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Sensing Pollution: Picturing "Bad Air" in Gilded Age New York

Vanessa Meikle Schulman

In September 2010, the Environmental Protection Agency (EPA) added Newtown Creek, a waterway that separates the boroughs of Brooklyn and Queens, to its list of Superfund sites prioritized for prolonged environmental cleanup. In the report enumerating the contaminants found in the water and the creek's sediment layer, the agency outlined hazardous levels of sewage overflow, pesticides, and carcinogenic polychlorinated biphenyls, among other compounds—the legacy of intensive industrial production on the site. In announcing the Superfund designation, EPA administrator Judith Enck noted that "the toxic pollution in Newtown Creek is more than a century in the making."[1] Enck's comment referenced the fact that the area to the north of Newtown Creek, a triangular spit of land known as Hunter's Point, Queens, with frontage both onto the creek and the East River, was a site for rendering, fertilizer production, petrochemical activity, and other heavy industry throughout the late nineteenth century. However, although twenty-first-century environmental efforts have focused on the cleanliness of the water and sediment in this 3.8-mile long tributary of the East River, in the nineteenth century, a different element was the focus of journalistic and visual efforts to depict how industry was poisoning the landscape. For New Yorkers of the 1880s and 1890s, it was the *air* wafting from Hunter's Point they most feared.

This article examines images of Hunter's Point and its environs from the last quarter of the nineteenth century to interpret air as a crucial part of Gilded Age New York's urban ecology, which was intertwined with issues of class, ethnicity, and space in the evolving city. In particular, it explores how artistic depictions of "bad air" around New York attempted to render visible the multisensory, dangerous experience of inhaling airborne pollution in a period when it became increasingly difficult for New Yorkers to avoid the environmental consequences of the city's rapid industrial expansion. With an eye toward twenty-first-century discussions of environmental justice, it also explores how the harmful effluvia of Newtown Creek and Hunter's Point were envisioned as a mere inconvenience for the rich but as a deadly scourge for the poor. Journalists and graphic artists clearly recognized as early as 1880 that anthropogenic environmental damage disproportionately affected immigrant and working-class communities.[2]

Placed within a larger discussion of the visual culture of "air" in the late nineteenth-century United States, this essay juxtaposes painted representations of New York's industrialized harbor by the celebrated artist William Merritt Chase (1849–1916) with polemical journalistic illustrations and texts that attempted to make visible the sensory experiences and consequences of breathing bad air. The result shows how nineteenth-century

responses to the effects of air pollution differed according to the aesthetic and cultural goals of their producers, from "fine art" painters to more socially oriented journalists and illustrators. Chase clearly recognized the structural inequalities of industrial pollution, as a reading that compares his landscape images of middle-class leisure sites to his waterfront paintings will show. However, he refrained from commenting on the issues that led to this divide, replicating assumptions about class that suffused Gilded Age rhetoric. Journalists, by contrast, sought to uncover unequal ills to provoke action, and their visual and written representations of bad air used varied sensory metaphors to chronicle the contaminated urban atmosphere. By examining these different approaches, we can understand how nineteenth-century visual culture both recognized and reproduced the structural inequalities of airborne industrial pollution.

Visual Cultures of Air

While ecocritical studies of land and water have proliferated in recent decades, historians of American art have given air little consideration in either theoretical or iconographic interpretations, especially as it relates to the nineteenth century. Scholars of contemporary US art, including James Nisbet, Julia Bryan-Wilson, and Jessica L. Horton, have written productive and focused examinations of artists' attempts to thematize polluted or compromised aerial environments since the 1960s, but as yet there has been no similar effort to understand the role of air in the art of earlier periods.[3] Recent scholarship on nineteenth-century representations of air pollution focuses on Europe and almost exclusively on London, which provides a useful, if limited, parallel to New York in the Gilded Age. Even in my own previous work examining Thomas Moran's *Lower Manhattan from Communipaw, New Jersey* (fig. 1), I interpreted the smoke-filled air primarily as an index pointing the viewer toward comprehending an interconnected web of global industry rather than as a subject in itself.[4] Nineteenth-century American artistic discourse clearly provided specific language and techniques for rendering atmosphere visible in painting, but these rules and customs proved less useful when artists were faced with air made noxious, unpleasant, and polluted.

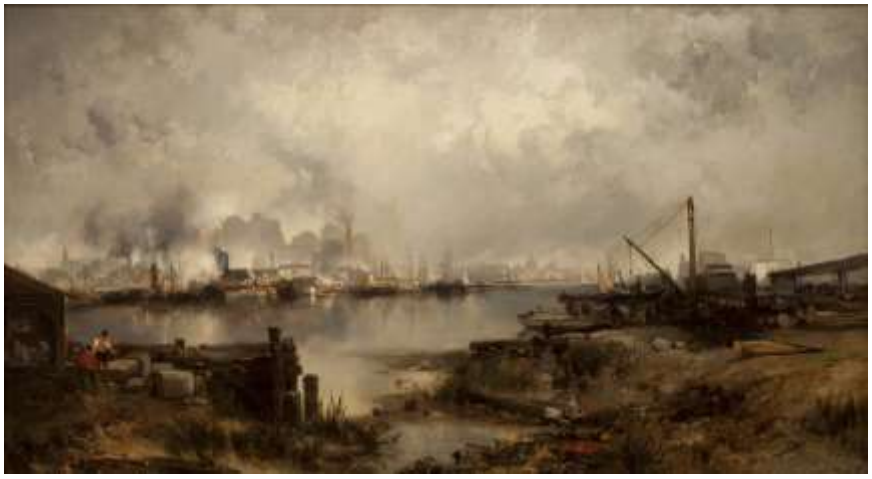


Fig. 1. Thomas Moran, *Lower Manhattan from Communipaw, New Jersey*, 1880. Oil on canvas, 25 3/16 x 45 1/4 in. Washington County Museum of Fine Arts, Hagerstown, MD

When it is *not* tainted, air is easily taken for granted; after all, at its most basic, the air around us is ineffable and near impossible to represent. As the landscape painter Asher Brown Durand (1796–1886) phrased it, air is "an intangible agent, visible, yet without that material substance which belongs to imitable objects, in fact, an absolute nothing, yet of mighty influence."[5] Or, in Nisbet's more recent formulation, air is "volumetric, infinitely expansive, and invisible at close range" and frustrates representational specificity, requiring address in the conceptual rather than iconic register.[6] In the nineteenth century, this address took the form of implication and extrapolation rather than the semiotic play discussed in Nisbet's examples from the 1960s and 1970s. A still-life painter could imply, for instance, the expulsion of air to extinguish a candle or the pleasure of drawing smoke-filled air into the lungs, as in images that foreground the homosocial activity of tobacco smoking. Clouds give air shape and form and mark the momentary atmospheric changes that enable an impressionistic rendering of time and place. A marine painter might suggest wind in sails, able to propel a vessel across the water. But all these methods get at the subject obliquely.[7] As it cannot be represented directly unless tinged with some color given it by particulate matter or thickened and darkened due to smoke or fog, air often thwarts attempts at visual representation and verbal description.

But Amy Knight Powell encourages us to see the questions of aeriality and aspiration as deeply embedded in Western ways of seeing and conceptualizing a picture. With reference to the writings of Leon Battista Alberti, particularly *De pictura* (On painting; 1435), she argues that the core fundamentals of naturalistic painting prior to the twentieth century were concerned with presenting a painting as not merely a window onto an imagined world but, more importantly, as "the illusion of air-filled space."[8] Though Powell's primary focus is on Northern European early modern works, she traces the origin of these concerns in the West to Italy, particularly to Alberti and Leonardo da Vinci, who developed theories of atmospheric perspective around the turn of the sixteenth century. From its inception, modern European and American naturalistic painting, then, was conceived as the representation of a space containing fresh air, a "window" through which a stiff breeze might blow in the viewer's face.[9] In this reading, a multisensory apprehension of air was a key structural component of representational images across the Western canon.

Although, for the most part, scholars have only discussed air tangentially, American landscape artists had addressed issues related to air, atmosphere, and weather since at least the antebellum period, as seen in the writings of Durand and his mentor, Thomas Cole (1801–1848). Their treatises produced a foundation on which later nineteenth-century artists could build—or from which they might productively depart. While Cole's writings on landscape were less explicit than Durand's about the importance of air as an element, his "Essay on American Scenery" described the sky as "the soul of all scenery . . . Whatever expression the sky takes, the features of the landscape are affected in unison, whether it be the serenity of the summer's blue, or the dark tumult of the storm."[10] Cole's cloud studies show close observation of the skies (fig. 2). He recognizes an aerial ecology in which sky, clouds, color, and light are part of an invisibly interconnected system that affects the way an artist renders both near and distant elements in a landscape. Such an awareness mirrors what the British meteorologist L. C. W. Bonacina describes as "landscape meteorology." In one of the first texts of Western ecocriticism, dating to the 1930s, Bonacina painstakingly details the application of scientific principles regarding light,

precipitation, barometric pressure, and seasonal rotational angle to readings of cultural artifacts representing the natural world, including paintings, poems, and novels. Writing of momentary, daily, and seasonal fluctuations in light conditions and weather, Bonacina notes how these may contribute not only to the color and quality of light but also to overall visibility and definition (or "relief") of elements in a painted landscape.[11]

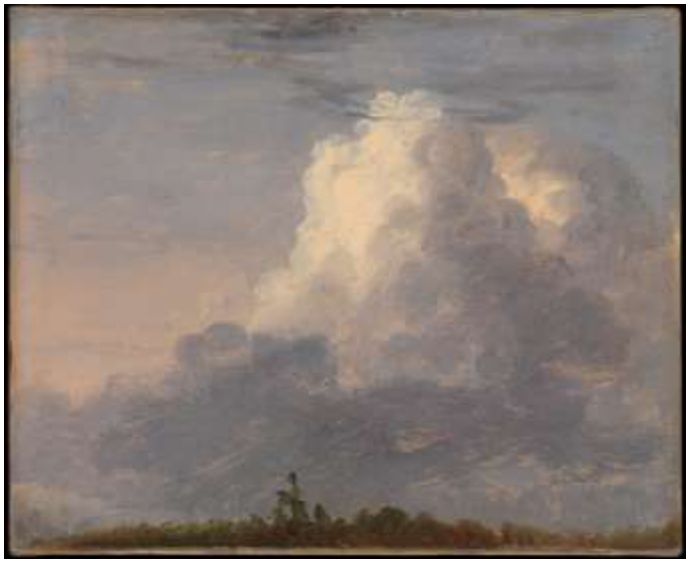


Fig. 2. Thomas Cole, *Clouds*, c. 1838. Oil on paper laid down on canvas, 8 3/4 x 10 7/8 in. Metropolitan Museum of Art, New York, Morris K. Jesup Fund, 2013.201

Such shifting conditions were a central focus of Durand's series of letters outlining instructions on landscape painting, which he published in the *Crayon* in 1855. For instance, he advised artists that:

> when considered under the influence of a variable sky, cloud shadows, and drifting vapor, it [the representation of atmosphere] becomes more complex, and all the subtleties of light with color subject to the media through which it passes, and the intricacy of reflections from accidental causes, will engage your attention, and call in requisition all your powers of observation. . . . I can do little more than urge on you the constant study of its magic power, daily and hourly, in all its changes.[12]

In another letter, Durand reserved the highest praise for landscapes that present the viewer with a habitable sensory realm that includes breathable air. "That is a fine picture," he wrote, "which at once takes possession of you—draws you into it—you traverse it—breathe its atmosphere—feel its sunshine, and you repose in its shade without thinking of its design or execution, effect or color."[13] These theoretical outlines on technique, gleaned from some of the earliest published texts about American landscape painting, are similar to the advice that students were still receiving in the later part of the century. In particular, the connection of aeriality to aspiration, or breathing, is pertinent to the way Gilded Age landscapists discussed their craft.

Numerous sources advised landscape painters, whose tasks often involved rendering large expanses of fresh air, about the importance of imagining pictured space as inhabitable and breathable. In his 1897 manual, *The Painter in Oil*, Daniel Burleigh Parkhurst reminded practitioners that "we live and breathe in atmosphere, and the expression of atmosphere will go far to make your landscape true." With aeriality in mind, Parkhurst summarized, "A landscape [painting] in which you cannot breathe is not a perfect one."[14] Likewise, the popular how-to periodical *Art Amateur*, explicitly building on Parkhurst's writings, instructed painters to create a space in which viewers might imagine an embodied breathing experience: "Of course, the figures in a picture do not move; there is no air in it to breathe; but if it is well painted . . . the spectator will find it easy to add motion and breathable space from his own imagination."[15] And in 1892, when informed that some critics considered his work "too blue," American impressionist painter Childe Hassam defended himself with the retort: "The fact is, the sort of atmosphere they like to see in a picture they couldn't breathe for two minutes. I like air that is breathable."[16] Thus, naturalism in landscape art was predicated, for many in the late nineteenth century, on a palpable sense of breathing room, of good air able to be inhaled and exhaled, made visible in painting.

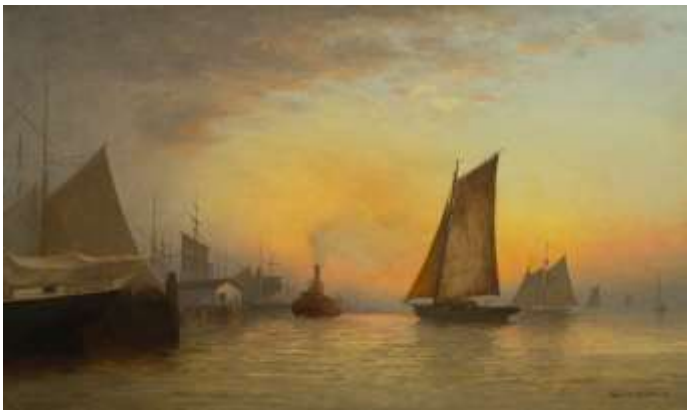


Fig. 3. Francis Augustus Silva, *New York Harbor*, 1880. Oil on canvas, 12 x 20 in. unframed. New-York Historical Society, Gift of the Pintard Fellows

In addition to this larger conceptual construction of a landscape painting as a space in which one can breathe, artists were trained in the mechanics of atmospheric perspective. Apprehending the two meanings of "atmosphere" in one statement, M. B. O. Fowler advised painters in 1895: "The term atmosphere signifies to most people simply the air we breathe; to the artist it means also the air we *see*; and though this element, you may say, is invisible, yet the painter will show us, nevertheless, that its effect is distinctly noticeable in any artistic representation of natural objects viewed in perspective."[17] Early modern theories of optics rely on the understanding of air as a "medium" for the movement of light rays and other intangible substances that impress themselves on the sensory faculties of viewers.[18] Aerial, or atmospheric, perspective likewise presupposes the presence of air as a semitransparent medium that by imperceptible increments blurs objects the further they are from the viewer. With a transcendentalist slant, Durand described the role of atmospheric perspective in producing illusions of depth, noting that "atmosphere is . . . a veil or medium interposed between the eye and all visible objects . . . It is *felt* in the foreground, *seen* beyond that, and *palpable* in the distance."[19] Such language evoked a

vague thickening quality, which Hassam later described in more practical terms: "If you are looking toward any distant object, there will be between you and that object air, and the deeper or denser the volume of air, the bluer it will be."[20] Bluing out and softening distant objects were the traditional techniques for making the invisible envelope of air apparent to the viewer; artists could also choose to paint fog or haze, another method in which the optics of atmosphere affect depth and modeling. Midcentury landscape painter Jasper Francis Cropsey (1823–1900) instructed painters to take note of how air might become "soft and hazy when the air is filled with heat, dust, and gaseous exhalations."[21] Infused with rich purples and oranges, Francis Augustus Silva's *New York Harbor* (fig. 3) suggests some of the techniques Cropsey had recommended two decades earlier.

Finally, artistic advice to landscape painters increasingly endorsed venturing outdoors to achieve immediacy. These texts reinforced a dichotomy between rural and urban locations and projected the American landscape as a site filled with fresh, clean air, in opposition to the city spaces where Manhattan-based painters spent much of their time. Recommendations for escaping the city to paint in nature had appeared in American art writing since the antebellum period, when contributors to the *Crayon* extolled the importance of "watering places," both seaside and lakeside vacation spots, as "a natural appendix of city life" that provided a safety valve from "bad air, bad company, bad avocations."[22] In the later nineteenth century, organized sketching excursions by groups such as the Tile Club allowed artists to escape the city by traveling to the Long Island shores or green places upstate.[23] Over the following half-century, periodicals, including the *Ladies Home Journal, Art Amateur*, the *Aldine*, and the *Independent*, advocated for the joys and challenges of sketching in the open air in new locations from the Hudson River Valley to the far West. Of all the American artists who practiced, taught, and wrote about techniques for capturing air in the last half of the nineteenth century, one of the most prolific and best known was William Merritt Chase.

Chase's Airs

In 1878, Chase had returned from a prolonged period of European study, and the ambitious artist quickly worked to establish a place in the New York art world. Over the next decade, a transitional period in Chase's career, he worked out of an opulent studio in the Tenth Street Studio Building, creating portraits, interiors, and landscapes. Teaching at the Art Students League, taking part in activities of the selective Tile Club, and joining the upstart Society of American Artists, Chase was enmeshed in many of the most progressive Manhattan artistic institutions of the period. One of the leaders of the Munich-trained faction in the United States, Chase showed deliberate range and experimentation over the course of his career, in which he intentionally positioned himself as an artist-worker and arbiter of good taste.[24] The virtuosic brushwork in his tenebrous still lifes and grand society portraits evokes the seventeenth century, while his landscape paintings shimmer with impressionistic color. However, an unusual and little-discussed aspect of his oeuvre is the small cohort of paintings he made of the industrialized Brooklyn shore in the late 1880s.

Chase was intimately familiar with the city of Brooklyn. After returning to live permanently in the United States, he continued annual summer trips to Europe until 1885, when he spent four summers—between 1886 and the founding of the Shinnecock Hills Summer School of Art in 1891—in Brooklyn. Chase's elderly parents and much younger sister, Hattie,

took up residence there in the same years, and Chase briefly lived in Brooklyn after his 1887 marriage to Alice Gerson. In 1888, though he and Alice were again living in Manhattan, Chase took a teaching job at the Brooklyn Art School, which necessitated frequent visits.[25] The years of Chase's deep involvement with, and frequent depiction of, Brooklyn overlapped with a period of intense industrialization and growth between 1880 and 1890. In these years, Brooklyn's population grew by around 40 percent, and it began to overtake Manhattan as the center of New York's industry and shipping.

Barbara Dayer Gallati speculates why Chase's artistic interest in Brooklyn, particularly its harbor and industrial shoreline, emerged at this time. First, she suggests, he had frequent exposure to the area as he traveled between Manhattan and Brooklyn for work, pleasure, and family visits, often taking the ferry or perhaps the newly opened bridge. Second, as he began to expand his artistic practice and clientele after his return to the United States, he increasingly showed a desire to move away from European influences and paint more "American" scenes. Within this new focus on local color, his interest in the waterfront may have been sparked by his friendship with fellow painters John Henry Twachtman and Julian Alden Weir, who also experimented with industrial subject matter.[26] While agreeing with all these points, I pose an additional third suggestion: Chase had developed a fascination with—and ambivalence about—the growing industrial pollution in the city and began, in this series of paintings, to formally experiment with the conventions of landscape and atmospheric painting discussed above. Comparing Chase's better-known beach scenes made near his summer home and studio at Shinnecock, Long Island, and his works showing the parks and leisure gardens of Manhattan and Brooklyn with his contemporaneous series of paintings of the industrialized area around the Gowanus Canal, a highly developed industrial area about six miles down the shoreline from Newtown Creek's output into the East River, we can begin to see a painterly distinction between a conception of fresh clean air associated with leisure sites and the flatter, gray haze of industrial wharf lands.

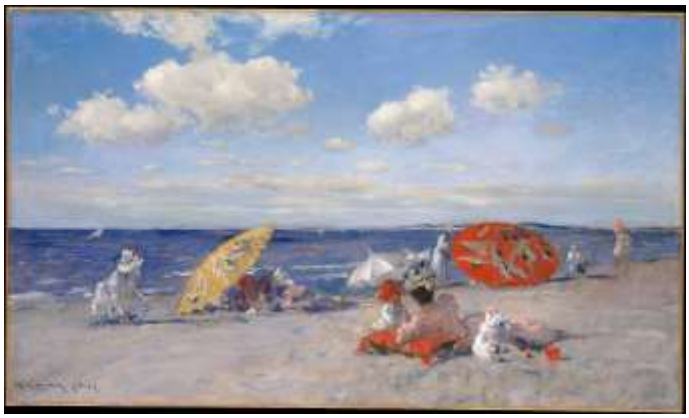


Fig. 4. William Merritt Chase, *At the Seaside*, c. 1892. Oil on canvas, 20 x 34 in. Metropolitan Museum of Art, New York, Bequest of Miss Adelaide Milton de Groot (1876–1967), 1967

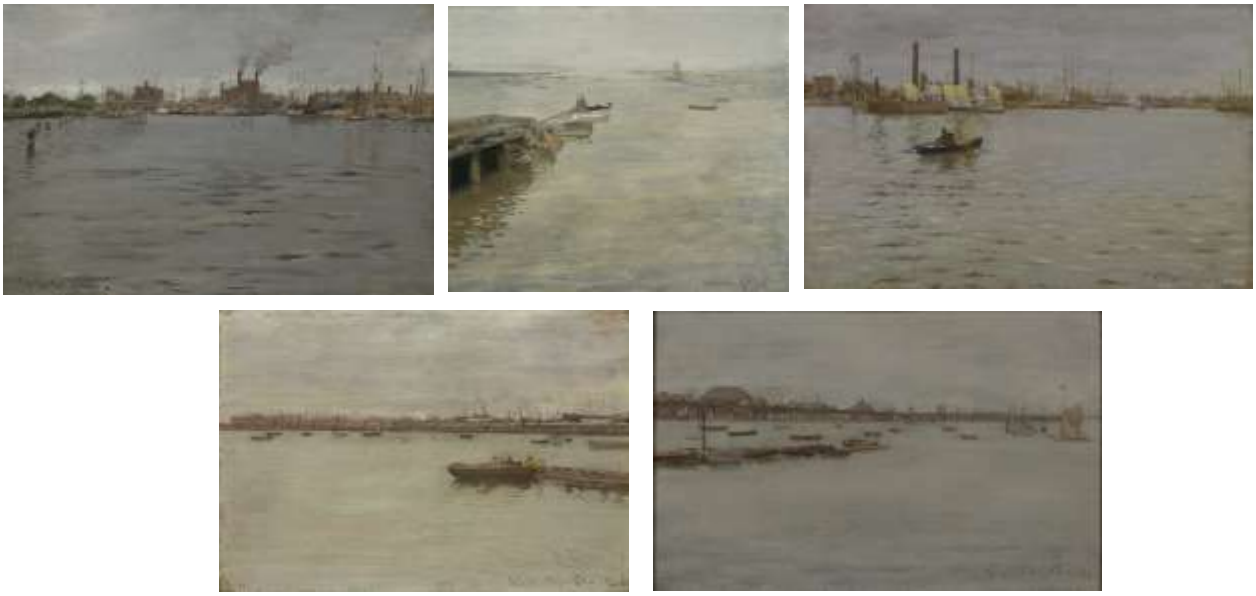
Chase began as director of the Shinnecock Hills Summer School of Art in 1891, recruited by the influential philanthropist and amateur artist Janet Hoyt. Hoyt's vision for the school was a nationalistic one focused on "transferring French open-air painting to the American landscape" to forge an artistic community that could produce artworks to rival Europe, a

goal Chase was vocal about sharing.[27] Scholars identify the 1890s as the years of his most marked experimentation in landscape, as he not only instructed students in plein air painting but also developed his own repertoire of techniques to represent the "sunlit hills and beaches and the billowing cloud-filled skies of Shinnecock."[28] *At the Seaside* (fig. 4) demonstrates techniques of color application that illustrate Chase's facility with the atmospheric effects of sky, cloud, and wind, all methods of rendering air visible on the painted surface. A little more than half of the canvas is taken up with a brilliant blue sky and large dominant cumulus clouds painted in tones of white, blue, and gray with touches of ocher. The sagging underside of the largest cloud, heavy with a suggestion of rain, shows an underlayer of dark purplish gray. The clouds are built with layered gestural strokes and appear to be scraped and feathered, suggesting the shifting interplay between an illusion of solidity and a motile, windblown surface. At the top of the canvas, liberal smears of white and gray mimic the wispy tufts of cirrus clouds. A fairly saturated azure high in the sky gradually fades to a light purple-blue and then gray at the horizon line, where the air meets the water in a strong horizontal. Intentionally distinguishing between air and water, Chase treats the ocean with larger, choppier brushstrokes that highlight its swiftly moving nature. In this, he appears to be taking his own advice, as he had urged students: "Do not put to [*sic*] much of the same handling in the foreground and middle distance."[29] As sailboats scud across the surface of the sea, textured lines of pure white capture the shifting tides of a deep blue ocean, giving the viewer the impression of a brisk breeze blowing from the left side of the painting.

By the turn of the twentieth century, such techniques were often associated with the Impressionists, whose popularity among American collectors persisted in spite of the high tariffs on imported luxury goods between 1883 and 1913.[30] Though Chase claimed that "most of this work I consider as more scientific than artistic," he praised Claude Monet, Berthe Morisot, and Mary Cassatt. In handwritten notes for an undated speech now held in the Archives of American Art, Chase wrote in admiring terms of Monet's "at times almost dazling [*sic*] impression of light and air."[31] When instructing students at Shinnecock, he supposedly told them to "paint a sky as if we could see through it, and not as if it were a flat surface, so hard we could crack nuts against it."[32] In his works representing seaside resorts, such as Shinnecock, Chase did just that: he envisioned air as transparent, clean, and permeable.

However, in his representations of the industrial areas around Brooklyn and throughout New York Harbor, Chase's renderings of air and water go against his advice to students. He renders the atmosphere of the industrial space not as "breathable" air that "we could see through" but as a "hard" impermeable barrier of hazy and unrelieved grayness achieved with flattened paint handling. During his years living and working in Brooklyn, Chase created numerous small plein air oils of the industrial architecture around the Gowanus Canal and harbor just south of Hunter's Point. These paintings were all created in the 1880s, the same years that journalistic attention to the problem of air pollution in greater New York was on the rise. The works today accessible in public museums include *Harbor Scene, Brooklyn Docks* (fig. 5); *A Gray Day* (fig. 6); *The East River* (fig. 7); *Gray Day on the Bay* (fig. 8); *The Boat Harbor (Gowanus Pier)* (fig. 9); and *Marine* (c. 1888; Cleveland Museum of Art), as well as *Gowanus Bay* (c. 1888; private collection). Mostly small oil sketches made during the artist's wanderings around the city, these works were not widely exhibited in his lifetime, and their provenances show that they were owned not by

Chase's wealthy clients but by artistic friends, including the architect Stanford White and the painter Edwin Austin Abbey.[33] As a group, they show remarkable similarities of tone and paint handling, and they appear to be part of a visual experiment that Chase pursued for only a few years in the late 1880s, perhaps as an aspect of his search for "American" subject matter.



Figs. 5–9. Top row, left to right: William Merritt Chase, *Harbor Scene, Brooklyn Docks,* 1886. Oil on wood, 6 3/8 x 9 5/16 in. Yale University Art Gallery, New Haven, CT, Edwin Austin Abbey Memorial Collection, 1937.4000; *A Gray Day,* 1886. Oil on panel, 22 x 26 7/8 in. Museum of Fine Arts, Houston, Gift of Mr. and Mrs. Ralph E. Mullin; *The East River,* c. 1886. Oil on panel, 10 x 15 3/4 in. Colby College Museum of Art, Waterville, ME, The Lunder Collection, 2013.046. Bottom row, left to right: William Merritt Chase, *Gray Day on the Bay*, c. 1886. Oil on wood, 9 5/16 x 13 7/16 in. Cleveland Museum of Art, Gift of Mrs. John B. Dempsey, 1957.423; *The Boat Harbor (Gowanus Pier)*, c. 1888. Oil on panel, 8 1/4 x 13 in. New-York Historical Society, Gift of the Elie and Sarah Hirschfeld Collection, Scenes of New York

In an interview with Alice Emma Ives in 1891, Chase briefly discussed his process of oil sketching in and around New York City. He described exploring a spectrum of urban sites, "in the park and along the wharves," from leisure areas such as Prospect Park, where he painted the future Mrs. Chase as *Alice Gerson in Prospect Park* (fig. 10), to the docks of Hoboken and industrial Brooklyn. "It is generally conceded," Ives writes, that Chase "was the first metropolitan artist to appreciate the hitherto almost untouched field of landscape in and about the city." Unlike the other artists profiled in Ives's article, including Edward Moran and William Sartain, Chase is unusual in highlighting not the rural exurbs of "woodlands [and] . . . charming little inland views" described by Moran but the industrial zones along the East River. Directing readers that "the good places are everywhere," Chase continued: "Along the docks and wharves

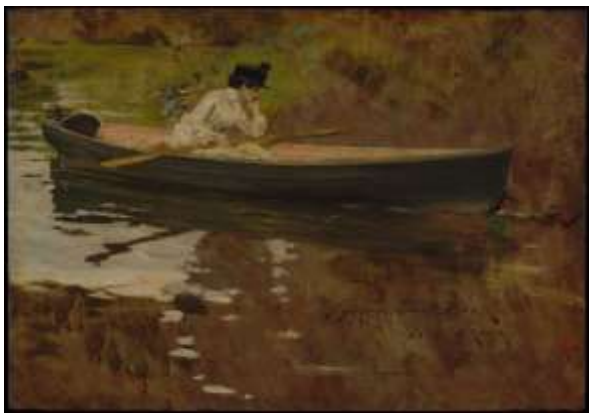


Fig. 10. William Merritt Chase, *Alice Gerson in Prospect Park*, 1886. Oil on panel, 13 3/4 x 19 5/8 in. Metropolitan Museum of Art, New York, Gift of Chester Dale, 1963

there is every bit as good material as that on the banks of the Thames, which the English artists have made immortal."[34] Here Chase evoked implicit comparison with his expatriate friend James Abbott McNeill Whistler (1834–1903), whose Thames etchings and paintings subsumed the clutter of industrial spaces into tonal or geometrical harmonies.

Whistler's Fogs: Pollution and Flatness

Along with J. M. W. Turner and, later, Monet, Whistler was one of the few nineteenth-century artists who intentionally and enthusiastically explored methods for painting urban smoke and pollution, as scholars over the past two decades have chronicled.[35] In *Nocturne: Blue and Silver—Chelsea* (fig. 11), Whistler uses a gently modulated color palette, lack of defined outline, and thinned oil paint with a marked horizontal orientation. In later works, such as *Thames Nocturne* (fig. 12) and the etching *Nocturne: The Thames at Battersea* (fig. 13), he more explicitly represents the industrialized foreshore of the Thames, with clear silhouettes of chimneys interrupting the horizon. Such images appear suffused with gray hazy air, replicating the infamous London fogs of the coal-smoke capital.[36]

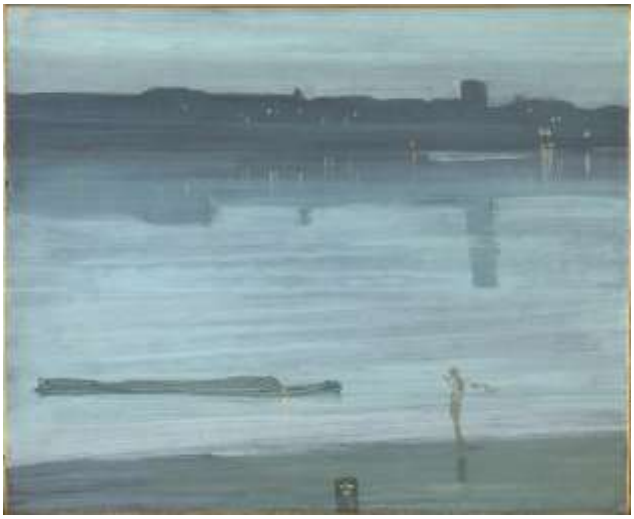


Fig. 11. James Abbott McNeill Whistler, *Nocturne: Blue and Silver—Chelsea*, 1871. Oil on wood, 19 3/4 x 23 15/16 in. unframed. Tate Britain, London, Bequeathed by Miss Rachel and Miss Jean Alexander, 1972

Whistler's aestheticization of London's industrial foreshore was enabled due to these fogs, which were created by the city's natural geographical position and heightened by an unprecedented epidemic of industrial pollution between 1870 and 1900. It is ironic that intensely toxic, irritating clouds of anthropogenic pollution allowed for the softening and abstraction of the bustling Thames waterfront, enabling Whistler to create tonal harmonies on canvases washed with fluid, diluted paint. His Nocturnes are emblematic of the confounding way that airborne pollution seeps into visual production, leading to what Nisbet calls the "environmental abstraction" of the "polluted image."[37] They seduce viewers with a subtle lushness, a layered and sensory thickness that both appeals and repels. Whistler's landscapes are radical experiments in modernist form, enabled by the degradation of the landscape brought on by industrialization.

Rendering a compromised atmosphere as the central theme of a work—as Whistler did when he contrived to "make fog his special subject"—negates the aeriality of the traditional Western picture space.[38] London-based artists and critics had complained of the fog's flattening effects and its distortion of light. Pre-Raphaelite painter Frederick Leighton, speaking to a smoke abatement organization in 1882, reminded his audience that artists "live by the suggestive imitation and presentment of that which is revealed to us by light,—and by light alone. . . . To us, therefore, the quenching of light, the blotting out of colour, is

an approach to the drying up of the very life springs from which we are fed and set in motion."[39] Six years later another critic wrote that "as regards colour and light, there is the standing grievance of the smoke," which made proper modeling impossible.[40] For these artists, it seems, London's smog prevented them from practicing their art in the customary way; for Whistler, this was precisely its appeal. The smothering haze of smoke over London's industrial margin zones provided him with the tools he needed to challenge pictorial conventions in productive ways.

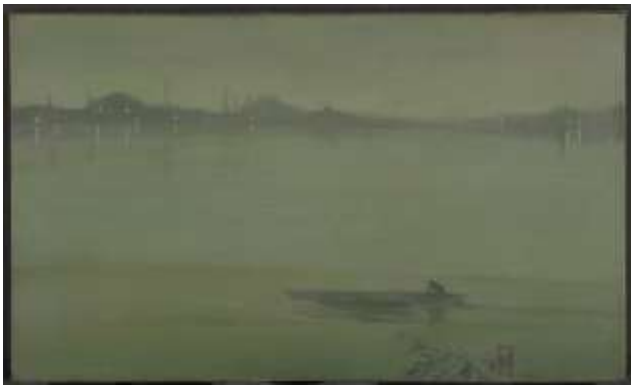


Fig. 12. James Abbott McNeill Whistler, *Thames Nocturne*, c. 1872. Oil on canvas, 18 1/4 x 30 1/4 in. Newfields Indianapolis Museum of Art, Gift of the Herron Museum Alliance

Chase had spent much of summer 1885 in company with Whistler, and in his representations of New York Harbor, he made a set of choices similar to those seen in his friend's renderings of London. While New York did not experience the same weather and atmospheric conditions that caused the London fogs, its dramatic increase in industry and pollution begin to become apparent in Chase's canvases. In *Gray Day on the Bay*, for instance, he presents a tonally unified scene in which sky and water are almost impossible to tell apart; both are large swaths of what appears to be unrelieved gray built up with long, thin horizontal strokes of the brush. A closer look at areas of the sky and water reveal gray and light yellowish brown paint, which appears to be well mixed with undertones of light blue and salmon pink. The brushwork in both sky and water is simultaneously thin—without the impasto layers of white, cream, and purple that build up the fluffy cumulus clouds of *At the Seaside*—and dense—creating the visual effect of a barrier of horizontal strokes laid down not impressionistically but methodically. As in much of Whistler's work from around the same time, the scene feels pressed up against the picture plane, flat and airless, with little interest in the perspectival recession about which Chase constantly lectured his students.

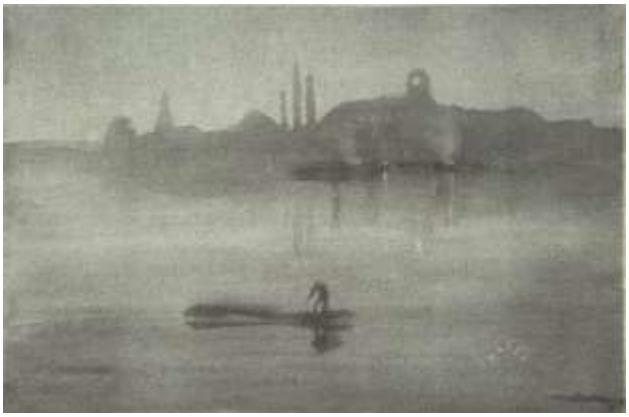


Fig. 13. James Abbott McNeill Whistler, *Nocturne: The Thames at Battersea*, 1878. Lithotint with scraping on prepared half-tint ground, 6 3/4 x 10 3/16 in. Metropolitan Museum of Art, New York, Harris Brisbane Dick Fund, 1917

Indeed, *Gray Day on the Bay* goes against Chase's teachings in several ways. First, its airless, compact space rejects his own definition of impressionistic rendering, in which he identified "the chief idea" of "true impressionism" as that of "allowing much for the *air* between the painter and his subject."[41] These sentiments echo the task he gave his Shinnecock students in 1894: "To convey the idea that the air vibrates, that we see through it like a screen." Likewise, *Gray Day on the Bay* is void of the "strong touches" that help construct a "foreground" as well as the "three different notes of color" that Chase recommended.[42] Similarly focused tonal palettes and lack of

foreground "touches" appear in *A Gray Day* and *The Boat Harbor*. And both *The Boat Harbor* and *Gray Day on the Bay* share a compositional similarity: most of their surface area is covered by sky and water, gray and unrelieved, so that it is almost impossible to tell the aerial from the liquid medium. Twice in his lecture notes from Shinnecock, Chase advised students to turn their works around—"It is an excellent plan to look at a landscape upside down"—so they might identify instances where their perceived assumptions about the landscape before them created missteps in composition, tone, and value.[43] An inversion of *Gray Day on the Bay* would present little difference from the scene as it is currently painted, unmooring the landscape from expected spatial relations and from customary renderings that differentiate the sensory experiences of water and air.

Such techniques that question the "picture as window" construction of the previous five hundred years of mimetic art were a crucial part of late nineteenth-century avant-garde experiments in rendering nonrepresentational space, as seen in Whistler's Nocturnes, but these are not approaches that have been much associated with Chase. Instead, I suggest, the consistent application of these techniques to his scenes of the highly industrialized Brooklyn waterside show Chase's attempt to find a vocabulary for rendering air pollution visible. Nineteenth-century researchers believed that polluted air with a high concentration of particulates would temper "the brilliance and transparency of the atmosphere," the very qualities seen in his other landscape paintings that are muted or lacking in Chase's representation of the Gowanus area and the Brooklyn waterfront.[44] This focus on air quality and its effects on traditional artistic modeling and perspective was not unique to Chase. One British author complained that "the blackness that comes from soot has neither depth nor lustre; it is opaque, gritty, shallow, grey," a fitting description of Chase's waterfront scenes or Whistler's radical experiments in dematerialization.[45] And across the modern West, artists sought means for representing the "increasingly malevolent, thickened atmosphere of industrial modernity," as Emily Doucet, Matthew C. Hunter, and Nicholas Robbins write in their assessment of the "aerial" image.[46] Few sites could better express this state than the six-mile stretch of East River frontage from Hunter's Point to Gowanus in the 1880s.

New York's Legacy of Industrial Pollution

By that period, this area had become one of the most densely industrialized in the country, as New York's natural harbor provided an advantageous site to cluster processing of raw materials. Using a variety of methods, twenty-first-century geographers and historians of technology trace the development of the area from a rural suburb to a highly industrialized corridor. Anne E. Leonard and Peter Spellane use layered historical maps with georectification to visualize the centuries-long accumulation of environmental damage in the area. This tactic, they suggest, may also help historians assess the interdependent nature of the region's industries. In particular, the areas around Newtown Creek and Gowanus Canal produced compounds that drove industrialization in other sectors of the American economy. The most crucial was sulfuric acid, a compound with many industrial applications that had been produced in the United States since 1793; it was a necessary chemical for the other two main industries in the area: oil refining and fertilizer production.[47] Such a distribution of related industries, in which one major type of industry is supported by other local firms that rely on its product, was common in the United States in the aftermath of the Civil War, creating sprawling but interconnected industrial zones,

usually located on the suburban fringes of major cities and adjacent to rail or shipping lines.[48]

Oil refining for purposes of illumination first drove industrial development in Brooklyn and Queens, later giving way to refining of petroleum for additional industrial, manufacturing, and transportation uses. In 1854, the North American Kerosene Oil Works first established the area as a site for refining coal into lamp oil, while the post-1859 boom in petroleum, or "ground oil," drove further growth with the construction of Charles Pratt's refineries in Queens and Greenpoint, Brooklyn, later absorbed by Standard Oil.[49] By 1860, the majority of New York's refineries were in Brooklyn and Queens, lining the Gowanus Canal and Newtown Creek. By the time of Chase's series of waterfront images in the 1880s, Standard Oil dominated the region, processing three million gallons of crude oil each week.[50] "These industries left a toxic legacy," write Leonard and Spellane, an assessment borne out by the 2010 Superfund designation. However, the EPA focus on water quality in Newtown Creek downplays the larger profile of historical contamination in the area. Pollution did not just enter the water; it seeped into the soil and discharged into the air. All three mediums, but particularly air and water, whose diffusion and liquidity allow for dispersal to adjacent and even far-flung areas, contributed to what Bill Luckin describes as "the spatial dissemination of urban-generated pollution."[51]

While some nineteenth-century sources complained of water contamination that affected shad fishing and oyster farming in the East River, it was the "dense clouds of smoke and the pungent aromas of industrial waste" described by historian Andrew Hurley that most contemporary observers noticed.[52] The fumes from burning toxic sludge acid—a byproduct of using sulfuric acid in the oil-refining process—and the stench from rendering plants and fertilizer factories polluted the nearby residential areas and wafted across the East River to Manhattan. Chase's *Harbor Scene, Brooklyn Docks* (see fig. 5) strikes a livelier tone than the other images of the series, with hints of saturated green and red-orange along the horizon line. However, of the harbor paintings, this image also most directly references the pollution in the area. A little to the right of the painting's center, the twin chimneys of a brick building emit two clouds of dense exhaust. While Chase paints the sky and water with a similar horizontal orientation, low value shift, and thinly applied, nonexpressionistic brushwork to his other harbor landscapes, the smoky puffs of dark gray and ocher show messier brushwork. Tufts of deep gray spread in multiple directions from the chimneys, with scratchy and feathery brush techniques that stand out in relief against the horizontal strokes of the sky. Here Chase's color palette and handling seem to echo advice given in the *Art Amateur* on smoke effects: "The smoke from some factories will look like an inky cloud. . . . In the heavy black column from the chimneys use black, white, burnt sienna, permanent blue, and yellow ochre."[53] While these clouds of industrial pollutant could be aestheticized in paintings like Chase's, their harmful qualities and toxic odors were provoking outspoken public commentary on quality of life, economic inequity, and industrial monopoly in the last two decades of the century.

Executive and legislative attempts to curb pollution made few inroads in the nineteenth century, and most regulations did not apply to Gowanus or Newtown Creek prior to the incorporation of the independent municipalities of Brooklyn and Queens into the City of New York in 1898. Not only were the areas highly suitable for industry because of their accessibility to waterways, but they also allowed manufacturers to remain in the New York area without having to comply with the sanitation and nuisance laws governing

Manhattan. In 1881, Erastus Brooks, a member of the New York State Board of Health, described how "these useful but unpleasant industries" had been "driven out of the *civilized* portions of New York and Brooklyn," constructing the region as a kind of lawless Wild West of unfettered industry.[54] Brooks was part of an investigative Board of Health task force charged with examining the industrial "nuisances" around New York Harbor in response to citizen complaints about Hunter's Point, the area directly north of Newtown Creek.[55] Responding to the findings of the task force, in April 1881, New York's governor, Alonzo Cornell, issued an executive action requiring companies to curtail emissions and properly dispose of sulfuric acid by June of that year. Several months later, as *Harper's Weekly* reported, the worst offenders had failed to comply. Added to the outrage at the overt flouting of the gubernatorial order, journalists throughout summer 1881 pinpointed the olfactory misery that the warmer months brought; the humor magazine *Puck* had commented in 1877 that the characteristic scents of a New York summer were the "fragrance of June roses and the smell of the Petroleum Works of Hunter's Point."[56] Years later, New York–based periodicals complained that nothing had been done to abate the problem and that both state and local authorities were failing to punish companies that defied the gubernatorial decree.

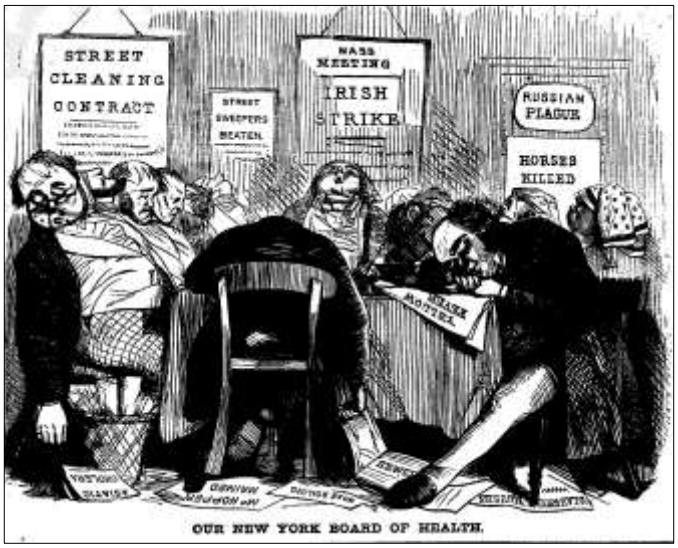


Fig. 14. "Our New York Board of Health," *Harper's Weekly*, August 5, 1865, 496. Wood engraving, 3 1/2 x 3 1/2 in. Digitized by Google, original from University of Michigan

Whether through lack of jurisdiction, fear of curbing economic growth, corruption, or pure laziness, as *Harper's Weekly* suggests in one cartoon showing Board of Health members literally asleep on the job (fig. 14), official channels made few inroads into most of these problems until the early twentieth century. Instead, journalists documented the ills of industrial pollution, trying to force change through public opinion. Weekly newsmagazines, especially those based in New York, had a history of exposing health and welfare concerns. *Frank Leslie's Illustrated Newspaper* led the journalistic investigation into the adulteration of milk, known as the "swill milk" campaign, in the late 1850s, finally forcing state-level legislative action in 1862. Michael Egan describes the swill milk exposé using the framework of environmental justice, arguing that reporters recognized that "the wealthy were predominantly unaffected and therefore uninterested in the debate. . . .

For the urban poor, however, there was no alternative to the swill milk."[57] A similarly class-conscious approach would mark the journalistic attention to the vile pollutants emanating from Brooklyn and Queens three decades later.

Smoke, Smells, and Urban Health

Newsmagazines featured polemical texts that harshly criticized the health hazards inherent in industrial production, particularly the secondhand effects on quality of life for those who lived in the vicinity of factories. One account by *Harper's Weekly* writer Eugene Lawrence described pollution's detrimental effects on citizens across the city:

> For many years it has breathed out offensive odors such as were never tolerated in any Christian land. . . . They cover with their miasmatic exhalations the crowded tenement-houses along Avenues B and C, and press on ward [*sic*] until they make Madison and Fifth avenues unfit for human residences. . . . They expel men from their rooms; they half stifle women, children, and the sick. Along the fine houses on Thirty-fourth Street there can be no peace from these odors. . . . the smoke of the factories of soap, glue, and varnish, the scent of the fertilizers made of decayed fish, the heavy atmosphere of petroleum, the thick fumes of ammonia and various unknown compounds, fall upon the helpless citizens.[58]

This description is evocative of the feelings, particularly the smells, evoked by the region's airborne environmental pollution. Lawrence's mention of "miasmic vapors" suggests adherence to the belief, common prior to the adoption of germ theory, that malodorous air was a primary cause of infectious diseases, such as cholera.[59] Without proof of causation, many observers nevertheless noted a correlation between the presence of industrial pollution and poor health; in 1876, *Scientific American* reported that "for a long time the inhabitants of the northerly portion of the city [Manhattan] have complained of bad health, due, as they allege, to foul odors that swept across the river."[60] However, other reports were more equivocal about the health damage caused by industrial smoke. Dr. Edward Janes told the Board of Health task force in 1881 that "the smell of 'sludge' acid was pungent and irritating to the throat. . . . [but] [h]e could not say that any sickness was caused directly by them."[61] Though, as Janes's testimony shows, causation was not yet verified, some scientists were beginning to be aware that poor air quality was correlated with pulmonary conditions like bronchitis and asthma. More recently, environmental historians have explicitly addressed urban air pollution as part of a larger complex of issues relating to health, sanitation, and hygiene in the United States and Britain during the late nineteenth century.[62]

While some compassion was spared for tenement dwellers and those weakened by poverty and malnutrition who might be more susceptible to the ill health effects of pollution, much of the sanitary literature had a highly moralizing tone. These texts often failed to distinguish between personal responsibility and environmental threats caused by large-scale industry and exacerbated by structural poverty. For instance, an 1898 sanitation manual by Seneca Egbert showed a predisposition to blame unsanitary conditions on individual habits; the author claimed urban hygiene was being slowed by "large numbers of ignorant and uncleanly immigrants from abroad."[63] It was not

uncommon for "experts," such as Egbert, to blame what they saw as cultural, educational, or religious "choices" that caused impoverished immigrants to crowd into tenements without adequate sanitation and ventilation. This sanitary literature illuminates the highly classed nature of nineteenth-century discussions about pollution.

Concern about "bad air" also focused on the conditions of *indoor* areas with little ventilation, such as tenement houses.[64] However, the problems of industrial pollution and poor interior ventilation were mutually reinforcing. Providing adequate airflow in high-density housing could be achieved by increasing the number of windows, but once opened, these would bring in particulate matter, smoke, soot, and foul smells. As sanitarian Charles F. Wingate charged in 1883, "Such air as does enter the seldom opened windows is redolent with scents from stables, soot from elevated railroads, vapors from factories, or odors from Hunter's Point refineries." This problem affected even the rich, as Wingate observed: "Much has been written and said of late years about the wretched homes of the poor of New York. . . . Little, however, has been heard of the unsanitary homes of the rich . . . the defects of the costliest houses on Murray Hill rival those of the tenements of Baxter street."[65] Wealthy residents complained that the pollution threatened to make fashionable areas of town uninhabitable. In one article titled "The Plague of Smells," a *Harper's Weekly* journalist complained, "It is incredible that the most delightful part of the city should passively acquiesce in the nuisance."[66]

The fear that airborne pollution could not be controlled and might seep from industrial workplaces to working-class homes and thence into the broad avenues and stately townhouses of midtown was, perhaps, even more anxiety-provoking than the health concerns. However, as will be seen below, the wealthy had recourse to parks and other leisure sites as reservoirs of fresh air, while the poor were envisioned, at least in many popular sources, as being trapped within their overcrowded neighborhoods. An 1883 *Frank Leslie's* cover makes this clear, its split composition providing explicit visual contrast between the hot, polluted, dangerous air breathed by urban tenement dwellers and the seaside escape available to wealthier New Yorkers. Conflating the "torrid temperature" of a summer heat wave and the need for "pure air," the left-hand image shows a toddler's vitality "fast ebbing away," apparently lying on the sidewalk against a black impenetrable background (fig. 15).[67] As this image shows, both the "heatscape" and "smellscape" of New York's Gilded Age urban ecology privileged the rich; for them, these unpleasant sensations and the air pollution that caused or exacerbated their sensory discomforts could often be circumvented.[68]

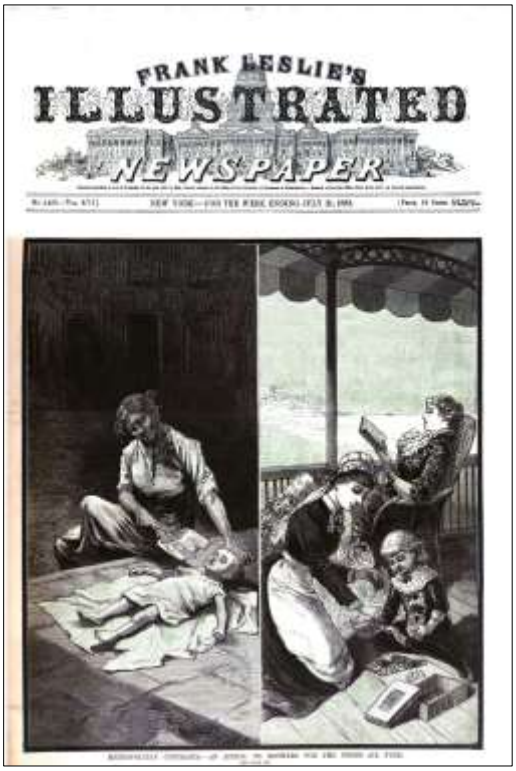


Fig. 15. "Metropolitan Contrasts—An Appeal to Mothers for the Fresh-Air Fund," wood engraving, *Frank Leslie's Illustrated Newspaper*, July 21, 1883, cover

However, the uncontainable properties of airborne odors, smoke, and soot meant that the reach of bad air was more widespread, and its effects more complex, than localized concerns that were also the target of sanitarians, such as tardy garbage collection or stuffy interior conditions. The air pollution coming from Hunter's Point and Gowanus could, and did, cause citywide effects, particularly in the summertime, creating an almost unbearable stench that blanketed the city. Air's free-floating nature was the main worry, wrote one author in the *Ladies' Home Journal*, bemoaning the way that scents are brought, indiscriminately, to the nose: "It seems to make no difference what the smell is,—violets, pole-cats, new-mown-hay, bone-boiling-nuisances, the delicious scent of the wild grape blossoms at evening, or the balsamic breath of the pine forest—the air catches it up and carries it along."[69] Whether or not experts could agree that sludge acid vapors and other industrial by-products were direct vectors for disease, the identifiable traits that all observers could agree on were the noxious smell that came from across the river, along with palpable air qualities, such as dampness, moistness, or a feeling of being enveloped, choked, and overwhelmed. Numerous sources from the 1880s and 1890s evoke the sensory unpleasantness of industrial air pollution, using references to sight, smell, and touch.

As Constance Classen and Alain Corbin show, the olfactory sense, including the evaluation of what constitutes a good or bad smell, has been socially constructed in the modern West. In their analyses, and in those of sensory historians who have built on their foundational scholarship, what is designated a good, bad, or tolerable smell is usually historically contingent and is created through group socialization.[70] There has probably never been a time and place, however, in which the combination of odors at Hunter's Point would have been considered positive or even neutral. At a fertilizer plant inspected by health officials, for instance, "the atmosphere was actually so nauseating that one of the party was made sick by it."[71] Even miles away, smells blown on the wind had a similar effect, reported the *New-York Herald*: "Charles Tracy, of No. 128 East Seventeenth-st., could not accurately describe the odor which was wafted into his house. It was very pungent and caused choking."[72] This response was so well-documented among those who lived in the city, particularly the area around Murray Hill in midtown, that the satirical publication *Puck* advocated packaging and marketing the air as an emetic: "Frozen and chopped into blocks" or "in liquid form," they quipped, it might prove "superior to stomach pumps and ipecac in cases of acute poisoning. We have always held that the chemical properties of the atmosphere surrounding New York were undervalued."[73]

In addition to their ability to cause nausea and vomiting, the stenches were described in disturbingly animate ways, as palpable entities or living things. In 1883, for instance, *Frank Leslie's* described the "stench-breeding establishments in or near Hunter's Point," while the following year, *Puck* decried the area as an "odor-foundry."[74] Both these descriptions suggest that smells are something tangible that can be produced physically, whether birthed or manufactured. One description from the *Independent* leaves the reader with a sense of having touched something unpleasant, even loathsome, activating the haptic qualities of air pollution. Describing the smoke created when processing sludge acid, the author writes: "With a heavy atmosphere and a right direction of wind, a cloud of this noxious suspension, or compound of oil-coated globules, will move along and, maybe, meet you miles distant and almost suffocate or nauseate you with its irritation. . . . Ordinary persons, in passing through such a mist or streak of odor, are so wet by it as that

many are sickened for a time."[75] *Puck* even coined a new word for this textured, irritating, pungent breeze: New York's "smellifluous odors."[76]

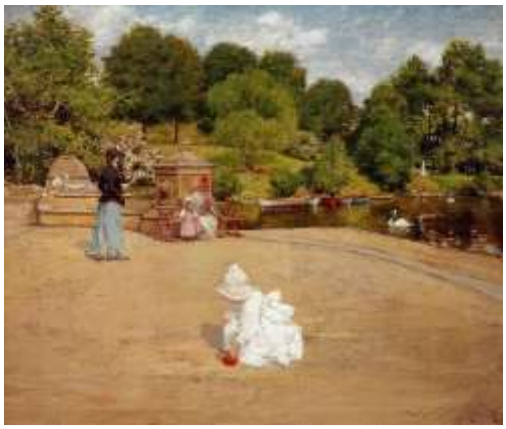
Parks, Privilege, and Childhood

These sensory impressions proved nearly impossible to depict effectively in painting. Chase's representations of bad air seem dank and gloomy mostly when viewed in comparison with his scenes of middle-class leisure in the fresh environments of New York's urban parks. Chase painted Prospect and Tompkins parks in Brooklyn, as well as iconic locations in Central Park, all of which he envisioned as filled with fresh, clean air, represented with similar techniques to those he would later use in *At the Seaside*. However, in spite of testimony showing that air pollution was endemic to New York and, by virtue of air's uncontrollable dispersal, could not be contained to a specific site, Chase's paintings ignore these realities, inscribing urban parks as shrines for upper-middle-class relaxation, oases of cleanliness and freshness. In this they echo *Harper's Weekly*'s assertion that "nowadays nobody thinks any air . . . worth speaking of can be obtained short of the Central Park."[77] Particularly after the Civil War, when a wave of park construction led to the creation of large landscaped urban green spaces, such as Central and Prospect parks, reformers imagined such sites as an "analgesic," aimed at improving urban hygiene, including physical and mental health.[78]

Ideally, of course, these spaces would be accessible to all New Yorkers, but for all the democratic ambitions of the green-space movement, parks remained in many ways the province of wealthy city dwellers. Ideals are one thing, wrote P. Mulford to the New York *Daily Graphic* in 1880, but "as it is, the American park is largely the rich man's park and made to please the rich man's eye." While urban green space should be a free amenity "where the air is sweet and pure," he described the reality of the working-class experience of New York parks in summer as overheated (by the melting asphalt of the pathways), overcrowded ("standing room for 50,000 poor souls"), and restrictive (working class parties "confronted on every side by the sign, 'Keep off the Grass!'").[79] And while Central Park's playgrounds were theoretically open to all schoolchildren, to use these amenities, a student needed to write an "application to the Commissioners of the Park, with a certificate from his or her teacher of the punctual attendance of the applicant upon the school and of good character."[80] It may have been easier for a working-class child to experience the air of the countryside via one of the many "fresh air fund" schemes than to seek permission to play in Central Park.[81]

Chase's representations of the leisure class taking the air of the city's parks feature expanses of green space, peeks of blue skies punctuated by fluffy clouds, and the brilliantly white garments of privileged children at play. In *Park in Brooklyn* (fig. 16) and *A Bit of the Terrace* (fig. 17), some of the compositional elements and themes Chase pursues in his park images as a whole are evident. Not only was the air itself "sweet and pure," but Chase's repeated motifs of young girls, nannies with infants, and prepubescent children pursuing innocent pastimes, such as playing with balls, rolling hoops, or sailing toy boats, reinforce a pleasant, unsullied narrative. The art critic Charles De Kay, a friend of Chase's, noted the prevalence of this theme in his Central Park images in 1891, writing of "the ever-present nurse and child [who] recall the purposes for which Central Park and many another park of New York have been established. Their proper maintenance is a matter

which concerns the health of the future generation."[82] In *A Bit of the Terrace*, the eye is brought to the foreground through the juxtaposition of the girl's dress—several strokes of white, with touches of light pink and gray—and the brilliant saturated red of the sharply defined ball she clutches. The scene shows clean and sparkling color, crystalline air in which viewers and subjects are free to breathe.



Figs. 16, 17. Left: William Merritt Chase, *Park in Brooklyn*, c. 1887. Oil on panel, 16 1/8 x 24 1/8 in. Parrish Museum of Art, Watermill, NY, Littlejohn Collection, 1961.5.11; right: William Merritt Chase, *A Bit of the Terrace*, c. 1890. Private collection

These paintings—and not the renderings of the murky harbor—comprised the lucrative portion of Chase's artistic practice. In them, he crafted a detached, idealized image of middle-class leisure that he visually differentiated from the polluted areas of the city. The artist, who aggressively promoted himself as a daring cosmopolite and aesthete to an elite audience of patrons, would have intuited that his purchasers—many of whom were from the wealthy class of industrialists either directly or indirectly responsible for the pollution—preferred a sanitized vision of fresh, clean air to the grittier renderings of waterfronts and smokestacks. But Chase's centering of innocent childhood begs comparison with another, more polemical representation of the ways that pollution threatened New York's most vulnerable citizens.

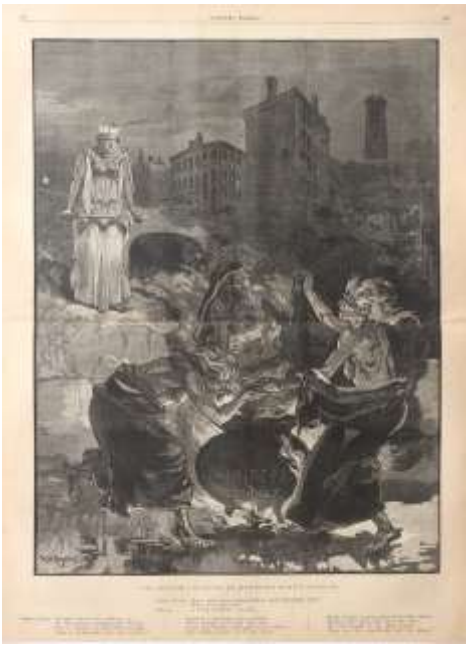


Fig. 18. William Allen Rogers, "The Death Caldron at Hunter's Point," *Harper's Weekly*, August 13, 1881, 552–53. Wood engraving, 13 x 18 in. Collection of the author

Illustrators had long turned to the macabre when depicting health crises, and the clouds of foul smoke seen in contemporary newspapers rendered bad air as a looming and physical threat. In 1881, William Allen Rogers represented New York's air pollution as a "death caldron" surrounded by the three witches from Shakespeare's *Macbeth* (fig. 18). Flames lick the base of the giant vessel, and at the right, one of the women is dramatically illuminated in profile, against a black bat-shaped cloud labeled "sludge acid." Text and image combine to reinforce a connection between the area's well-known smells and industrial smoke as a

physicalized manifestation of unclean air. The grotesque figures and swooping colony of bats emanating from the factory behind them are clearly emblems of malevolent intent. In a parody of Shakespeare's "double, double toil and trouble" speech, these specters cackle:

> Spread a nuisance everywhere;
> With sludge acid load the air;
> Send the stench through every street;
> Mix death-vapors with the heat;
> Make them strong, and foul, and thick;
> Sicken the well, and kill the sick.
> We can laugh at all their pains;
> They get the smells—we get the gains.[83]

Three weeks later, Rogers reprised the imagery, this time on the cover (fig. 19). In this new scene, the caldron is relegated to the background, still belching fumes; now its poisonous cloud is labeled "Hell Broth." The three witches have traveled on the ill wind across the East River and are in the act of trying to scoop up and abduct three children in their nightclothes; the limp body of a fourth child, grasped tightly by the witch at the top of the composition, appears to have succumbed to the fumes. A vaguely Greco-Roman personification of New York, clothed as a gladiatrix, tries to protect the remaining children, raising her sword against the grasping hag. In the accompanying story, the author laments "the mortality among the little ones in the tenements" whose "privations are greatly aggravated by nuisances like those at Hunter's Point." The sentimental appeal of the image—innocent children molested by gruesome representations of vile and pestilent evil—is bolstered by the editors' appeals to its readers' sympathies when describing the health effects of the pollution: "Hard as it must be for those who are well and strong to breathe the air thus contaminated, it is sickness and death to the little ones, whose wan, gaunt features and emaciated forms move our sympathy."[84] If, as rival newspaper *Frank Leslie's* opined, "the breathing of Hunter's Point odors all night is enough to lower the vitality of a rhinoceros," what hope was there for already-sickly children of the overcrowded and miasmic tenements?[85] In this representation and its accompanying text, activist journalists clarify the direct threats of air pollution and recognize a duty to do something about it. In this they differ markedly from Chase's replication of upper-class privilege in the miraculously clean air of Central Park.

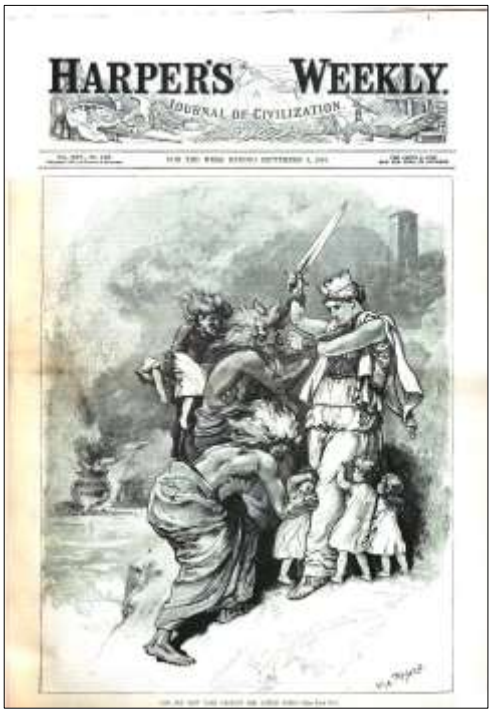


Fig. 19. William Allen Rogers, "Can Not New York Protect Her Little Ones?," *Harper's Weekly*, September 3, 1881, cover. Wood engraving, 9 x 13 in. Digitized by Google, original from Penn State

Conclusion

Chase and the artists and journalists of *Harper's Weekly* and other periodicals naturally had different aims in their efforts to represent New York's Gilded Age air quality. However, both forms of representation seek a means of depicting air as a physical substance that affected the material and medical lives of New Yorkers. Likewise, both forms of visual production recognized the bad air of Brooklyn and Queens as something that could be sensed, and rendered visible, through aesthetic means. Chase, as a theoretician and teacher, experimented with a variety of painterly techniques for representing cloud, sky, and air. The textures and colors in his scenes of middle-class leisure depart markedly from his rendering of the low, gloomy, thick air around the waterfront. His paintings of New York's canals and factories—though, like Whistler's, strangely beautiful—produce an airless and claustrophobic blanket of grayness that stifles a sense of breathability or habitable space. Without commenting directly on the class implications of air pollution, Chase replicated and highlighted those inequalities through the aesthetic choices he made when rendering different kinds of spaces within the city.

More polemically, journalists and illustrators pointed out that the distributional harms of bad air—while it *did* irritate the wealthier classes of the city—were unequal. The remarkable thing is how attuned many were to the structural problems of industrial pollution. Sensory historians note how perceptions of odor and cleanliness are classed. Placing blame for bad smells or polluted environments onto a racial or class "other" can become a mechanism for establishing social order and control.[86] However, with some exceptions, such as Egbert's complaint about immigrants, the journalistic response to bad air in Gilded Age New York was *in solidarity* with the working class rather than oppositional to it.

These writers recognized the structural issues created by the rapid expansion of the city, along with the increasing monopolization of the waterfront by Standard Oil. A writer for the religious journal *Christian Union*, for example, blamed corporate greed for the growing pollution and ill health in the city, complaining of "the grasping commercial spirit which, if it continues unchecked, seems likely to make home life and comfort as well as sightliness impossible in the American metropolis." Citing another piece from the *Evening Post*, he quotes: "The oil refineries at Hunter's Point can pollute the air of large districts of our city, and no one says them nay; as for the harbor, it is of no account what they throw into it."[87] This was written more than six years after the governor ordered the factories to curtail their airborne emissions and find ways of safely containing industrial by-products. In the intervening years, most newspapers complained, no measurable changes had been made. Because air pollutants drifted on the wind, factories could simply place blame on their neighbors, deflecting regulatory attention from themselves until the next public outcry. Perhaps through such industrial collusion, perhaps simply due to the fact that "when money is fast flowing into the pocket, the senses will refuse to take cognizance of certain conditions," little progress was made on curtailing toxic airborne pollution in the nineteenth century.[88]

While there is not scope here to discuss more widespread geographical or chronological representations of air pollution in American art, I hope this article opens a conversation on how artists incorporated aerial ecologies into landscape painting and other visual imagery of both good and bad air. As I have shown, artists did this in ways that were cognizant of anthropogenic industrial air pollution and attentive to the structural, class, and economic changes that both engendered and resulted from that ecological harm. Representations of

bad air by Chase and others were part of a much larger and more complex conversation about the ways class and capital interacted to produce an environmental catastrophe in the making. While visited unequally on rich and poor, bad air was not the fault of individual actors in urban communities but was a product of intentional expansion, particularly seen in the increasing dominance of one company. Speaking on behalf of "the citizens," one *Harper's Weekly* essay described air pollution as a "disgusting form of the wrong inflicted upon the community by the great monopolies." It went on to name Standard Oil as "the unscrupulous power that taints the very air they breathe."[89]

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Notes

Thanks to the members of the environmental justice reading group who provided feedback on this essay: Michael Malouf, Zach Schrag, Todd Stafford, and Levi van Sant.

[1] EPA, "EPA Makes Final Decision; Newtown Creek is Added to Superfund List," Superfund and Brownfields news release (Region 2), *Environmental Protection Agency Documents and Publications*, September 27, 2010, https://archive.epa.gov/epapages/newsroom_archive/newsreleases/2396919b9ba01909852577ab00624103.html.

[2] This is a historical concern that continues into the present, shown in part by the fact that updates on the Newtown Creek site have been distributed in English, Polish, Mandarin, and Spanish. EPA, "Community Update July 2021," *Superfund Site: Newtown Creek; Brooklyn, Queens, NY*, https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0206282.

[3] James Nisbet, "Environmental Abstraction and the Polluted Image," *American Art* 31, no. 1 (Spring 2017): 114–31; Julia Bryan-Wilson, "Aftermath: Two Queer Artists Respond to Nuclear Spaces," in *Critical Landscapes: Art, Space, Politics*, ed. Emily Eliza Scott and Kirsten Swenson (Berkeley: University of California Press, 2015), 77–92; Jessica L. Horton, "Air, Wind, Breath, Life: Desertification and Will Wilson's *AIR (Auto-Immune Response)*," in *The Invention of the American Desert: Art, Land, and the Politics of Environment*, ed. Lyle Massey and James Nisbet (Berkeley: University of California Press, 2021), 39–58.

[4] Vanessa Meikle Schulman, *Work Sights: The Visual Culture of Industry in Nineteenth-Century America* (Amherst: University of Massachusetts Press, 2015), 123–54.

[5] Asher Brown Durand, "Letters on Landscape Painting: No. V," *Crayon* 1, no. 10 (March 7, 1855): 146.

[6] Nisbet, "Environmental Abstraction and the Polluted Image," 121.

[7] See, on smoking: Ross Barrett, "Harnett's Habit: Still Life Painting and Smoking Culture in the Gilded Age," *American Art* 33, no. 2 (Summer 2019): 62–83; on clouds: Polly Gould, "Ruskin's Storm-Cloud and Tyndall's Blue Sky: New Materialist Diffractions of Nineteenth-Century Atmospheres," in *Ecocriticism and the Anthropocene in Nineteenth-Century Art and Visual Culture*, ed. Maura Coughlin and Emily Gephart (New York: Routledge, 2020), 115–32; Seth T. Reno, *Early Anthropocene Literature in Britain, 1750–1884* (Cham: Palgrave Macmillan/Springer Nature, 2020), 173–83, 190–98; John E. Thornes, "Constable's Meteorological Understanding and His Painting of Skies," in *Constable's Clouds: Paintings and Cloud Studies by John Constable*, ed. Edward Morris (Edinburgh: National Galleries of Scotland, 2000), 151–59; on industrial smoke: Melanie A. Kiechle, *Smell Detectives: An Olfactory History of Nineteenth-Century Urban America* (Seattle: University of Washington Press, 2017), 220–23; John E. Thornes and Gemma Metherell, "Monet's 'London Series' and the Cultural Climate of London at the Turn of the Twentieth Century," in *Weather, Climate, Culture*, ed. Sarah Strauss and Ben Orlove (Oxford: Berg, 2003), 143–46. In rare cases, air is the narrative focus of a work, as in Joseph Wright of Derby's *An Experiment on a Bird in the Air Pump* (1768; National Gallery of Art, London). Recognizing air as a necessary, though unseen,

medium, Wright's painting connects scientific and artistic epistemologies of the late eighteenth century. Leo Costello, "Air, Science, and Nothing in Wright's *Air Pump*," *Studies in English Literature, 1500–1900* 56, no. 3 (Summer 2016): 647–70.

[8] Amy Knight Powell, "If a Painting Is Like a Window, Is It a Means of Ventilation?," *Grey Room* 83 (Spring 2021): 28.

[9] Anne Friedberg, *The Virtual Window: From Alberti to Microsoft* (Cambridge, MA: MIT Press, 2006), 26–48.

[10] Thomas Cole, "Essay on American Scenery," *American Monthly Magazine*, n.s., 1 (January 1836): 10. Cole's attention to atmospheric and meteorological effects is mentioned in passing by ecocritic Alan C. Braddock in "Directionality in Thomas Cole's *The Oxbow*: Ecocritical Art History and Visual Communication," in *The Routledge Handbook of Ecocriticism and Environmental Communication*, ed. Scott Slovic, Swarnalatha Rangarajan, and Vidya Sarveswaran (London: Routledge, 2019), 159.

[11] L. C. W. Bonacina, "Landscape Meteorology and Its Reflection in Art and Literature," *Quarterly Journal of the Royal Meteorological Society* 65, no. 282 (October 1939): 485–97.

[12] Durand, "Letters on Landscape Painting: No. V," 146.

[13] Durand, "Letters on Landscape Painting: Letter III," *Crayon* 1, no. 5 (January 31, 1855): 66. Thanks to the anonymous reader at *Panorama* for pointing me to this passage.

[14] Daniel Burleigh Parkhurst, *The Painter in Oil: A Complete Treatise on the Principles and Technique Necessary to the Painting of Pictures in Oil Colors* (1897; Boston: Lee and Shepard, 1903), 328.

[15] "Painting in Oils for the Amateur and Beginner, XI," *Art Amateur* 43, no. 3 (August 1900): 64.

[16] A. E. Ives, "Talks with Artists: Mr. Childe Hassam on Painting Street Scenes," *Art Amateur* 27, no. 5 (October 1892): 116.

[17] M. B. O. Fowler, "Landscape Painting, XII, 'Atmosphere!' Mist, Fog," *Art Amateur* 32, no. 3 (February 1895): 87.

[18] Powell, "If a Painting Is Like a Window, Is It a Means of Ventilation?," 28–30.

[19] Durand, "Letters on Landscape Painting: No. V," 146. Emphasis original.

[20] Ives, "Talks with Artists," 116.

[21] Jasper Francis Cropsey, "Up Among the Clouds," *Crayon* 2, no. 6 (August 8, 1855): 79.

[22] "Our Watering-Places," *Crayon* 3, no. 11 (November 1858): 337.

[23] Ronald G. Pisano, *Long Island Landscape Painting, 1820–1920* (Boston: Little, Brown, 1985), 3–4; Keith L. Bryant Jr., *William Merritt Chase: A Genteel Bohemian* (Columbia: University of Missouri Press, 1991), 78–81; Barbara Dayer Gallati, *William Merritt Chase* (New York: Abrams, 1995), 26–27.

[24] On this period of Chase's career and his studio practice, see Bryant, *William Merritt Chase*, 53–61; Sarah Burns, *Inventing the Modern Artist: Art and Culture in Gilded Age America* (New Haven, CT: Yale University Press, 1996), 46–76; Nicolai Cikovsky Jr., "William Merritt Chase's Tenth Street Studio," *Archives of American Art Journal* 16, no. 2 (1976): 2–14; Gallati, *William Merritt Chase* (1995), 25–27, 39–53; Ronald G. Pisano, *William Merritt Chase* (New York: Watson-Guptill, 1979), 2–3; Kirsten Ringelberg, *Redefining Gender in American Impressionist Studio Paintings: Work Place/Domestic Space* (2010; London: Routledge, 2016), 43–71.

[25] Bryant, *William Merritt Chase*, 109, 116–19; Barbara Dayer Gallati, *William Merritt Chase: Modern American Landscapes, 1886–1890* (New York: Brooklyn Museum of Art, 1999), 44, 53–56; Pisano, *Long Island Landscape Painting*, 112.

[26] Gallati, *William Merritt Chase* (1999), 44–46.

[27] Cynthia V. A. Schaffner and Lori Zabar, "The Founding and Design of William Merritt Chase's Shinnecock Hills Summer School of Art and the Art Village," *Winterthur Portfolio* 44, no. 4 (Winter 2010): 304. On Chase's dedication to "American" painting, see Pisano, *William Merritt Chase*, 1–8; Ronald G. Pisano, *A*

Leading Spirit in American Art: William Merritt Chase, 1849–1916 (Seattle: University of Washington, 1983), 13–14, 95–97, 171–77; Gallati, *William Merritt Chase* (1995), 25–27; Gallati, *William Merritt Chase* (1999), 18.

[28] Schaffner and Zabar, "Founding and Design of William Merritt Chase's Shinnecock Hills Summer School of Art and the Art Village," 318; see also Pisano, *A Leading Spirit in American Art*, 121–27.

[29] "Writings and notes by Chase," typescript "From lecture at Shinnecock," 1894, p. 10, William Merritt Chase papers, circa 1890–1964, box 1, folder 4, Archives of American Art, Smithsonian Institution (hereafter AAA). It is unclear why and by whom these remarks were compiled; they may have been recorded by an observer of Chase's weekly open critiques.

[30] Emily C. Burns, "'Of a Kind Hitherto Unknown': The American Art Association of Paris in 1908," *Nineteenth-Century Art Worldwide* 14, no. 1 (Spring 2015), http://www.19thc-artworldwide.org/spring15/burns-on-the-american-art-association-of-paris-in-1908; Kimberly Orcutt, "Buy American? The Debate over the Art Tariff," *American Art* (Fall 2002): 82–91.

[31] Undated handwritten speech, p. 13, William Merritt Chase papers, box 1, folder 4, AAA.

[32] "Writings and notes by Chase," typescript "From lecture at Shinnecock," 4.

[33] *The Boat Harbor (Gowanus Pier)*, New-York Historical Society, accessed September 4, 2023, https://emuseum.nyhistory.org/objects/95617/the-boat-harbor-gowanus-pier; *Harbor Scene, Brooklyn Docks*, Yale University Art Gallery, accessed September 4, 2023, https://artgallery.yale.edu/collections/objects/61370.

[34] E. A. Ives, "Suburban Sketching Grounds," *Art Amateur* 25, no. 4 (September 1891): 80.

[35] John House, "Visions of the Thames," in *Monet's London: Artists; Reflections on the Thames, 1859–1914*, ed. John House, Petra ten-Doesschate Chu, and Jennifer Hardin (St. Petersburg, FL: Museum of Fine Arts, 2005), 17–34; Reno, *Early Anthropocene Literature in Britain*, 204–9; Jonathan Ribner, "The Poetics of Pollution," in *Turner Whistler Monet: Impressionist Visions*, ed. Katherine Lochnan et al. (Toronto: Art Gallery of Ontario, 2004), 51–63; Thornes and Metherell, "Monet's 'London Series,'" 141–60; and Laura Valette, "Painting Fog: James Abbott McNeill Whistler's Blurred Visions of the London Atmosphere," in *British Art and the Environment: Changes, Challenges, and Responses Since the Industrial Revolution*, ed. Charlotte Gould and Sophie Mesplède (New York: Routledge, 2022), 43–57. Scientists and meteorologists have also discussed how these artists represented industrial pollution. See Anna Lea Albright and Peter Huybers, "Paintings by Turner and Monet Depict Trends in 19th Century Air Pollution," *Proceedings of the National Academy of Sciences* 120, no. 6 (2023): https://doi.org/10.1073/pnas.2219118120; Peter Brimblecombe, "Aerosols and Air Pollution in Art," in *Proceedings of the Symposium on the History of Aerosol Science, Held in Vienna, Austria, August 31 to September 2, 1999*, ed. Othmar Preining and James E. Davis (Vienna: Österreichischen Akademie der Wissenschaften, 2000), 18–20; Stanley David Gedzelman, "Atmospheric Optics in Art," *Applied Optics* 30, no. 24 (August 20, 1991): 3518.

[36] London's air quality problem dated to the early modern period and intensified in the nineteenth century. By the 1870s, scientists observed its color and texture change from brownish-yellow to a "gritty black" often visible in Whistler's works. Bill Luckin, *Death and Survival in Urban Britain: Disease, Pollution and Environment, 1800–1950* (London: I. B. Tauris, 2015), 118–40, esp. 139; see also Peter Brimblecombe, *The Big Smoke: A History of Air Pollution in London since Medieval Times* (1987; Abingdon: Routledge, 2011), 101–12, 129–31; Christine L. Corton, *London Fog: The Biography* (Cambridge, MA: Belknap Press of Harvard University Press, 2015), 171–85; Anthony Kessel, *Air, the Environment and Public Health* (Cambridge, UK: Cambridge University Press, 2006), 51–54; Jesse Oak Taylor, *The Sky of Our Manufacture: The London Fog in British Fiction from Dickens to Woolf* (Charlottesville: University of Virginia Press, 2016); and Peter Thorsheim, *Inventing Pollution: Coal, Smoke, and Culture in Britain Since 1800* (Athens: Ohio University Press, 2006), 22–30.

[37] Nisbet, "Environmental Abstraction and the Polluted Image," 116–17.

[38] Corton, *London Fog*, 179.

[39] {Frederic Leighton}, "An Artist's View of the Smoke Question," *Builder* (March 25, 1882): 367.

[40] "Trafalgar Square: Drawn and Etched by Brunet Debaines," *Art Journal* {London}, n.s. (1888): 149.

[41] William Merritt Chase, "In the Art School: Some Students' Questions Briefly Answered by Mr. W. M. Chase," *Art Amateur* 36, no. 3 (March 1897): 68.

[42] "Writings and notes by Chase," typescript "From lecture at Shinnecock," 4, 2–3.

[43] "Writings and notes by Chase," typescript "From lecture at Shinnecock," 5.

[44] Kessel, *Air, the Environment and Public Health*, 59.

[45] "Trafalgar Square," 149.

[46] Emily Doucet, Matthew C. Hunter, and Nicholas Robbins, "Editors' Introduction: The Aerial Image," *Grey Room* 83 (Spring 2021): 16.

[47] Anne E. Leonard and Peter Spellane, "Using Old Maps and New Methods to Discover the Early Chemicals and Petroleum Industries of Newtown Creek in New York City," *Journal of Map and Geography Libraries* 9 (2013): 29–30.

[48] Andrew Hurley, "Creating Ecological Wastelands: Oil Pollution in New York City, 1870–1900," *Journal of Urban History* 20, no. 3 (May 1994): 341.

[49] Leonard and Spellane, "Using Old Maps and New Methods to Discover the Early Chemicals and Petroleum Industries of Newtown Creek in New York City," 33.

[50] Hurley, "Creating Ecological Wastelands," 344–46.

[51] Luckin, *Death and Survival in Urban Britain*, 95.

[52] Hurley, "Creating Ecological Wastelands," 341. Pro-growth boosters held that industrial smoke was evidence of economic expansion and progress, as noted in R. Dale Grinder, "The Battle for Clean Air: The Smoke Problem in Post-Civil War America," in *Pollution and Reform in American Cities, 1870–1930*, ed. Martin V. Melosi (Austin: University of Texas Press, 1980), 84–85, 94–96; David Stradling, *Smokestacks and Progressives: Environmentalists, Engineers, and Air Quality in America, 1881–1951* (Baltimore: Johns Hopkins University Press, 1999), 22.

[53] "Correspondence: The Painting of Fire and Smoke," *Art Amateur* 30, no. 5 (April 1894): 151.

[54] "The Plague of Smells," *Harper's Weekly*, March 19, 1881, 179. On the area's industrial development, see Hurley, "Creating Ecological Wastelands," 343–45; Kiechle, *Smell Detectives*, 59–63, 138–47. Emphasis added.

[55] At this time, "nuisance" laws related almost exclusively to traditional trades that created unpleasant smells, such as tanning, dyeing, rendering, and butchering. While many of the primary sources consulted in this article use the term in its "correct" historical legal sense, they also colloquially extend it to industries that were often *not* successfully prosecuted as legal nuisances in the nineteenth century, including smelters, factories, and petroleum works, such as those at Hunter's Point. Grinder, "Battle for Clean Air," 91–93; Kiechle, *Smell Detectives*, 164–82; Christine Meisner Rosen, "'Knowing' Industrial Pollution: Nuisance Law and the Power of Tradition in Times of Rapid Economic Change, 1840–1864," *Environmental History* 8, no. 4 (October 2003): 565–97; Stradling, *Smokestacks and Progressives*, 39–41, 61–64.

[56] Silas Drift, {pseud.}, "Heated Fancies," *Puck*, June 27, 1877, 10.

[57] Michael Egan, "Organizing Environmental Protest: Swill Milk and Social Activism in Nineteenth-Century New York City," in *Natural Protest: Essays on the History of American Environmentalism*, ed. Michael Egan and Jeff Crane (New York: Routledge, 2009), 42. For more on the swill milk campaign, see Joshua Brown, *Beyond the Lines: Pictorial Reporting, Everyday Life, and the Crisis of Gilded Age America* (Berkeley: University of California Press, 2002), 27–28; John Duffy, *The Sanitarians: A History of American Public Health* (Urbana: University of Illinois Press, 1990), 183–85.

[58] Eugene Lawrence, "Death and Hunter's Point," *Harper's Weekly*, August 13, 1881, 554.

[59] For instance, New York suffered multiple cholera outbreaks in the nineteenth century, which are chronicled in Charles E. Rosenberg's *The Cholera Years: The United States in 1832, 1849, and 1866* (1962; Chicago: University of Chicago Press, 1987). Fear of dangerous air was intimately connected with the disease in many Americans' minds, well after John Snow's 1854 demonstration of its waterborne nature.

Popular depictions during the 1866 epidemic imagined cholera as a poisonous "wind." Ayendy Bonifacio, "The 1866 New York City Cholera Epidemic through Popular Periodicals and Theories of Contagion," *Prose Studies* 39, no. 1 (August 2017): 1–18.

[60] "The Odors of Coal Oil," *Scientific American*, April 22, 1876, 264.

[61] "Hunter's Point Nuisances," *New-York Tribune*, February 27, 1881, 12.

[62] For analyses specific to the United States, see Duffy, *Sanitarians*, 187; Grinder, "Battle for Clean Air," 85–86; Suellen Hoy, *Chasing Dirt: The American Pursuit of Cleanliness* (New York: Oxford University Press, 1995), 60–61, 104–110; Stradling, *Smokestacks and Progressives*, 25–26, 35–36. Much recent research on nineteenth-century air pollution and public health uses data from the UK, including Kessel, *Air, the Environment and Public Health*, 35–37, 60; Luckin, *Death and Survival in Urban Britain*, 111–12; Stephen Mosley, "Public Perceptions of Smoke Pollution in Victorian Manchester," in *Smoke and Mirrors: The Politics and Culture of Air Pollution*, ed. E. Melanie DuPuis (New York: New York University Press, 2004), 58–60; Harold L. Platt, "'The Invisible Evil': Noxious Vapor and Public Health in Manchester during the Age of Industry," in DuPuis, *Smoke and Mirrors*, 32–33.

[63] Seneca Egbert, *A Manual of Hygiene and Sanitation* (Philadelphia: Lea Brothers, 1898), 22.

[64] Hoy, *Chasing Dirt*, 66–72; Duffy, *Sanitarians*, 186–87; Kiechle, *Smell Detectives*, 78–105; Stradling, *Smokestacks and Progressives*, 47–52. For primary sources on "bad air," see "Cheap Lodging-Houses in New York," *Frank Leslie's Illustrated Newspaper*, March 18, 1882, 54–55; and news brief, *Daily Graphic*, May 11, 1880, 614.

[65] Charles F. Wingate, "The Unsanitary Homes of the Rich," *North American Review* 137 (August 1883): 174, 173.

[66] "Plague of Smells," 179.

[67] "Appeal for the 'Fresh Air Fund,'" *Frank Leslie's Illustrated Newspaper*, July 21, 1883, 354.

[68] Kara Murphy Schlichting writes of New York's "heatscape" as its "climatological features and their impact on human bodies," in "Hot Town: Sensing Heat in Summertime Manhattan," *Environmental History* 27, no. 2 (April 2022): 355. Melanie A. Kiechle describes the "smellscape" as a city's "olfactory geography," in *Smell Detectives*, 62.

[69] H. M., "Talks with the Doctor: Breaths Continued," *Ladies' Home Journal* 5, no. 3 (February 1888): 5.

[70] Constance Classen, *Worlds of Sense: Exploring the Senses in History and across Cultures* (London: Routledge, 1993), 80–83; Alain Corbin, *The Foul and the Fragrant: Odor and the French Social Imagination*, trans. Miriam L. Kochan, ed. Roy Porter and Christopher Prendergast (Leamington Spa: Berg, 1986), 142–60; Mark M. Smith, *A Sensory History Manifesto* (University Park: Pennsylvania State University Press, 2021), 29–30; Connie Y. Chiang, "The Nose Knows: The Sense of Smell in American History," *Journal of American History* 95, no. 2 (September 2008): 405–7. Refuting the common argument that eradication of unpleasant smells was a hallmark of modernity, see Mark S. R. Jenner, "Follow Your Nose? Smell, Smelling, and Their Histories," *American Historical Review* 116, no. 2 (April 2011): 338–39.

[71] "Hunter's Point Stenches," *New-York Tribune*, April 6, 1876, 10.

[72] "Hunter's Point Nuisances," *New-York Tribune*, February 27, 1881, 12.

[73] Humor brief, *Puck*, January 24, 1884, 3.

[74] News brief, *Frank Leslie's Illustrated Newspaper*, October 6, 1883, 99; humor brief, *Puck*, April 2, 1884, 68.

[75] "The Power of Sludge," *Independent* 36 (June 26, 1884): 36.

[76] Humor brief, *Puck*, May 1, 1878, 3.

[77] "Home and Foreign Gossip," *Harper's Weekly*, February 17, 1866, 103. See also Kiechle, *Smell Detectives*, 30–33; Catherine McNeur, *Taming Manhattan: Environmental Battles in the Antebellum City* (Cambridge, MA: Harvard University Press, 2014).

[78] Karen R. Jones, "'The Lungs of the City': Green Space, Public Health, and Bodily Metaphor in the Landscape of Urban Park History," *Environment and History* 24 (2018): 49–54, at 52.

[79] P. Mulford, "Parks and the Poor: A Veritable Garden of Eden—New York Please Take Note," *Daily Graphic*, May 17, 1880, 664. For more background on debates about parks and social class in nineteenth-century New York, see Jones, "Lungs of the City," 48–54; McNeur, *Taming Manhattan*, 46–56, 200–221; Schlichting, "Hot Town," 357–58.

[80] "New Views in Central Park," *Harper's Weekly*, August 14, 1869, 525.

[81] Julia Guarneri, "Changing Strategies for Child Welfare, Enduring Beliefs about Childhood: The Fresh Air Fund, 1877–1926," *Journal of the Gilded Age and Progressive Era* 11, no. 1 (2012): 27–70; McNeur, *Taming Manhattan*, 196–99.

[82] Charles De Kay, "Mr. Chase and Central Park," *Harper's Weekly*, May 2, 1891, 328. For more on Chase's park scenes, see Gallati, *William Merritt Chase* (Abrams), 71–77; and Gallati, *William Merritt Chase* (Brooklyn Museum of Art), 61–78.

[83] "The Death Caldron at Hunter's Point," *Harper's Weekly*, August 13, 1881, 552–53. This image is briefly discussed in Kiechle, *Smell Detectives*, 222–23. On other histories of macabre polemical illustration for public health and safety campaigns, see Clare Horrocks, "The Personification of 'Father Thames': Reconsidering the Role of the Victorian Periodical Press in the 'Verbal and Visual Campaign' for Public Health Reform," *Victorian Periodicals Review* 36, no. 1 (Spring 2003): 2–19; Ribner, "Poetics of Pollution," 53–61; Schulman, *Work Sights*, 37–40; Taylor, *Sky of Our Manufacture*, 97–110; Thorsheim, *Inventing Pollution*, 19–30.

[84] "Can Not New York Protect Her Little Ones?" *Harper's Weekly*, September 3, 1881, 603.

[85] "Sanitary Suggestions," *Frank Leslie's Illustrated Newspaper*, May 2, 1885, 171.

[86] Classen, *Worlds of Sense*, 80; Chiang, "Nose Knows," 410; Mark M. Smith, *How Race Is Made: Slavery, Segregation, and the Senses* (Chapel Hill: University of North Carolina Press, 2006), 28–40.

[87] "Should New York Be Made Uninhabitable?," *Christian Union* 35, no. 6 (April 21, 1887): 5.

[88] "Power of Sludge," 36. On legal reform efforts from circa 1890 to 1910, see Stradling, *Smokestacks and Progressives*, 61–84.

[89] "Plague of Smells," 179.