to the physical remove of Dorlcote Mill from the river Floss and the St. Ogg's estuary into which the Floss flows. Mr. Tulliver's peritidal mill and the Ripple, to which he lays his riparian claim, are directly adjacent to the tide and the maritime exposure it provides, and yet he cannot see the oceanic waters flowing into town. His inability or unwillingness to see the town as a port with significance to global trade, along with his lack of concern with the development of Pivart's irrigation works and the shipping and development projects of Guest & Co, blind him to the ecological changes

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in and injection of outside capital into the region his family has called home for generations. Because the area's hydrography is estuarial rather than unidirectional, the face of St. Ogg's social world changes, and so do the rules of the "cock-fight" of the law, causing him to lose his lawsuit and the mill. In essence, he commits the most basic mistake about the ocean: don't turn your back on the tide.

This reading is not meant to unduly skewer Mr. Tulliver for not having a coastal geologist's understanding of tidal cycles commensurate with his understanding of the cycles of the wheat harvest. Rather, Eliot analogizes the seasonality of agriculture with the seasonality of the particular flood pattern of the river on which she modeled the Floss. As Jayne Elisabeth Archer, Richard Marggraf Turley, and Howard Thomas claim, "*The Mill on the Floss* is as much a tidal novel as it is an arable one," adopting "[t]he Floss's status as a tidal river" as the primary lens through which they view their inquiry. While Archer, Turley, and Thomas view the tidal-and-arable dynamic more thematically than formally, they go to great lengths to demonstrate Eliot's extensive research into Lincolnshire's tidal hydrography. According to the authors, Eliot traveled to Gainsborough to observe a "tidal bore," the biannual event where the river rises by around one and a half meters.[28] The historical name for this is the "Aegir," though Eliot uses the Old English spelling "Eagre" in a morning reverie that references Tom and Maggie's collective knowledge of the event:

> [T]hey would only get bigger and not go to school, and it would always be like the holidays; they would always live together and be fond of each other, and the mill with its booming—the great chestnut-tree under which they played at houses, their own little river, the Ripple, where the banks seemed like home, and Tom was always seeing the water-rats, while Maggie gathered the purple plumy tops of the reeds which she forgot and dropped afterwards, above all, the great Floss along which they wandered with a sense of travel, to see the rushing spring tide—the awful Eagre—come up like a hungry monster, or to see the Great Ash, which had once wailed and groaned like a man—these things would always be just the same to them. (45)

The long sentence that constitutes this passage is characterized by an uneasy combination of conditional speculation ("they would always live together and be fond of each other") and a subordinated, generalized past tense ("Tom was always seeing the water-rats, while Maggie gathered the purple plumy tops of the reeds"). Though sandwiched between two em dashes, the periodic flood ("the awful Eagre") is one of the only parts

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of the reverie not couched in an uncertain conditional tense. By naming the Eagre, Eliot's narrator presents local flooding as an integral part of the folk knowledge of local residents.[29]

In this reverie, the narrator mixes Maggie's and Tom's consciousnesseses together, like two types of interflowing waters. Despite this intermixing, the two characters retain their individual perspectives: Maggie picks aesthetically pleasing reed tops while Tom casts his eyes downward to the aquatic fauna. Thus, the two perspectives are subtly differentiated while still intermixed, like the saline and the fresh waters of the estuary. In the sentence following the reverie's evocation of the Eagre—the only such mention of this named flood in the novel—Tom's and Maggie's conjoined thoughts link a sense of the global to the evocation of the estuarial. The reference to the Eagre is one of the only times before the ending when the novel references variances in the water level, and even here, only the surface level changes; no reference is made to the water itself as having depth. In *The Mill on the Floss*, both the townspeople and external interlopers interact primarily with the water's surface, further revealing how the ecology's openness is closed off from many of the characters in the novel, even those whose aquatic knowledge surpasses Mr. Tulliver's. Neither Tom nor Maggie, nor Pivart nor Stephen Guest, appear to have any sense of water as an ecological element with depth, or one that reconfigures social relations by changing the face of the community. Rather, both the long-tenured townspeople and the well-moneyed businessmen only see the closure of extent and power when they see the port's waters. The depth of the water not only makes the flood that much more powerful and lethal; it also enables the area's navigability by those resource-bearing ships at the beginning of the novel that presage the presence and, furthermore, the endurance of Mr. Pivart, Stephen Guest, and their cohort of contemporary businessmen that thrive in "these days of rapid money-getting, when lavishness comes close on the back of want" (130). Guest & Co. apprehend the ecology incompletely, but not with the same degree of closure as Mr. Tulliver. Unlike Maggie and Tom's father, the corporation is able to see how the entanglement of the saline and the fresh can enable St. Ogg's to reach global marketplaces through the combined oceanic and inland extent of its shipping capacity. In order to fully apprehend how waterways open the ecology of St. Ogg's to catastrophic fragmentation, we must trace where exactly the estuarial flows lead once the oceanic tide has taken us inland.

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The economic forces behind ecological change in St. Ogg's seek a kind of stability that the port or even rivers might promise but that the estuary cannot provide. Along with pointing to Eliot's distaste for the international capitalism that seeks to make the Tullivers' way of life obsolete (Guest & Co. wishes to buy Dorlcote Mill and retrofit it to extract oil from Russian linseed), this tension between ecological change effected by external capital and the novel's perpetually interflowing waters stages a confrontation between the novel's two narrative modes: in the former, corporate-funded rural development drives the novel to its tragic ending; and in the latter, the one emphasized here, the entanglement of estuarial form promotes an antiteleological openness to periodic return, to the states of collapse and chaos that inflect ecological life. In her powerful analysis of water flow and energy systems in *The Mill on the Floss*, Elizabeth Carolyn Miller claims that the characters' inability to fully comprehend the energy systems drawn from their surroundings testifies to the limits of individual consciousness of ecological time. "Humans are ill-equipped to understand the longer temporal arcs of the energy systems they use," Miller writes, and after the flood at the novel's end, when "Eliot's narrator is poised between the future and the past," the novel demands that an ideal reader also inhabit these multiple temporalities.[30] While Miller is more focused on temporality than I am, her analysis provides a compelling account of the structural intersections that escape the notice of its characters and, extending her point, further elude the unidirectional mode of reading that derives meaning only from the fact of the flood itself. The estuarial form of Eliot's novel narratively encompasses both the friction between the time horizons of bodies of water (long) and human action (short) as well as the flood's potential for cyclical return.

"The Marks of the Past Rending"

Estuaries are interesting not only because they entangle but because they lead to two different places. While Eliot is invested in the maritime exposure of her provincial port, ultimately her novel is an inland novel. Therefore, a discussion of the estuary necessitates following ship traffic from the North Sea, through the port, and farther inland through shipping lanes as the ships take goods to market. According to Kreisel, the flood that wells up from these waterways "is an end to both the 'economic' and 'romantic' plots," and the novel's voyages inland begin anticipating the dénouement as they bring economics and romance closer

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together (however unfortunate these voyages turn out).[31] As economists tell us, economics is all about the allocation of scarce resources, and if *The Mill on the Floss* has an idea of what a scarce resource is, it isn't a precious metal, and neither is it linseed, coal, nor flax. Rather, the most precious resource in the novel is the inland navigability of the peritidal and upstream waterways that connect the seaborne ships and their cargoes with larger markets in Britain. When coal, linseed, and timber make their way inland from the North Sea, the ability of ships to bear these commodities farther into the Midlands depends on the depth, width, and extent of inland waterways that can be repurposed into shipping lanes. But voyages inland are also dangerous. As distance from the St. Ogg's estuary increases, social bonds loosen and the ability to rely on the rules by which the St. Ogg's community typically operates is attenuated. Though estuarial entanglement has its own perils, its enfolding of characters into communal relations protects them from the boundary conditions they encounter out in the wide inland world.

This is where Mr. Tulliver's idea of "a river's a river" comes back around with an improbable insight into what, exactly, these businessmen are doing in the mill owner's corner of the English countryside. His concern that Mr. Pivart's irrigation system would lessen the amount of water available for Dorlcote Mill misjudges the sheer amount of water in a robust river system in the first place, as discussed above. Though Mr. Tulliver appears to have a valid legal complaint with Mr. Pivart in terms of his downstream water rights, he likely does not have a valid hydrographic one. What actually does threaten the area's ecology is the vast extent of the system of inland shipping and recreation pathways and canals used and maintained by businesses like Guest & Co. In other words, the water rights Mr. Tulliver cares about are not the same ones Guest & Co. cares about; while the former wants to maintain a certain level of downstream flow, the latter is interested in shipping and transportation pathways to facilitate moving goods farther inland. Because these waterways are deep enough to be navigable, the water table in this area is high, and therefore the volume of tidal waters the estuary must contend with—and is unable to—during the flood is so heavy that the deluge becomes a catastrophe and washes the mill and the plot away. Just as the Lincolnshire that Eliot toured showed her tidal rivers she could adapt into the Floss, so did her native Warwickshire feature many of these shipping canals that she could adapt into the Guest & Co. network.

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Images of these canals and the "glitter of coal" that could be carried on them were instilled in Eliot from an early age. Eliot's father, Robert Evans, managed the properties of the aristocratic Newdigates, and in a recent critical biography of the writer, Nancy Henry describes the canals within the Newdigate estate itself that connected the property's coal-mining operations to a vast canal system throughout England:

> Canals on the property were connected to a canal system that shipped coal throughout the north of England, where industrial expansion in the urban centers in turn enriched the landed aristocracy by creating new markets for coal. The image of coal-laden ships floating into port that opens *The Mill on the Floss* seems to be informed by a memory of coal barges on the canal from Mary Ann's childhood and transferred to her fictional River Floss, the "black ships—laden with the fresh-scented fir-planks, with rounded sacks of oil-bearing seed, or with the dark glitter of coal." [. . .] Commerce and the transportation networks that arose to serve it, including canals and eventually trains, connected isolated rural villages with the rest of the world.[32]

Eliot's interest in connecting the rural with the global emanates from the primary ecological feature of *The Mill on the Floss*. The ships at the novel's opening represent, in Henry's formulation, the "connect[ion] [. . .] with the rest of the world" on the maritime side of the estuary. In order to widen this network of provincial connections, Eliot establishes commercial relationships to the rest of Britain along the novel's inland shipping lanes. It is not enough for Guest & Co. to simply receive the linseed from Russia for extraction at their oil mills. The oil must then be moved via a secondary connection to markets within Britain. According to Andreas Malm, the English Midlands and coastal Scotland in the 1820s and '30s saw vast experimentation in the development of inland waterways to increase water power for mill owners. Eliot's novel looks back on this very period and imagines how provincial ecology would change if, instead of prioritizing the production capacity of mills, provincial developers had realized that water-powered mills would soon be superseded by mills powered by steam engines—fired by that glittering coal—and thus shipping and transportation capacity was inland water's true value and its danger.[33] In this way, Guest & Co.'s plans to wrest Dorlcote Mill from Mr. Tulliver and transform it into one of their oil mills is but one instantiation of a much broader program of anthropogenic changes forced on the Lincolnshire countryside by this and other agents of global capital.

Shipping waterways surface at a crucial moment in the narrative: during Maggie's inland voyage with Stephen Guest, which turns into

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an abduction and a marriage proposal made to a woman under duress. The narrator describes Stephen rowing the pair inland: "They glided rapidly along, to Stephen's rowing, helped by the backward-flowing tide" (484). Unlike the Floss flowing toward the estuary and the sea—or even the small but enthusiastic Ripple contributing to it—the flow of this inland waterway takes them farther away from St. Ogg's and therefore away from the ecological context of their meeting and initial courtship. Though the chapter title is "Borne Along by the Tide," the narrator specifies that Maggie and Stephen are borne along by a "backward-flowing tide" (477, 484). By navigating along this third, unnatural tide, moving unidirectionally away from St. Ogg's, Stephen closes the pair off from the openness of the St. Ogg's ecology. Removed from her home community's interpenetration with the natural world, Maggie is that much more vulnerable, and as the day stretches into night and the vessel moves farther inland, the voyage becomes more disastrous. Stephen flags down a wind-powered Dutch shipping vessel that takes them to a town uninvitingly named Mudport, from where they return to St. Ogg's. Stephen recalls that "the steamer to Mudport" had previously passed them, suggesting that even though he is the scion of the area's most famous incarnation of global capitalism, the local coal-powered aquatic industry sees him and Maggie as insignificant (488).

Before the rescue becomes necessary, Stephen professes that his goal is to take the two of them to Torby and then to Scotland via York to be married, presumably at Gretna Green (485). Stephen and Maggie's ability to travel north, away from the sea and against natural tides, testifies to the shipping system's extent and the effacement of conscious decision-making both from the scene of the voyage-turned-abduction and from the flow of the water itself. According to Hensley, Stephen and Maggie's voyage "is the crisis point in the novel's historical plot, where the old language of force and of possession has come into irresolvable conflict with the new voluntarist idiom of consent, of equal relations among sovereign agents."[34] Far from the novel's predominant ecological situation where the Floss and the North Sea meet, a one-way trip to an irresolvable crisis becomes possible, a crisis only abated by returning to the openness of the estuarial scene. The crisis of the flood, by contrast, passes when the water level returns to normal (according to seasonal rather than tidal cyclicality). Hensley's comparison of "consent" and "equal relations" refers to the contrast between Maggie's strong protestations against Stephen's coercion and physical force—"'Let me go!' she said, in an agitated tone, flashing an indignant look at him, and trying to get her hands free. 'You

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have wanted to deprive me of any choice'" (486)—and Stephen's suspect insistence that they are not, in fact, conscious actors:

> See, Maggie, how everything has come without our seeking—in spite of all our efforts. We never thought of being alone together again—it has all been done by others. See how the tide is carrying us out—away from all those unnatural bonds that we have been trying to make faster round us—and trying in vain. It will carry us on to Torby, and we can land there, and get some carriage, and hurry on to York, and then to Scotland—and never pause a moment till we are bound to each other so that only death can part us. It is the only right thing—dearest—it is the only way of escaping from this wretched entanglement. Everything has concurred to point it out to us. We have contrived nothing, we have thought of nothing ourselves. (485)

Maggie listens intently but is not fooled by any of this. Stephen's account of his actions and their situation is untrustworthy, to say the least—a frustrated attempt to hijack the language of entanglement for his nefarious ends—though he does semi-accurately describe the currents underlying the physical movements of their boats. "See how the tide is carrying us out," he says. "It will carry us on to Torby." His description of the "backward-flowing tide" as "carrying us out" implies that the tide will carry them farther "out" into a larger body of water. This is not strictly true (except in whatever dubious, metaphorical sense he may mean as regards his imagined future with Maggie), as the waterway does not promise to widen or empty into a lake, but it does promise to take them farther inland, from Torby to York to Scotland. As the shipping lane's ability to escape the force of the Floss's tide and provide access to these northern destinations becomes apparent, Eliot begins to pepper Stephen's speech with the estuarial language of enmeshment: the "wretched entanglement" of their situation and Stephen's desire to bind themselves to each other "so that only death can part us." Like many passages, this locution presages the final "embrace never to be parted." In this specific location, Stephen's failed attempt to validate the bad faith of his marriage proposal by invoking "entanglement" demonstrates how the open-ecological rhetoric operative around the estuary is nullified outside of the intertidal zone. There is, after all, no community for either of them to be entangled with.

In other words, the openness of Eliot's estuarial form has its limits. Even as viewing St. Ogg's from the perspective of the water opens up the novel to a more capacious view of its ecology, it also circumscribes the limits of where in the British countryside that ecological model functions. Once Maggie returns to St. Ogg's, the only way to reconcile her with her

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furious brother is to entangle them in death forever (the actual "embrace never to be parted"). What matters to me about their death in the flood is not the cause but rather Eliot's depiction of their resting place. Maggie and Tom are buried in a defunct mining operation known as the Red Deeps, located among "the pleasant fields [. . .] bounded by the murmuring Ripple" on which Dorlcote Mill was situated and since overgrown into a classic pastoral ruin: "an exhausted stone-quarry—so long exhausted that both mounds and hollows were now clothed with brambles and trees, and here and there by a stretch of grass which a few sheep kept close-nibbled" (309–10). Earlier in the novel, Maggie makes her rendezvous with Philip Wakem here against her family's wishes—even though she thinks of him fondly but not entirely romantically. The classical pastoralism of the quarry and Maggie's meeting a man she holds dear strongly presages the novel's ending—not the flood, but the postdiluvian conclusion, in which "Nature repairs her ravages—but not all" (543). Maggie and Tom are buried "among the trees of the Red Deeps, where the buried joy seemed still to hover" (544). In this conclusion, trading operations have resumed, as the "wharves and warehouses on the Floss were busy again, with echoes of eager voices, with hopeful lading and unlading," suggesting that the port and inland shipping network survive the flood or are rebuilt (543). The details of the burial site and the shipping network's continued operation are linked for Eliot. The Coventry Canal, on which Eliot likely based the St. Ogg's waterways, had a branch that served the quarry at Griff Hollows, the model for the Red Deeps. That branch is no longer operable, having gone extinct like the Red Deeps itself.[35]

Burying an entangled brother and sister, "two bodies that were found in close embrace," in a single grave in a defunct quarry reverses the process of extracting stone—or glittering coal—from the ground (543). While the bodies from prior geologic ages have turned into those rocks valued by international commerce, ones that might one day find themselves on ships passing through one estuary or another, the burial starts this process over. In so doing, Tom and Maggie have traversed time scales across three levels of ecological cyclicality, from a diurnal cycle (the tide), to the biannual (the flood), to the geologic (their interment). It would, however, be a misapprehension of the present St. Ogg's ecology to say that the siblings return to the Red Deeps only to be extracted in a distant geologic age. At St. Ogg's, no extraction actually takes place, just refinement at the mill and transit through the port. By enabling the trade in fossil fuel but not actually participating in that

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trade, Eliot's community straddles a line between engagement with global trade and rural isolation. In standing by while the beginnings of globalization and anthropogenic climate disaster take shape around them—that is, by failing to fully commit to what McDonagh would define as nineteenth-century provincialism: linking the rural with the global—St. Ogg's fails to adapt estuarial entanglement to grapple with the ongoing catastrophe of the present. The forces of the market return just as the waters go down—though most of the Tulliver family does not survive, the "eager voices" and their "hopeful lading and unlading" do—and the ecological scars endure for years.

If, according to McDonagh's argument, the novelistic provincialism of the mid-nineteenth century was characterized by an awareness of "emerging global networks," then *The Mill on the Floss* provides an interesting test case. When the novel appears in 1860, as the midcentury is just reaching its tail end, its setting looks back to around the late 1820s or early 1830s, that not-quite-early-nineteenth-century, not-quite-Victorian era when a sense of "global networks" was indeed still "emerging." As such critics of globalization as Tanya Agathocleous and Bruce Robbins would point out, the internationalization of the marketplace, especially in the early to mid-nineteenth century, stood in uneasy relation to discourses of imperialism—with their destabilizing tendency toward armed conflict—and of cosmopolitanism—with its potential pretensions toward a unifying universalism giving cover to global capitalism.[36] By failing to adapt to its globally situated status, St. Ogg's is unprepared for the modern condition of recurring ecological catastrophe. As Jed Esty argues, developing a sense of one's place on the world-historical stage is the primary demarcation between "premodern St. Ogg's" and the region's accession to nineteenth-century modernity.[37] By setting estuarial entanglement at the ecological heart of the novel, Eliot tests how far outward the negotiations between different types of open relationality—connection to the wider world but local isolation; modern for the era of its setting but historical in the time of its composition—can go. In their failure to attain a more open understanding, the characters of *The Mill on the Floss* commit themselves to a premodern St. Ogg's despite their living in modern times. The friction between those time scales speaks to global capital's alienation of the local residents from their environment and from one another, all but ensuring the recurrence of future ecological catastrophes.

The outburst of violence at the novel's end erases characters (Maggie and Tom) and buildings (Dorlcote Mill) that do not further

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the "hopeful lading and unlading" of these waning decades of what Imre Szeman would call "steam capitalism."[38] Nixon has famously called ecological change that adversely affects the poor "slow violence," but the violence of the flood obviously comes very quickly.[39] The most damaging violence in *The Mill on the Floss* is one that comes, if not slowly, then at least both regularly and unpredictably: the recurrence of ecological catastrophe at an unspecified interval. Accordingly, Eliot describes the aftermath with a weary perspective that suggests the townspeople will see this sight again: "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" (543). The uncertainty of whose eyes are dwelling on the past casts the communal memory of the catastrophe as partial and therefore mutable. As a part of the ecological form centered on the estuary, the St. Oggs's community is drawn into the chaos that results when linkages between natural and social systems fray.

Reading the novel from the perspective of its water does more than just raise the visibility of a peculiar aquatic feature in St. Ogg's. Rather, reading the novel hydrographically shows how the entanglement of different kinds of water flow and social life opens up the novel's ecology to those harsh boundary conditions that accompany rural development and environmental catastrophe. In the Anthropocene, literary-critical reading practices should cast a skeptical eye toward narratives that present a single upheaval as its endpoint. How the ecology bears those "marks of [. . .] past rending" and how those marks are remembered matter more than the event itself. If *The Mill on the Floss* has a tragic element, it is the knowledge that the St. Ogg's estuary will, some years from the end of the novel, see its interflowing waters rise up over its banks again.

Notes

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1. Leavis, *The Great Tradition*, 42, 46. *The Mill on the Floss* has often been labeled tragic, and tragedy is an important idea in the novel for Eliot herself. In Eliot's use, "tragedy" tends to describe individual characters' ascriptions of grave importance to their struggles or aspirations, as when Maggie competes with Lucy for Tom's attention ("There were passions at war in Maggie at that moment to have made a tragedy" [108]), or when the narrator imagines Mr. Tulliver's legal defeat as a "conspicuous, far-echoing tragedy which sweeps the stage in regal robes" (207), or when Philip Wakem describes the ill-fated attraction between Maggie and Stephen Guest as issuing from "that partial, divided action of our nature which makes half the tragedy of the human lot" (522). See further Hardy, *The Novels of George Eliot*, 14–77, esp. 55–57; Guth, "Philip," 356–63; Mason, "George Eliot's *The Mill on the Floss*," 159–80.
2. Hensley and Steer, "Ecological Formalism," 5.
3. The kind of development promoted by Guest & Co. differs from the development typically associated with a novel frequently called a bildungsroman, if an odd or hybrid species of one. The body of work appraising Eliot's novel as a novel of development is too vast to characterize in its totality here. What does broadly typify this body of criticism since at least the 1970s is how readers of *The Mill on the Floss* identify some kind of rupture or defect in the developmental plot caused by invidious social pressure, and how those readings are sutured to the ostensible narrative closure of the flood. Elizabeth Ermarth, for instance, comprehensively demonstrates that "the norms [of St. Ogg's that] Maggie struggles with are sexist" by reading her social expectations against the prospects of the various boys and men in the novel, characterizing her fate as a "long suicide," in Philip Wakem's phrase, given a "physical corroboration" in the flood. Reading George Levine's claim that Maggie owes her incomplete development to the lack of sophistication of her rural society, John Hagan argues that we should shift our attention to how the flood arrests Maggie's development by severing her relationship with Tom. While Barbara Waxman and Sarah E. Maier characterize the novel as a "female bildungsroman" focused on Maggie, Jerome H. Buckley and Charlotte Goodman call it a "double" bildungsroman, emphasizing the ruptures between Maggie's and Tom's uneven developments. Recently, Jed Esty has claimed that the novel holds up "elements of classic German *Bildung*" for "a critique that is not only squarely feminist, but incipiently late Victorian in its attunement to

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the problem of national-historical time"—in particular, the pressures put on Englishness in the late industrial period. Susan Fraiman's own authoritative reading of these and other interpretations suggests, referring to the flood, "Eliot's controversial ending provides a final image of the relation between Tom's conventional narrative of formation and Maggie's counternarrative." The ecological reading I advance is more concerned with the ecology of form than with the ending—and, therefore, the flood's reflection on character formation is de-prioritized in favor of the ecological influence on social relations. Ermarth, "Maggie Tulliver's Long Suicide," 587, 601, and passim; Levine, "Intelligence as Deception," 405–7; Hagan, "A Reinterpretation," 56–57; Waxman, "Heart, Mind, Body, and Soul"; Maier, "Portraits of the Girl-Child"; Buckley, "George Eliot's Double Life"; Goodman, "The Lost Brother, the Twin"; Esty, *Unseasonable Youth*, 53; Fraiman, "*The Mill on the Floss*," 147.

4. The inland localization of these aquatic entanglements is a key aspect of both current and contemporaneous conceptions of the estuarial. Thirty years before Eliot's novel appeared, Charles Lyell defined "*Estuaries*" as "a term which I confine to inlets entered both by rivers and tides of the sea," where the water table is subject to fluctuations depending on coastal erosion. The *OED* cites part of Lyell's discussion of estuaries in its definition of "estuary." Lyell, *Principles of Geology*, 302 (emphasis in original); "Estuary, n."
5. Eliot, *The Mill on the Floss*, 542. All subsequent references to this edition are noted parenthetically in the text.
6. Stauffer, "Haeckel, Darwin, and Ecology," 140; see Darwin, *On the Origin of Species*, 187–88.
7. Of course, the flood is not actually the "Conclusion" of the novel. I discuss Eliot's conclusion in what follows.
8. Griffiths and Kreisel, "Introduction" (emphasis in original).
9. Said, *Culture and Imperialism*, 93–94; see also 80–98 passim.
10. Moore argues, "Capitalism takes shape through the co-production of nature, the pursuit of power, and the accumulation of capital" and goes on to claim that "these three moments interpenetrate each other in the making of historical capitalism." Moore, *Capitalism in the Web of Life*, 46.
11. Nixon, *Slow Violence*, 30; Griffiths and Kreisel, "Introduction."
12. J. Miller, "Composing Decomposition," 395.
13. Law, *The Social Life of Fluids*, 75.
14. Archer, Turley, and Thomas, "Moving Accidents," 714.

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15. Griffiths and Kreisel, "Introduction."
16. Lyell, *Principles of Geology*, 307–8, 690; see also 270–71, 337–39, 750.
17. See Lewes, *Sea-Side Studies*.
18. McDonagh, "Rethinking Provincialism," 419.
19. See Plotz, "The Semi-Detached Provincial Novel"; Plotz, *Portable Property*.
20. McDonagh, "Rethinking Provincialism," 401.
21. Brower, "*The Mill on the Floss*," 220–21.
22. "Dike | Dyke, n.1."
23. Geologists widely distinguish tributaries (or branches) from rivers by their lower flow levels and classify them as a type of stream. Bates and Jackson, *Dictionary of Geological Terms*, 537; Neuendorf, Mehl, and Jackson, *Glossary of Geology*, 82; Allaby, *A Dictionary of Earth Sciences*, 592.
24. Neuendorf, Mehl, and Jackson, *Glossary of Geology*, 483, 344, 377.
25. Platt, *Writing London*, 11–12.
26. Healy's italics here indicate that this definition is his synthesis of a great many geological sources. Healy, "Estuaries," 436, emphasis in original.
27. For instance, after Tom hurts himself with a sword, the narrator reports that Philip's sympathy takes the form of "a common current of suffering and sad privation" (191); the narrator later describes Lucy's tendency to always think of Stephen while she is going about her usual daily routine as "that instantaneous alternation which makes two currents of feeling or imagination seem simultaneous" (384); and at the bazaar, Maggie wishes she could cast off her romantic troubles by letting "her mind [. . .] flow into that easy, babbling current" of the crowd (452–53).
28. Archer, Turley, and Thomas, "Moving Accidents," 702, 714.
29. "Eagre, n."
30. E. Miller, "Fixed Capital and the Flow," 93–94.
31. Kreisel, *Economic Woman*, 114.
32. Henry, *The Life of George Eliot*, 26.
33. Malm, *Fossil Capital*, 96–120. Though there is no estate with internal canals in Eliot's novel as there was in her childhood, there is a canal system in the novel—a "transportation networ[k] that arose to serve" commerce in the area, as Henry would describe it—that connects St. Ogg's specifically with western and northern marketplaces.
34. Hensley, *Forms of Empire*, 74.
35. Burton, "George Eliot Country."

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36. Agathocleous, *Urban Realism*, 23–25; Robbins, *Feeling Global*, 66–67.
37. Esty, *Unseasonable Youth*, 55.
38. Szeman's essay proposes that the history of capital be marked by the transition between dominant forms of energy, and he further suggests that the transition away from oil today would be a disaster so total that it would completely reconfigure economics and social life. Szeman, "System Failure," 55, 64–65.
39. See Nixon, *Slow Violence*, esp. 128–49.

Works Cited

Agathocleous, Tanya. *Urban Realism and the Cosmopolitan Imagination in the Nineteenth Century: Visible City, Invisible World*. Cambridge: Cambridge University Press, 2011.

Allaby, Michael, ed. *A Dictionary of Earth Sciences*. 3rd ed. Oxford: Oxford University Press, 2008.

Archer, Jayne Elisabeth, Richard Marggraf Turley, and Howard Thomas. "'Moving Accidents by Flood and Field': The Arable and Tidal Worlds of George Eliot's *The Mill on the Floss*." *ELH* 82, no. 2 (2015): 701–28.

Bates, Robert L., and Julia A. Jackson, eds. *Dictionary of Geological Terms*. 3rd ed. New York: Anchor Books, 1984.

Brower, Jordan. "*The Mill on the Floss*, Riparian Law, and the Difficulty of Judgment." *ELH* 83, no. 1 (2016): 211–32.

Buckley, Jerome H. "George Eliot's Double Life: *The Mill on the Floss* as a Bildungsroman." In *From Smollett to James: Studies in the Novel and Other Essays Presented to Edgar Johnson*, edited by Samuel I. Mintz, Alice Chandler, and Christopher Mulvey, 211–36. Charlottesville: University of Virginia Press, 1981.

Burton, John. "George Eliot Country: A Self-Guided Tour." Nuneaton and Bedworth Borough Council, March 2006, www.weddingtoncastle.co.uk/uploads/1/9/5/1/19515001/georgeeliottour.pdf.

Darwin, Charles. *On the Origin of Species*. 1859. Edited by W. F. Bynum. Reprint, London: Penguin, 2011.

"Dike | Dyke, n.1." *OED Online*. Oxford University Press. www.oed.com/view/Entry/52707 (accessed July 14, 2017).

"Eagre, n." *OED Online*. Oxford University Press. www.oed.com/view/Entry/58945 (accessed July 16, 2017).

Eliot, George. *The Mill on the Floss*. 1860. Edited by A. S. Byatt. Reprint, London: Penguin Books, 2003.

Ermarth, Elizabeth. "Maggie Tulliver's Long Suicide." *Studies in English Literature, 1500–1900* 14, no. 4 (1974): 587–601.

"Estuary, n." *OED Online*. Oxford University Press. www.oed.com/view/Entry/64640 (accessed July 11, 2017).

Esty, Jed. *Unseasonable Youth: Modernism, Colonialism, and the Fiction of Development*. New York: Oxford University Press, 2012.

https://doi.org/10.1017/S1060150319000512 Published online by Cambridge University Press

Fraiman, Susan. "*The Mill on the Floss*, the Critics, and the *Bildungsroman*." *PMLA* 108, no. 1 (1993): 136–50.

Goodman, Charlotte. "The Lost Brother, the Twin: Women Novelists and the Male-Female Double Bildungsroman." *Novel: A Forum on Fiction* 17, no. 1 (1983): 28–43.

Griffiths, Devin, and Deanna K. Kreisel. "Introduction: Open Ecologies." *Victorian Literature and Culture* 48, no. 1 (2020).

Guth, Barbara. "Philip: The Tragedy of *The Mill on the Floss*." *Studies in the Novel* 15, no. 4 (1983): 356–63.

Hagan, John. "A Reinterpretation of *The Mill on the Floss*." *PMLA* 87, no. 1 (1972): 53–63.

Hardy, Barbara. *The Novels of George Eliot: A Study in Form*. London: Athlone Press, 1959.

Healy, Terry R. "Estuaries." In *Encyclopedia of Coastal Science*, edited by Maurice L. Schwartz, 436–39. New York: Springer, 2006.

Henry, Nancy. *The Life of George Eliot: A Critical Biography*. Malden, Mass.: Wiley-Blackwell, 2012.

Hensley, Nathan K. *Forms of Empire: The Poetics of Victorian Sovereignty*. Oxford: Oxford University Press, 2016.

———, and Philip Steer. "Ecological Formalism; or, Love among the Ruins." In *Ecological Form: System and Aesthetics in the Age of Empire*, edited by Nathan K. Hensley and Philip Steer, 1–17. New York: Fordham University Press, 2018.

Kreisel, Deanna K. *Economic Woman: Demand, Gender, and Narrative Closure in Eliot and Hardy*. Toronto: University of Toronto Press, 2012.

Law, Jules David. *The Social Life of Fluids: Blood, Milk, and Water in the Victorian Novel*. Ithaca: Cornell University Press, 2010.

Leavis, F. R. *The Great Tradition: George Eliot, Henry James, Joseph Conrad*. New York: G. W. Stewart, 1948.

Levine, George. "Intelligence as Deception: *The Mill on the Floss*." *PMLA* 80, no. 4 (1965): 402–9.

Lewes, George Henry. *Sea-Side Studies at Ilfracombe, Tenby, the Scilly Isles, & Jersey*. Edinburgh: Blackwood, 1858.

Lyell, Charles. *Principles of Geology, or The Modern Changes of the Earth and Its Inhabitants Considered as Illustrative of Geology*. 1830. Rev. ed. New York: D. Appleton, 1856.

Maier, Sarah E. "Portraits of the Girl-Child: Female Bildungsroman in Victorian Fiction." *Literature Compass* 4, no. 1 (2007): 317–35.

Malm, Andreas. *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming*. London: Verso, 2016.

Mason, Kenneth M. Jr. "George Eliot's *The Mill on the Floss:* Tragic Harvest and Pastoral Deceit." *Journal of Narrative Technique* 15, no. 2 (1985): 169–82.

McDonagh, Josephine. "Rethinking Provincialism in Mid-Nineteenth-Century Fiction: *Our Village* to *Villette*." *Victorian Studies* 55, no. 3 (2013): 399–424.

Miller, Elizabeth Carolyn. "Fixed Capital and the Flow: Water Power and *The Mill on the Floss*." In *Ecological Form: System and Aesthetics in the Age of Empire*, edited by

https://doi.org/10.1017/S1060150319000512 Published online by Cambridge University Press

Nathan K. Hensley and Philip Steer, 85–100. New York: Fordham University Press, 2018.

Miller, John MacNeill. "Composing Decomposition: In Memoriam and the Ecocritical Undertaking." *Nineteenth-Century Contexts* 39, no. 5 (2017): 383–98.

Moore, Jason W. *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*. New York: Verso, 2015.

Neuendorf, Klaus K. E., James P. Mehl Jr., and Julia A. Jackson, eds. *Glossary of Geology*. 5th ed. Alexandria: American Geological Institute, 2005.

Nixon, Rob. *Slow Violence and the Environmentalism of the Poor*. Cambridge, Mass.: Harvard University Press, 2011.

Platt, Len. *Writing London and the Thames Estuary, 1576–2016*. Leiden: Brill, 2017.

Plotz, John. *Portable Property: Victorian Culture on the Move*. Princeton: Princeton University Press, 2008.

———. "The Semi-Detached Provincial Novel." *Victorian Studies* 53, no. 3 (2011): 405–16.

Robbins, Bruce. *Feeling Global: Internationalism in Distress*. New York: New York University Press, 1999.

Said, Edward W. *Culture and Imperialism*. New York: Vintage, 1993.

Stauffer, Robert C. "Haeckel, Darwin, and Ecology." *Quarterly Review of Biology* 32, no. 2 (1957): 138–44.

Szeman, Imre. "System Failure: Oil, Futurity, and the Anticipation of Disaster." In *Energy Humanities: An Anthology*, edited by Imre Szeman and Dominic Boyer, 55–70. Baltimore: Johns Hopkins University Press, 2017.

Waxman, Barbara Frey. "Heart, Mind, Body, and Soul: George Eliot's Female Bildungsroman." *VIJ: Victorians Institute Journal* 11 (1982): 61–82.

https://doi.org/10.1017/S1060150319000512 Published online by Cambridge University Press