

# Transatlantic Climate and Gulf Stream Aesthetics

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**I**<sub>N</sub> 1855 the United States naval officer Matthew Fontaine Maury ushered oceanography into popular consciousness, in a lyrical passage early in his *The Physical Geography of the Sea*:

There is a river in the ocean: in the severest droughts it never fails, and in the mightiest floods it never overflows; its banks and its bottom are of cold water, while its current is of warm; the Gulf of Mexico is its fountain, and its mouth is in the Arctic Seas. It is the Gulf Stream. There is in the world no other such majestic flow of waters. Its current is more rapid than the Mississippi or the Amazon, and its volume more than a thousand times greater. Its waters, as far out from the Gulf as the Carolina coasts, are of an indigo blue. They are so distinctly marked that their line of junction with the common sea-water may be traced by the eye.<sup>1</sup>

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<sup>1</sup> Matthew Fontaine Maury, *The Physical Geography of the Sea, and Its Meteorology*, ed. John Leighly (Cambridge, Mass.: Belknap Press of Harvard Univ. Press, [1855] 1963), p. 38. Further quotations are from this edition and are cited parenthetically in the text. I am grateful to the Vcologies collective (especially Benjamin Morgan, Elizabeth Carolyn Miller, Nathan K. Hensley, and Siobhan Carroll) for comments on an earlier version of this essay, and to Nicole Williams for conversations about art history.

This vivid image of the Gulf Stream—the swift North Atlantic current carrying warm water through the Florida Straits, up the eastern seaboard to Cape Hatteras, then past Newfoundland toward Europe’s western shores—was a recurring motif for Maury and the accounts of oceanography he inspired. Coupling a rhetoric of wonder with a discourse of everyday scientific observation, he evoked the current as a planetary marvel, the work of an “Almighty hand” (*The Physical Geography of the Sea*, p. 69) whose existential import ought to be grasped by readers on either side of the ocean.

Long known to navigators and whalers, the Gulf Stream gained scientific prominence in the nineteenth century as a test case for theories about the dynamics of ocean currents and the equilibrium of transatlantic climate. Maury’s work gave popular shape to these scientific debates, supplying descriptions, analogies, and myths that percolated into a wider discourse about ocean currents and climate change that persists into the present. In this essay I argue that the nineteenth-century discourse of the Gulf Stream included a significant aesthetic dimension organized by a dialectic between stability and variability. Scientific and literary writing on the Gulf Stream made ample use of figures and analogies, lyrical formulations and imaginative conceits. Drawn to the wonder of an oceanic phenomenon that seemed benignly to guarantee the habitability of western Europe and the coastal United States, writers wondered whether the constancy of the Gulf Stream belied its contingency. Many aired concerns about the dire consequences of any sudden or dramatic shift in the current’s operation. Poets in particular found in the Gulf Stream a formal and tropological vehicle, giving aesthetic shape to inchoate anxieties about climate change and reflecting on transatlantic connection in climatic and cultural terms.

In the first section of this essay I trace the Gulf Stream’s presence in eighteenth- and nineteenth-century scientific writing and print culture. I show how the discourse’s memorable figures and vivid illustrations accentuated the risk of climate variability even as they charted an apparently stable oceanic system. The liveliness of this discourse, I further suggest, points to the underappreciated significance of oceans and

oceanography for ecocriticism in the period.<sup>2</sup> In the second section I build on these materials to examine the dialectic of stasis and change as it found expression in literary form. I focus on the work of two poets separated by the ocean, almost exact contemporaries whose engagement with the Gulf Stream discourse reveals a shared sensitivity, both physiological and metrical, to climate. While Gerard Manley Hopkins and Sidney Lanier ostensibly use the Gulf Stream motif to reflect on geographic identity and cultural belonging, their formal and figurative techniques register the threat of climate instability. Indeed, they offer a deeper sense of climate disquiet than the scientific and popular materials on which they drew—an unease rooted in their acute awareness of the body's capricious reliance on its environment. Following this account of ecological kinship and transatlantic literary affiliation, in the third section I acknowledge what is obscured by its predominantly Anglo-American framework. I briefly consider the poetry of Derek Walcott, sketching the afterlife of the nineteenth-century discourse of the Gulf Stream, extending its formal and figurative lineage, and renewing the ecological urgency of thinking with an Earth-system process as a motif of climatic connection and obligation in the present.

Current scientific discourse on the Gulf Stream (and related aspects of ocean and climate dynamics) can trace a clear lineage to nineteenth-century debates, making my account more than an exercise in historical recovery. While threats of climate change like increasing surface and air temperatures or rising sea levels were not an empirically grounded feature of Victorian consciousness, the potential collapse of ocean currents manifestly was. Our own concern about the fate of the Gulf Stream, however reliant on popular myth or scientific misconception, plays out within parameters set by nineteenth-century writers. To draw a connection between Victorian

<sup>2</sup> Brief overviews include Cannon Schmitt, "On the Sea," *Victorian Review*, 36, no. 2 (2010), 20–23; and Kelly P. Bushnell, "Oceans," *Victorian Literature and Culture*, 46 (2018), 788–91. Important exceptions include Siobhan Carroll, *An Empire of Air and Water: Uncolonizable Space in the British Imagination, 1750–1850* (Philadelphia: Univ. of Pennsylvania Press, 2015), pp. 72–114; and Cannon Schmitt, "Tidal Conrad (Literally)," *Victorian Studies*, 55 (2012), 7–29.

materials and current debates about the Gulf Stream and its role in transatlantic climate thus requires little of the framing prevalent in nineteenth-century ecocriticism: appeals to “strategic presentism,” for instance, or efforts to interpret historical actors for their uncanny anticipation, unconscious recognition, or self-protective denial of climate change.<sup>3</sup> Instead, I examine a discourse with a direct genealogy to the present that, in its time, mused on climate collapse in apparent and notably aesthetic terms. As ecocriticism continues to debate the modes, genres, and affects that might adequately represent climate change and catalyze action, the multigeneric discourse of the Gulf Stream demonstrates an instructive continuity of climate concern.<sup>4</sup>



From the beginning of European transatlantic voyages, navigators took advantage of the Gulf Stream’s mechanics to propel their ships back east, while whalers relied on its visual markers to track their prey. It was common knowledge that the current caused plant debris from the Americas and West Indies, as well as flotsam from ships, to drift over to the shores of western Europe.<sup>5</sup> But it was two centuries before this folk understanding was made the object of systematic scientific and cartographic study, as economic interests were

<sup>3</sup> On “strategic presentism,” see Jesse Oak Taylor, “Where Is Victorian Ecocriticism?,” *Victorian Literature and Culture*, 43 (2015), 877–94. The related rhetorical gesture is visible in, for instance, the “uncanny” understanding of extinction in Alfred Tennyson identified in Jesse Oak Taylor, “Mourning Species: *In Memoriam* in an Age of Extinction,” in *Ecological Form: System and Aesthetics in the Age of Empire*, ed. Nathan K. Hensley and Philip Steer (New York: Fordham Univ. Press, 2018), pp. 42–62; and the “soft denialism” about climate change attributed to post-Darwinian texts in Allen MacDuffie, “Charles Darwin and the Victorian Pre-History of Climate Denial,” *Victorian Studies*, 60 (2018), 543–64.

<sup>4</sup> For key discussions, see Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge, Mass.: Harvard Univ. Press, 2011), pp. 1–44; Amitav Ghosh, *The Great Derangement: Climate Change and the Unthinkable* (Chicago: Univ. of Chicago Press, 2016), pp. 1–84; and Ursula K. Heise, *Imagining Extinction: The Cultural Meanings of Endangered Species* (Chicago: Univ. of Chicago Press, 2016), especially pp. 32–50, 62–78.

<sup>5</sup> See W[illiam] Scoresby, *An Account of the Arctic Regions, with a History and Description of the Northern Whale-Fishery*, 2 vols. (Edinburgh: Archibald Constable and Co., 1820), I, 206–9.

consolidated and the “trade” in “trade winds” settled on a singular meaning.<sup>6</sup> Benjamin Franklin and the whaler Timothy Folger produced the first chart of the Gulf Stream in 1768 as a guide for mercantile ships, and William de Brahm independently designed a chart in 1772.<sup>7</sup> Following the American Revolutionary War, research on ocean currents was pursued in relative isolation on either side of the Atlantic until the early nineteenth century and James Rennell’s compendious *An Investigation of the Currents of the Atlantic Ocean* (1832), in whose charts the Gulf Stream’s substructure of “meanders, eddies, and countercurrents began to be recognized” (Richardson, “The Benjamin Franklin and Timothy Folger Charts of the Gulf Stream,” p. 714).<sup>8</sup>

From the 1840s onward, American naval and coast guard research, conducted separately by Maury (who headed the Depot of Charts and Instruments, later known as the United States Naval Observatory) and Franklin’s great-grandson Alexander Bache (who headed a rival institution, the United States Coast Survey), continued the practical emphasis inaugurated by Franklin.<sup>9</sup> Maury had gained renown by creating *Lieut. Maury’s Investigations of the Winds and Currents of the Sea* (1851) for navigational use by merchant and military ships, and had also compiled several charts tracking seasonal fluctuations in whale

<sup>6</sup> The phrase “trade wind” originated in a now-obsolete adverbial sense of “trade”—in the phrase “to blow trade,” describing winds moving “steadily in the same direction”—that later blended with the commercial meaning, given “the importance of such winds (especially the constant winds near the equator) to commercial navigation” (*Oxford English Dictionary*, s.v. “trade, *n.* and *adv.*” and “trade wind, *n.*”).

<sup>7</sup> See Philip L. Richardson, “The Benjamin Franklin and Timothy Folger Charts of the Gulf Stream,” in *Oceanography: The Past*, ed. Mary Sears and Daniel Merriman (New York: Springer-Verlag, 1980), pp. 701–17; Louis De Vorsey, “Pioneer Charting of the Gulf Stream: The Contributions of Benjamin Franklin and William Gerard De Brahm,” *Imago Mundi*, 28 (1976), 105–20; and Ellen R. Cohn, “Benjamin Franklin, Georges-Louis Le Rouge and the Franklin/Folger Chart of the Gulf Stream,” *Imago Mundi*, 52 (2000), 124–42. Of three versions of the Franklin/Folger chart, the last (1786) is the best known.

<sup>8</sup> See Margaret Deacon, “Some Aspects of Anglo-American Co-operation in Marine Science, 1660–1914,” in *Oceanography: The Past*, pp. 104–5; and, on Rennell, see Eric L. Mills, *The Fluid Envelope of Our Planet: How the Study of Ocean Currents Became a Science* (Toronto: Univ. of Toronto Press, 2009), pp. 34–38.

<sup>9</sup> On the Maury-Bache rivalry, see Susan Schlee, *A History of Oceanography: The Edge of an Unfamiliar World* (London: Robert Hale, 1975), pp. 23–63.

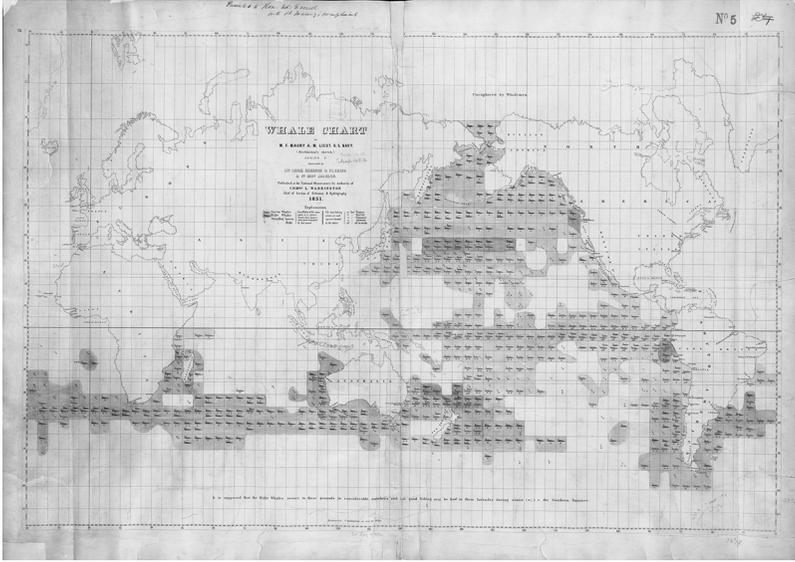


FIGURE 1. Matthew Fontaine Maury and United States Naval Observatory, *Whale Chart* (1851). Courtesy of the Norman B. Leventhal Map and Education Center, Boston Public Library, G9096.D4 1851.M3.

populations across the globe (see Figures 1 and 2).<sup>10</sup> Maury subsequently attempted to annex every vessel on the Atlantic as “a floating observatory, a temple of science” (*The Physical Geography of the Sea*, p. 6), underwriting a vast network of oceanic knowledge production. Maury’s unflagging efforts (recording over a million data points) have been seen as an early example of “datafication,” making naval logs “the longest continuous quasi-global data record” in climatology.<sup>11</sup> He also encouraged standardization, promoting the 1853 International Maritime Meteorological Conference, which “establish[ed] a worldwide system of meteorological observations for the sea as well as for

<sup>10</sup> See Schlee, *A History of Oceanography*, pp. 36–40.

<sup>11</sup> Paul N. Edwards, *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* (Cambridge, Mass.: MIT Press, 2010), p. 35; on Maury, see pp. 34–40. Viktor Mayer-Schönberger and Kenneth Cukier discuss Maury’s “datafication” in their *Big Data: A Revolution That Will Transform How We Live, Work, and Think* (Boston: Houghton Mifflin, 2013), pp. 73–76.

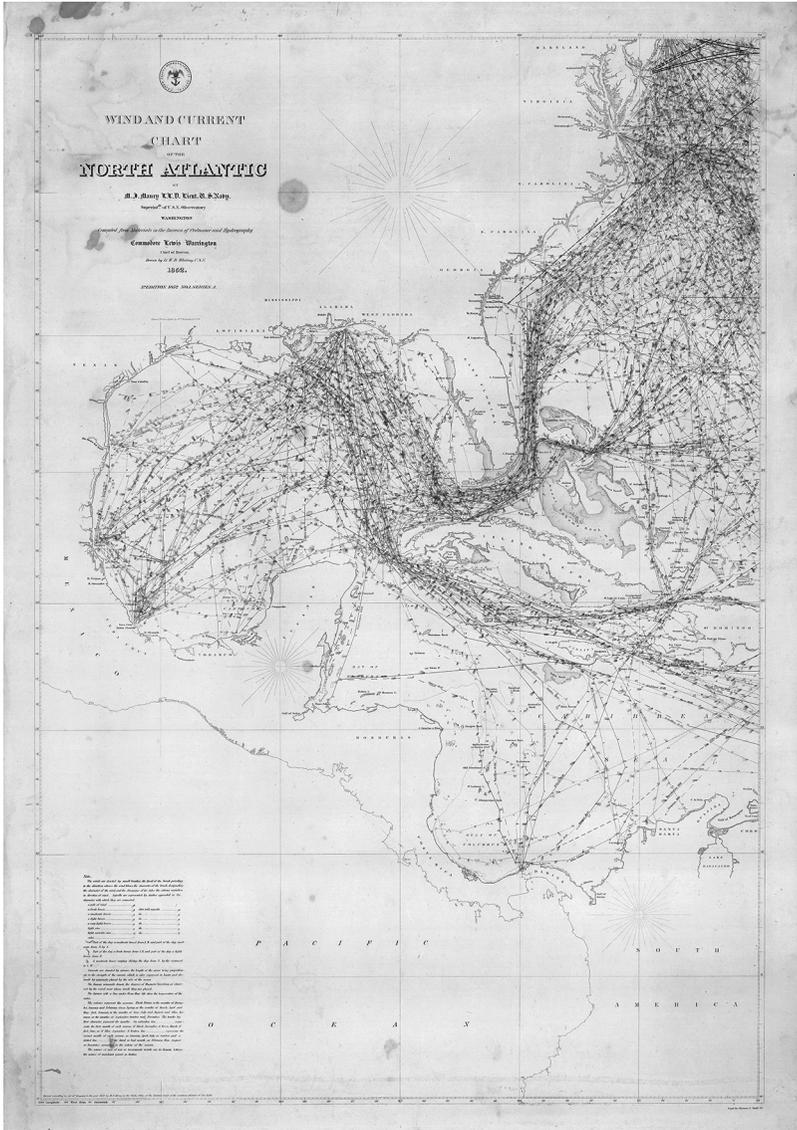


FIGURE 2. Matthew Fontaine Maury, *Wind and Current Chart of the North Atlantic* (1852). Courtesy of the David Rumsey Map Center, Stanford University Library, 8586.000.

the land" (Schlee, *A History of Oceanography*, p. 39).<sup>12</sup> Yet Maury's treatise, despite its authoritative title, was not steeped in expertise: "It was the valor of ignorance, not confidence born of superior knowledge," his modern editor archly observes, "that guided his pen."<sup>13</sup>

The conceptual laxness and uncritical natural theology of Maury's book—which uses "evidence, from the sea and in the Bible" (*The Physical Geography of the Sea*, p. 241)—hardly affected its popularity.<sup>14</sup> The book went through eight editions and three translations. Maury's "greatest influence," a historian of oceanography suggests, was "the familiarization with ocean science among the general public" (Deacon, "Some Aspects of Anglo-American Co-operation in Marine Science," p. 108). Maury provided useful synopses of midcentury debates about the Gulf Stream that would underscore controversies about ocean current dynamics into the 1870s. On one side were scientists like Franklin, John Herschel, and later James Croll, who thought surface and subsurface currents were caused by winds (e.g., the trade winds: the tropical easterlies that blow constantly from north and south toward the equator). On the other side were those like Alexander von Humboldt and later William Benjamin Carpenter, who thought currents could be caused by multiple factors, including water's differential density given its temperature and salinity (now termed *thermohaline circulation*) and the effects of Earth's rotation (the *Coriolis effect*).<sup>15</sup>

<sup>12</sup> See also Deacon, "Some Aspects of Anglo-American Co-operation in Marine Science," pp. 105–8.

<sup>13</sup> Leighly, "Introduction," in Maury, *The Physical Geography of the Sea*, p. xxi. However, Leighly notes that if Maury's book "never received the approval of those contemporary scientists who were best able to judge it," later scientists "usually have mentioned it with respect as a pioneering contribution to their field of investigation" ("Introduction," p. ix). Schlee writes of Maury's "characteristic overextension of his powers" (*A History of Oceanography*, p. 59), and Mills notes his "insouciant excursions into physical problems of the sea without any background in physical science" (*The Fluid Envelope of Our Planet*, p. 45).

<sup>14</sup> Leighly comments on Maury's religious language (see "Introduction," pp. xxiv–xxvi).

<sup>15</sup> I rely on Schlee, *A History of Oceanography*, pp. 59–60, who comments that "both forces were, and still are, used in combination to explain the ocean's circulation" (p. 60). See Mills, *The Fluid Envelope of Our Planet*, pp. 38–43 (on Humboldt) and pp. 44–81 (on the debate between Croll and Carpenter about whether winds or water densities drive currents). Croll's accounts of the Gulf Stream are collected in James Croll, *Climate*

Scientists like Croll and Carpenter saw Maury's views as incoherent.<sup>16</sup> Yet Maury's lyrical formulations and captivating illustrations were admired by periodical writers and thereby reached a wide public, entrenching the poles of stability and variability when it came to thinking about ocean currents and climate. *The Physical Geography of the Sea* is richly supplemented by tables, figures, and foldout plates that convey the multidimensional complexity of the oceans, sketching relations and directions (e.g., of winds and currents), records of duration and rates of change (e.g., of cyclones and calms), and averages (e.g., of wind velocity, atmospheric pressure, water salinity and temperature). Maury includes isothermal maps, vertical cross-sections, and "moving diagrams" (*The Physical Geography of the Sea*, p. 380)—templates to establish wind or current direction at sea.

The book is also replete with lively figures. To convey the atmosphere's weight, Maury asks the reader to "imagine the lightest down, in layers of equal weight and ten feet thick, to be carded into a pit several miles deep" (*The Physical Geography of the Sea*, p. 23). The Gulf Stream's transatlantic trajectory is that which "a cannon ball, could it be shot from these [Bemini] straits to those [British] islands, would follow" (p. 54), its tail "an immense pennon floating gently . . . as . . . a steamer" (p. 345). Maury appeals to land-bound readers with domestic analogies: between trade winds and "a pair of double bellows" fanning the equator (p. 312); between southern and northern hemispheres and "the boiler and . . . the condenser of the steam-engine" (p. 28); and between the ocean and a water-heating system:

The furnace is the torrid zone; the Mexican Gulf and the Caribbean Sea are the caldrons; the Gulf Stream is the conducting

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*and Time in Their Geological Relations: A Theory of Secular Changes of the Earth's Climate* (London: Daldy, Isbister, and Co., 1875), pp. 23–53, 191–209.

<sup>16</sup> See Mills, *The Fluid Envelope of Our Planet*, p. 64. Carpenter complained about Maury's "singular wrongheadedness" and "vague and utterly untenable hypotheses" (see [William Benjamin Carpenter], "Oceanic Circulation," *Edinburgh Review*, 135, [1872], 466). Reviews of Maury include [David Brewster], "Lieutenant Maury's Geography of the Sea," *North British Review*, 28 (1858), 403–36; [Henry Morley], "Marine Meteorology," *All the Year Round*, 5 (1861), 110–17; and [Anon.], "The Poetry of the Deep Sea Waters," *Sharpe's London Magazine*, 21 (1862), 9–12 and 119–23.

pipe. From the Grand Banks of Newfoundland to the shores of Europe is the basement—the hot-air chamber—in which this pipe is flared out so as to present a large cooling surface. (p. 63)

This homely comparison (often reprinted) implied that the system's continuity was reliant on its functioning parts: a breakdown in the furnace, caldrons, or pipes would lead to havoc.<sup>17</sup> As if sensing the lurking danger, periodical writers invariably echoed Maury's declarations about the Gulf Stream's "influence . . . upon climate that makes Erin [Ireland] the 'Emerald Isle of the Sea,' and that clothes the shores of Albion [England] in evergreen robes; while in the same latitude, on this side, the coasts of Labrador are fast bound in fetters of ice" (*The Physical Geography of the Sea*, p. 64). Though he would have found this trope in earlier writers on climatology, including Charles Lyell and Humboldt, Maury presents it as a vivid hypothesis newly latent with disaster: the possibility that a shift in ocean currents could lead to a dramatic change in climate.<sup>18</sup> It is one of several cataclysmic scenarios he rehearses, paradoxically, via the stock figures of natural theology. Maury mentions the Creator as watchmaker (*The Physical Geography of the Sea*, pp. 69–70), for instance, yet that figure recedes in the hypothetical lament that, were the world's rivers "to dry up, political communities would be torn asunder, the harmonies of the earth would be destroyed, and that beautiful adaptation of physical forces to terrestrial machinery, by which climates are regulated, would lose its adjustment and run wild, like a watch without a balance" (p. 106). While detailing a presently stable system, Maury's rhetoric of unpredictability encouraged sensational coverage later in the century and beyond.

As the Gulf Stream debate matured from the 1860s through the 1930s, primarily in Britain, Germany, and the Scandinavian nations, its cultural purchase became more

<sup>17</sup> See [Anon.], "The Gulf-Stream," *Chambers's Journal of Popular Literature, Science and Arts*, 4 (1855), 229.

<sup>18</sup> See Charles Lyell, *Principles of Geology*, 3 vols. (1830–33; rpt. Chicago: Univ. of Chicago Press, 1990), I, 108–9; and Alexander Humboldt, *Cosmos: Sketch of a Physical Description of the Universe*, trans. Edward Sabine, 4 vols. (London: Longman, Brown, Green, and Longmans, 1846–58), I, 323.

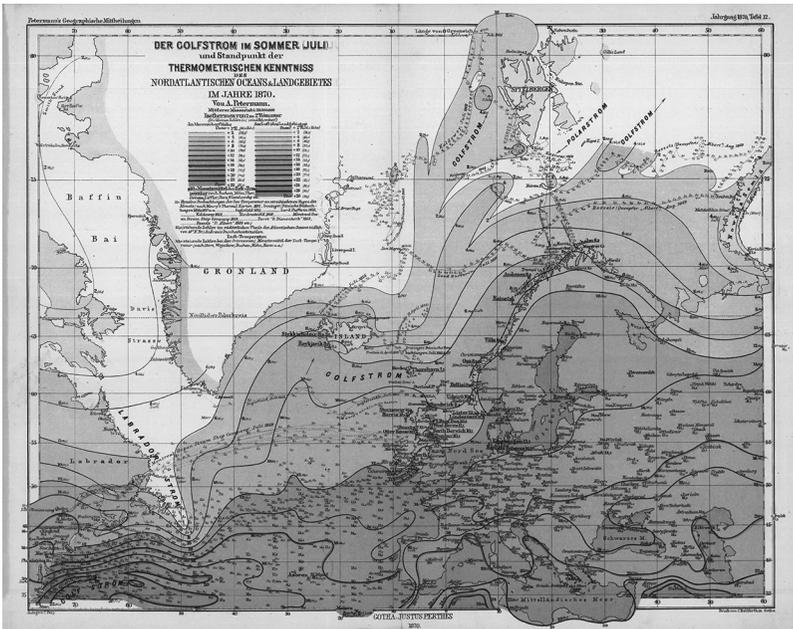


FIGURE 3. August Petermann, “Der Golfstrom im Sommer (Juli),” *Petermanns Geographische Mittheilungen*, 16 (1870), Table 12.

prominent.<sup>19</sup> Two reasons can be cited: its stunning visual culture and its increasing emphasis on variability. Beyond those developed by Maury, maps, charts, and atlases produced by scientists like August Petermann, Heinrich Berghaus, and Alexander Keith Johnston (see Figures 3 and 4) offered an aesthetic confirmation of the current’s climatic effects. Petermann argued that the Gulf Stream extended all the way to northern Europe. His isothermal charts, illustrating what he termed *thermometric knowledge*, underscored the claim with graded color bands unfurling from American shores and embracing European countries up to the Arctic with a warmth that belied their high latitudes.<sup>20</sup> Petermann’s colored isotherms (more

<sup>19</sup> On the importance of German and Scandinavian oceanography, see Wolf H. Berger, *Ocean: Reflections on a Century of Exploration* (Berkeley and Los Angeles: Univ. of California Press, 2009), p. 156; and Mills, *The Fluid Envelope of Our Planet*, pp. 4–6.

<sup>20</sup> See August Petermann, “Der Golfstrom und Standpunkt der thermometrischen Kenntniss des Nord-Atlantischen Oceans und Landgebiets im Jahre 1870 [The Gulf

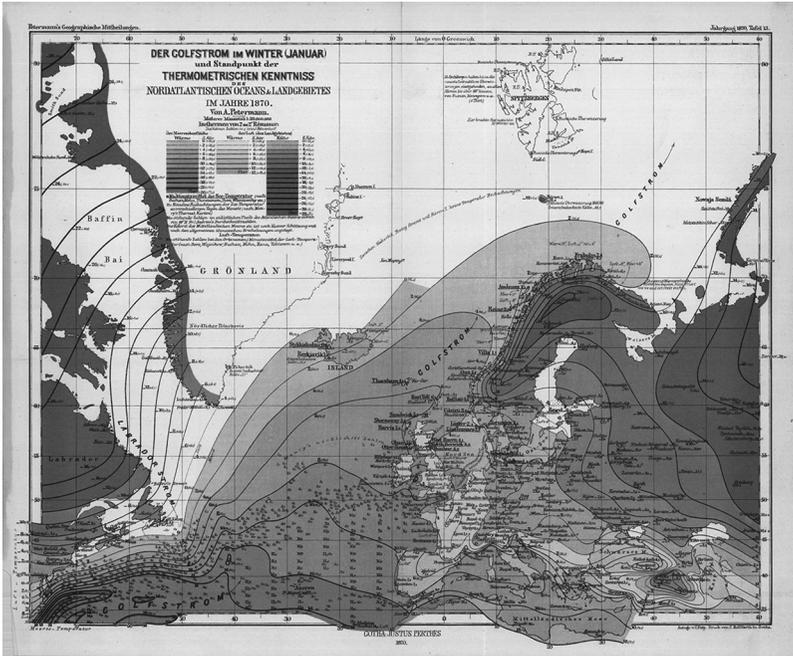


FIGURE 4. August Petermann, “Der Golfstrom im Winter (Januar),” *Petermanns Geographische Mittheilungen*, 16 (1870), Table 13.

dazzling than comparable images in works by Maury or others) supplement text and data, lending an aesthetic allure to the poleward current.

Perhaps on account of unseasonable warmth in the 1860s, the problem of variability—the second reason for the discourse’s growing prominence—took on greater importance in debates about the climatic influence of ocean currents. If discussions of the Gulf Stream prior to Maury did not typically question its continuance, “hurrying onward for ever and ever, without rest or pause, with the certainty of fate, and the steadiness of irresistible power” (as one writer put it in 1840), then the current’s later popularity resulted from the “impression . . . that something unusual has happened to it, which had diverted it out of its ordinary course, and so given

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Stream and Survey of Thermometric Knowledge of the North Atlantic Ocean and Environs in 1870,” *Petermanns Geographische Mittheilungen*, 16 (1870), 201–44.

us a season of extraordinarily high temperatures” (as another writer observed in 1869).<sup>21</sup> We often find the prediction, horrifying to its authors, that Britain might become “a new Labrador” without the Gulf Stream, and “cease to be the seat of a numerous and powerful people” ([Anon.], “The Gulf Stream” [1855], p. 229).<sup>22</sup>

At this point, as the dialectic tilted from stasis to change, both natural fluctuation and human terraforming were raised as potential threats to “the grandest and most beneficent of all purely geographical phenomena,” as the American environmentalist George Perkins Marsh called it (*Man and Nature*, p. 442). Marsh’s hypothetical worry was one familiar to Maury and others before him: would transecting the isthmus of Panama, “the most colossal project of canalization ever suggested” (*Man and Nature*, p. 441), modify current patterns by bridging the Atlantic and Pacific Oceans?<sup>23</sup> Marsh joined Maury, Petermann, and Croll on one side of this debate, worrying about the catastrophic repercussions of such a canal. On the other side, A. G. Findlay and Carpenter were unconcerned, skeptical of claims about the Gulf Stream’s extent and “exaggerated estimates of its potency” (Carpenter, “Oceanic Circulation,” p. 430).<sup>24</sup> These debates gained public notice, meriting a humorous mention in Benjamin Disraeli’s *Lothair* (1870), where dinner conversation turns on whether

<sup>21</sup> John Neal, “The Gulf Stream,” *London Saturday Journal*, 3 (1840), 358; [Anon.], “The Gulf Stream,” *The Field*, 33 (1869), 145.

<sup>22</sup> On Britain as “a new Labrador,” see George Perkins Marsh, *Man and Nature; Or, Physical Geography as Modified by Human Action*, ed. David Lowenthal (Cambridge, Mass.: Harvard Univ. Press, [1864] 1965), p. 443n. Marsh is quoting Georg Hartwig, *Das Leben des Meeres* (1857).

<sup>23</sup> The worry was not unfounded: “when the isthmus started to close (roughly 5 million years ago), the climate of the North Atlantic became unusually warm for the next 2 million years” (Berger, *Ocean*, p. 162).

<sup>24</sup> See also W[illiam] B[enjamin] Carpenter, “On the Gibraltar Current, the Gulf Stream, and the General Oceanic Circulation,” *Proceedings of the Royal Geographical Society of London*, 15 (1870–71), 54–88; Carpenter, “The Gulf Stream: Part I—What It Does,” *Good Words*, 14 (1873), 17–25; Carpenter, “The Gulf Stream: Part II—What It Does Not; And What General Oceanic Circulation Does,” *Good Words*, 14 (1873), 98–107; A. G. Findlay, “On the Gulf Stream,” *Proceedings of the Royal Geographical Society of London*, 13 (1869), 102–12; Findlay, “Ocean Currents and Their Influences,” *Journal of the Royal United Service Institution*, 14 (1870), 140–47; and Keith Johnston, Jr., “The Gulf Stream,” *The Academy*, 2 (1870), 40–42.

“the Gulf Stream had changed its course, and the political and social consequences that might accrue”: “a series of severe winters at Rome,” one character remarks, “might put an end to Romanism.”<sup>25</sup> By century’s end, the conceit of instability was also adopted by the “apocalyptic imaginary” of Victorian science fiction.<sup>26</sup> Henry Crocker Marriott Watson’s *The Decline and Fall of the British Empire* (1890), Fred M. White’s *The White Battalions* (1900), and Louis P. Gratacap’s *The Evacuation of England: The Twist in the Gulf Stream* (1908) all featured a scenario where the isthmus of Panama was breached (intentionally or otherwise), the Gulf Stream disrupted, and transatlantic climate catastrophically altered.<sup>27</sup> As the Gulf Stream achieved a staying power traceable from Victorian science into the broader culture, then, its vivid aesthetics and ominous variability guaranteed discursive persistence.



Where nineteenth-century science (and fin-de-siècle science fiction) increasingly inquired into the variability of the Gulf Stream, much mainstream literary writing tended to deploy the trope of climatic influence as a stable reference point. Johann Wolfgang von Goethe’s 1771 tribute to William Shakespeare notes that “evil is necessary for good to exist . . . , just as the tropics must be torrid and Lapland frigid for there to be a temperate zone.”<sup>28</sup> A young Alfred Tennyson evokes the stream’s surging strength as a poetic model, hoping that:

<sup>25</sup> Benjamin Disraeli, *Lothair*, new ed. (London: Longman, Green, and Co., 1870), p. 30.

<sup>26</sup> Ailise Bulfin, “The Natural Catastrophe in Late Victorian Popular Fiction: ‘How Will the World End?’” *Critical Survey*, 27, no. 2 (2015), 82.

<sup>27</sup> On the first two works, see Bulfin, “Natural Catastrophe,” p. 96; on the third, see James Rodger Fleming, *Fixing the Sky: The Checkered History of Weather and Climate Control* (New York: Columbia Univ. Press, 2010), pp. 34–35.

<sup>28</sup> Johann Wolfgang von Goethe, “Shakespeare: A Tribute” (1771), in his *Essays on Art and Literature*, ed. John Gearey, trans. Ellen von Nardroff and Ernest H. von Nardroff, vol. 3 of *The Collected Works* (Princeton: Princeton Univ. Press, 1986, 1994), p. 165.

Mine be the power which ever to its sway  
 Will win the wise at once, and by degrees  
 May into uncongenial spirits flow;  
 Even as the warm gulf-stream of Florida  
 Floats far away into the Northern seas  
 The lavish growths of southern Mexico.<sup>29</sup>

Tennyson's sonnet establishes an analogy between poetic and oceanic powers by alluding to "some broad river rushing down alone" ("Mine be the Strength," p. 382), confirming that Maury's "river in the ocean" was familiar even before he popularized the image.<sup>30</sup> The sestet quoted uses the conventional *volta* to draw that "broad river" from solitude to society. Tennyson's desire for a poetic vigor that will gradually sway "uncongenial spirits" presupposes the constancy of its metaphorical vehicle. An old Henry Wadsworth Longfellow posits a similar connection, writing of late literary productions:

... they show  
 How far the gulf-stream of our youth may flow  
 Into the arctic regions of our lives,  
 Where little else than life itself survives.<sup>31</sup>

Again, the figure connotes durability (of the Gulf Stream, of poetic vitality), though there may also be the implication that the climate of Longfellow's age was not quite that of his youth. He repurposed the trope in other poems. One about the early-modern explorer Humphrey Gilbert follows his crew as "They

<sup>29</sup> Alfred Tennyson, "Mine be the strength of spirit, full and free" (1832), in *The Poems of Tennyson in Three Volumes, Second Edition Incorporating the Trinity Manuscripts*, ed. Christopher Ricks, 3 vols. (Berkeley and Los Angeles: Univ. of California Press, 1987), I, 382.

<sup>30</sup> Norman Lockyer (the first editor of *Nature*) and Winifred L. Lockyer cite this sonnet as one among many examples of Tennyson's scientific knowledge (see Lockyer and Lockyer, *Tennyson as a Student and Poet of Nature* [London: Macmillan, 1910], p. 198).

<sup>31</sup> Henry Wadsworth Longfellow, "Morituri Salutamus" (1875), in his *Poems and Other Writings*, ed. J. D. McClatchy (New York: Library of America, 2000), p. 627.

drift through dark and day; / And like a dream, in the Gulf-Stream / Sinking, vanish all away.”<sup>32</sup> Elsewhere, Longfellow turned the current into a joke about a frigid reception, quipping that Boston audiences were so cold that the Gulf Stream “would hardly raise their temperature a degree.”<sup>33</sup> The conceit of stability also attracted minor poets, as in this overwrought apostrophe to the Gulf Stream from 1898:

Nor all the vaunted might of man,  
In leagued compulsion on thee hurled,  
Could alter thy primordial plan,—  
The pure ablution of the world!<sup>34</sup>

John Ruskin, who was aware of the Gulf Stream’s presumed effects and alluded to them in his wider reflections on climate, represents a major exception to the assumption of stasis. In *Munera Pulveris* (1862–63), Ruskin had raised the current to mythological status by drawing an invidious contrast between its stability and “the circulation of wealth” under capitalism: the latter “ought to be soft, steady, strong, far-sweeping, and full of warmth, like the Gulf stream,” Ruskin mused, when in fact it “changes into the alternate suction and surrender of Charybdis.”<sup>35</sup> In *The Bible of Amiens* (1880–85), reviving an eighteenth-century discourse of climate determinism, Ruskin notes that “the British Islands, though for the most part thrown by measured degree much north of the rest of the north zone, are brought by the influence of the Gulf Stream into the same climate.”<sup>36</sup> Yet at this late moment in Ruskin’s career, he thought capitalism’s socioecological vices had corrupted the Gulf Stream into a less benign stability, threatening Britain’s

<sup>32</sup> Henry Wadsworth Longfellow, “Sir Humphrey Gilbert” (1850), in *Poems and Other Writings*, p. 131.

<sup>33</sup> Henry Wadsworth Longfellow, letter to Charles Sumner, 8 December 1867, in *The Letters of Henry Wadsworth Longfellow*, ed. Andrew Hilen, 6 vols. (Cambridge, Mass.: Belknap Press of Harvard Univ. Press, 1966–82), V, 191.

<sup>34</sup> James H. Cousins, “The Gulf Stream,” *The Wesleyan-Methodist Magazine*, 121 (1898), 832.

<sup>35</sup> John Ruskin, *Munera Pulveris*, in *The Works of John Ruskin*, ed. E. T. Cook and Alexander Wedderburn, 39 vols. (London: George Allen, 1903–1912), XVII, 208.

<sup>36</sup> John Ruskin, *The Bible of Amiens*, in *The Works of John Ruskin*, XXXIII, 100.

climate. The current appears in the 1880s as an analog for the anthropogenic climate curse that Ruskin termed the “storm-cloud” or “plague-wind”: like them, it “blows without cessation.”<sup>37</sup> To his long-suffering pal Charles Eliot Norton, he wrote: “It is snowing and freezing bitterly, and I consider it all the fault of America and failure of duty in Gulf Stream”—as if (in Ruskin’s glum joke) the main function of the United States were to keep the sage of Brantwood’s toes warm.<sup>38</sup>

Unlike Tennyson and Longfellow, who invoked the Gulf Stream simply as an unusual metaphor for poetic vigor, two nineteenth-century poets who found more complex uses for the trope both acknowledged the threat of variability. The first is Gerard Manley Hopkins. If Hopkins seems improbable as a transatlantic poet or a theorist of climate, we might recall that his celebrated long poem, *The Wreck of the Deutschland* (1875), concerned the fate of a ship headed from Bremen to the United States, and that his father, Manley Hopkins, was a marine insurance adjuster and author of several works that emphasized the risks of volatile oceans.<sup>39</sup> Many of Hopkins’s poems and journals were dedicated to meteorological, climatic, and more broadly aerial phenomena, as well as to seasonal change. In late poems like “The Blessed Virgin compared to the Air we Breathe” (1883) and “That Nature is a Heraclitean Fire” (1888), Hopkins drew on scientific ideas to imagine large-scale systems—the atmosphere, the hydrological cycle—while deploying his routinely embodied sense of ecological perception.<sup>40</sup> His “representations of fragile interdependence” between poetic speaker and natural setting, I argue elsewhere,

<sup>37</sup> John Ruskin, *The Storm-Cloud of the Nineteenth Century* (1884), in *The Works of John Ruskin*, XXXIV, 35.

<sup>38</sup> John Ruskin, letter to Charles Eliot Norton, 23 March 1887, in *The Works of John Ruskin*, XXXVII, 587. A few years earlier, Ruskin mentions unseasonal cooling and “an unusually early appearance of ice in the Atlantic” (*The Storm-Cloud of the Nineteenth Century*, p. 65).

<sup>39</sup> Manley Hopkins’s books include *A Handbook of Average* (1859), *A Manual of Marine Insurance* (1867), and *The Port of Refuge, or Advice and Instructions to the Master-Mariner, in Situations of Doubt, Difficulty, and Danger* (1873)—all commercial cousins of Maury’s wind and sea charts.

<sup>40</sup> See Daniel Williams, “Stem and Skein: Order and Evolution in Hopkins,” *Victorian Poetry*, 53 (2015), 441–45; and Williams, “Down the Slant Towards the Eye: Hopkins and Ecological Perception,” *Victorian Literature and Culture*, 48 (2020), 127–54.

“open out an ecological imaginary that bridges many scales from the minute to the massive” (Williams, “Down the Slant Towards the Eye,” p. 137).<sup>41</sup> “The Blessed Virgin compared to the Air we Breathe,” for instance, praises the air “rife / In every least thing’s life,” while also envisioning the calamity of Earth without its azure shield:

Whereas did air not make  
This bath of blue and slake  
His fire, the sun would shake,  
A blear and blinding ball  
With blackness bound, . . .  
In grimy vasty vault.<sup>42</sup>

The poem I focus on here is an early one, reticent about its ecological stakes but still compelling as a reflection on transatlantic climate. “Winter with the Gulf Stream” (1863) has the distinction of being Hopkins’s only poem to find periodical publication in his lifetime, in *Once a Week*, although he revised it in 1871. He likely saw an earlier article in the same journal discussing Maury’s work and the Gulf Stream’s role in creating “a hot-house atmosphere of nature’s own contriving,” and may also have been responding to an unseasonably warm winter in 1862–63.<sup>43</sup> The poem is a reflection on atmospheric fortune—the fact of Britain’s relatively mild climate for its latitude. Writing in *terza rima*, Hopkins claims poetic and meteorological kin with Percy Bysshe Shelley’s “Ode to the West Wind” (1820). But where Shelley’s poem trades on seasonal stability—“If Winter comes, can Spring be far behind?”—Hopkins implicitly reflects on the circumstances

<sup>41</sup> For my reading of this poem, see “Down the Slant Towards the Eye,” pp. 137–42.

<sup>42</sup> Gerard Manley Hopkins, “The Blessed Virgin compared to the Air we Breathe,” in *The Poetical Works of Gerard Manley Hopkins*, ed. Norman H. MacKenzie (Oxford: Clarendon Press, 1990), pp. 173, 175, ll. 7–8, 94–98, 102. Further references to Hopkins’s poetry are to this edition.

<sup>43</sup> [Anon.], “Ocean Horticulture,” *Once a Week*, 1 (1859), 283. Norman H. MacKenzie mentions the unseasonable warmth and cites a letter to the *Times* crediting the Gulf Stream and using Maury’s epithet, “the river of the ocean” (see MacKenzie, note, in *The Poetical Works of Gerard Manley Hopkins*, p. 226).

of climatic contingency.<sup>44</sup> As Jerome Bump notes, “Winter with the Gulf Stream” showcases Hopkins’s “willingness to replace the Keatsian love of stasis with the dramatization of the forces of nature.”<sup>45</sup> That dramatization is latent with the possibility of change, embodied in a poetic shape that evinces “something of imbalance and excess” and is itself in tension between change and stasis, “powerful forward momentum” and “processes without beginning or end.”<sup>46</sup>

At the outset of “Winter with the Gulf Stream,” Hopkins sketches a portrait of winter under benign conditions: “The boughs, the boughs are bare enough / But earth has never felt the snow.”<sup>47</sup> In these opening lines, the oppressive weight of alliteration melts, over the line break, into sonic and sensory relief. As the speaker continues to record such shifting sensations, it seems clear that the lines are reporting on the landscape from outdoors, body open to the elements. The Gulf Stream precludes snow altogether (“never,” updated from the first version’s hesitant “not yet”), and the personified earth basks in this privative gift. The poem focuses on wintry effects by means of insistent parallelism: two stanzas depict cold and dry conditions, when “the sighing wind is low”; two offer the results of “rain-blasts . . . unbound” (“Winter with the Gulf Stream,” ll. 6, 7). But in neither scenario does the season arrest growth: it simply slows the cyclical processes implied by the “mounded mire,” the “foliage fallen in the copse” (ll. 10, 12). Continuing the poem’s contrasts, Hopkins observes the moon and sun (“yonder crimson fireball”) in a scene that seems rich and peaceful (“laid for feasting and for rest”) near a river

<sup>44</sup> Percy Bysshe Shelley, “Ode to the West Wind,” in *Shelley’s Poetry and Prose: Authoritative Texts, Criticism*, ed. Donald H. Reiman and Sharon B. Powers (New York: W. W. Norton and Co., 1977), p. 223, l. 70.

<sup>45</sup> Jerome Bump, “Hopkins and Keats,” *Victorian Poetry*, 12 (1974), 41.

<sup>46</sup> Robert Hass, *A Little Book on Form: An Exploration into the Formal Imagination of Poetry* (New York: Ecco, 2017), p. 53; Lawrence J. Zillman and Clive Scott, “Terza Rima,” in *The Princeton Encyclopedia of Poetry and Poetics*, ed. Roland Greene, Stephen Cushman, Clare Cavanagh, Jahan Ramazani, and Paul Rouzer, 4th ed. (Princeton: Princeton Univ. Press, 2012), p. 1423.

<sup>47</sup> Gerard Manley Hopkins, “Winter with the Gulf Stream [Revision of 1871],” in *The Poetical Works of Gerard Manley Hopkins*, p. 16, ll. 1–2. The 1863 version is on pp. 15–16. Further references are to the 1871 edition and are cited in the text by line number.

likened to the mythological Pactolus, where Midas washed off his golden touch (ll. 23, 24). Each detail of the landscape is suffused with a wealth and vitality conferred by climatic beneficence—by natural entities and processes rather than economic ones. This is made clear in the “gold-water” river (l. 27) and, as Bump notes, in the “lapidary adjectives” so beloved by Hopkins in imitation of John Keats (“Hopkins and Keats,” p. 40)—“a berg of hyaline,” “beryl-covered fens” (“Winter with the Gulf Stream,” ll. 17, 26)—that imply natural wealth outside of economic circuits. The poem also fits an abstract, elemental matrix, referring sequentially to earth, sky, water, and fire (ll. 2, 16, 22–23).

The uptake of the Gulf Stream discourse in such a youthful poem confirms its cultural penetration and also, I would argue, undercuts the claim of Hopkins’s modern editor that “the researches of oceanographers are likely to render the title obscure.”<sup>48</sup> Although jejune, more so in the 1863 version that Hopkins penned and published when a pupil at Highgate School, “Winter with the Gulf Stream” clearly anticipates his later concerns. The poem joins different orders of scale, thinks in systemic images, and is alert to ecological fragility. Hopkins gestures at the phenomenon of his title only obliquely: the image of the moon as a “berg” (an iceberg) quietly implies a vision of the frigid Atlantic (“Winter with the Gulf Stream,” l. 17). But I believe he has the celebrated ocean current in mind in the concluding stanza’s air of catastrophe. When “the sun / Drops out,” it is not just the day but “all our day” (ll. 31–32) that ominously recedes from view, giving this locodescriptive poem an apocalyptic undertone.<sup>49</sup> Like its companion, “Spring and Death” (c. 1863), which recounts a dream where Death stalks an abnormally cold spring landscape, marking trees and flowers with “a subtle web of black,” this brusque conclusion prompts the question couched in

<sup>48</sup> Norman H. MacKenzie, “Introduction,” in *The Poetical Works of Gerard Manley Hopkins*, p. lxxviii.

<sup>49</sup> Hopkins intensifies this ending after the first version, with a punning reference to the title: “the sun / Drops down engulf’d, his journey done” (“Winter with the Gulf Stream” [1863], p. 16, ll. 31–32).

Hopkins's qualifying title.<sup>50</sup> What would be winter *without* the Gulf Stream?

Following Hopkins's vision westward, I turn now to a poet who made similar aesthetic use of the "river in the ocean": Sidney Lanier, a minor figure more memorable for his theories of poetics than for his poetry, although noted on both sides of the Atlantic in his lifetime. Lanier's obsession with climate was biographical. During the American Civil War—when he sided, like Maury, with the Confederacy—Lanier became consumptive, and spent much of the rest of his life seeking the therapy of warmer climates.<sup>51</sup> He wrote a guidebook to *Florida* (1875) framed by climatic concerns, at once mocking the reports of "ordinary healthy people" and self-consciously demurring about "the unreliableness of sick men's accounts."<sup>52</sup> A chapter on the state's climate cribs Maury and Bache to describe the mutually benign effects of the Gulf Stream, "the contemplation of which no man can approach without a fresh uprising of wonder" (Lanier, *Florida*, p. 101).<sup>53</sup> Florida's temperature, Lanier writes, is "just cool enough to save a man from degenerating into a luxurious vegetable of laziness, and just warm

<sup>50</sup> Gerard Manley Hopkins, "Spring and Death," in *The Poetical Works of Gerard Manley Hopkins*, p. 17, l. 20. See MacKenzie, note, in *The Poetical Works of Gerard Manley Hopkins*, p. 227.

<sup>51</sup> The relationship between climatology, oceanography, and the Civil War is borne out in Confederate ballads that appeal to natural forces: e.g., Henry Timrod's "Ethnogenesis" (1861) likens the Confederacy to the Gulf Stream that "through the cold, untempered ocean pours / Its genial streams, that far off Arctic shores / May sometimes catch upon the softened breeze, / Strange tropic warmth and hints of summer seas!" (Henry Timrod, "Ethnogenesis," in *The Collected Poems of Henry Timrod: A Variorum Edition*, ed. Edd Winfield Parks and Aileen Wells Parks [Athens: Univ. of Georgia Press, 1965], p. 95). A key German work also oddly uses the Civil War as an endpoint for its history of a natural phenomenon: see J. G. Kohl, *Geschichte des Golfstroms und seiner Erforschung von den ältesten Zeiten bis auf den grossen amerikanischen Bürgerkrieg* (*History of Gulf Stream Research from Ancient Times to the Great American Civil War*) (Bremen: C. Ed. Müller, 1868).

<sup>52</sup> Sidney Lanier, *Florida*, in his *Florida and Miscellaneous Prose*, ed. Philip Graham, vol. 6 of *The Centennial Edition of the Works of Sidney Lanier* (Baltimore: Johns Hopkins Univ. Press, 1945), pp. 7, 34.

<sup>53</sup> See *Florida*, pp. 101–15. Lanier cites Maury's naval reports and *The Physical Geography of the Sea*; he also read Maury's "The Gulf Stream and Currents of the Sea" (see editor's note in *Florida*, p. 29n). *Florida* includes chapters with advice for consumptives (pp. 141–46) and Northerners seeking atmospheric therapy in the South (pp. 147–83).

enough to be nerve-quieting and tranquillizing" (*Florida*, p. 112).

Lanier's poems, like Hopkins's, often encode such awareness of our bodily sensitivity and openness to the environment. So do his poetic theories. In his treatise on prosody, *The Science of English Verse* (1880), one chapter ("The Rhythm of Nature") uses Herbert Spencer's notion that "all the motions of nature resulted from an antagonism of forces" to dismantle "the conventional distinction between substance and form."<sup>54</sup> Lanier deploys this innovative metrics of antagonism to forward two main beliefs: an Emersonian sacramentalism of nature; and a Ruskinian critique of commercialism that decries, again in medico-climatic terms, "that universal killing ague of modern life—the fever of the unrest of trade" (*Florida*, p. 9).<sup>55</sup>

In several poems, these topics figuratively expand to take in large-scale processes. For example, in "Corn" (1875) Lanier draws an analogy between poetic process and photosynthesis. Both poet and plant are involved in a process of renewable exchange, turning the "universal food" of solar energy, stored in "antique ashes," into "finer life and longer fame."<sup>56</sup> The chiasitic alliteration (*f*, *l*) enacts in form what occurs in substance: a blending together. The dignified stasis of a field of corn, which "into cool solacing green hast spun / White radiance hot from out the sun," is contrasted with rootless societies "built on the shifting sand / Of trade" and the evanescent products of those "incalculable tides / Whereon capricious Commerce rides" (Lanier, "Corn," p. 37). Lanier thus establishes a kinship between processes in the poet's body and in natural systems. Both embody dignity and delight (feeding on "honest mould" and "joyful light"), whereas society is excoriated

<sup>54</sup> Charles R. Anderson, "Introduction," in Sidney Lanier, *Poems and Poem Outlines*, ed. Charles R. Anderson, vol. 1 of *The Centennial Edition of the Works of Sidney Lanier* (Baltimore: Johns Hopkins Univ. Press, 1945), pp. lxxv, lxxiv. Further references to Lanier's poetry are to this edition.

<sup>55</sup> Anderson describes Lanier's "The Symphony" (1875) as "the first important American poem protesting against economic tyranny and the enslavement of the spirit by commercialism"; he also notes that it is "less akin to the reformist poetry of the Victorians . . . than it is to Ruskin in *Unto this Last*" ("Introduction," in *Poems and Poem Outlines*, pp. xlii-xliii; p. xliii, n. 6o).

<sup>56</sup> Sidney Lanier, "Corn," in *Poems and Poem Outlines*, p. 36.

for values that are figured as departing from natural regularities (resting on “*shifting sand*” and “*incalculable tides*”) (“Corn,” pp. 36, 37; emphases added). In other poems, Lanier evinces similar praise for Earth systems. He wrote a series dedicated to the sun, the “chemist of storms,” emphasizing its global reach from north and south (“subtler essences polar that whirl / In the magnet earth”) to east (“silver passages of sacred lands”).<sup>57</sup> He also composed several poems in praise of marshes along the southern coast. “The Marshes of Glynn” (1878), the most accomplished, ecstatically turns its back on what is “westward”—“The world lies east: how ample, the marsh and the sea and the sky!”—to offer a striking image of sunset when “the sea and the marsh are one.”<sup>58</sup>

Lanier often faced both east and west, in various senses. His most famous poem, *Psalm of the West* (1876), celebrated the centenary of American independence in a multi-metrical extravaganza that Jason Rudy has memorably dubbed “manifest prosody,” its “meters function[ing] less as spaces in which to feel at home, and more as territory through which one passes.”<sup>59</sup> The poem imagines early landings in America up to Christopher Columbus, including the apocryphal tale of an Irish lord who was blown off course and landed somewhere he dubbed “Great Ireland,” which Lanier decides could be Georgia or Florida. Yet even within this nationalist framework, ecological figures abound: the crux of the poem disproves Columbus’s worry—“Oh, if this watery world no turning take!”—about a flat ocean.<sup>60</sup>

Ecological concerns at various scales—climatic and corporeal—and the tensions of literary-cultural belonging thus make up the background of the poem where Lanier invokes “our Gulf-Stream”: an address to famine-struck “Ireland” (1880) first published in *The Art Autograph*.<sup>61</sup> As in *Psalm of the West*, Lanier

<sup>57</sup> Sidney Lanier, “Sunrise” (1882) and “A Sunrise Song” (1881), in *Poems and Poem Outlines*, pp. 149, 143.

<sup>58</sup> Sidney Lanier, “The Marshes of Glynn,” in *Poems and Poem Outlines*, pp. 120, 121.

<sup>59</sup> Jason R. Rudy, “Manifest Prosody,” *Victorian Poetry*, 49 (2011), 256.

<sup>60</sup> Sidney Lanier, “Psalm of the West,” in *Poems and Poem Outlines*, p. 70.

<sup>61</sup> Sidney Lanier, “Ireland,” in *Poems and Poem Outlines*, p. 136, l. 5. Further references are cited in the text by line number. On the poem’s publication history, see Anderson, notes, in *Poems and Poem Outlines*, p. 363.

self-consciously uses an Old World meter, the ballad stanza, formally and thematically breathing life into a culture on one side of the Atlantic—Ireland, that “Bright beguiler of old anguish”:

As our Gulf-Stream, drawn to thee-ward,  
     Turns him from his northward flow,  
 And our wintry western headlands  
     Send thee summer from their snow,  
  
 Thus the main and cordial current  
     Of our love sets over sea,—  
 Tender, comely, valiant Ireland,  
 Songful, soulful, sorrowful Ireland,—  
 Streaming warm to comfort thee.

    (“Ireland,” ll. 3, 5–13)

As above, the poem’s reach is geographically expansive, taking in the landscape of the United States and the Gulf Stream’s transatlantic “flow.” Lanier figuratively merges both subject and addressee with the natural world—he merges the subject with the Gulf Stream itself, via the “cordial current / Of our love,” embedding a pun on heart (*cordial*, from Latin, *cors*, “heart”); and he merges the addressee with Ireland’s receiving interior, via the portmanteau “thee-ward” (echoing *leeward*, meaning “downwind”). Lanier’s alliterations formally join thematic oppositions (*summer/snow*) to underline the poem’s nostalgic affect, its yearning for connection. Further, in its enjambed stanzas and phrasal patterns that expand from stately doubles at the beginning (“Heartsome Ireland, winsome Ireland, / Charmer of the sun and sea” [ll. 1–2]) to overflowing triples by the end (“Songful, soulful, sorrowful Ireland”), Lanier seems to imitate the Gulf Stream itself as it moves across the Atlantic and splits into myriad channels. The poised perfect rhymes (*flow/snow*, *sea/thee*) likewise work in tension with the unsettled slant rhymes (*current/Ireland*), at once offering dependable affect and presaging disrupted flow.

If, as Yopie Prins has suggested, Lanier typically “returns to English verse not to measure the rhythmic experience of a subjective body but to imagine a national body,” then “Ireland” expands his commitment to “poetry as collective thought” beyond American shores, as if to imagine a transatlantic body.<sup>62</sup> Indeed, the poem might be characterized as a message in a bottle (akin to those used by Victorian oceanographers like Maury to track transatlantic currents), floating on its “cordial current” across to Hopkins, who by 1880 was in Ireland suffering from the tuberculosis that would end his life.<sup>63</sup> Hopkins had actually come across Lanier’s prosodic theories and poetic excerpts in a posthumous appraisal in 1884, noting with tantalizing brevity that the American “had good notions about poetical form, . . . scansion, etc, and died young, in struggling circumstances.”<sup>64</sup> Moreover, if Lanier “turned to England and its cultural heritage as the true source of American spirit” while the postbellum “United States retreated from federalism to a more centralized national government,” as Rudy has argued (“Manifest Prosody,” p. 261), I would further venture that the turn to Ireland in this poem of seasons and scarcity adds a climatic twist to Lanier’s cultural retrospect. The climatic undercurrent in “Ireland” magnifies the poem’s spatial and temporal reach in a manner that is similar to Hopkins’s conclusion in “Winter with the Gulf Stream.” Although Lanier’s historical referent in “Ireland” is the famine of 1879, surely explicable as a primarily political rather than natural occurrence, the line “How could Famine frown on thee?” might sound a more existential note for a reader of Maury, who mentioned Ireland as

<sup>62</sup> Yopie Prins, “Historical Poetics, Dysprosody, and *The Science of English Verse*,” *PMLA*, 123 (2008), 233.

<sup>63</sup> Whether we can imagine such a current returning westward is another matter. Although intrigued by the Atlantic qua ocean, Hopkins was less interested in the United States or its literature. Walt Whitman is the exception, but Robert Weisbuch notes that here Hopkins’s “anxiety was so great that it cancelled influence” (Weisbuch, *Atlantic Double-Cross: American Literature and British Influence in the Age of Emerson* [Chicago: Univ. of Chicago Press, 1986], p. 29).

<sup>64</sup> Gerard Manley Hopkins, letter to Robert Bridges, 16–19 April 1884, in *Correspondence, 1852–1881*, ed. R. K. R. Thornton and Catherine Phillips, 2 vols., vols. 1–2 of *The Collected Works of Gerard Manley Hopkins* (New York: Oxford Univ. Press, 2013), II, 671–72.

one of the beneficiaries of the Gulf Stream (Lanier, "Ireland," 1. 4). The implicit answer is twofold: Ireland seems to be suffering from a temporary falling-off of the Gulf Stream, and it might feel the frown of famine in a more permanent sense if a more enduring change of climate were to take hold.

Hopkins and Lanier have never been extensively compared.<sup>65</sup> Using the Gulf Stream to assert their kinship in the context of an underappreciated scientific and popular discourse foregrounds some intriguing similarities. Both were idiosyncratic practitioners and agile theorists of verse, invested in metrical experimentation, musical notation, and archaic languages and forms.<sup>66</sup> Both were terminal consumptives alert to the body's unpredictable vulnerability to the environment. Both were students of contemporary science who also saw nature as a site of divinity and a warrant for worship. Finally, both were influenced by Ruskin and shared his antipathy to commercialism and its deleterious effects on the natural world (appropriately enough, given Ruskin's early recognition of anthropogenic climate disturbance).<sup>67</sup> Lanier's critique of Reconstruction-era commercialism in "The Symphony" entertains an "ecomedieval nostalgia," siding with those left out of capitalist accumulation.<sup>68</sup> "O Trade! O Trade! would thou wert

<sup>65</sup> W. H. Gardner links their ideas about prosody (see Gardner, *Gerard Manley Hopkins [1844–1889]: A Study of Poetic Idiosyncrasy in Relation to Poetic Tradition*, 2d ed., 2 vols. [London: Martin Secker and Warburg, 1948–49], II, 393–97). See also Marco Graziosi, "Hopkins' Aesthetic Theory," *Hopkins Quarterly*, 16, no. 3 (1989), 74–76; and Gerald Roberts, "Hopkins and Lanier: A Transatlantic Note," *Studies: An Irish Quarterly Review*, 109 (2020), 48–53.

<sup>66</sup> John D. Kerkerling analyzes Lanier's racialized theories of Anglo-Saxon qua recurring sonic and poetic form in the context of scientific philology and opera theory (see Kerkerling, *The Poetics of National and Racial Identity in Nineteenth-Century American Literature* [Cambridge: Cambridge Univ. Press, 2003], pp. 113–30). Prins discusses Lanier's "musical system of notation for the effects of sound in poetry" ("Historical Poetics," p. 231) and his sonnets to Ludwig van Beethoven and Richard Wagner ("Historical Poetics," pp. 230–31); and Rudy in "Manifest Prosody" accounts for Lanier's metrical nationalism. Hopkins wrote a sonnet to Henry Purcell and thought much about poetry and music (see Gardner, *Gerard Manley Hopkins*, II, 379–92).

<sup>67</sup> See Vicky Albritton and Fredrik Albritton Jonsson, *Green Victorians: The Simple Life in John Ruskin's Lake District* (Chicago: Univ. of Chicago Press, 2016), pp. 38–42.

<sup>68</sup> Daniel Helbert, "Future Nostalgias: Environmental Medievalism and Lanier's Southern Chivalry," in *Studies in Medievalism XXVI: Ecomedievalism*, ed. Karl Fugelso (Cambridge: D. S. Brewer, 2017), p. 14; see 15–19.

dead!” chant the violins at the beginning of the poem, followed by the strings lamenting the “endless tale / Of gain by cunning and plus by sale.”<sup>69</sup> In “God’s Grandeur” (1877), Hopkins complains in gloomier terms that “all is seared with trade; bleared, smeared, with toil.”<sup>70</sup>

Both “Winter with the Gulf Stream” and “Ireland” invoke the Gulf Stream—musing on wind and wave, sun and sea—in ways that elide the “trade” in “trade winds,” preferring to naturalize systems of circulation. Yet via Ruskin—and this shared countermodern ideology—they can also be seen to envision the Gulf Stream as both natural system and economic circuit, opening a way to read those human activities (including, as I discuss in the next section, the transatlantic slave trade) that have exploited natural systems and helped render them volatile.



Bringing Hopkins and Lanier together is an exercise in reading the planetary record, as both literary critics and climate scientists now do, as an archive bearing indexical signatures of the Anthropocene.<sup>71</sup> My account contributes to the “oceanic turn” in literary studies and to transatlantic ecocriticism, offering a mode of reimagining the scales of ecological as well as cultural community, both past and present.<sup>72</sup> Linking the southern United States and the peripheral

<sup>69</sup> Sidney Lanier, “The Symphony,” in *Poems and Poem Outlines*, pp. 46, 47.

<sup>70</sup> Gerard Manley Hopkins, “God’s Grandeur,” in *The Poetical Works of Gerard Manley Hopkins*, p. 139, l. 6.

<sup>71</sup> See Jesse Oak Taylor, “Auras and Ice Cores: Atmospheric Archives and the Anthropocene,” *Minnesota Review*, 83 (2014), 73–82; and Nathan K. Hensley and Philip Steer, “Signatures of the Carboniferous: The Literary Forms of Coal,” in *Ecological Form*, pp. 63–82.

<sup>72</sup> For the oceanic turn, see Steven Mentz, “Toward a Blue Cultural Studies: The Sea, Maritime Culture, and Early Modern English Literature,” *Literature Compass*, 6 (2009), 997–1013; Margaret Cohen, “Literary Studies on the Terraqueous Globe,” *PMLA*, 125 (2010), 657–62; Hester Blum, “The Prospect of Oceanic Studies,” *PMLA*, 125 (2010), 670–77; and *The Sea and Nineteenth-Century Anglophone Literary Culture*, ed. Steven Mentz and Martha Elena Rojas (New York: Routledge, 2017). For transatlantic ecocriticism, see *Transatlantic Literary Ecologies: Nature and Culture in the Nineteenth-Century Anglophone Atlantic World*, ed. Kevin Hutchings and John Miller (New York: Routledge, 2017).

British Isles, Florida and Ireland, exemplifies a “decentered” transatlanticism that looks beyond dominant routes of migration and exchange between the Americas and the British Isles.<sup>73</sup> Stressing the ecocritical import of oceanography and adopting what Margaret Cohen calls a “maritime perspective” allows us to draw “new maps” at “new geographic and spatial scales” (“Literary Studies on the Terraqueous Globe,” p. 658), and to discover what Hester Blum terms “new forms of relatedness” (“The Prospect of Oceanic Studies,” p. 671).

Yet it would be remiss to overlook the oceanic elisions that constituted the world in which Hopkins and Lanier lived and worked, or to propose a model of Earth-system reading that attended only to the global North. For there is one crucial trade that cannot be decoupled from the trade winds that help to turn the North Atlantic Gyre (the clockwise system of currents that includes the Gulf Stream, the North Atlantic Current, and the North Equatorial Current, bounding the Sargasso Sea). I refer to the transatlantic slave trade, which in some ways underwrites the aesthetics I have outlined. Its network of capitalist flows directly contrasts the natural flows of wind and water that inspired Hopkins and Lanier, and indirectly sponsored the maritime and military endeavors that led to early Gulf Stream research. Maury’s scientific pursuits were matched by “an equally notable career as a defender of slavery and spokesman for an assertive American foreign and military policy.”<sup>74</sup> Lanier was likewise implicated, as a Confederate soldier, in a war that sought to perpetuate slavery’s economic and social legacy. Hopkins, the son of a marine insurance adjuster, wrote by the grace of an industry that had been fundamentally shaped through the trade in human beings, a fact of which his father was perfectly aware.<sup>75</sup> I have up to this point linked poets

<sup>73</sup> See Juliet Shields, *Nation and Migration: The Making of British Atlantic Literature, 1765–1835* (New York: Oxford Univ. Press, 2016).

<sup>74</sup> Matthew Karp, *This Vast Southern Empire: Slaveholders at the Helm of American Foreign Policy* (Cambridge, Mass.: Harvard Univ. Press, 2016), p. 36.

<sup>75</sup> As Ian Baucom observes, in the eighteenth century “the slave trade fed the insurance industry which in its turn nourished the financial revolution which inaugurated an Atlantic cycle of accumulation” (Baucom, *Specters of the Atlantic: Finance Capital, Slavery, and the Philosophy of History* [Durham, N.C.: Duke Univ. Press, 2005], p. 99). Manley Hopkins notes an exception to the rule against marine policies for human

synchronously along the meandering currents of the Gulf Stream. I close here by reading one case, that of Derek Walcott, diachronically. Of course, this brief section cannot do justice to the enormity of the topic or the scale of Walcott's epic poem *Omeros* (1990); I intend it respectfully as an acknowledgment of the long afterlife of poetic affiliation and climatic obligation along the entirety of the North Atlantic Gyre. To borrow David Armitage's taxonomy of methods for Atlantic history, this section widens my account from a "trans-Atlantic" emphasis (on Anglo-American connections) to a "circum-Atlantic" lens (on wider circulations around the ocean).<sup>76</sup>

The maritime occupies a necessarily central place in Caribbean literature, and the Gulf Stream in particular plays a key role in tracing political, cultural, ecological, and affective links among the islands, their former colonizers, and kindred post-colonial nations from Côte d'Ivoire to Ireland.<sup>77</sup> In perhaps its most celebrated poetic experiment, Walcott's *Omeros*, oceanic currents provide a link between St. Lucian fishermen and the continent from which their ancestors were torn, and between a retired English serviceman and his Irish wife and their respective lands of origin. The North Atlantic Gyre turns at the center of Walcott's poem, written (like those of Shelley and Hopkins) in *terza rima*. His persona tours several countries along the Atlantic circuit in a reckoning with imperial history—including Ireland, that "nation / split by a glottal scream," and the American South, "where history happens / to be the baying echoes of brutality, / and terror in the oaks along red country roads."<sup>78</sup> The "amnesiac Atlantic" thus offers Walcott a figurative vehicle to probe history and memory in relation to the slave trade

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beings ("slaves or Coolies, and other involuntary labourers") but then demurs: "The pen revolts from saying more on such appraisal of human beings as objects of risk and merchandise" (Hopkins, *A Manual of Marine Insurance* [London: Smith, Elder, and Co., 1867], p. 236).

<sup>76</sup> See David Armitage, "Three Concepts of Atlantic History," in *The British Atlantic World, 1500–1800*, ed. David Armitage and Michael J. Braddick (New York: Palgrave Macmillan, 2002), pp. 11–27.

<sup>77</sup> See Maria McGarrity, *Washed by the Gulf Stream: The Historic and Geographic Relation of Irish and Caribbean Literature* (Newark: Univ. of Delaware Press, 2008).

<sup>78</sup> Derek Walcott, *Omeros* (New York: Farrar Straus Giroux, 1990), pp. 199, 178. Further quotations are from this edition and are cited parenthetically in the text.

(*Omeros*, p. 61). It also anchors a maritime poetics centered on the ocean itself as “an epic where every line was erased / / yet freshly written in sheets of exploding surf” (p. 296).

These Atlantic motifs forge a direct link to the nineteenth-century discourse of the Gulf Stream when Walcott’s persona walks into the Museum of Fine Arts in Boston and recognizes his central character, Achille, in the beleaguered subject of Winslow Homer’s iconic painting *The Gulf Stream* (1899). The painting has been understood to evoke the horrors of the middle passage, plantation slavery, and racial violence in the post-Reconstruction United States, with its depiction of a black body adrift on a damaged skiff, threatened by sharks and stormy weather, left with only sugar cane for sustenance.<sup>79</sup> Walcott is surely drawing on these iconographic connections in *Omeros* when he describes the painting’s subject,

circled by chain-sawing sharks; the ropes in his neck  
turned his head towards Africa in *The Gulf Stream*,  
which luffed him there, forever, between our island  
and the coast of Guinea.

(*Omeros*, pp. 183–84)

Yet the title also underlines the painting’s maritime concerns. Homer had read Maury’s work, insisted that the painting was solely about oceanography, and was familiar with the wider science of thermodynamics.<sup>80</sup> *The Gulf Stream* thus serves Walcott as a multivalent symbol that echoes the dialectic of stasis and change, past and future. Historical violence and planetary precarity are evoked, via the painting, in terms of both museal fixity (“forever”) and agitated dynamism.

<sup>79</sup> See Peter H. Wood, *Weathering the Storm: Inside Winslow Homer’s “Gulf Stream”* (Athens: Univ. of Georgia Press, 2004).

<sup>80</sup> In 1902, Homer issued a response to queries: “The subject of this picture is comprised in *its title* & I will refer these inquisitive schoolma’ams to Lieut. Maury” (Winslow Homer, letter, 17 February 1902, quoted in Wood, *Weathering the Storm*, p. 41; emphasis in original). See also Paul Staiti, “Winslow Homer and the Drama of Thermodynamics,” *American Art*, 15, no. 1 (2001), 10–33.

Toward the end of *Omeros*, Achille notices unseasonal weather as he goes fishing:

He had never seen such strange weather; the surprise  
of a tempestuous January that churned  
the foreshore brown with remarkable, bursting seas  
convinced him that “somewhere people interfering  
with the course of nature”; the feathery mare’s tails  
were more threateningly frequent, and its sunsets  
the roaring ovens of the hurricane season,  
while the frigates hung closer inland and the nets  
starved on their bamboo poles. The rain lost its reason  
and behaved with no sense at all.

(*Omeros*, pp. 299–300)

The reference to global climate change is obvious but vague, focalized through a fisherman’s folk knowledge of weather prediction (“mare’s tails”: cirrus clouds) and the metaphorical blending of human and nonhuman prevalent throughout *Omeros* (*starving* nets, *unreasoning* rain). The image of hurricanes emerging from “roaring ovens” forms a conduit to another key container in the poem—the sugar caldron in which a fisherman, Philoctete, is healed of a literal and symbolic wound (pp. 246–48)—and also hearkens back to Maury’s figure of the current-generating furnace. If we encounter here “an ontology of human beings as climate agents” and a “cosmological response” to colonialism and its ecological aftermath,<sup>81</sup> Achille’s consciousness of natural disruption—belied in the perfect rhyme between *season* and *reason*—undercuts Walcott’s earlier assurance that the epic ocean “never

<sup>81</sup> George B. Handley, “Climate Change, Cosmology, and Poetry: The Case of Derek Walcott’s *Omeros*,” in *Global Ecologies and the Environmental Humanities: Postcolonial Approaches*, ed. Elizabeth DeLoughrey, Jill Didur, and Anthony Carrigan (New York: Routledge, 2015), pp. 334, 337.

altered its metre / to suit the age" (*Omeros*, p. 296). Although this moment in *Omeros* is not about the Gulf Stream per se, it inherits the tension between stasis and variability I identified in Hopkins and Lanier, and partakes in similar scale shifting—from detailed localism ("foreshore brown") to nonspecific globalism ("somewhere"). Walcott thus brings full circle associations among the Gulf Stream, transatlantic aesthetics, and climate change, challenging our global inability to be as restrained as his character Achille, "who caught only enough, since the sea had to live" (p. 301).



Dipesh Chakrabarty has noted that "self-conscious discussions of global warming in the public realm began in the late 1980s and early 1990s," even if the topic only became a "public concern" in the twenty-first century.<sup>82</sup> It seems clear from my account of the Gulf Stream discourse that a vague awareness of anthropogenic climate change has been more longstanding. Indeed, there have been several historical and literary recuperations of prior intimations of the Anthropocene, dating back to the mid nineteenth century of Marsh and Ruskin.<sup>83</sup> Yet many of these accounts are concerned with conceptual underpinnings. What I have tried to bring out here is, by contrast, the formal, figurative, and imaginative—in short, aesthetic—dimensions of one prehistory of climate anxiety, detectable in Maury, Ruskin, Hopkins, and Lanier, and also in Walcott's *Omeros*, written on the cusp of a more widespread awareness of climate change.

The topic of this specific aspect of climate concern—the role and fate of the oceans—remains, despite formidable

<sup>82</sup> Dipesh Chakrabarty, "The Climate of History: Four Theses," *Critical Inquiry*, 35 (2009), 198–99.

<sup>83</sup> See James Rodger Fleming, *Historical Perspectives on Climate Change* (New York: Oxford Univ. Press, 1998); Will Steffen, Jacques Grinevald, Paul Crutzen, and John McNeill, "The Anthropocene: Conceptual and Historical Perspectives," *Philosophical Transactions of the Royal Society A*, 369 (2011), 842–67; John Plotz, "The Victorian Anthropocene: George Marsh and the Tangled Bank of Darwinian Environmentalism," *Australasian Journal of Ecocriticism and Cultural Ecology*, 4 (2014), 52–64; and Albritton and Jonsson, *Green Victorians*.

scientific progress, riven by uncertainty and insufficient data. Some scientists argue that climatic effects attributed solely to ocean heat transport are overstated, pointing to the much larger role of other factors than the North Atlantic Drift in assuring western and northern Europe's mild climate.<sup>84</sup> Others observe that changes in the thermohaline circulation, the so-called conveyor belt that carries water around the globe, have been linked to massive climate shifts in the past (notably the Younger Dryas twelve thousand years ago when the northern hemisphere returned to glacial temperatures prior to the Holocene). On such accounts, climate change risks reenacting such conditions and may already be leading to a slowdown in the section of the conveyor that includes the Gulf Stream, the Atlantic Meridional Overturning Circulation (AMOC).<sup>85</sup>

The complexity of climate modeling leaves the outcome uncertain. Yet it remains striking how our science continues to rehearse (or refute) Victorian concerns about disrupting "the greatest warm-water anomaly on the planet" (Berger, *Ocean*, p. 152).<sup>86</sup> In contemporary oceanography and climatology one

<sup>84</sup> See Richard Seager, "The Source of Europe's Mild Climate," *American Scientist*, 94 (2006), 334–41. Seager summarizes research attributing Europe's climate partly to the differential heat capacities of water and land, partly to North America's mountain topography: both affect atmospheric (as opposed to ocean) heat transport. See also R. Seager, D. S. Battisti, J. Yin, N. Gordon, N. Naik, A. C. Clement, and M. A. Cane, "Is the Gulf Stream Responsible for Europe's Mild Winters?," *Quarterly Journal of the Royal Meteorological Society*, 128 (2002), 2563–86.

<sup>85</sup> See Wallace S. Broecker, "Thermohaline Circulation, the Achilles Heel of Our Climate System: Will Man-Made CO<sub>2</sub> Upset the Current Balance?" *Science*, 278 (1997), 1582–88 (when climate "simulations include coupled atmosphere and ocean models, large greenhouse buildups lead to collapses of thermohaline circulation" [p. 1586]); Broecker, "What If the Conveyor Were to Shut Down? Reflections on a Possible Outcome of the Great Global Experiment," *GSA Today*, 9, no. 1 (1999), 2–7; Broecker, *The Great Ocean Conveyor: Discovering the Trigger for Abrupt Climate Change* (Princeton: Princeton Univ. Press, 2010); Stefan Rahmstorf and Andrey Ganopolski, "Long-Term Global Warming Scenarios Computed with an Efficient Coupled Climate Model," *Climatic Change*, 43 (1999), 353–67; Peter U. Clark, Nicklas G. Pisias, Thomas F. Stoker, and Andrew J. Weaver, "The Role of the Thermohaline Circulation in Abrupt Climate Change," *Nature*, 415 (2002), 863–69; L. Caesar, S. Rahmstorf, A. Robinson, G. Feulner, and V. Saba, "Observed Fingerprint of a Weakening Atlantic Ocean Overturning Circulation," *Nature*, 556 (2018), 191–96; and L. Caesar, G. D. McCarthy, D. J. R. Thornalley, N. Cahill, and S. Rahmstorf, "Current Atlantic Meridional Overturning Circulation Weakest in Last Millennium," *Nature Geoscience*, 14 (2021), 118–20.

<sup>86</sup> For a current overview of Gulf Stream science, see Berger, *Ocean*, pp. 151–83.

comes across references to, and even confirmations of, nineteenth-century ideas, as shown by a recent article validating Croll's claim that the higher mean temperature of the northern hemisphere is largely owing to cross-equatorial ocean heat transport.<sup>87</sup> Our popular debates play out within a Victorian framework of transatlantic connection, relying on assumptions that would have been familiar to readers of Maury, while our news articles rework the ominous nostrums of nineteenth-century writings about Britain as "a New Labrador." A similar pattern is visible in contemporary literature. Works as dissimilar as Kim Stanley Robinson's science-fiction novel *Fifty Degrees Below* (2005) and Jorie Graham's collection *Sea Change* (2008) understand the collapse of the Gulf Stream in essentially Victorian terms. Describing "the right-now forever un- / interruptible slowing of the / gulf / stream," Graham takes one side of the earlier debate.<sup>88</sup>

The Gulf Stream discourse, from the nineteenth century to the present, thus reveals unfamiliar lineages of affiliation, influence, and inheritance, united by an aesthetics where climate variability has come to seem more probable than climate stability. It allows us to draw unlikely connections between poets as disparate as Lanier, Hopkins, and Walcott, and to link scientists and popularizers across the ocean. Whatever the veracity of the Gulf Stream myth, or the eventual importance of the Northern Atlantic Gyre to the equilibrium of transatlantic climate in the Anthropocene, we could still use its historical aesthetics to imagine new forms of community and agency across familiar lines, whether those lines are identities or isotherms.

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<sup>87</sup> See Sarah M. Kang, Richard Seager, Dargan M. W. Frierson, and Xiaojuan Liu, "Croll Revisited: Why Is the Northern Hemisphere Warmer Than the Southern Hemisphere?," *Climate Dynamics*, 44 (2015), 1457-72.

<sup>88</sup> Jorie Graham, "Sea Change," in *Sea Change: Poems* (New York: Ecco, 2008) pp. 4-5.

## ABSTRACT

Daniel Williams, "Transatlantic Climate and Gulf Stream Aesthetics"  
(pp. 57–91)

The Gulf Stream gained scientific prominence in the nineteenth century as a test case for theories about the dynamics of ocean currents and the equilibrium of transatlantic climate. Discourse about the current supplied descriptions, analogies, and myths that persist into the present. Triangulating oceanic, ecological, and transatlantic approaches to literary study, this essay argues that the nineteenth-century discourse of the Gulf Stream included a significant aesthetic dimension organized by a dialectic between stability and variability. First, the essay traces the Gulf Stream's presence in eighteenth- and nineteenth-century scientific writing and print culture, showing how memorable figures and vivid illustrations accentuated the risk of climate variability even as they charted an apparently stable oceanic system. Next, it considers the work of two poets separated by the ocean, Gerard Manley Hopkins and Sidney Lanier. While ostensibly using the Gulf Stream motif to reflect on geographic identity and cultural belonging, Hopkins and Lanier use formal and figurative techniques that register the threat of climate instability, offering a deeper sense of climate disquiet than the scientific materials on which they drew. Finally, the essay looks at the poetry of Derek Walcott, sketching the afterlife of the Gulf Stream discourse, extending its formal and figurative lineage, and renewing the present ecological urgency of thinking with an Earth-system process as a motif of climatic connection and obligation.

Keywords: Gerard Manley Hopkins; Sidney Lanier; the Gulf Stream; Oceanography; Climate Change