

THE OPULENT CITY AND THE SYLVAN STATE:
ART AND ENVIRONMENTAL EMBODIMENT
IN EARLY NATIONAL PHILADELPHIA

A Dissertation
Submitted to
the Temple University Graduate Board

In Partial Fulfillment
of the Requirements for the Degree
DOCTOR OF PHILOSOPHY

by
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August 2014

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ABSTRACT

This dissertation investigates the ways in which Philadelphia artists and architects visualized, comprehended, and reformed the city's rapidly changing urban environment in the early republic, prior to the modern articulation of "ecology" as a scientific concept by late nineteenth-century naturalists such as Ernst Haeckel. I consider a variety of different media—including popular depictions and manifestations of Penn's Treaty Elm, fireplace and stove models by Charles Willson Peale, architectural designs for the Philadelphia Waterworks by Benjamin Henry Latrobe, and a self-portrait bust by the sculptor William Rush—in order to demonstrate that the human body served as a powerful creative metaphor in Philadelphia circa 1800, not only for understanding and representing natural processes in political or aesthetic terms, but also for framing critical public discourse about the city's actual environmental conditions. Specifically, I reveal how this metaphorical framework produced a variety of effects in art and architecture of the period, sometimes facilitating and at other times obscuring an understanding about the natural world as an arena of dynamic transformation.

I use the emerging discourse of ecocriticism to reframe complex embodied perceptions of the urban environment in early national Philadelphia. Briefly summarized, ecocriticism expands the scope of scholarly inquiry by recovering lost or neglected evidence of environmental conditions that bear on politics, society, and culture. Ecocritical art history offers a more self-critical approach to visual and material culture, questioning the prevailing anthropocentrism of art history by recognizing the agency of the environments and nonhuman entities with which artworks engage. Through an investigation of my case study objects' previously overlooked engagement with their

physical surroundings, I challenge the traditional separation of culture and nature, art and environment, in the interpretation of nineteenth-century art history. By revealing the previously unexplored environmental significance of the objects in question, my dissertation asserts that ecological change played an instrumental role in shaping artistic production and urban development in the decades following United States independence.

For my grandparents

ACKNOWLEDGEMENTS

This dissertation has benefitted immensely from the advice, feedback, and assistance of many individuals and institutions and I am indebted to them for their generous support. I owe a great deal to the art history department at the Tyler School of Art, Temple University, which encouraged and accommodated my research throughout my graduate career. I am very lucky to have had two excellent advisors during my tenure at Temple. Alan Braddock introduced me to the exciting possibilities of ecocriticism and new materialism, which allowed me to view nineteenth-century American art history in a new—and I believe, necessary—light. Alan continued to serve as my advisor after leaving Temple for a prestigious position at the College of William & Mary and this dissertation would only be a shell of its current state without his insightful prompts and provocations. Ashley West graciously stepped in as my primary advisor at Temple after Alan's departure and her deep knowledge of the historical intersections of art, science, and intellectual discourse became invaluable to this project. Both Alan and Ashley have helped me become a more rigorous and thoughtful scholar and for that I am extremely grateful.

Many other faculty members have also supported this project by offering advice at various stages, attending and evaluating practice conference talks, writing letters of recommendation, and assisting with applications. Thank you especially to Elizabeth Bolman, Tracy Cooper, Therese Dolan, Susanna Gold, Marcia Hall, Adele Nelson, and Gerald Silk for their involvement in this regard. Particular gratitude is due to my external committee members, Andrew Isenberg and Wendy Bellion, for the expertise on environmental history, urban studies, and art history of the early republic that they bring

to this project. I hope the fruitful discussions I've had with Drew and Wendy in the past will continue in the future. I was fortunate to have had the opportunity to present an early version of my chapter on Charles Willson Peale's fireplace and stove designs at the *Anatomy/Academy* Graduate Student Symposium at the Pennsylvania Academy of the Fine Arts in 2011, where I received valuable feedback from Wendy, Rachel DeLue, Kathy Foster, Michael Leja, Anna Marley, and Tanya Sheehan that informed my dissertation going forward. I wish to also thank the members of the now defunct Temple University Americanist Reading Group (TUAREG), whose regular meetings from 2009-2011 inspired stimulating interdisciplinary debate and proved an excellent venue to test out early chapter ideas.

Several institutions have provided important material support for this dissertation. I am extremely grateful to the American Council of Learned Societies and the Henry Luce Foundation for funding a final year of research and writing with a Dissertation Fellowship in American Art. Thanks to an Ailsa Mellon Bruce Predoctoral Fellowship for Historians of American Art to Travel Abroad from the Center for Advanced Study in the Visual Arts, I spent four weeks in the summer of 2011 viewing art and science collections and *Wunderkammern* in the Netherlands, Germany, and Austria, which helped situate my project within a broader transatlantic framework.

Residential fellowships have also been instrumental to this project's development by facilitating invigorating scholarly exchange and access to important resources. I spent an incredibly productive and rewarding year as a predoctoral fellow at the Smithsonian American Art Museum (SAAM) from 2012-13. Amelia Goerlitz, Amanda Rothstein, and Elizabeth Willson worked tirelessly to arrange seminars, talks, and tours during my

fellowship term and made the Fellowship Office a very welcome and comfortable environment in which to work. I am also indebted to librarian Anne Evenhaugen for humoring my excessive use of the Smithsonian's interlibrary loan system. While at SAAM, my dissertation benefitted greatly from thought-provoking conversations with curators and staff, especially Karen Lemmey, Emily Shapiro, Bill Truettner, and David Ward. SAAM's fellowship program truly supports a remarkable group of perceptive and intelligent scholars and it was a privilege to work among a cohort of peers who engaged critically and creatively with American art. I am incredibly grateful to my fellow fellows—Susanneh Bieber, Emily Burns, Agathe Cabau, Katelyn Crawford, Catherine Holochworst, Miri Kim, Shana Klein, Nicholas Miller, Erin Pauwels, Berit Potter, Adam Thomas, Luis Vargas-Santiago, and Gregory Zinman—who encouraged me to clarify and more forcefully articulate the larger stakes of my dissertation.

A dissertation research fellowship from the Pennsylvania Area Center for the History of Science funded a month of intense archival research at the American Philosophical Society, Historical Medical Library at the College of Physicians, Historical Society of Philadelphia, Franklin Institute, and Library Company of Philadelphia. Thank you especially to Babak Ashrafi and Simon Joseph for facilitating introductions and organizing networking events during this fellowship term. This past year, the McNeil Center for Early American Studies at the University of Pennsylvania welcomed my affiliation as a research associate and I am obliged to Dan Richter for the opportunity to participate in that interdisciplinary community of early American scholars. I also wish to thank the Terra Foundation for American Art for supporting a summer residency in

Giverny, France and fostering a lively exchange of ideas and discussion of interpretive models with other doctoral candidates, senior scholars, and artists.

The assistance and guidance of the knowledgeable library, archive, and museum staff I contacted and visited these past few years have been essential to this project's realization. These individuals fielded numerous inquiries and facilitated the viewing of countless objects, archives, and books that became integral components of my dissertation. Kathy Foster and Mark Mitchell at the Center for American Art at the Philadelphia Museum of Art, where I had a summer fellowship in 2008, became important resources and mentors to me throughout my graduate career. I spent a year cataloging the museum collection of the American Philosophical Society from 2009-2010 and this dissertation was inspired by that institution's unique, and at times, baffling, collection of fine art and scientific objects. Thank you especially to Sue Ann Prince, Merrill Mason, Mary Grace Wahl, and the library staff for their guidance and support. My many hours at the Library Company of Philadelphia and the Historical Society of Pennsylvania were enhanced by the patience and advice of the librarians and archivists at those institutions, especially Jim Green, Cornelia King, and Sarah Weatherwax. John Alvitì at the Franklin Institute facilitated the viewing of architectural drawings of the Philadelphia Waterworks and his good humor and keen interest in my project greatly alleviated long days of archival research. I am also indebted to the library and museum staff at Winterthur, especially Emily Guthrie, Rosemary Krill, Jeanne Solensky, and Catharine Roeber, who helped me navigate the rich holdings of that institution. Recognition is also due to Heather Haggstrom, Kate Gallagher, and the library staff at the Maryland Historical Society, Kristi Finefield at the Library of Congress's Prints and

Photographs Division, and the staff at Library of Virginia, Richmond, for enabling access to important Latrobe drawings and manuscripts. Laura Keim at Historic Germantown proved to be an indispensable resource on Treaty Elm relics and, with the assistance of Addie Quin, introduced me to John Fanning Watson's fascinating relic snuff boxes at Wyck, Stenton, and the Germantown Historical Society. Karie Diethorn at the Independence National Historical Park, Curtis Miner at The State Museum of Pennsylvania and Susan Drinan at the Philadelphia History Museum all graciously fielded questions and accommodated visits to view Treaty Elm relics at their respective institutions. Thank you also to conservator Virginia Naudé for her generous responses to my emails regarding William Rush's sculpting process.

Last but certainly not least, I owe a great deal to my confidants and cheerleaders, my family and friends. They provided much needed encouragement, motivation, and, most importantly, levity and laughter, throughout my graduate school career and successfully prevented me from becoming a social hermit. Thank you to my parents, John and Janice Turner, for their unwavering belief and confidence in me, especially at times when I doubted myself. I am also grateful for the patience, love, and support of my husband Will, who has tolerated endless monologues on Philadelphia history and supported my research even when it took me away from home for extended periods of time. Finally, this dissertation is dedicated to the memory of my beloved grandparents, Robert and Gail Briggs, who, in my mind, will forever be associated with the vibrant assemblage of people, place, and things that is Briggs Auction, Inc. It is unlikely I would be the person I am today without their introduction to the strange and infinite world of visual and material culture.

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CHAPTER 1

INTRODUCTION: THE OPULENT CITY AND THE SYLVAN STATE

In *The City of Philadelphia*, the first comprehensive visual representation of the city in 1800, the artists Thomas and William Russell Birch opened their series of engraved views with a frontispiece depicting Philadelphia's city port (Fig. 1.1). Here, commercial utilization of wood occurs directly beneath the legendary Treaty Elm, under which it was believed William Penn made a peaceful agreement with the Lenape Indians in 1682 or 1683. The elm provides the focal point of the engraving; its branches and thick foliage extend over the entire scene, shading, protecting, and framing both the foreground activity in the port and the city in the background. Beneath the tree, two figures chop planks of wood for shipbuilding. To the immediate left of the elm's trunk, two more men are occupied repairing a boat's hull, while a cauldron of pitch boils and smokes nearby. To the right and in front of the elm, a series of figures are shown at leisure, including two men in top hats reclining on a grassy bank with a dog and a man leading a horse towards the docks. A couple standing before a wooden fence, behind which flies an American flag, observes the scene of industry before them. In the background, the bustling city and harbor—a rhythmic procession of brick buildings, steeples, and tall-masted ships—stretch along the horizon.

The Birches introduced Philadelphia, the subject of their illustrated publication, with a view from the northeast that would have greeted goods and people traveling down the Delaware River from the region's hinterlands. They chose this perspective over the one that welcomed travelers arriving from the Atlantic Ocean to the south as well as the eastern view of Philadelphia from New Jersey, popularized by George Heap and Nicholas

Scull's 1768 engraving (Fig. 1.2), which showcased the city's prominent buildings, street plan, and bustling harbor in one panoramic sweep. Instead, the Birches' approach to the city is the same one rafts of timber encountered as they floated down the Delaware in large quantities during the late eighteenth and early nineteenth century. Indeed, the engraving's subject matter, combined with its paper support, saturates the image with material and visual references to wood. The prominent inclusion of the Treaty Elm, the preparation of wood for shipbuilding, and the northern perspective delineated in the Birches' engraving together underscore both the symbolic and economic importance of trees and timber to the city and region. The elm in particular, with its close connection to William Penn and the city's foundation, recalled Philadelphia's creation narrative while also reminding the viewer of the sylvan heritage that contributed to the region's economic success.

Instructions sent by William Penn to Pennsylvania colonists in 1681 envisioned the settlement of Philadelphia as a "greene Country Towne, w^{ch} will never be burnt and allways be wholesome."¹ A 1794 plan of Philadelphia and its suburbs, however, visualized a rapidly expanding city, as blocks tinted red mapped the city's population swelling past the boundaries of Thomas Holme's original ordered grid near the Delaware River (Fig. 1.3). Even though the elm visually dominates the view of the city port in the Birches' engraving, towering over the city, ships, and people, the introductory text of *The City of Philadelphia* praised the ascendancy of the urban landscape over its natural foundation, proclaiming "the ground on which [Philadelphia] stands, was, less than a

¹ "Instructions of William Penn to the Commissioners for settling the colony, 30 7th Mo. 1681," in Mary Maples Dunn and Richard S. Dunn, eds., *The Papers of William Penn, 1680-1684* (Philadelphia: University of Pennsylvania Press, 1982), 121. For the entirety of this dissertation, all citations are transcribed in their original form and spelling, without correction, unless otherwise specified.

century ago, in a state of wild nature, covered with woods, and inhabited by Indians. It has, in this short time, been raised, as it were, by magic power, to the eminence of an opulent city.”² This urban expansion, however, was accompanied by serious environmental and economic issues that plagued the city. The seemingly endless forests of the region receded as Philadelphia and surrounding communities consumed massive amounts of wood for ships, building construction, and fuel. Yellow fever periodically swept through the city beginning in 1793, decimating the local population and raising concerns about contaminated water and air. The purity of Philadelphia’s water supply became a primary focus of debate over public health, prompting plans for a city waterworks by 1798.

This dissertation investigates the ways in which Philadelphia artists and architects visualized, comprehended, and reformed the city’s rapidly changing urban environment in the early republic, prior to the modern articulation of “ecology” as a scientific concept by late nineteenth-century naturalists such as Ernst Haeckel. I consider a variety of different media—including popular depictions and manifestations of Penn’s Treaty Elm, fireplace and stove models by Charles Willson Peale, architectural designs for the Philadelphia Water Works by Benjamin Henry Latrobe, and a self-portrait bust by the sculptor William Rush—in order to demonstrate that the human body served as a powerful creative metaphor in Philadelphia circa 1800, not only for understanding and representing natural processes in political or aesthetic terms, but also for framing critical public discourse about the city’s actual environmental conditions. Specifically, I reveal how this metaphorical framework produced a variety of effects in art and architecture of

² W. Birch & Son, *The City of Philadelphia: In the State of Pennsylvania, North America; as It Appeared in the Year 1800, Consisting of Twenty-Eight Plates* (Philadelphia: W. Birch, 1800).

the period, sometimes facilitating and at other times obscuring an understanding about the natural world as an arena of dynamic transformation.

Philadelphia provides an enlightening location for the investigation of the complex intersections of art, science, and environment during the early republic. As the largest city in the United States by 1800, with over sixty thousand inhabitants, the burgeoning metropolis enjoyed a reputation as an important economic, artistic, intellectual center.³ Situated between the banks of the Schuylkill and Delaware Rivers, the city facilitated trade access to both the Pennsylvania interior and coastal and international ports. The rich hinterlands surrounding Philadelphia, which gave Pennsylvania its name—meaning “Penn’s Woods”—supplied the city with large amounts of timber, even though that supply was rapidly dwindling already by the late eighteenth century. Philadelphia also served as the temporary capitol of the United States until 1800, while the city of Washington was under construction. This combined political and economic prominence created a robust market for the fine arts and attracted artists to the city. Printers, libraries, and booksellers also flourished in Philadelphia, permitting the publication and distribution of locally-produced texts.⁴

During the late eighteenth and early nineteenth centuries, a network of intellectual organizations in the city promoted and fostered technological, philosophical, and scientific endeavors.⁵ Important local naturalists, philosophers, and inventors including

³ New York, however, would surpass Philadelphia in population size by 1810. See Dell Upton, *Another City: Urban Life and Urban Spaces in the New American Republic* (New Haven, Conn.: Yale University Press, 2008), 20.

⁴ See Edgar Preston Richardson, “The Athens of America, 1800-25,” in *Philadelphia: A 300 Year History*, ed. Russell Frank Weigley, 1st ed (New York: W.W. Norton, 1982), 208–57.

⁵ See Amy R. W. Meyers, “Introduction,” and Robert McCracken Peck, “Illustrating Nature: Institutional Support for Art and Science in Philadelphia, 1770-1830,” in *Knowing Nature: Art and Science in*

Benjamin Franklin, David Rittenhouse, an instrument and clock manufacturer, and John Bartram, a botanist who amassed a large collection of American plants at his home on the Schuylkill River, were influential in establishing a scientific community in Philadelphia before the Revolutionary War. Founded by Franklin and Bartram in 1743, the American Philosophical Society sponsored the development of useful knowledge in the young republic. Modeled after the British Royal Society, but without its aristocratic associations, the American Philosophical Society counted farmers, merchants, physicians, preachers, artists, and natural philosophers among its members, cultivating an active, intellectual community in the city.⁶ The Society also indirectly supported artistic pursuits; Philosophical Hall housed the studio and picture gallery of the portraitist Thomas Sully for approximately a decade and Charles Willson Peale installed his Philadelphia Museum in the building from 1794 until 1811, when Rubens Peale consolidated the collection in the Pennsylvania State House next door.⁷

Several other Philadelphia institutions dedicated to promoting study of the arts and sciences were founded following United States independence. The short-lived Columbianum, an art academy initiated by a group of artists including William Rush and Charles Willson Peale in 1794, but soon after dissolved, introduced a precedent for the

Philadelphia, 1740-1840, ed. Amy R. W. Meyers (New Haven, Conn.: Yale University Press, 2012), 1-7; 210-25.

⁶ Richardson, "The Athens of America," 241-42.

⁷ Peale moved a portion of his collections to the Pennsylvania State House in 1802, but continued to use Philosophical Hall as a venue to display his mastodon exhibit, for a fifty cent fee, until 1811. For a summary of Peale Museum locations, see David R. Brigham, *Public Culture in the Early Republic: Peale's Museum And Its Audience* (Washington, D.C.: Smithsonian Institution Press, 1995), 13-17.

Pennsylvania Academy of the Fine Arts, established in 1805.⁸ The Academy collected and displayed European paintings, engravings, and casts of classical sculpture, taught drawing, painting, sculpture, and anatomy, and began holding annual public exhibitions in 1811.⁹ The following year, in 1812, the Academy of Natural Sciences was founded to pursue the collection, study, and eventual display of natural history.¹⁰ Philadelphia also emerged as an important medical center in the United States in the early nineteenth century. Physician professors at the University of Pennsylvania included Benjamin Rush, who wrote the first medical textbook in the United States, and Caspar Wistar, who published the first textbook on anatomy.¹¹ By the 1820s, an upper or middle-class Philadelphia citizen could wonder at the mastodon skeleton at Peale's Philadelphia Museum, attend a lecture on anatomy, and consider the artistic merit of works on display at the Pennsylvania Academy of the Fine Arts. As a center of artistic production, natural history inquiry, medicine, and printing in the early national United States, Philadelphia therefore became an important site where theories and debates about the nation's environment originated and percolated.¹²

⁸ For more on the founding and contentious politics of the Columbianum, see Wendy Bellion, *Citizen Spectator: Art, Illusion, and Visual Perception in Early National America* (Chapel Hill, N.C.: The University of North Carolina Press, 2011), 67–101.

⁹ Robert Cozzolino, Anna O. Marley, and Julien Robson, eds., *Anatomy/Academy. Philadelphia: Nexus of Art and Science* (Philadelphia: The Pennsylvania Academy of the Fine Arts, 2011), 9–10; Richardson, "The Athens of America," 245–46.

¹⁰ Robert McCracken Peck and Patricia Tyson Stroud, *A Glorious Enterprise: The Academy of Natural Sciences of Philadelphia and the Making of American Science* (Philadelphia: University of Pennsylvania Press, 2012), 2–23.

¹¹ Alexander Nemerov, *The Body of Raphaelle Peale: Still Life and Selfhood, 1812-1824* (Berkeley, Calif: University of California Press, 2001), 103–07; Richardson, "The Athens of America," 243–44.

¹² See Richard William Judd, *The Untilled Garden: Natural History and the Spirit of Conservation in America, 1740-1840* (New York: Cambridge University Press, 2009).

A number of art historians have recently explored the role of the body and science in Philadelphia circa 1800, greatly enriching our understanding of the interdisciplinary relationships linking art to medicine, natural history, and politics in this context. Martin Berger and Alexander Nemerov, for example, have fruitfully examined the politics of embodied vision in works by Raphaele Peale and William Rush.¹³ Elsewhere, in discussing Charles Willson Peale's Philadelphia Museum and William Bartram's drawings, scholars such as David Brigham, Michael Gaudio, and Laura Rigal have explained how the natural world served as a complex, albeit problematic, socioeconomic model for the young republic.¹⁴ Wendy Bellion and Dell Upton have both investigated the role of art, architecture, and urban planning in shaping citizens' understanding of selfhood and personhood in early national Philadelphia.¹⁵ The 2012 volume, *Knowing Nature*, edited by Amy Meyers, recently examined the ways artistic and artisanal culture informed scientific interpretations of the natural world in Philadelphia from 1740 to 1840, and Elizabeth Milroy and Therese O'Malley have investigated how Philadelphia's gardens and green spaces improved physical and moral health and informed a scientific

¹³ Martin A. Berger, "The Anatomy of the Early Republic," *Early Popular Visual Culture* 7, no. 3 (2009): 231–52; Nemerov, *The Body of Raphaele Peale*; Alexander Nemerov, *Mammoth Scale: The Anatomical Sculptures of William Rush* (Philadelphia: The Wistar Institute, 2002).

¹⁴ Brigham, *Public Culture in the Early Republic*; David R. Brigham, "'Ask the Beasts, and They Shall Teach Thee': The Human Lessons of Charles Willson Peale's Natural History Displays," *Huntington Library Quarterly* 59, no. 2/3 (1996): 183–206; Michael Gaudio, "Swallowing the Evidence: William Bartram and the Limits of Enlightenment," *Winterthur Portfolio* 36, no. 1 (Spring 2001): 1–17; Laura Rigal, *The American Manufactory: Art, Labor, and the World of Things in the Early Republic* (Princeton, N.J.: Princeton University Press, 1998). For more on the metaphoric capacity of the body as a representation of the body politic see Maurie D. McNinnis and Louis P. Nelson, eds., *Shaping the Body Politic: Art and Political Formation in Early America* (Charlottesville, Va.: University of Virginia Press, 2011).

¹⁵ Bellion, *Citizen Spectator*; Upton, *Another City*.

understanding of nature.¹⁶ The aforementioned scholarship, however, has not adequately examined how artists grappled with the actual environmental predicament posed by the city's dramatic ecological transformation. By addressing the visual and material responses to this predicament, my dissertation reveals the complex, corporeal relationship of early republican artists and architects to the environment at a time of rapid development and expansion in the United States.

I use the emerging discourse of ecocriticism to reframe complex embodied perceptions of the urban environment in early national Philadelphia. Briefly summarized, ecocriticism expands the scope of scholarly inquiry by recovering lost or neglected evidence of environmental conditions that bear on politics, society, and culture. Ecocritical art history offers a more self-critical approach to visual and material culture, questioning the prevailing anthropocentrism of art history by recognizing the agency of the environments and nonhuman entities with which artworks engage.¹⁷ A consideration of the shifting materialities and environmental realities in which Philadelphia artists and architects produced their artworks and structures demonstrates an awareness of a wider set of historical concerns arising from ecological change. Despite a growing interest in ecocriticism in literary studies and other humanistic disciplines, art historians frequently overlook artistic engagement with environmental change and, correspondingly, the impact of these changes on visual production. One exception is the 2009 multi-essay

¹⁶ Amy R.W. Meyers, ed., *Knowing Nature: Art and Science in Philadelphia, 1740-1840* (New Haven, Conn.: Yale University Press, 2012); Elizabeth Milroy, "'For the like Uses, as the Moore-Fields': The Politics of Penn's Squares," *The Pennsylvania Magazine of History and Biography* 130, no. 3 (July 2006): 257-82; Elizabeth Milroy, "Repairing the Myth and the Reality of Philadelphia's Public Squares, 1800-1850," *Change Over Time* 1, no. 1 (2011): 52-78; Therese O'Malley, "Landscape Gardening in the Early National Period," in *Views and Visions: American Landscape Before 1830*, ed. Edward J. Nygren (Washington, D.C.: The Corcoran Gallery of Art, 1986); Therese O'Malley, "Cultivated Lives, Cultivated Spaces: The Scientific Garden in Philadelphia, 1740-1840," in *Knowing Nature*, 36-59.

¹⁷ See Alan C. Braddock, "Ecocritical Art History," *American Art* 23, no. 2 (Summer 2009): 24-28.

volume, *A Keener Perception*, edited by Alan C. Braddock and Christoph Irmscher, which remains one of the only publications to consider American art historical ecocriticism in a directed and comprehensive way.¹⁸ In his essay for that volume, Braddock investigated the pollution and degradation of Philadelphia's waterways in the late nineteenth century in relation to Thomas Eakins's paintings of the Schuylkill and Delaware Rivers, but no such ecocritical study of the city during the early national period yet exists.¹⁹ I situate my approach within the "second wave" of ecocriticism as defined by Lawrence Buell. According to Buell, the first wave of ecocriticism in the 1990s focused primarily on the life sciences, unpopulated wilderness, and nature writing. By contrast, the second wave of scholarship critiques stark binary oppositions between nature and culture as well as human and nonhuman.²⁰ These dichotomies have tended to privilege anthropocentric aesthetic categories such as "wilderness" and "landscape" over broader ecological frames of reference encompassing other kinds of terrain, including cities.

In early national Philadelphia, many citizens, including a large number of the city's prominent naturalists, adhered to a classical Newtonian-Linnaean tradition of viewing nature as a harmonious, self-sustaining, inalterable totality or system. Scholars such as Richard Judd have argued that current ideas about conservation stem from early nineteenth-century environmental thought in the United States, which emphasized, "the balance of nature, the divinity of the organic world, the purpose imbedded in all natural

¹⁸ Alan C. Braddock and Christoph Irmscher, eds., *A Keener Perception: Ecocritical Studies in American Art History* (Tuscaloosa, Ala.: University of Alabama Press, 2009).

¹⁹ Alan C. Braddock, "Bodies of Water: Thomas Eakins, Racial Ecology, and the Limits of Civic Realism," in *A Keener Perception*, 129–50.

²⁰ Lawrence Buell, *The Future of Environmental Criticism: Environmental Crisis and Literary Imagination* (Malden, Mass.: Blackwell Pub, 2005).

forms and processes, [and] the sublimity of the unaltered landscape.”²¹ Judd contends that two general assumptions dominated early national thought about the natural world: nature adhered to principles of balance and hierarchy and each species played a particular role within this system.²² This model, however, became problematic, as the French naturalist Georges Louis Leclerc, the Comte de Buffon, argued in his popular, thirty-six volume *Histoire naturelle* (1749-89) that the cool and moist climate of the New World affected the development of its native inhabitants, resulting in weaker, less fertile species—including humans—than that of Europe. Thomas Jefferson responded to this degeneracy theory in his *Notes on the State of Virginia* with a list of native species that proved larger than their European counterparts and a few natural philosophers argued that Americans were capable of altering their own unfavorable climate through cultivation.²³ In a paper read before the American Philosophical Society in 1770, for example, Hugh Williamson, a physician and North Carolina politician, explained that the climate of Pennsylvania appeared more moderate than fifty years ago because of cultivation, which created a smooth, clear surface of land that reflected heat and warmed the surrounding atmosphere in the winter and facilitated cooling breezes in the summer.²⁴ In another paper read before the Society in 1785, the physician Benjamin Rush claimed that “Pennsylvania for some

²¹ Richard William Judd, “A ‘Wonderfull Order and Ballance’: Natural History and the Beginnings of Forest Conservation in America, 1730-1830,” *Environmental History* 11, no. 1 (January 1, 2006): 10.

²² *Ibid.*, 14.

²³ Thomas Jefferson, *Notes on the State of Virginia* (London: John Stockdale, 1787). See also Lee Alan Dugatkin, *Mr. Jefferson and the Giant Moose: Natural History in Early America* (Chicago: University of Chicago Press, 2009).

²⁴ Hugh Williamson, “An Attempt to Account for the Change of Climate, Which Has Been Observed in the Middle Colonies in North-America,” *Transactions of the American Philosophical Society* 1 (1771): 272–80.

years past has become more sickly than formerly,” due to aggressive clearing of land.²⁵

Rush made a distinction between clearing and cultivating, however, arguing that the latter must keep pace with the former in order to maintain a wholesome atmosphere.²⁶ Amidst this debate regarding the human impact on climate, a growing number of Philadelphians accepted the influential new scientific findings of Georges Cuvier and others about the reality of extinction and increasing scarcity of essential resources, all of which challenged the classical conception of nature during the early republic.²⁷

The German naturalist-explorer, Alexander von Humboldt, was also instrumental in articulating and promoting the interdependency of nature and culture on a global scale in the early nineteenth century. As Laura Walls has demonstrated, Humboldt enjoyed immense popularity in the United States, even in the decades prior to the publication of the first book of his multi-volume masterpiece, *Kosmos*, in 1845.²⁸ In the first English translation of his *Researches concerning the Institution and the Monuments of Ancient Inhabitants of America*, for example, published in 1814 and widely available in the United States, Humboldt underscored the entangled relationship of the arts and environmental conditions, insisting that the two could not be understood in isolation from one another:

²⁵ Benjamin Rush, “An Enquiry into the Cause of the Increase of Bilious and Intermitting Fevers in Pennsylvania, with Hints for Preventing Them,” *Transactions of the American Philosophical Society* 2 (1786): 206.

²⁶ See Gilbert Chinard, “The American Philosophical Society and the Early History of Forestry in America,” *Proceedings of the American Philosophical Society* 89, no. 2 (July 18, 1945): 444–88.

²⁷ For more on the history of climate change debate, see James Rodger Fleming, *Historical Perspectives on Climate Change* (New York: Oxford University Press, 1998); Mark V. Barrow, *Nature's Ghosts: Confronting Extinction from the Age of Jefferson to the Age of Ecology* (Chicago: University of Chicago Press, 2009), 15–46. See also Donald Worster, *Nature's Economy: A History of Ecological Ideas*, 2nd ed (Cambridge: Cambridge University Press, 1994), 2–55.

²⁸ Laura Dassow Walls, *The Passage to Cosmos: Alexander von Humboldt and the Shaping of America* (Chicago: University of Chicago Press, 2009).

Although the manners of a people, the display of their intellectual faculties, the peculiar character stamped on their works, depend on a great number of causes which are not merely local, it is nevertheless true, that the climate, the nature of the soil, the physiognomy of the plants, the view of beautiful or of savage nature, have great influence on the progress of the arts, and on the style which distinguishes their productions.²⁹

Humboldt's writings therefore insisted that nature played an instrumental role in the development of different human societies and their arts.

Humboldt spent several weeks in Philadelphia and Washington in 1804, after five years traveling through Central and South America. While in Philadelphia, Humboldt was voted a member of the American Philosophical Society, toured John Bartram's botanical gardens, and served as a the guest of honor at one of Caspar Wistar's prestigious "Wistar parties," where members discussed intellectual and philosophical topics. Charles Willson Peale hosted a dinner in Humboldt's honor at his Philadelphia Museum and later accompanied the German traveller to Washington. In the capital city, they dined with President Thomas Jefferson and discussed the statistics and topography of Mexico and New Spain, which were of keen interest to the president and his cabinet only one year after the Louisiana Purchase.³⁰ Peale, it seems, could not marshal enough natural metaphors to praise Humboldt's intelligence and eloquence:

[He is] without exception the most extraordinary traveller I ever met with; he is the fountain of knowledge which flows in copious streams—to drop this metaphor to take another, he is a great luminary defusing light on every branch of science—I say defusing, because he is so communicative

²⁹ Alexander von Humboldt, *Researches Concerning the Institution and the Monuments of the Ancient Inhabitants of America: With Descriptions & Views of Some of the Most Striking Scenes in the Cordilleras!*, trans. Helen Maria Williams (London: Longman, Hurst, Rees, Orme & Brown, J. Murray, & H. Colburn, 1814), 1:40.

³⁰ Ingo Schwarz, "Alexander von Humboldt's Visit to Washington and Philadelphia, His Friendship with Jefferson, and His Fascination with the United States," *Northeastern Naturalist*, Alexander von Humboldt's Natural History Legacy and Its Relevance for Today, 8, Special Issue no. 1 (2001): 43–56; Laura Dassow Walls, *The Passage to Cosmos*, 97–107.

of his knowledge which he has treasured up by his travels of upwards of 19 Years. His company is courted by the learned where ever he goes. I have this morning finished a good Portrait of him for the Museum.³¹

While Humboldt was likely still formulating his ideas about the relationship between nature and culture in 1804, Peale's description suggests that the naturalist articulated his theories "in copious streams" with Philadelphia's receptive scientific community.

While twentieth-century scholars have largely neglected Humboldt or cast him as a mystical romantic in the wake of Charles Darwin's more competitive and violent conception of the natural world, Adam Sachs and Laura Walls have done much to reassert his importance as a pioneer in ecological thought.³² Walls insisted that recovering Humboldt locates an alternative nineteenth-century narrative, one "that closes the gap between mind and nature by demonstrating how each creates or constructs the other, a concept that, thanks to modernism's persistent dualisms, still seems novel today."³³ Through an investigation of my case study objects' previously overlooked engagement with their physical surroundings, I additionally challenge the traditional separation of culture and nature, art and environment, in the interpretation of nineteenth-century art history.

During the early republic, several decades before germ theory, the body served as an important framework for understanding and navigating the natural and built

³¹ Peale was extremely proud of his portrait of Humboldt, adding "I can still paint, & mean to prove that a man may improve himself when turned of 60 yrs. in any art or Science—It may stimulate others to such laudable attempts." The portrait is currently in the collection of the College of Physicians in Philadelphia. Charles Willson Peale to John DePeyster, Philadelphia, June 27, 1804, in Lillian B. Miller and Sidney Hart, eds., *The Selected Papers of Charles Willson Peale and His Family* (New Haven, Conn.: Yale University Press, 1983), 2:725.

³² Aaron Sachs, *The Humboldt Current: 19th Century Exploration and the Sources of American Environmentalism* (New York: Viking, 2006); Walls, *The Passage to Cosmos*.

³³ Walls, *The Passage to Cosmos*, 9.

environment. Empirical observation and subjective experience dictated knowledge in early Enlightenment science and bodily and environmental health were therefore closely intertwined in the late eighteenth and early nineteenth centuries.³⁴ In his 1782 *Letters from an American Farmer*, for example, J. Hector St. John De Crèvecoeur explicitly linked man's physical and moral well-being to his political, religious, economic, and environmental situation:

Men are like plants. The goodness and flavor of the fruit proceeds from peculiar soil and exposition in which they grow. We are nothing but what we derive from the air we breathe, the climate we inhabit, the government we obey, the system of religion we profess, and the nature of our employment.³⁵

In this statement predating Humboldt's writings by several decades, Crèvecoeur posited that a variety of external conditions, including air quality and climate, determined one's character.

Since the natural world and the body were perceived in terms of equilibrium, certain measures were taken to improve upon this natural balance and achieve ideal bodily or environmental conditions. In *Democracy in America*, the French political philosopher Alexis de Tocqueville reflected:

In Europe people talk a great deal of the wilds of America, but the Americans themselves never think about them; they are insensible to the wonders of inanimate nature and they may be said not to perceive the mighty forests that surround them till they fall beneath the hatchet. Their eyes are fixed upon...the march across these wilds, draining swamps, turning the course of rivers, peopling solitudes, and subduing nature.³⁶

³⁴ See also Lorraine Daston and Peter Galison, *Objectivity* (New York: Zone Books, 2007), 55–105.

³⁵ J. Hector St. John de Crèvecoeur, *Letters from an American Farmer; Describing Certain Provincial Situations, Manners, and Customs, Not Generally Known; And Conveying Some Idea Of The Late And Present Interior Circumstances Of The British Colonies In North America* (London: Thomas Davies, 1782), 53–54.

³⁶ Alexis de Tocqueville, *Democracy in America* (New York: J. & H.G. Langley, 1840), 74.

Classicism frequently served artists as a means to harmonize their surrounding environment and make new technologies and arguments aesthetically palatable. This is evident in Benjamin Latrobe's classical architectural designs, the moldings and pastoral landscapes decorating Charles Willson Peale's fireplace models, and William Rush's use of painted pine or terracotta to mimic marble. I argue, however, that while artists and architects of the period generally sought to achieve a sense of corporeal balance and environmental harmony in their works, both the body and natural processes subverted these attempts to control and regulate.

By exploring the implications of embodied environmental perception in the visual and material culture of Philadelphia, my dissertation builds upon scholarship by historians Conevery Valenčius and Linda Nash, who used primary texts to prove that Americans perceived environments in corporeal terms during the era of nineteenth-century Western expansion.³⁷ In *The Health of the Country*, Valenčius described the nineteenth century as a period when the boundaries separating the exterior world and the human body were porous: "good or bad, harmful or improving, terrain possessed health in the same language and for the same reasons that human beings did."³⁸ Settlers' bodies experienced disorder and illness despite efforts to achieve equilibrium and "the dynamism of their environments—like the dynamic qualities of their bodies—continually

³⁷ Conevery Bolton Valenčius, *The Health of the Country: How American Settlers Understood Themselves and Their Land*, 1st ed (New York: Basic Books, 2002); Conevery Bolton Valenčius, *The Lost History of the New Madrid Earthquakes* (Chicago: University of Chicago Press, 2013); Linda Lorraine Nash, *Inescapable Ecologies: A History of Environment, Disease, and Knowledge* (Berkeley: University of California Press, 2006).

³⁸ Valenčius, *The Health of the Country*, 3.

resisted them.”³⁹ According to Nash, in her study of health and ecology in California’s Central Valley:

When we recognize that human bodies are directly affected by their environments, we are forced to acknowledge that humans are not simply agents of environmental change but also objects of that change. Conversely, the environment is more than an object upon which change is enacted; it is also an agent of sorts that acts upon the bodies inhabiting it.⁴⁰

In this dissertation, I demonstrate that art and material culture objects were as directly engaged with negotiations of environmental perception as texts, thereby expanding art historical understanding of the city while also extending the discourse of ecocriticism in a new direction. My project engages this broader interdisciplinary perspective in order to investigate the complicated ways bodies and environmental factors collaborated and collided in creative responses to problems like deforestation, pollution, and public health—issues which Peale, Latrobe, Rush, and their contemporaries confronted explicitly in their works.

The materiality of natural resources, whether wood, air, or water, consistently thwarted the aspiration towards equilibrium and harmony and challenged perceptions of nature as “inanimate,” as described by Tocqueville. My emphasis on materiality is partly inspired by Jennifer Anderson’s recent investigation of the social, political, economic, and environmental context of the mahogany trade of the eighteenth and nineteenth centuries.⁴¹ Even though Anglo-American consumers of mahogany products may not have been aware that their purchases contributed to increased exploitation of slave labor

³⁹ Ibid., 20.

⁴⁰ Nash, *Inescapable Ecologies*, 8.

⁴¹ Jennifer L. Anderson, *Mahogany: The Costs of Luxury in Early America* (Cambridge, Mass: Harvard University Press, 2012).

and deforestation in the Caribbean and Central America, they still experienced the effects of these changes, whether in price, quality, or style. I argue that while Philadelphia artists and architects struggled to maintain order and control over the urban landscape and its hinterlands, they continually met resistance as pollution increased, waterworks and canals failed to harness rivers, and wood decayed. In his 2005 text, *Vitalizing Nature in the Enlightenment*, Peter Hanns Reill complicated the predominant understanding of the Enlightenment project as a triumph of science and universalizing reason, social control, related discrimination, and colonization. Instead, Reill described a simultaneous period vision of nature as a teeming interaction of forces vitalizing matter and dissolving distinctions between the observed and the observer, which he termed “Enlightenment vitalism.” As that term suggests, a discourse of vibrant materiality in nature pervaded eighteenth- and early nineteenth-century Western thought, despite the prevailing classical conceptions of stasis and equilibrium.⁴² Building upon Reill’s conception of vitalism and drawing from the object-oriented ontologies of Bruno Latour, Timothy Morton, Jane Bennett, and others, my dissertation also questions the binaries that have traditionally separated nonhuman matter, things, and beings in studies of the early national period.⁴³ In several of the case studies I examine, nonhuman entities like trees and rivers acquired an agency of their own, occasionally becoming speaking, animated participants in the transformation of the North American landscape.

⁴² Peter Hanns Reill, *Vitalizing Nature in the Enlightenment* (Berkeley, Calif.: University of California Press, 2005).

⁴³ Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy* (Cambridge, Mass.: Harvard University Press, 2004); Timothy Morton, *The Ecological Thought* (Cambridge, Mass.: Harvard University Press, 2010); Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, N.C.: Duke University Press, 2010).

This dissertation notably does not focus exclusively on landscape painting, although landscapes play a supporting role in several of my case studies. According to Amy Meyers, the scarcity of landscape painting—or, the “pictorial neglect of wilderness,” in her words—until the 1820s in the United States, “resulted not from a lack of interest in the physical environment of the New World but from a vested interest in representing that environment as structured rather than chaotic.”⁴⁴ This desire to depict an organized, compartmentalized environment also extended to the urban sphere. In the *City of Philadelphia*, for example, the Birches projected a fastidiously clean, orderly vision of the city’s streets, landmarks, and significant buildings. Their engraving of the Library Company, for example, only recently built in 1790, provides a glimpse of the classically-inspired Federal architecture that characterized the city (Fig. 1.4). Wendy Bellion has explained that through slight distortions of scale and perspective—products of embodied vision—the Birches’ engravings subtly undermined the logic and transparency of the city’s celebrated grid system. According to Bellion, these distortions may be unconscious registrations of the spatial dislocations and displacements Philadelphia underwent in the late 1790s, as it decreased in importance as a political and commercial center and suffered from catastrophic outbreaks of yellow fever.⁴⁵ I propose that the environmental changes affecting the city and region—which were intimately linked to yellow fever and its perceived causes—also contributed to the dislocations and displacements impacting urban residents in the early republic. While the Birches presented a pristine, refined, commercially prosperous view of Philadelphia—overlooking the polluted streets, air, and

⁴⁴ Amy R. W. Meyers, “Imposing Order on the Wilderness: Natural History Illustration and Landscape Portrayal,” in *Views and Visions: American Landscape Before 1830*, ed. Edward J. Nygren (Washington, D.C.: The Corcoran Gallery of Art, 1986), 105.

⁴⁵ Bellion, *Citizen Spectator*, 113–70.

water that concerned public officials, physicians, architects and artists circa 1800—the agency of the early national environment still surfaced and erupted in other examples of the visual arts in unusual and compelling ways. The following chapters demonstrate the necessity of looking beyond landscape painting and natural history illustration to uncover a more complex aesthetic and material response to environmental change in the early national period.

Chapter Outline

My dissertation begins and ends with a critical analysis of representations and relics of Penn's Treaty Elm, the symbolic tree under which William Penn was believed to have made an agreement of peace with the Lenape Indians. Such artifacts and images deserve close scrutiny, for they embody and frame Pennsylvania's complex environmental history even as they illuminate the construction of Philadelphia's founding narrative, which already had reached mythic proportions by the early national period. In light of this myth, deforestation in Pennsylvania posed an urgent problem for the city because it linked environmental change to economic problems, public health issues, and a potential loss of regional identity. By positioning trees as the nation's ideal native inhabitants, Anglo-Americans also effectively elided the agency of Native Americans like the Lenape, who originally inhabited the Delaware Valley prior to European settlement, and were pushed further and further out to the Western frontier during the early republic.

In my second chapter, I investigate corporeal metaphors associated with a series of fuel-efficient fireplace and chimney models designed by Charles Willson Peale in the

1790s at a time when deforestation was already creating a scarcity of firewood in eastern Pennsylvania and growing fuel consumption threatened Philadelphia with declining air quality. Peale's stove designs became ideal models for his vision of a morally and physically healthy self; a stove efficiently inhaling oxygen and expelling or consuming noxious smoke mirrored bodily mechanisms of circulation and respiration. These heating devices, therefore, served as Republican machines, demonstrating efficient and economic operation for the good of the state or the body politic. Through the consumption and elimination of smoke, Peale's heating devices—including a series of "smoke-eaters"—attempted to order, refine, and cleanse the environmental and social danger of a manifold *blackness* that threatened to subsume the city, ultimately obscuring bodies that held a more ambiguous, indeterminate role within the early republic.

My third chapter examines the remarkable transformation of Benjamin Henry Latrobe's Centre Square Waterworks from a celebrated site of civic achievement and public health to one of spectacle and corruption. From its conception in 1798 until its demolition in 1827, the Waterworks were engulfed in a discourse of corporeal metaphors about circulation and obstruction that responded to rapid changes in urban space and public health during the early nineteenth century. While I argue that Latrobe's deep knowledge of biological processes, hydrology, and interrelated systems framed his aesthetic perceptions of, and designs for, the Waterworks, the Centre Square Engine House became intimately entangled in the very unpredictability and unruliness that characterized natural and urban environments.

William Rush's unusual terracotta *Self-Portrait*—showing the sculptor's head rising from the knotty trunk of a terracotta pine tree—serves as the focal object of my

fourth chapter. I argue that Rush's *Self-Portrait* illuminates an increasingly fraught and mediated corporeal relationship to the American environment during the early national period, as the recognition of scarcity and extinction challenged earlier beliefs in the plenitude of nature. Through subtle allusions to the classical past, Rush's *Self-Portrait* projected a patriotic message of empire and victory grounded in the natural world. Even as *Self-Portrait* upheld Enlightenment and imperial ideals about the cultivation and domestication of the American landscape, however, it celebrated the vibrant materiality of wood and provided a visual memorial to the region's diminishing sylvan past.

My concluding chapter critically revisits the relics made from the wood of Penn's Treaty Elm, following its demise in a storm in 1810. Through its destruction, commemoration, and veneration, the Treaty Elm served as a tangible symbol of the state's sylvan past, saturated with mythic historical meaning, as it transformed from a living monument and historical eyewitness to a material point of contact with a local environmental past. This chapter investigates how these cultural relics helped create something like what political theorist Jane Bennett calls an "ecological sensibility" by demonstrating an intimate connection between human history and the natural world, as the tree's wood was gathered, refashioned, gifted, displayed, and used, passing through multiple hands.⁴⁶

By considering a wide range of material evidence in Philadelphia—paintings, sculptures, architecture, wooden relics of the Treaty Elm, miniature fireplace models, hydraulic engineering designs, and more—my project casts canonical artists and works in a new light and brings heretofore overlooked works of fine art, architecture, and material

⁴⁶ Bennett, *Vibrant Matter*, xi.

culture to scholarly attention. In addition to offering entirely new interpretations of such iconic early Philadelphia figures as Charles Willson Peale, I provide long overdue reevaluation of Rush and Latrobe, key figures largely neglected by art historians for several decades. Although this dissertation focuses on one particular early republican city, Philadelphia's problem was ultimately a national and even international problem, in which art and embodied environmental perception played a crucial role. By revealing the previously unexplored environmental significance of the objects in question, my dissertation asserts that ecological change played an instrumental part in shaping artistic production and urban development in the decades following United States independence.

Forest Chieftains and Their Vanish'd Tribes

By prominently featuring the Treaty Elm in their frontispiece of the city port, the Birches referenced an earlier depiction of the same site and perspective by Benjamin West. West's *William Penn's Treaty with the Indians When He Founded the Province of Pennsylvania in North America* (Fig. 1.5), produced between 1771 and 1772, is arguably the most iconic representation of Penn's Treaty. In that painting, a number of Quakers in dark tri-corner hats meet with a group of Indians in various states of dress. In the center of the group, two merchants present a bolt of white cloth to the Lenape, who appear to be discussing its merits. William Penn, his visage modeled after a popular eighteenth-century portrait by Silvanus Bevan, stands left of center, with his arms outspread, gesturing to an unrolled piece of parchment with his left hand and the bolt of fabric with

his right.⁴⁷ It appears that this is not the first trade of the day, as a Lenape figure cloaked in green, carries a bolt of the same color fabric over his shoulder to the right. In the background, a series of buildings appear under construction; the scaffolding and unfinished roof of one of the structures recalls the future grid plan of the city that would eventually develop in that location. A bow and a clutch of arrows lie discarded in the foreground of the painting and the central seated Indian holds a peace pipe in his left hand, emphasizing the diplomatic nature of the meeting. Two figural groupings bookend the central scene in the foreground. To the left, two colorfully-dressed merchants lounge on crates of their merchandise immediately in front of the harbor, populated with several ships. In the right foreground, an Indian woman nurses her child, wrapped to a cradleboard, while an older child next to her gestures to the central exchange as if requesting an explanation for the events unfolding before them.

Several scholars have highlighted West's anachronisms, distortions, and imperial iconography in his iconic painting, demonstrating that *Penn's Treaty with the Indians* is more deeply entrenched in, and concerned with, the political and economic situation of the late eighteenth century than the actual occurrences of the late seventeenth century. West's painting also illuminates the complex and ambiguous relationship among Anglo-American colonists, Native Americans, and wilderness in the pre-Revolutionary War period. In the decades preceding United States independence, Native Americans became important symbols of American identity as colonials attempted to differentiate themselves from the British Empire, despite the increasing displacement and persecution

⁴⁷ By using the Bevan image, West depicted Penn as much older than he actually would have been in 1692. Anne Cannon Palumbo, "Averting 'Present Commotions': History as Politics in 'Penn's Treaty,'" *American Art* 9, no. 3 (Autumn 1995): 35.

of Indians in the northeastern colonies. After the Revolutionary War, this association with Native Americans became less desirable, as the nation pursued its own imperial ambitions. The Treaty Elm, instead, provided a much more palatable symbol of the region's ancient past. As I will demonstrate in the remainder of this introduction and throughout the dissertation, the Treaty Elm and other old or ancient trees became important repositories and generators of historic memory as well as powerful agents of socio-ecological change in the early national period. Rapid deforestation in the Philadelphia region, therefore, not only connected environmental change to economic concerns and public health issues, it also signaled a potential loss of regional identity. This ecological connection linking human history and the environmental past, however, proved problematic, as the elevation of trees as the nation's native inhabitants provided a means for Anglo-Americans to overlook the other agents involved in Penn's Treaty—Native Americans.

The history of Penn's Treaty is murky at best. Scholars have long debated when and where such an event took place—if it did in fact occur—and even what the contents of the treaty were.⁴⁸ No specific document of the treaty, as depicted by West, exists, but it is generally accepted that Penn and his agents conducted several meetings with the Lenape within the Pennsylvania colony in 1682 and 1683. In 1733, Voltaire described Penn's agreement with the Lenape as “the only treaty between those people and the Christians that was not ratified by an oath and was never infring'd,” referring to a Quaker belief that considering an agreement binding only under oath lessened obligations to be

⁴⁸ Frederick D. Stone, “Penn's Treaty with the Indians. Did It Take Place in 1682 or 1683?,” *The Pennsylvania Magazine of History and Biography* 6, no. 2 (1882): 217–38. For a more recent summary of debates regarding the time, place, and details of Penn's Treaty, see Andrew Newman, *On Records: Delaware Indians, Colonists, and the Media of History and Memory* (Lincoln, Neb.: University of Nebraska Press, 2012), 110–20.

honest in everyday dealings.⁴⁹ Even though the Walking Purchase of 1737, in which William Penn's heirs confiscated 1.2 million acres west of the Delaware River to sell to new settlers, invalidated Voltaire's statement, the myth of Penn's Treaty persisted, and even flourished, by the late eighteenth and early nineteenth century. West's painting provided a concrete, visual narrative for the event. After it was exhibited at the Royal Academy in London in 1772, John Hall produced an engraving of the painting for John Boydell, which was disseminated throughout the Atlantic World (Fig. 1.6). As historian Andrew Newman has explained, West's painting substituted a tableau for a historical narrative, "exercising the power of a composed image over a verbal account that was, to use a visual metaphor, sketchy."⁵⁰

West painted *Penn's Treaty with the Indians* at a time of great social, political, and economic instability in the British American colonies. Ann Uhry Abrams and Beth Fowkes Tobin have argued that the painting, commissioned in late 1770 or early 1771 by Thomas Penn as a tribute to his late father, served to defend the rights of the Penn family when Benjamin Franklin and the Quaker-dominated Pennsylvania Assembly sought to disassemble the proprietary government. Thomas Penn intended for the painting to reassert his hereditary claim to Pennsylvania and rewrite his own history of less-than-ethical dealings with the Lenape.⁵¹ Anne Cannon Palumbo considered *Penn's Treaty* in the context of the immediate pre-Revolutionary era, when a series of British duties and

⁴⁹ Voltaire, *Letters Concerning the English Nation* (London: George Faulkner, 1733), 25.

⁵⁰ Newman, *On Records*, 100.

⁵¹ Ann Uhry Abrams, "Benjamin West's Documentation of Colonial History: William Penn's Treaty with the Indians," *The Art Bulletin* 64, no. 1 (March 1982): 59–75; Beth Fowkes Tobin, *Picturing Imperial Power: Colonial Subjects in Eighteenth-Century British Painting* (Durham, N.C.: Duke University Press, 1999), 56–80.

taxes on American commerce threatened trade, represented in the painting by the central bolt of cloth. To Palumbo, *Penn's Treaty* served as a nostalgic image, not for an earlier century, but for the years prior to 1763 and British regulation of American trade. The subject of Penn's Treaty and its themes of peace, fairness, and mutual respect between the two parties were appropriate in 1771, when it was believed war could still be avoided.⁵²

Scholars have also investigated *Penn's Treaty* in the context of Anglo-Native American relations prior to the American Revolution. Comparing the anti-consumption practices of British Luddites to that of Native Americans in the eighteenth century, Laura Rigal contended that West's painting explores how a group's resistance to advancement and industrialization results in that group becoming a historical failure. Rigal explained, "both republicanized and orientalized, the Indians in West's painting are clearly framed—and gendered—by the visual technology of a European exhibitionary culture as both commercially invested republicans and exotic aristocrats of nature."⁵³ While West's Lenape are portrayed as if in the process of civilization—as they progress from semi-nude to furs to cloth—in reality, they were withdrawing from Anglo-American consumption, a withdrawal that was also physical, as they relocated west of the Allegheny mountains.⁵⁴

While ostensibly depicting the Lenape in the act of peaceful negotiation, West's painting decidedly placed Native Americans in the historical and environmental past.

⁵² Palumbo, "Averting 'Present Commotions.'"

⁵³ Laura Rigal, "Framing the Fabric: A Luddite Reading of Penn's Treaty with the Indians," *American Literary History* 12, no. 3 (October 2000): 566.

⁵⁴ Rigal, "Framing the Fabric."

Philip Deloria has explained the problematic status of Native Americans in the late eighteenth century: “Americans wanted to feel a natural affinity with the continent, and it was Indians who could teach them such aboriginal closeness. Yet, in order to control the landscape, they had to destroy the original inhabitants.”⁵⁵ Europeans had used images of Indians to signify the North American continent since the sixteenth century, as demonstrated, for example, by an engraving after Jan van der Straet depicting Amerigo Vespucci discovering America, represented by a reclining, nude Indian woman (Fig. 1.7). By the mid-18th century, Indians were embraced as symbols of colonists themselves. Between 1765 and 1783, no less than sixty-five political prints represented the colonies as Native American, a symbol used four times as frequently as other prominent symbols of America, including the snake and the child.⁵⁶ According to Deloria, the Indian body had “enormous iconographic flexibility. By arming it, clothing it, shifting its gender, or coloring its face, British cartoonists could depict the colonies as violent, civilized, savage, genteel, aggressive, subservient, rebellious, or justified.”⁵⁷ Colonists, in turn, whitened the Indian, to make him or her more innocent, noble, determined, willful, or even a victim of British violence, as visualized in prints like *The Able Doctor, or American Swallowing the Bitter Draught*, published in 1774 (Fig. 1.8). Colonists frequently donned Indian dress when engaging in acts of political protest like the Boston Tea Party. As England became “them,” for colonists, Indians were adopted as “us.”⁵⁸

⁵⁵ Philip J. Deloria, *Playing Indian* (New Haven: Yale University Press, 1998), 5.

⁵⁶ *Ibid.*, 28–29.

⁵⁷ *Ibid.*, 29.

⁵⁸ *Ibid.*, 22.

Philadelphians in particular felt an affinity with Tamanend, the Lenape leader believed to have made a treaty of peace with Penn under the elm tree. In the late eighteenth century, Tamanend acquired the titles of “King Tammany,” “Saint Tammany,” and the “Patron Saint of America.” The Schuylkill Fishing Company, whose fishing and hunting grounds were believed to have once been the territory of Tamanend, proclaimed May first, “King Tammany’s Day,” and celebrated with dinner, alcoholic punch, and song. Its white male members, including John Dickinson, Thomas Mifflin, David Rittenhouse, and Benjamin Rush, dressed in Indian costume, paraded, and danced around Maypoles. After the passing of the Stamp Act in 1765, May Day and its associated revels became politicized acts of patriotism.⁵⁹

Benjamin West grew up in Pennsylvania and in his own letters and biography he positioned his encounters with Native Americans as a significant portion of his own creation myth. He traced his own progression from “participating in the amusements of the Wigwoms of American savages” to “the refinements of the Royal Palaces of Europe” as an “extensive scale in human progress.”⁶⁰ West collected and owned Native American accessories and artifacts and reproduced them in paintings to preserve a sense of accuracy.⁶¹ West’s grandparents had been among Pennsylvania’s earliest Quaker settlers, and the painter even included portraits of his father and brother among the Quakers

⁵⁹ Ibid., 13–14, 27.

⁶⁰ Benjamin West to Jonathan Morris, July 20, 1798. Reprinted in Benjamin West, “Letters of Benjamin West,” *The Pennsylvania Magazine of History and Biography* 18, no. 2 (1984): 221.

⁶¹ See Arthur Einhorn and Thomas S. Abler, “Bonnetts, Plumes, and Headbands in West’s Painting of Penn’s Treaty,” *American Indian Art Magazine* 21, no. 3 (Summer 1996): 44–53; J.C.H. King, “Woodlands Artifacts from the Studio of Benjamin West, 1738–1820,” *American Indian Art Magazine*, Winter 1991, 35–47.

participating in the treaty.⁶² Both the painting and West's own carefully constructed biography located the Lenape in the historic and, subsequently, environmental past.

The Native Americans of West's painting were anchored firmly to a wilderness that had long been cultivated in eastern Pennsylvania by the 1770s, when the artist began his painting. While the merchants in *Penn's Treaty* are placed near the water—as represented by the Delaware River, which linked them to the Atlantic Ocean and Europe, from which their goods originated—the Lenape are resolutely earth-bound. Behind the Lenape mother and children stand other Native American figures of different ages and genders, including a group of figures almost completely obscured within the shadow of a tall tree. The Quakers and British merchants are clearly associated with the mobility of the ocean, the transformation of the landscape through development and construction, and the manufacture and dissemination of products of industry, visualized by the crates and bolts of cloth. The Native Americans, however, are connected to the dark wilderness that recedes to the right of the scene.⁶³

Many American colonists harbored negative perceptions of wilderness in the eighteenth century, since it posed a threat to both civilization and moral integrity. Historically, the term “wilderness” connoted a savage and inhospitable wasteland, the biblical antithesis to Paradise.⁶⁴ The Birches' celebration of Philadelphia, an “opulent city,” established on ground that was, “less than a century ago, in a state of wild nature,

⁶² Abrams, “Benjamin West's Documentation of Colonial History,” 61.

⁶³ Abrams has noted the tripartite division of the painting's background, resembling a triptych in its depiction of harbor, town, and wilderness. Abrams, however, has interpreted this compositional technique as a means to highlight the three main participants in the treaty—Quakers, Indians, and merchants—and to reinforce the message of the central section. *Ibid.*, 60.

⁶⁴ Roderick Nash, *Wilderness and the American Mind*, 3rd ed. (New Haven, Conn.: Yale University Press, 1982), 23–44.

covered with woods, and inhabited by Indians,” indicates a period association between wilderness and Native Americans.⁶⁵ Crèvecoeur also noted this close connection, observing, “the wilderness is a harbour where it is impossible to find [the Indians]...a door through which they can enter our country whenever they please.”⁶⁶ West positioned his native protagonists in this fashion, as if they arrived from the dark, shadowy forest to the right, into which they will inevitably retreat, once the trade is complete. The European settlers, in contrast, are making the transition from the tents clustered beneath the trees to the developing town behind them. Such a scene secures their right to the land, as they are presented as more capable of utilizing and transforming it, illuminating a fundamental difference in European and Lenape perceptions of land ownership. The Lenape, primarily hunters and gatherers, conceived of property rights in terms of active use for specific purposes rather than that of static possession in perpetuity. In their early land transactions with Swedish, Dutch and English colonists, the Lenape likely thought they were merely allowing settlers to farm, hunt, and build houses on the land. Coming from an agricultural society, Europeans saw uncultivated land as wasteful; provincial law in seventeenth-century Pennsylvania stated that if settlers did not improve their property within three years, the land reverted to the proprietor. To the colonists’ eyes, only Lenape base camps approximated their definition of occupied land.⁶⁷

⁶⁵ W. Birch & Son, *The City of Philadelphia*, 1.

⁶⁶ Crèvecoeur, *Letters From an American Farmer*, 272.

⁶⁷ Thomas J. Sugrue, “The Peopling and Depeopling of Early Pennsylvania: Indians and Colonists, 1680-1720,” *The Pennsylvania Magazine of History and Biography* 116, no. 1 (January 1992): 3–31; Michael Dean Mackintosh, “New Sweden, Natives, and Nature,” in *Friends and Enemies in Penn’s Woods: Indians, Colonists, and the Racial Construction of Pennsylvania*, ed. William Pencak and Daniel K. Richter (University Park, Pa.: Pennsylvania State University Press, 2004), 3–17; Daniel K. Richter, *Trade, Land, Power: The Struggle for Eastern North America* (Philadelphia: University of Pennsylvania Press, 2013), 155–76.

In the past few decades, several scholars have reevaluated eighteenth-century Native and Anglo-American relations in the context of Richard White's concept of the "middle ground." Conceiving of the continual process of interaction between groups on the North American frontier through this discourse, White attempted to restore agency to Native Americans as co-creators of a frequently hybrid and fluid identity through negotiation and accommodation.⁶⁸ Emily Neff recently proposed that West's *The Death of General Wolfe* and his other paintings of Iroquois and Lenape Indians, composed between 1761 and 1776, were deeply invested in promoting a "utopian ideal of intercultural relations," positioning the painter as the "ultimate figure of the middle ground."⁶⁹ The middle ground, however, was already eroding by the time West painted *Penn's Treaty with the Indians* and, for Philadelphia Anglo-American residents, far removed from the United States frontier, the period of negotiation had long ended. By 1771, the Pennsylvania colony was increasingly depopulated of Native Americans, as the Lenape first moved north to the Susquehanna River and then west to Ohio. After 1750, the gradual withdrawal of French and British military from Indian affairs led to intensified Indian-hating in the backcountry and increased self-assertion by colonists through land-grabbing and massacres. In 1756, Pennsylvania instituted a bounty for

⁶⁸ Richard White, *The Middle Ground: Indians, Empires, and Republics in the Great Lakes Region, 1650-1815* (New York: Cambridge University Press, 1991).

⁶⁹ Emily Ballew Neff, "At the Wood's Edge: Benjamin West's 'The Death of Wolfe' and the Middle Ground," in *American Adversaries: West and Copley in a Transatlantic World*, ed. Emily Ballew Neff and Kaylin H. Weber (Houston, Tex.: The Museum of Fine Arts, 2013), 68. Other art historians invested in the concept of the "middle ground" when evaluating Anglo-American representations of Native Americans prior to the Revolutionary War include, William H. Truettner, *Painting Indians and Building Empires in North America, 1710-1840* (Berkeley, Calif.: University of California Press, 2010); Janet Catherine Berlo, "Men of the Middle Ground: The Visual Culture of Native-White Diplomacy in Eighteenth-Century North America," in *American Adversaries: West and Copley in a Transatlantic World*, ed. Emily Ballew Neff and Kaylin H. Weber (Houston, Tex.: The Museum of Fine Arts, 2013), 104-15.

Indian scalps and seven years later, fifty-six white frontiersmen, known as the Paxton Boys, murdered twenty Susquehannock Indians at Conestoga, Pennsylvania.⁷⁰

After the Revolution, even though noble Indians like Tamanend still embodied important ideas of American identity, the practice of playing Indian became more problematic as the nation moved from rebellion to empire building, expanding westward into Indian territory and attempting to consolidate power over the landscape. According to Deloria, the United States' Native American and environmental past became "ancient and real rather than self-consciously mythic, and the stories were histories to be possessed rather than explicit definitions of Self."⁷¹ Indian guise continued to be appropriated by those seeking prolonged rebellion against authority. In the early 1790s, drawing upon pre-Revolutionary tactics like the Boston Tea Party, several angry Pennsylvanians dressed up in war paint and attacked a home rented by a government tax collector to protest a federal government tax on whiskey, an important beverage and commodity in the Pennsylvania backcountry. As part of this Whiskey Rebellion, dissenters of the tax published an "Indian Treaty" in the *Pittsburgh Gazette*, which consisted of a collection of speeches by "Six United Nations of White Indians" and concluded with description of a wampum belt inscribed with "Plenty of whiskey without excise."⁷² This growing association of white men performing Indianness with rebellion and savagery overshadowed previous, acceptable identification with noble, symbolic Indians like Tamanend.

⁷⁰ Rigal, "Framing the Fabric," 571–72.

⁷¹ Deloria, *Playing Indian*, 51.

⁷² Ibid., 44–45.

Charles Brockden Brown recognized the tension between Anglo and Native American residents of Pennsylvania in his 1799 novel, *Edgar Huntly; Or, Memoirs of a Sleepwalker* and connected that mistreatment to the legacy of William Penn.⁷³ Sydney Krause demonstrated that, in the author's transition from the short story, "Somnambulism: A Fragment," published in *Literary Magazine*, to the full-length novel, Brown switched from an oak tree to an elm as a main site of conflict in his narrative.⁷⁴ At the time Brown developed *Edgar Huntly*, his former teacher Robert Proud published his *History of Pennsylvania* with an introduction dedicated to William Penn.⁷⁵ Brown reviewed this text in his *Monthly Magazine, and American Review* and may have been inspired by Proud's text to alter the sylvan protagonist of his novel.⁷⁶ In *Edgar Huntly*, the elm is personified with a capital E and mentioned no less than eight times in the first two chapters, more than any other character. The elm serves as important landmark in the story and evokes the symbolism of the Treaty Elm, but while transactions of peace and friendship took place under Penn's tree, vengeance and murder occurred under Brown's. Despite Edgar Huntly's fear and hatred of Native Americans, he admitted that they had been abused and cheated by whites; Brown even located his Elm close to the start of the Walking

⁷³ Charles Brockden Brown, *Edgar Huntly; Or, Memoirs of a Sleep-Walker* (Philadelphia: H. Maxwell, 1799).

⁷⁴ Krause argues that while Brown published "Somnambulism" after *Edgar Huntly*, he most likely wrote the short story first. Charles Brockden Brown, "Somnambulism: A Fragment," *Literary Magazine* 3 (May 1805): 335-47; Sydney J. Krause, "Penn's Elm and Edgar Huntly: Dark 'Instruction to the Heart,'" *American Literature* 66, no. 3 (1994): 463-84.

⁷⁵ Robert Proud, *The History of Pennsylvania, in North America, from the Original Institution and Settlement of That Province, Under the First Proprietor and Governor, William Penn, in 1681, Till After the Year 1742* (Philadelphia: Zachariah Poulson, Jr., 1797).

⁷⁶ While Brown described Proud's text as "the uncouth narratives of an old man, uninstructed in the arts of selection, arrangement and expression," he agrees with Proud's prolonged and positive assessment of William Penn. [Charles Brockden Brown], Review of "The History of Pennsylvania, in North-America...", *The Monthly Magazine, and American Review* 1, no. 3 (June 1799): 216-17.

Purchase, suggesting that, “Penn’s Elm, like Brown’s, became darkened by violence resulting from a breach of faith.”⁷⁷

Notably, West did not highlight the elm in his painting of Penn’s Treaty. There are certainly trees, but none of “prodigious size,” as described by Penn biographer Thomas Clarkson.⁷⁸ Abrams explained that the painter “blended [Treaty Elm] into the background more as a symbol of the wilderness than as the majestic elm which dominated the more primitive representations of the peace conference.”⁷⁹ Viewers of the painting and its associated prints, however, still read or identified the elm in the composition. The Philadelphia historian and antiquarian, John Fanning Watson, expressed disappointment in West’s decision to exclude the great tree, but concluded, “that is of no weight; as painters, like poets, are indulged to make their own drapery and effect.”⁸⁰ Watson reassured his readers that West was well aware of the “true locality” of Penn’s treaty, recalling a story the artist related about an incident that occurred during British occupation of Philadelphia. Soldiers then scoured the countryside for firewood, but, out of respect for William Penn and the story of the treaty, General John Graves Simcoe ordered a guard of British soldiers to protect the elm from the axe.⁸¹ West claimed that the tree was “held in the highest veneration by the original inhabitants of my

⁷⁷ Krause, “Penn’s Elm and Edgar Huntly,” 470.

⁷⁸ Thomas Clarkson, *Memoirs of the Private and Public Life of William Penn* (Philadelphia: Bradford and Inskeep, 1813), 264.

⁷⁹ Abrams, “Benjamin West’s Documentation of Colonial History,” 74.

⁸⁰ John Fanning Watson, *Annals of Philadelphia: Being a Collection of Memoirs, Anecdotes, and Incidents of the City and Its Inhabitants, from the Days of the Pilgrim Founders...to Which Is Added an Appendix, Containing Olden Time Researches and Reminiscences of New York City* (Philadelphia: E.L. Carey & A. Hart, 1830), 127.

⁸¹ *Ibid.*

native country, by the first settlers, and by their descendants.”⁸² Andrew Newman has speculated that, by leaving out the elm, or letting it disappear among the other forest trees, West attempted to avoid “interference from cross-currents of contemporary visual rhetoric, to eschew, rather than invite, certain presentist interpretations,” at a time when people perceived to be savages gathered around a tree may have held a more explicit, political message.⁸³ A majestic tree standing alone, as in the *Birches*’ engraving, would have also anachronistically suggested the deforestation and development characterizing the region at the time of the painting’s commission. It is possible West expected knowledgeable eighteenth-century viewers of *Penn’s Treaty* to instead imagine the elm’s future revelation as testimony of the transformed landscape, heralded by the row of buildings shown under construction.

The elm tree became a symbolic site for peace, however, long before West’s painting. The Richardson Medal, believed to be first Indian coin struck in the colonies, featured a portrait of George II on the obverse and a Quaker and Indian smoking a peace pipe at a council fire beneath an elm tree on the reverse (Fig. 1.9). The Friendly Association, a group of Pennsylvania Quakers that mediated negotiation between the Lenape and the Pennsylvania Assembly, commissioned this medal in 1757.⁸⁴ A certificate of 1770, issued by Sir William Johnson to commemorate the ceding of lands at Fort Stanwix, New York, also prominently featured an elm tree (Fig. 1.10). This elm,

⁸² Ibid.

⁸³ Newman, *On Records*, 105.

⁸⁴ Linda August, “Struck into Metal,” *Art & Artifacts: Discover the Library Company’s Art and Artifact Collection*, 2007, <http://www.librarycompany.org/artifacts/metal.htm>.

positioned between the Indians and white settlers, bore a chain with a heart as a token of brotherhood and love.

Elms became important landmarks of the North American landscape in the eighteenth and nineteenth centuries—as iconic in New England towns as the church steeple and the village green—because they were thought to improve the microclimate through their wide-spreading, leafy branches.⁸⁵ They were also not particularly valuable commercially. Unsuitable for building or cabinet-making, elm wood was tough, fibrous, split easily and took a long time to dry, although craftsmen occasionally used the wood for wheel hubs, yokes, saddletrees, flooring, and barrels.⁸⁶ Because American elms were so large and challenging to cut down, lumbermen frequently passed them over. The French naturalist, François André Michaux, explained, “in clearing the primitive forests a few stocks are sometimes left standing; insulated in this manner it appears in all its majesty, towering to the height of 80 or 100 feet.”⁸⁷ Farmers let elms remain in their fields to provide shelter for livestock, because the tree’s lack of low-lying branches and small leaves created minimal shade and did not threaten the surrounding crops. Over time, tenacious and fast-growing elms became important boundary markers and landmarks.⁸⁸ As a spared tree, therefore, the elm transformed into a prominent symbol of

⁸⁵ For a comprehensive study of elms in New England, see Thomas J. Campanella, *Republic of Shade: New England and the American Elm* (New Haven, Conn.: Yale University Press, 2003).

⁸⁶ François André Michaux, *The North American Sylva, or A Description of the Forest Trees, of the United States, Canada and Nova Scotia. Considered Particularly with Respect to Their Use in the Arts and Their Introduction into Commerce; to Which Is Added a Description of the Most Useful of the European Forest Trees*, vol. 3 (Paris: C. d’Hautel, 1819), 86; Harvey Green, *Wood: Craft, Culture, History* (New York: Penguin, 2006), 174; Campanella, *Republic of Shade*, 16–18.

⁸⁷ Michaux, *The North American Sylva*, 1819, 3:84–85.

⁸⁸ Campanella, *Republic of Shade*, 16–18.

“the conversion of forest wilderness into the spatial order of settlement,” according to historian Thomas Campanella.⁸⁹

Due to its large size and advanced age, the Treaty Elm materially shaped the complex social-ecological assemblage that embodied Philadelphia’s creation myth, generating historical associations by virtue of its powerful agency as a kind of natural beacon. Watson noted the tree’s power of attraction in his *Annals of Philadelphia and Pennsylvania, in the Olden Time*, a self-described “collection of memoirs, anecdotes, and incidents of the city and its inhabitants,” published in 1830. He recalled, “beneath the wide spread branches of the impending Elm gathered in summer whole congregations to hymn their anthems and hearken to the preacher.”⁹⁰ Watson described the elm, and other venerable trees like it, as beacons within the American landscape, enticing citizens and inspiring contemplation and even spiritual reverie: “In their lofty and silent grandeur [consecrated trees] impress a soothing influence on the soul, and lead out the meditative mind to enlargement of conception and thought. One such a spot, Penn, with appropriate acumen, selected his treaty ground.”⁹¹ According to Watson, these properties of attraction, perceived as inherent within ancient trees, instinctively drew Penn and the Lenape to the elm.

Because of its association with William Penn, the Treaty Elm became symbolic of the Lenape and the region’s Native American past in complex and unusual ways. Edward Armstrong, in his editorial comments on lawyer and philanthropist Roberts Vaux’s *A Memoir on the Locality of the Great Treaty Between William Penn and the Indians*

⁸⁹ Ibid., 30–31.

⁹⁰ Watson, *Annals of Philadelphia*, 125–26.

⁹¹ Ibid., 125.

Natives in 1682, wondered why Native Americans did not mention the elm in their recollections of the treaty:

How is it possible, in a race so strong in their feelings of association, in their fondness for designating places and streams the most insignificant, so apt to draw their illustrations from material objects,—should not, in speaking of their great father Penn, and his great Treaty with them, have pointed to this Tree as the living embodiment and proof of an event on which they so much love to dwell?⁹²

According to John Heckewelder's 1818 account, the Lenape convened with William Penn "under a grove of shady trees, where the little birds on their boughs were warbling their sweet notes."⁹³ Until the 1780s, the Lenape commemorated their conferences with Penn by assembling together "in the woods, in some shady spot as nearly as possible similar to those where they used to meet their brother, Miquon."⁹⁴ While the tall elm tree, therefore, provided a "living embodiment" of Penn's Treaty and its associated values for Anglo-Americans, it did not hold the same association for the Lenape, who instead chose shady groves as appropriate venues to recall the event.

In records of meetings between Native American and British agents, Lenape leaders described trees as potential barriers to peace between the two groups. At a conference held on July 6, 1694, during the presentation of a wampum belt, Tamanend told William Markham, the deputy governor of Pennsylvania, "Wee and the Christians of this river Have allwayes had a free rode way to one another, & tho' sometimes a tree has

⁹² Roberts Vaux, *A Memoir on the Locality of the Great Treaty Between William Penn and the Indian Natives in 1682*, *Memoirs of the Historical Society of Pennsylvania*, v.1, pt.1 (Philadelphia: M'Carty and Davis, 1826), 89–90.

⁹³ John Heckewelder, *An Account of the History, Manners, and Customs of the Indian Nations Who Once Inhabited Pennsylvania and the Neighboring States*, *Transactions of the Historical and Literary Committee of the American Philosophical Society* Vol. 1, No. 1 (Philadelphia: Abraham Small, 1818), 176.

⁹⁴ *Ibid.*

fallen across the rode yet wee have still removed it again & kept the path clean, and wee design to Continue the old friendship that has been between us and you.”⁹⁵ During a 1715 council, the Lenape leader Sassoonan presented the then Deputy Governor Charles Gookin with three wampum belts, “that they and wee [the British] should Joyn hand in hand so firmly that nothing, not even ye greatest tree, should be able to divide them a sunder.”⁹⁶ In both of these exchanges, wampum belts, which embodied messages and terms of agreement that were actively viewed and renewed through their use as mnemonic device, played an integral role.⁹⁷ One belt, believed to have been presented to Penn by the Lenape in the 1680s, included a zig-zagging pattern in purple quahog shell beads that later Native American chiefs familiar with the symbolism of wampum identified as a pathway that permitted free passage (Fig. 1.11). Newman speculated that the paths on this wampum belt were metaphorical as well as literal, “representing the diplomatic channels that must be kept free from obstructions in order to ensure continuing amity.”⁹⁸ According to the speeches of Tamanend and Sasoonan, distorted as they may be by time and colonial interpretation, the Lenape perceived trees as symbolic of the obstructions that blocked these diplomatic channels, rather than as benign overseers of peaceful exchange. Such metaphors of blockage and corruption also appeared in Anglo-American discourse of wood, water, and air, to be discussed in later

⁹⁵ *Minutes of the Provincial Council of Pennsylvania, From the Organization to the Termination of the Proprietary Government*, vol. 1 (Harrisburg, Penn.: Theophilus Fenn, 1838), 411.

⁹⁶ *Minutes of the Provincial Council of Pennsylvania*, vol. 2, 628. Cited in Newman, *On Records*, 128.

⁹⁷ Newman, *On Records*, 122.

⁹⁸ *Ibid.*, 128.

chapters of this dissertation. For the Lenape, the wampum belt pathways provided a means to avoid obstacles that prevented honest exchange.

Despite these reported Lenape disavowals of affinity with landmark trees, Native Americans became increasingly linked to the past after the Revolution in Anglo-American consciousness and the contemplation of ancient trees provided a means to conjure up their presence. Phillip Freneau wrote the following poem, entitled “The Indian Burial Ground,” in 1790, which explicitly linked Native Americans, described as “children of the forest,” with the aesthetic and historical past through the contemplation of an elm tree:

Here still a lofty rock remains,
On which the curious eye may trace
(Now wasted, half, by wearing rains)
The fancies of a ruder face
Here still an aged elm aspires,
Beneath whose far projecting shade
(And which the shepherd still admires)
The children of the forest played⁹⁹

In his *Annals*, Watson also included a poem about Penn’s Treaty Elm that conveyed a similar sentiment to Freneau’s:

But thou, brod Elm! Canst thou tell us nought
Of forest Chieftains, and their vanish’d tribes?
Hast thou no record left
Or perish’d generations, o’er whose heads
Thy foliage droop’d?—thou who shadowed once
The rever’d Founders of our honour’d State.¹⁰⁰

⁹⁹ Freneau also published a series of essays from 1781-82 expressing critical views of civilization with the running title, “The Philosopher of the Forest,” under the auspices of a hermit living in the Pennsylvania woods. Philip Freneau, *The Poems of Philip Freneau, Poet of the American Revolution*, ed. Fred Lewis Pattee, 3 vols. (Princeton, N.J.: Princeton University Libraries, 1903), 2:369; Nash, *Wilderness and the American Mind*, 55–56.

¹⁰⁰ Watson, *Annals of Philadelphia*, 125.

Both Freneau and Watson looked to “aged elms” as repositories of memory of Native Americans who had been long since forced out of eastern Pennsylvania. These authors positioned elms as silent witnesses to an irrecoverable history, frustrating the antiquarian in their inability to tell stories of “vanish’d tribes” and rever’d Founders.” Watson’s address to the tree in particular—“Canst thou tell us nought”—animates trees as potentially articulate, although ultimately mute regarding the past.

The Birches referenced Penn’s Treaty and the transformation of the regional landscape again in their *City of Philadelphia* engraving, “New Lutheran Church in Fourth Street” (Fig. 1.12). In this plate, a group with three Indian agents—dressed similarly to the Lenape figures in West’s painting—proceeds down the street across from the New Lutheran Church, with its tripartite, Palladian window prominently featured. Such Indian delegations traveled to Philadelphia in the 1790s to contest government claims to their land and here these agents are being led by Frederick Muhlenberg, a speaker of the House of Representatives.¹⁰¹ Bellion, Emily Cooperman, and Lea Carson Sherk have all argued that this view emphasizes the reduction of Native American presence and agency within the city’s boundaries, as the Lenape became mere tourists in their ancestral lands.¹⁰² The group stands directly underneath a tavern sign emblazoned with a large tree and Muhlenberg gestures towards a horse-drawn cart loaded with lumber in the street. Cooperman and Sherk proposed that this view represented commercial progress in Philadelphia, with the Native Americans serving as the starting point, as well as the foil,

¹⁰¹ Bellion, *Citizen Spectator*, 158.

¹⁰² Bellion, however, argued that the Indians are still active spectators within the urban landscape, whereas African American figures are denied this agency in the Birches’ engravings. Ibid.; Emily T. Cooperman and Lea Carson Sherk, *William Birch: Picturing the American Scene* (Philadelphia: University of Pennsylvania Press, 2011), 111.

for that growth.¹⁰³ Like “The City and Port of Philadelphia,” discussed at the beginning of this introduction, the Birches’ view of the New Lutheran Church also underscored the transformation of local natural resources. Starting at the vanishing point of the scene in the left background and ending at the cart indicated by Muhlenberg, we trace a path that moves from live tree to tavern sign to stack of timber. In this compression of environmental and cultural history, the tree, as represented in the sign, and the Native Americans beneath it, have become nostalgic symbols that the opulent city of Philadelphia has relegated to the past. The details of the sign are difficult to determine in the engraving, but a preliminary sketch for the scene by William Russell Birch shows that the tree is flanked by two figures (Figs. 1.13), recalling the iconography featured on the Duffield and Richardson Peace Medal. The Birches, therefore, underscored the peaceful nature of the delegation’s visit and negotiations, while also reminding their viewer of the region’s past inhabitants—both human and sylvan—that contributed to Philadelphia’s current prominence as an opulent city. Although the latter of these inhabitants still played an active role within the city’s development—demonstrated by the timber-laden cart and wooden-framed structures that line the streets of all of the Birches’ engravings—the Native Americans were positioned by the Birches as mere observers of this process, relegated to the sidelines. As the next chapter will argue, however, by the time the Birches published their views of Philadelphia in 1800, city residents were already recognizing limits to their consumption of wood.

¹⁰³ Cooperman and Sherk, *William Birch*, 111.

CHAPTER 2

THE ECONOMY OF FUEL AND THE EVIL OF SMOKE: CHARLES WILLSON PEALE'S FIREPLACES, SMOKE-EATERS, AND BLACKNESS

In an 1802 letter to his sons Rembrandt and Rubens, the artist and museum proprietor Charles Willson Peale described a series of fuel-efficient stoves installed in his Philadelphia Museum, once located on the second floor of the Pennsylvania State House. These stoves, called “smoke-eaters,” drew smoke back down into the fire to undergo combustion a second time, expelling clean, warm air outside of the building via hidden pipes underneath the floor, and exciting “much wonder as the doors are open and no smoke comes into the room.” According to Peale’s letter, the first stove at the west end of the museum’s long main room, was in the shape of an altar, on which he installed a mirror, “makeing it emblamatical [sic] of Truth.” An additional stove, at the opposite end of the same room, was shaped like a classical column, plastered and painted white to resemble marble, and topped with a classical bust of Cicero, which Peale hoped to replace with a portrait of the great Swedish naturalist, Carl Linnaeus. Peale experienced difficulty choosing an appropriate bust for his third smoke-eater in the adjoining Quadruped Room, since he was reluctant to move the figure of Truth from its current location. Ultimately, Peale preferred to display a personification of Nature, but worried that the allegorical figure’s uncovered breasts would “afford occasion to excite indelicate remarks of the inconsiderate, and nothing must have a place in this museum which can call up a blush.”¹

¹ Charles Willson Peale to Rembrandt Peale and Rubens Peale, Philadelphia, December 12, 1802, in Miller and Hart, *The Selected Papers*, 2:472–73.

Peale expressly designed these devices to address two related, environmental ills facing Philadelphia: the “economy of fuel” and the “evil of smoke.”² It is clear from Peale’s descriptions, however, that the appearance and decoration of these stoves were as important to Peale as their efficient operation. Peale’s fireplaces and stoves altered their surrounding environment by conserving heat, reducing or eliminating smoke, and aesthetically refining the domestic interior through the incorporation of classical ornament, overmantels, and portrait busts of allegorical or intellectual figures. In his designs for his functioning stoves and smaller fireplace models, Peale also repeatedly invoked metaphors of the body, both visually and verbally. An extant sketch of the columnar smoke-eater (Fig. 2.1), the only surviving pictorial representation of the stoves, suggests the corporeal presence of these inventions. With its erect form and internal circulatory system, topped by a sculptural head, the stove evokes a human body in appearance and structure. Even the term “smoke-eater” invites comparison to the bodily process of consumption. Peale’s stove designs, therefore, became ideal models for his vision of a morally and physically healthy self; a stove efficiently inhaling oxygen and expelling or consuming noxious smoke mirrored bodily mechanisms of circulation and respiration.

The present chapter argues that these heating devices functioned as “Republican machines,” as conceived by the physician Benjamin Rush, demonstrating Jeffersonian ideals of efficient and economical operation for the good of the state and the body politic.³ Through the consumption and elimination of smoke, Peale’s fireplaces and

² Charles Willson Peale, “Smoke Eaters,” *Poulson’s American Daily Advertiser*, December 11, 1802.

³ “Of the Mode of Education Proper in a Republic,” in Benjamin Rush, *Essays: Literary, Moral, and Philosophical*, ed. Michael Meranze (Schenectady, N.Y.: Union College Press, 1988), 9.

stoves attempted to order, refine, and cleanse the multifarious social-environmental dangers that threatened to subsume the city of Philadelphia, including those of *blackness*. As the racial inflection of that term suggests, the cleansing process metaphorically encompassed subaltern bodies of African Americans, who occupied a concentrated area of the city, but an ambiguous, indeterminate role within the early republic. By thus critically exploring the conflation of body and machine in this context, I offer a new interpretation of Peale's involvement in the mechanical arts that reconnects his technological experiments with his artistic and curatorial practice. Through analysis of their unusual combination of function and form, I also demonstrate that Peale's "smoke eater" stoves and fireplaces embodied an imaginative artistic engagement with the natural economy and shifting social and physical environment of early national Philadelphia.

Mechanical Oeconomy

Although the Peale family and their many artistic and cultural achievements have received much scholarly inquiry in the past few decades, Charles Willson Peale's interest in fuel economy and fireplace design has been largely ignored.⁴ According to historian Sidney Hart, the academic consensus is that "the energies Peale devoted to mechanical

⁴A few scholars have briefly discussed Peale's heating devices, but mostly within the larger context of the history of stove and fireplace design in the United States. See Priscilla J. Brewer, *From Fireplace to Cookstove: Technology and the Domestic Ideal in America*, 1st ed (Syracuse, N.Y.: Syracuse University Press, 2000), 42–52; Samuel Y. Edgerton, Jr., "Heating Stoves in Eighteenth Century Philadelphia," *Bulletin for the Association for Preservation Technology* 3, no. 2/3 (1971): 64–65, 86–88; Sidney Hart, "'To Encrease the Comforts of Life': Charles Willson Peale and the Mechanical Arts," *The Pennsylvania Magazine of History and Biography* 110, no. 3 (July 1986): 335–341; Robert P. Multhauf, *A Catalogue of Instruments and Models in the Possession of the American Philosophical Society* (Philadelphia: American Philosophical Society, 1961), 55–58; Edgar Preston Richardson, Brooke Hindle, and Lillian B. Miller, *Charles Willson Peale and His World* (New York: H.N. Abrams, 1983), 149–150; Charles Coleman Sellers, "Charles Willson Peale with Patron and Populace. A Supplement to 'Portraits and Miniatures by Charles Willson Peale'. With a Survey of His Work in Other Genres," *Transactions of the American Philosophical Society* 59, no. 3 (1969): 31.

pursuits were wrong turns, misguided efforts, and, most unfortunately, distractions from his artistic and scientific pursuits.”⁵ This may be due to Peale’s own expressed concerns about the time preoccupied by his inventions and because ultimately his devices, including his fireplaces and stoves, did not significantly advance nineteenth-century technologies. The mechanical arts, however, preoccupied Peale throughout his life. Before he established himself as a painter, Peale worked as a saddle-maker, upholsterer, silversmith, and clock and watch repairer in Annapolis, Maryland, and he continued to spend a considerable amount of time and creative energy on mechanical experimentation in Philadelphia after the Revolutionary War.⁶ Peale’s extant designs, models, and descriptions imply that he regarded his inventions as machines for improving both bodies and virtues—the environmental and social health—of the new nation.

The design and operation of many of Peale’s devices betray a strong interest in refining the function and mobility of early national bodies. Peale spent five years improving and marketing John Isaac Hawkins’s polygraph, an apparatus that echoed the movement of the hand in order to produce a copy of a written text.⁷ He designed bridges to facilitate travel and a fan chair powered by a foot pedal that “may be conducive to the health of the sedentary.”⁸ These various devices promoted bodily economy by saving time and—in the case of the fan chair—improving immediate environmental conditions. Peale even constructed replacements or aids for failing or missing body parts: he ground

⁵ Hart, “To Encrease the Comforts of Life,” 324.

⁶ Ibid., 325–28.

⁷ Ibid., 341–48.

⁸ Charles Willson Peale to Benjamin Rush, Philadelphia, July 31, 1786. Miller and Hart, *The Selected Papers*, 1:450.

lenses for spectacles, reportedly made an artificial arm for a member of the Pennsylvania state legislature, and he perfected and advertised artificial, porcelain teeth when he was losing his own at age eighty-five.⁹ In his descriptions and promotions of these inventions, Peale hinted that his machines held moral and intellectual implications for early citizens of the United States; producing copies of text with a polygraph forced the writer to become more mindful of his words, “since none can be so lost to character as not to wish to be thought well of, by those who may view transactions so faithfully given by their correspondence” and a cooling fan chair could be “very useful to the studious and others that are oblig’d to sitt at their Employments.”¹⁰

Peale began experimenting with heating devices in 1796, when he designed and built two brick stoves in his Philadelphia Museum based on plans by the French architect François Cointeraux. Peale recorded the Quadruped Room’s temperature following the stove’s consumption of sixty-seven pounds of hickory and noted that the temperature remained within a few degrees of fifty degrees Fahrenheit throughout the entire day and night, even though it was close to freezing outside. He published the results of this heating experiment in both the *Aurora General Advertiser* and *The Philadelphia Gazette & Universal Daily Advertiser*, believing this improvement “interesting to society,

⁹ For Peale’s manufacture of lenses, see Charles Willson Peale to Thomas Jefferson, March 12, 1807, Philadelphia. Ibid., 2:1006–07. For construction of an artificial hand, see Charles Willson Peale to Rubens and Rembrandt Peale, February 22, 1811. Ibid., 3:79. For Peale’s experiments with teeth, see Charles Willson Peale, Diary 20, pt. 1: “A Journey to Washington, D.C. and Return, Including Baltimore and Annapolis, Maryland,” May 29–June 21, 1804, Charles Willson Peale to Rembrandt Peale, May 10, 1809 and Charles Willson Peale to Rubens Peale, July 9, 1826, Philadelphia. Ibid., 2:693–94, 2:1204, 4:547. Hart, “To Encrease the Comforts of Life,” 328, 332–34.

¹⁰ Charles Willson Peale to Benjamin Henry Latrobe, February 20, 1805. Miller and Hart, *The Selected Papers*, 2:812. Ibid., 1:450.

especially to the poor in the cities, or other places where fuel is dear.”¹¹ A few months later, in May, the American Philosophical Society, adhering to its mission to expand upon “useful knowledge” in the young United States, offered a premium of sixty dollars for the improvement of fireplaces or stoves. In their advertisement for this contest, the Society stated that the submitted designs should “benefit of the poorer class of people...to this end, the stove should be cheap, and of durable material; should afford the necessary degree of a salubrious and durable heat, with the least expense of fuel possible.”¹² In response, Charles Willson Peale and his son Raphaelle submitted a set of five diminutive fireplace models, which remain in the collection of the society’s museum today. While the exact roles of Charles Willson and Raphaelle in the design and construction of the models are unclear, Charles Willson’s earlier experiments with heating devices and his continued interest in stoves and smoke-eaters—without any further recognized contribution from Raphaelle—suggest that he was the driving force behind the miniature designs.¹³

The Peales constructed their unusual, unassuming fireplaces and stoves in various sizes, ranging from five to ten inches in height, out of white pine and paper. Three

¹¹ Charles Willson Peale, “The Improved Brick Stoves at Peale’s Museum,” *Aurora General Advertiser*, January 26, 1796; Charles Willson Peale, “The Improved Brick Stoves at Peale’s Museum,” *The Philadelphia Gazette & Universal Daily Advertiser*, January 26, 1796.

¹² “Advertisement,” *Transactions of the American Philosophical Society* 4 (1799): v.

¹³ Raphaelle, did, however, conduct his own experiments in water purification, responding to a contemporary concern with the pollution of drinking water that I will explore in a later chapter on the Philadelphia Waterworks. In 1802, for example, Raphaelle staged a demonstration at the City Tavern where “dish water, water from a stagnant pool, and water from the anatomical hall” were purified and tasted by all present. Polluted water was placed in a barrel, keg or bucket filled with equal parts charcoal and sand and clean water emerged from a sponge-covered hole in the bottom. “Water from the anatomical hall” is a particularly intriguing choice for purification, providing Raphaelle the opportunity to recycle waste from dissected bodies into water that could be consumed by a tavern crowd. “Important Discovery,” *Columbian Courier*, 16 April 1802.

models—two common chimneys “broke open nearly as high as [the] ceiling” to show the air chamber (Figs. 2.2-3) and a kitchen chimney (Fig. 2.4)—though rough in execution, still include aesthetic enhancement in the form of painted tan and blue-green paper. The remaining two models—a “common chimney altered” (Fig. 2.5) and a “chimney for a parlour” (Figs. 2.6-7)—display more ornate decoration, with sliding dampers and miniature ink overmantel sketches of landscapes and ornamental carvings.¹⁴ The Peales, under the pseudonym “Oeconomy,” won the premium from the American Philosophical Society in 1799.¹⁵ Nine months after submitting their designs, on November 16, 1797, the Peales received the first patent for a fireplace in the United States.¹⁶

The issue of fuel economy concerned scientific institutions and natural philosophers throughout the eighteenth century, both in the United States and abroad. Many urban centers, including Philadelphia, contended with the escalating cost of heating homes and businesses, due to rapid depletion of easily accessible firewood. Already in

¹⁴ Sellers, “Charles Willson Peale with Patron and Populace,” 31.

¹⁵ Charles Willson Peale and Raphaelle Peale, “Description of Some Improvements in the Common Fire-Place, Accompanied with Models, Offered to the Consideration of the American Philosophical Society,” *Transactions of the American Philosophical Society* 5 (1802): 320–24. In a catalog of the American Philosophical Society’s collections, Robert P. Multhauf identified “Oeconomy” as an anonymous inventor and proposed that Charles Willson and Raphaelle presented two models, the “common chimney altered” and the “chimney for a parlour” (Figs. 2.5-6) to the American Philosophical Society separate from the contest. Peale biographer, Charles Coleman Sellers, however, persuasively argued that “Oeconomy” was, in fact, the Peales’ pseudonym: “[In] March 15, 1799, a committee reported that the paper of ‘Oeconomy,’ though ‘not entirely original,’ was fully deserving of the award. On June 21 it was duly conferred, and the winner revealed as Charles Willson Peale and his son Raphaelle.” According to Sellers, “Oeconomy” submitted a set of five models, including Figs. 2.5-6. Since four of the five remaining fireplace and stove models in the American Philosophical Society Museum’s collection are numbered, as if received as a group, I am ascribing all five models to the Peales. Multhauf, *A Catalogue of Instruments and Models*, 55–58; Sellers, “Charles Willson Peale with Patron and Populace,” 31. Hart ignores these models completely in his discussion of Peale’s experiments with heating devices. Hart, “To Encrease the Comforts of Life,” 335–41.

¹⁶ While I have been unable to find the actual patent, its attainment was referenced by the Peales in their published description of the fireplace models. Peale and Peale, “Description of Some Improvements in the Common Fire-Place,” 321. Miller and Hart, *The Selected Papers*, 5:239, note 102; Hart, “To Encrease the Comforts of Life,” 338.

1744, Benjamin Franklin wrote, “Wood, our common Fewl, which within these 100 Years might be had at every Man’s Door, must now be fetch’d near 100 Miles to some Towns, and make a very considerable Article in the Expence of Families.”¹⁷ The northeastern firewood market depended on the variable conditions of early national waterways and roads, which were frequently blocked by snow or ice in cold winters when demand for fuel increased. After the Revolutionary War, bituminous coal from Great Britain and Virginia supplemented Philadelphia’s use of firewood, but not enough to satisfy the fuel requirements of the city’s growing population. From 1754 to 1800, the price of firewood in Philadelphia nearly tripled as demand for the dwindling resource escalated.¹⁸

The high cost of wood shocked François André Michaux when he visited the United States in the early nineteenth century to research his publication, *North American Sylva*. In this text, Michaux noted

the dearness of wood in New York and Philadelphia, situated as they are on navigable rivers flowing through extensive countries covered with woods, must appear surprising; the price nearly equals and sometimes exceeds that of the best wood in Paris, though this immense capital annually requires more than three hundred thousand cords, and is surrounded to the distance of three hundred miles by cultivated plains.¹⁹

¹⁷ Benjamin Franklin, *An Account of the new Invented Pennsylvanian Fire-Places* (Philadelphia: Franklin, 1744), 2.

¹⁸ Sean Patrick Adams, “Warming the Poor and Growing Consumers: Fuel Philanthropy in the Early Republic’s Urban North,” *The Journal of American History* 95, no. 1 (2008): 70. See also Carl Bridenbaugh, *Cities in Revolt: Urban Life in America, 1743-1776*, (New York: Knopf, 1955), 25–27.

¹⁹ Michaux, *The North American Sylva*, 1819, 3:268–69.

Michaux explained this discrepancy by referring to the “careful preservation and skillful management of the forests” in European countries like France and Germany, a practice which was not yet implemented in North America.²⁰

While Peale did not comment specifically on local deforestation, an engraving attributed to him from a 1787 issue of the *Columbian Magazine* (Fig. 2.8) captures the impact of widespread development on the local landscape in the late eighteenth century.²¹ Depicting a portion of the country between Wilmington, Delaware, and the Delaware River, the engraving portrays a wide swath of undulating farmland punctuated with houses, fences, and cattle, with a pair of travelers on horseback entering the scene from the right. A tall, barren tree cuts through the center of the narrow, horizontal composition, like a dark gash interrupting the otherwise bucolic, ordered landscape. Its upraised branches frame a lone bird that traverses the sky. As the Irish traveler Isaac Weld noted in 1795, the countryside near Philadelphia was well-cultivated with neat houses, but the land itself was bare in appearance and “totally stripped of trees which have been cut down without mercy for firing and to make way for the plough.”²² Even while the countryside in Peale’s engraving appears to be fertile and productive, the prominent,

²⁰ Ibid., 3:269.

²¹ See Edgar Preston Richardson, “Charles Willson Peale’s ‘Engravings in the Year of National Crisis, 1787,’” *Winterthur Portfolio* 1 (1964): 166–181.

²² Isaac Weld, Jr., *Travels Through the States of North America and the Provinces of Upper and Lower Canada, During the Years 1765, 1796, and 1797*, 2nd ed. (J. Stockdale, 1799), 1:31–32; E. McSherry Fowble, *Two Centuries of Prints in America, 1680-1880: A Selective Catalogue of the Winterthur Museum Collection* (Charlottesville, Va.: Published for the Henry Francis du Pont Winterthur Museum by the University Press of Virginia, 1987), #272.

gnarled tree, along with a lone stump in the right foreground, serve as visual remnants of the abundant forests that recede into the background of the composition.²³

For their fireplace models, Charles Willson and Raphaelle Peale appropriated the designs of Benjamin Franklin, Benjamin Thompson (Count Rumford), and David Rittenhouse, all of whom grappled with issues of fuel efficiency in their inventions. With his 1744 “Pennsylvania fireplace” design, Franklin sought to conserve fuel by replacing large, open-hearth fireplaces with closed, iron stoves that employed air boxes to heat air and circulate it throughout the room.²⁴ Several decades later, Count Rumford, an American-born, British Loyalist, who left the United States after the Revolutionary War, turned his attention to smoky fireplaces in London. After arriving in that city, he was disgusted by “the enormous waste of fuel [which] may be estimated by the vast dark cloud which continually hangs over this great metropolis, and frequently overshadows the whole country.”²⁵ Building upon Franklin’s earlier theories of air flow within a chimney and his own experience experimenting with gunpowder, cooking, and heating technologies in Bavaria, Rumford brought the back of the chimney forward and beveled its sides to improve the distribution of heat throughout a room.²⁶ Prior to his own experiments in heating technologies, Peale warmed his parlor with a stove designed by

²³ Peale’s engraving is an early example of a longer tradition of nineteenth-century tree stump iconography. According to Nicolai Cikovsky, the stump in post-1825 landscape painting conveyed conflicted feelings of conquest and loss that attended the civilizing of America. Nicolai Cikovsky Jr., “‘The Ravages of the Axe:’ The Meaning of the Tree Stump in Nineteenth-Century American Art,” *The Art Bulletin* 61, no. 4 (December 1979): 611–26.

²⁴ Benjamin Franklin, *An Account of the New Invented Pennsylvania Fire-Places, Wherein Their Construction and Manner of Operation Is Particularly Explained* (Philadelphia: Benjamin Franklin, 1744).

²⁵ Count Rumford [Benjamin Thompson], *Essay III* (London, 1796). Quoted in Sanborn C. Brown, *Benjamin Thompson, Count Rumford* (Cambridge, Mass.: MIT Press, 1979), 167.

²⁶ Count Rumford [Benjamin Thompson], *An Essay on Chimney Fire-Places; with Proposals for Improving Them, to Save Fuel* (Dublin: R.E. Mercier & Co., 1796).

David Rittenhouse, the Philadelphia astronomer, clockmaker, surveyor, and inventor.²⁷

While the Rittenhouse stove, like the Franklin stove, was made of cast iron, it was smaller and contained a back plate angled downward to direct heat into the room. The Peales' fireplace models combined this design with the slanted jambs from Rumford's chimneys and added mechanisms to improve fire safety. A sliding metal door beneath the mantel and a damper at the back of chimney could be closed to prevent smoke from escaping into the room or to quickly extinguish the fire.²⁸

Peale subscribed to his predecessors' beliefs that improved fuel economy would benefit the human condition by freeing bodily movement in the domestic space. According to Franklin, a closed fireplace allowed warm air to circulate throughout the room, permitting families to move away from the hearth and "sit near the Window and have the Benefit of Light for Reading, Writing, Needle-work, &c."²⁹ An efficient stove, in other words, encouraged not only the wider circulation of heat and bodies but also personal betterment and education. Peale expressed a similar interest in social reform using metaphors of bodily mobility. In a letter to his son and fireplace collaborator, Raphaele, Charles Willson wrote "I scru[t]inize the actions of Men and know from what impulse they moove, and w[h]ere I can do no good I am silent. But if I could, I have the desire to reform the bulk of my fellow creatures."³⁰ Peale explained to Thomas Jefferson that the inventions exhibited in his Museum were meant to instruct farmers to employ

²⁷ "Formerly [my parlor] was warmed by a fire made in one of the best constructed open stoves, being an improvement of Mr. Rittenhouse on Dr. Franklin's stove." Charles Willson Peale, "A Letter from Mr. C.W. Peale to the Editor of the Weekly Magazine," *The Weekly Magazine*, March 31, 1798.

²⁸ Hart, "To Encrease the Comforts of Life," 337.

²⁹ Franklin, *An Account of the Pennsylvania Fireplace*, 23.

³⁰ Charles Willson Peale to Raphaele Peale, Philadelphia, June 7, 1807, in Miller and Hart, *The Selected Papers*, 2:1019.

their “vacant hours” by learning how to produce manufactured articles, deterring them from developing “vicious habits” during idle hours and providing useful goods for the country.³¹ While promoting the fireplace prototypes installed in his Museum through newspaper advertisements, Peale proclaimed that his closed brick stoves “not only yield a regular and constant warmth, devoid of any disagreeable and offensive smell...but are also a saving of *fuel*, as well as *time*.”³² It is implied that this *time* is best spent pursuing virtuous work, as described by Franklin.³³

Through their emphasis on virtue, education, and bodily improvement, Peale’s fireplace models closely aligned with the educational goals of his Philadelphia Museum. As an institution displaying art, scientific specimens, and intellectual pursuits all under one roof, the museum was organized according to the Linnaean system of taxonomy, which represented the natural world as an interdependent hierarchy of distinct species and genera. This revelation of harmony through natural order demonstrated the perfection of divine wisdom to the museum visitor and illustrated an interest in rational order as a moral model for the new Republic. Building upon the earlier tradition of natural theology, in which close study of the natural world was thought to reveal characteristics of the divine Creator, naturalists like Peale believed in a Great Chain of Being, where all

³¹ Charles Willson Peale to Thomas Jefferson, February 26, 1804. *Ibid.*, 2:640.

³² Emphasis is original. Charles Willson Peale, “C.W. Peale to the Public,” *Aurora. Daily Advertiser*, May 26, 1796.

³³ Ironically, by the 1840s, United States citizens expressed nostalgia for the open hearth that Franklin and Peale sought to replace, as closed stoves became associated with the relentless furnaces of industry. In his 1843 essay, “Fire Worship,” for example, Nathaniel Hawthorne criticized the stove as an agent of social change, disrupting the familial bonding encouraged by gathering around the open hearth and fostering emotional isolation. He lamented, “it is a great revolution in social and domestic life, this almost universal exchange of the open fireplace for the cheerless and ungenial stove.” Joel Pfister, “A Garden in the Machine: Reading a Mid-Nineteenth-Century, Two-Cylinder Parlor Stove as Cultural Text,” in *American Artifacts: Essays in Material Culture*, eds. Jules David Prown and Kenneth Haltman (East Lansing, Mich.: Michigan State University Press, 2000), 149–66.

organisms were contained within a linear, hierarchical series, progressing from the basest matter to the most perfect form of creation: man. For Peale, man's ability to invent and make machines served as an indication of his supreme position within this chain.

According to the artist-curator, man can "produce by the labour of the hands various and wonderful works of art, and with the knowledge of the lever, the screw & the wedge, he can make machines to lessen labour, and multiply the conveniences of Life."³⁴ For Peale, the natural world offered a "model of elegance" for all citizens, regardless of class or trade, but man, through the mechanical arts, could also shape and improve nature. It is this theme of natural balance and harmony, promoted through the displays in the Philadelphia Museum, which comprised the foundation of Peale's fireplace designs and his theories of bodily health.

It is no coincidence that the Peales used the pseudonym "Oeconomy" when submitting their fireplace models to the American Philosophical Society. This may have been a reference to Linnaeus's 1749 essay "The Oeconomy of Nature," which addressed the natural equilibrium and interrelationships of various species in their cycles of growth and decay.³⁵ In a public lecture on the "Science of Nature," Peale praised the "learned and indefatigable Linnaeus, whose labours have opened the road, which has shortened the

³⁴ Charles Willson Peale, Diary 20. "Part I: A Journey to Washington, D.C., and Return, Including Baltimore and Annapolis, Maryland," June 12, 1804 entry, Miller and Hart, *The Selected Papers*, 2:706–07.

³⁵ Ernst Haeckel later directly linked the economy of nature and ecology: "By ecology we mean the body of knowledge concerning the economy of nature—the investigation of the total relations of the animal both to its inorganic and organic environment; including above all its friendly and inimical relations with those animals and plants with which it comes directly or indirectly into contact—in a word, ecology is the study of all those complex interrelations referred to by Darwin as the conditions of the struggle for existence." Ernst Haeckel, *Generelle Morphologie der Organismen* (Berlin: Reimer, 1866), 286–87. Quoted and translated in J. Donald Hughes, *An Environmental History of the World: Humankind's Changing Role in the Community of Life* (New York: Routledge, 2009), 7.

way to a knowledge of nature.”³⁶ As previously mentioned, Peale planned to install a bust of the Swedish naturalist on a “smoke-eater” in his Museum. In 1802, he wrote to his sons Rembrandt and Rubens, who were traveling in Europe, “I want a Plaster Bust of Linnaeus which is to ornament by way of finish on one of my stoves at the end of the Long Room.”³⁷ Such a combination of stove and naturalist suggests that Peale perceived a connection between his device’s efficient circulation and Linnaeus’s own theory of a balanced and harmonious natural world. It is not known if Rubens or Rembrandt were able to obtain a portrait bust of the Swedish naturalist for the smoke-eater; Linda Bantel has speculated that the Philadelphia sculptor William Rush may have carved an expressive, pine portrait of the naturalist for this purpose (Fig. 2.9). Topping a stove with a wooden—and therefore, flammable—bust seems an unusual choice, but Linnaeus’s tightly curled hair in Rush’s portrait does recall curls of billowing smoke, which Peale’s smoke-eaters were reported to consume. Although a watercolor of the Museum’s Long Room interior by one of Charles Willson’s many artist-children, Titian Ramsay Peale (Fig. 2.10), does not specifically depict this unusual stove—or any of Peale’s heating devices—one can imagine its presence among the elevated portrait busts, also by Rush, aligned atop display cases featuring minerals and shells.³⁸

³⁶ Charles Willson Peale, *Discourse Introductory to a Course of Lectures on the Science of Nature; with Original Music, Composed For, and Sung On, the Occasion: Delivered in the Hall of the University [sic] of Pennsylvania, Nov. 8, 1800* (Philadelphia: Zachariah Poulson, Jr., 1800), 22.

³⁷ Charles Willson Peale to Rembrandt Peale, November 3, 1802. Miller and Hart, *The Selected Papers*, 2:467.

³⁸ It is possible that the smoke-eaters were no longer on display in the Philadelphia Museum in 1822, when Titian Ramsay made his watercolor. In his *Autobiography*, written from 1825 to 1826, Charles Willson mentioned that the columnar smoke-eater was then in a backroom of his farm near Germantown. *Ibid.*, 5:240.

Charles Willson and Raphaelle underscored the theme of “oeconomy” and moral refinement in their miniature fireplace and stove models through the application of drawn ornament, including festoons of garland, columns, and overmantel landscapes. Such flourishes were unique to the Peales’ models. An anonymous inventor with the initials “A.C.,” for example, submitted an unembellished stove model to the same American Philosophical Society contest, marked only with a handwritten presentation date of “3 November 1797,” two red seals affixed to the top of box, and the inventor’s monogram (Fig. 2.11). For their miniature fireplaces and stoves, the Peales drew upon a set of recognizable symbols of classical refinement—Arcadian landscapes, columns, garland reliefs—to offer a vision of virtuous, tasteful domestic life. This ornament, applied with watercolor and ink, both legitimized the Peales’ modern venture through the familiar authority of a classical past and suggested a more affluent audience than the “poorer class of people” initially intended to benefit from the American Philosophical Society contest.

The Peales’ parlor fireplace model, for example, offered a miniaturized version of a well-appointed, Federal-style chimneypiece (see Figs. 2.6-7). The central panel, or tablet, of the frieze above the hearth features an Arcadian scene: the ambiguous, lightly-sketched composition thwarts an accurate identification and interpretation, but it seems to depict three figures and a goat or sheep approaching a smaller figure on a pedestal. Since the figure on the pedestal appears to wear a helmet and carry a bow, it may be the goddess Minerva or Diana, or a generalized deity. This central scene is flanked by two panels with swags of garland, tied with bows. Two rosettes anchor the trusses at each end of the mantel. Above the mantel frieze, an overmantel landscape occupies the space directly beneath two rotating metal vents. In this drawing of a painting, a large tree in the

right foreground frames a view of a river and a hill in the distant background, in the style of the French artist, Claude Lorrain and his followers, particularly the British landscape painter, Richard Wilson. Works by Wilson, including his 1753 *Rome from the Villa Madama* (Fig. 2.12), provide a model of picturesque spatial composition emulated by the Peales in their overmantel sketch. Wilson frequently depicted classical ruins and stories from antiquity in order to imbue his landscapes with moralizing messages for his patrons in the British gentry class.³⁹ His paintings were widely reproduced in engravings and therefore would have been familiar to the Peales. It is most likely that both the indeterminate figural scene on the mantel's central panel and the vague landscape above the fireplace do not depict a specific event, myth, allegory, or place, but instead were left ambiguous in order for the fireplace's audience—whether American Philosophical Society members or future patrons—to project their own narratives and allegiances onto the miniature design. The model merely provided a generalized guide for more personalized decorations by wealthy or upper-middle class patrons.

John Kasson has demonstrated that early national distrust of the fine arts as superfluous luxuries led citizens to instead appreciate the aesthetic properties of the “useful” or mechanical arts.⁴⁰ Technologies produced in the United States were viewed as instruments of republican virtue, symbolizing a decrease in dependence on foreign goods and knowledge, even as they were intimately entangled with these networks, as demonstrated by the Peales' cosmopolitan, overmantel landscape. Ornamentation of

³⁹ See David H. Solkin, *Richard Wilson: The Landscape of Reaction* (London: The Tate Gallery, 1982). For the reproduction of Wilson's paintings, see John Britton, ed., *The Fine Arts of the English School* (London: Chiswick Press, 1812), 63-64.

⁴⁰ John F. Kasson, *Civilizing the Machine: Technology and Republican Values in America, 1776-1900* (New York: Grossman Publishers, 1976).

mechanical devices, therefore, represented an attempt by artists, engineers, and architects to assimilate the machine into the culture of the American Republic and promote its status as art. This combination of beauty and utility as a national aesthetic “provided a broad and flexible standard used to justify styles as diverse as Greek, Gothic, and Italian picturesque, materials as different as wood and cast iron.”⁴¹ As machines became more and more complex so that only a select few were able to understand their often hidden mechanisms, viewers were forced to evaluate them in aesthetic terms.⁴²

For their carefully-delineated ornament, the Peales likely consulted British architectural pattern books which served as valuable resources for local carvers and architects designing tasteful interiors in early national Philadelphia. Contemporary architectural treatises promoted chimneypieces as important focal points within the domestic space of the late eighteenth-century home. In *The Complete Body of Architecture*, originally published in 1756 and reissued in 1768, Isaac Ware explained that, due to the fireplace’s prominent location, “the eye is immediately cast upon it on entering and the place of sitting down is naturally near it. By this means it becomes the most eminent thing in the finishing of an apartment.”⁴³ British pattern books devoted an increasing amount of space to chimneypieces during the latter half of the eighteenth century. In 1766, Thomas Milton published *The Chimneypiece Maker’s Daily Assistant*, the first text devoted exclusively to the subject, and Abraham Swan, a popular English Palladian architect and author, published *Upwards of One Hundred and Fifty New*

⁴¹ Ibid., 144.

⁴² Ibid., 139–180.

⁴³ Isaac Ware, *A Complete Body of Architecture. Adorned with Plans and Elevations, from Original Designs* (London: J. Rivington, L. Davis and C. Reymers, R. Baldwin, W. Owen, H. Woodfall, W. Strahan, and B. Collins, 1768), 553.

Designs for Chimney Pieces, two years later. *A new collection of chimney pieces, ornamented in the style of the Etruscan, Greek and Roman architecture* and other texts by George Richardson promoted the use of allegory in chimneypieces and interior design, which became prevalent on both sides of the Atlantic.⁴⁴ The employment of allegorical and historical themes in architectural ornament emphasized the educational and moralizing capabilities of the fine arts in the wake of the American and French Revolutions.⁴⁵

The Peales' parlor fireplace combined a number of common elements depicted in these popular British pattern books, although its design is much more modest and restrained, befitting an aversion to superfluous ornament among Philadelphia's wealthy citizens. Milton's *Daily Assistant*, for example, reproduces several chimneypieces with landscape overmantels that feature large trees in the immediate foreground (Fig. 2.13), similar to the Peales' own overmantel composition, even though the Peales added a simpler frame. The figural center panel on the Peale's parlor fireplace model also recalls designs by Richardson, which featured classical and mythological scenes that related to the function of the room in which the chimneypiece was installed. Richardson explained,

⁴⁴ Thomas Milton, *The Chimney-Piece-Maker's Daily Assistant or A Treasury of New Designs for Chimney-Pieces* (London: Henry Webley, 1766); Abraham Swan, *Upwards of One Hundred and Fifty New Designs, for Chimney Pieces: From the Plain and Simple, to the Most Superb and Magnificent, Properly Adapted to Rooms, Halls, Saloons, Lobbies, &c. of Every Dimension: With the Proportions They Bear to Each, and Full and Complete Instructions to Workmen ...: To Which Is Added, a Concise and Clear Description of the Five Orders of Architecture* (London: Robert Sayer, 1768); George Richardson, *A New Collection of Chimney Pieces, Ornamented in the Style of the Etruscan, Greek and Roman Architecture: Containing Thirty Six Designs, Suitable to the Most Elegant Ranges of Apartments: With Descriptions of the Plates in English and French* (London: The Author, 1781); George Richardson, *Designs for Chimney-Pieces with Mouldings and Bases, at Large; on 24 Plates* (London: I. and J. Taylor, 1793). See also Anna O. Marley, "Room with a View: Landscape Representation in the Early National and Late Colonial Domestic Interior" (Ph.D. diss., University of Delaware, 2009).

⁴⁵ Mark Reinberger, *Utility and Beauty: Robert Wellford and Composition Ornament in America* (Newark: University of Delaware Press, 2003), 12.

for example, that plate twenty-two from his *New Collection of Chimney Pieces* (Fig. 2.14) would be best suited for a Music Room, due to its depiction of Melpomene and Erato, the muses of tragedy and lyric poetry, in the right and left roundels. Richardson's central frieze panel in this engraving represents a sacrifice to Apollo, a statue of whom is depicted on a pedestal in the center of the scene.⁴⁶ The similarities between Richardson's central panel and that drawn by the Peales suggest that Charles Willson and Raphaelle also represented a scene of sacrifice; the animal led by the figures at the right could be an offering for the elevated deity.

These models were not only refined in their ornament, but also in their miniature size. Most inventors submitted their models to the American Philosophical Society in reduced form. As Alexander Nemerov has explained, the small scale of these devices relegated them to the realm of the elite, since only a select group could view, handle, and comprehend them at a given moment: "the small-scale model, in this sense, was always about the cogitation of the specialist—a man enlightened, eccentric, possibly both, but always far subtler than the common crowd."⁴⁷ These models, therefore, served as portable, tangible, and categorizable conveyors of knowledge.⁴⁸ A miniaturized topography of Mont Blanc (Fig. 2.15) and a wind-powered land carriage (Fig. 2.16), for example, coexisted on the same, readable scale. Society members could roll the carriage across a tabletop, rotate the vents and open and shut the fire screen of the Peales' parlor fireplace, and pack Mont Blanc into its own custom-made box when they finished

⁴⁶ Richardson, *A New Collection of Chimney Pieces*, 14.

⁴⁷ Nemerov, *Mammoth Scale*, 10.

⁴⁸ John Mack describes the miniature model as a "reduction to essence," that purifies and intensifies the function and concept of the full-size version. John Mack, *The Art of Small Things* (Cambridge, Mass.: Harvard University Press, 2007), 72.

examining it. Through manipulations to these toy-like devices, the members of the American Philosophical Society demonstrated their mastery of technology and natural history.

The Peales' model additionally—although perhaps unconsciously—refers to the fireplaces' function by materially and pictorially alluding to the very dwindling resource that fueled such fireplaces and their innovative designs. The significance of fire and burning in the ritual of animal sacrifice in the central frieze panel connects the classical scene with the function of the device on which it is delineated. The overmantel landscape, with its large, willowy tree—the very antithesis of the barren tree interrupting Peale's earlier etching of the Delaware countryside—recalls an idealized landscape, but the model ultimately references the consumption of wood through its material and intended function. Such linkages between the fireplace and its fuel through ornament—including Peale's proposed installation of the figure of "Nature" on one of his smoke-eaters—projected ideals of natural abundance and connected the stove models to the landscape that supported them. These additions attempted to naturalize technology, implying that the Peales' mechanical designs assisted and preserved these landscapes through their efficient consumption of fuel.

The Peales' models may have also promoted wood conservation through their incorporation of an innovative architectural material. Their parlor fireplace model appeared less than a decade after the introduction of composition ornament in the United States. Composition, or compo, denotes a synthetic material consisting of chalk or whiting (finely ground lime), pitch or resin, and animal glue. Plastic when first mixed, composition was pressed into carved molds to create ornament in relief that could then be

affixed to architectural elements, furniture, or picture frames.⁴⁹ Composition ornament became popular in the late eighteenth and early nineteenth centuries because it was a less-expensive alternative to wood-carving, not only materially, but because designs could be easily reproduced through the reuse of molds. An 1801 advertisement by Robert Wellford, one of the best-known makers and suppliers of composition ornament in the early national period, described composition relief as a desirable, “cheap substitute for wood carving.”⁵⁰ Wellford, who began producing composition ornament in Philadelphia in 1798, cast pastoral, mythological, and historical scenes for chimneypieces, which varied in content and symbolism—from the disarming of Cupid by the Three Graces to George Washington memorials.⁵¹ Wellford heralded composition as a democratic art, insisting that it “offers good embellishment at a moderate price, it resembles in some degree the art of printing and engraving; its utility must therefore be obvious to many.”⁵² Even though the Peales constructed their models before Wellford arrived in Philadelphia, they may have encountered designs by his teacher, John Jacques. Beginning in 1794, the firm William Zane & George R. Chapman, who later employed Wellford, likely imported ornaments from John Jacques’s shop in London through a catalog.⁵³ Jacques’s catalog featured a wide variety of ornaments (Fig. 2.17) and suggestions as to how to arrange them into a pleasing chimneypiece (Figs. 2.18-19). Indeed, Peale’s rosettes and garland seems to directly correspond to Jacques’ designs. Through function, decoration, and

⁴⁹ Reinberger, *Utility and Beauty*, 9.

⁵⁰ Robert Wellford, “To the Public,” April 6th, 1801, handbill. In Read Family Papers Papers, The Historical Society of Pennsylvania. Reproduced in *Ibid.*, 27.

⁵¹ *Ibid.*, 55.

⁵² Wellford, “To the Public,”. Reproduced in *Ibid.*, 27.

⁵³ Reinberger makes this argument based on extant bills of sale from the firm. *Ibid.*, 19–21.

material, therefore, the Peales' fireplaces and stoves promoted improved economy, wood conservation, and refined, democratic design to their early national audience.

Consuming Smoke

Unlike the miniature fireplace models, admired by only a select group of enlightened specialists at the American Philosophical Society, the general public encountered Peale's full-size smoke-eaters in his Philadelphia Museum. One of these stoves, "in the form of a Pedestal & part of a Collum"—most likely the one illustrated in *The Weekly Magazine* (Fig. 2.1)—stood in the center of the Museum's Long Room. Peale explained that he installed an opening with a door in the flue that connected the stove to the chimney "in order to shew that no smoke went through it, of course it was consumed, putting your hand in this opening a moisture would rest on the hand, which the moisture of the wood in burning threw out, but no smoke was seen, or even smelt on the hand."⁵⁴ Within the museum space, Peale's stoves acquired a physical presence as upright forms topped with busts of allegorical or intellectual figures, like Nature or Cicero. Not only did the smoke-eaters resemble bodies in structural and external appearance, but they also generated warmth, much like a living body. As Peale's descriptions suggest, museum visitors engaged directly with the stoves by opening latches and doors to view the wondrous interior processes of smoke consumption. By engaging directly with these devices and peering into the mirror accentuating the altar-shaped stove representing "Truth," visitors were encouraged to understand these inventions as reflections of themselves.

⁵⁴ Charles Willson Peale Autobiography, in Miller and Hart, *The Selected Papers*, 5:239.

These phenomenological associations between nonhuman things and the body recall Alexander Nemerov's recent analysis of the still-life paintings of Charles Willson's son and stove-design collaborator, Raphaele Peale. Nemerov proposed that the strange and uncanny characteristics of *Blackberries* (Fig. 2.20) and other compositions by Raphaele arise from their embodied qualities, particularly the phenomenological embodiment of the artist himself.⁵⁵ Nemerov relates this embodiment to the historical moment of the early nineteenth century, when competing identities of the virtuous republican and the possessive individual overlapped and coexisted uneasily. After 1815, during the presidencies of James Madison and James Monroe amid the Market Revolution, selfhood became identified through individual rights or possessions, creating a new subjectivity. Nemerov argued that the animate qualities of Peale's still lifes countered these new models of selfhood, conveying an interest in projective imagination and a presocial relationship with things that challenged the idea of the new self as rational and disciplined.

Despite their embodied qualities and toy-like phenomenological appeal, Charles Willson Peale's miniature fireplaces, stoves, and smoke-eaters seem, of course, far removed from the sensual, tactile fruits, vegetables and meats that populate Raphaele's still lifes. Instead, they illuminate and participate in earlier, Jeffersonian concepts of selfhood—defined through the qualities of liberty and virtue—that characterized the elder Peale's political philosophy. Peale's fuel-efficient heating devices ostensibly improved economic self-sufficiency, prized by Jeffersonian Republicans, by lessening reliance on unpredictable fuel markets. Such a development constituted a virtuous

⁵⁵ Nemerov, *The Body of Raphaele Peale*, 1–10.

contribution to the republic. While Raphaelle Peale's still lifes depicted fleshy, visceral projections of the artist's own tormented mind and body, Charles Willson intended his miniature fireplace designs to provide models of rationality, morality, and virtue. In an essay on education, the physician Benjamin Rush, a close colleague of Charles Willson, argued that it was possible to "convert men into republican machines," in order for them to "perform their parts properly in the great machine of the government of the state."⁵⁶ As historian Colleen Terrell has explained, Rush's theory of a citizen-machine playing his civic part "reproduces on a personal level the goals and ideals of America's new political arrangement, whose orderly, hierarchical structure, harmonious, regular motion, and sheer constructibility are beautifully epitomized by mechanism's physical qualities and aesthetic appeal."⁵⁷ For Rush, the body was not innately mechanistic—although he did describe it as a "masterpiece of divine workmanship"—but "is kept alive and in motion by the constant action of stimuli upon it."⁵⁸ Ideal, healthy bodies, therefore, adapted to external stimuli and aspired to equilibrium. Viewed within this context, Peale's fireplaces and stoves become literal "republican machines," performing their civic duty by increasing fuel economy and consuming smoke. Through Peale's incorporation of busts, columns, and mirrors, however, they also possess a similar embodied quality like that discerned in Raphaelle's still lifes. While promoting republican virtue and efficiency,

⁵⁶ "Of the Mode of Education Proper in a Republic," in Rush, *Essays*, 9.

⁵⁷ Colleen E. Terrell, "'Republican Machines': Franklin, Rush, and the Manufacture of Civic Virtue in the Early Republic," *Early American Studies: An Interdisciplinary Journal* 1, no. 2 (Fall 2003): 102.

⁵⁸ Benjamin Rush, *Medical Inquiries and Observations*, 2nd ed. (Philadelphia: J. Conrad & Co., 1805), 4: 389, 2:377. An 1815 edition of *Medical Inquiries* drops the "not" from this sentence, asserting "the human body is an automaton or self-moving machine," leading to some confusion in the scholarship on Rush. See Terrell, "'Republican Machines,'" 100–01; Sari Altschuler, "From Blood Vessels to Global Networks of Exchange: The Physiology of Benjamin Rush's Early Republic," *Journal of the Early Republic* 32, no. 2 (Summer 2012): 212–13.

Peale's fireplaces, stoves, and "smoke-eaters" simultaneously addressed contemporary uneasiness about the urban environment and the body in early national period through their corporeal presence.

Peale's smoke-eaters took on a special urgency amid recurring concerns about bodily health and air quality in late eighteenth-century Philadelphia, as the city suffered almost annually from devastating outbreaks of yellow fever. More than four thousand Philadelphians died from this disease in the summer of 1793, one-tenth of the city's total population and approximately one-fifth of the citizens who could not afford, or chose not, to leave the city after the first cases were reported.⁵⁹ Periodic outbreaks continued throughout the 1790s, including in the summer of 1798, when the administration of John Adams was forced to move temporarily to Trenton, New Jersey. That same year, the fever claimed the life of Peale's eighteen-year old son, Titian, whose early inclination towards the natural sciences prompted Peale to proclaim him the future "Linnaeus of America."⁶⁰ Although several scholars have recently insisted on reframing yellow fever as a transatlantic disease, affecting port cities throughout the Atlantic World, Philadelphia—and the 1793 outbreak more specifically—remains one of the most cited occurrences of this pandemic, both in the early national period and in more contemporary scholarship.⁶¹ This focus on Philadelphia is likely due to the city's status as a symbol of

⁵⁹ Samuel Otter, *Philadelphia Stories: America's Literature of Race and Freedom* (New York: Oxford University Press, 2010), 26.

⁶⁰ Peale, *Discourse Introductory to a Course of Lectures on the Science of Nature*, 47.

⁶¹ For Philadelphia-centric histories of yellow fever, see J. Worth Estes and Billy G. Smith, eds., *A Melancholy Scene of Devastation: The Public Response to the 1793 Philadelphia Yellow Fever Epidemic* (Canton, Mass.: Published for the College of Physicians of Philadelphia and the Library Company of Philadelphia by Science History Publications/USA, 1997); Simon Finger, *The Contagious City: The Politics of Public Health in Early Philadelphia* (Ithaca, N.Y.: Cornell University Press, 2012). See also Cristobal Silva, *Miraculous Plagues: An Epidemiology of Early New England Narrative* (New York: Oxford University Press, 2011). For a more decentered, transatlantic view of the fever, see Katherine

American Revolution, the nation's temporary capital, and a publishing center. The fever also provided a means for local physicians to contribute and assert their own empirical experience within the Atlantic network of medical knowledge soon after achieving political independence.⁶² Yellow fever, its causes, and its treatment therefore inspired many heated debates about Philadelphia and its environment throughout the late-eighteenth and early-nineteenth centuries and must be considered part of the context for Peale's attention to smoke-eating devices.

Nearly a century before Carlos Finlay and Walter Reed proved that yellow fever is blood-borne and spread by mosquitos, Philadelphia physicians were divided between two schools of thought regarding the cause of the disease. Contagionists at the College of Physicians recognized that fevers were distinct diseases, spread by contact with the inflicted, and they advocated for the quarantine of ships arriving from foreign ports. A climatist faction of doctors, however, argued that all fevers were variations of the same disease, caused by immediate environmental conditions. Benjamin Rush, who established the Academy of Medicine to counter the College of Physicians and promote this doctrine of local origins, insisted that the 1793 outbreak was caused by a "highly putrid and offensive" effluvia emanating from a shipment of damaged coffee near the Delaware waterfront. Rush explained that fever thrived in the city as opposed to the country, where "pure air" diluted the "miasmata"—unhealthy smells and vapors—that characterized the

Arner, "Making Yellow Fever American: The Early American Republic, the British Empire and the Geopolitics of Disease in the Atlantic World," *Atlantic Studies* 7, no. 4 (December 2010): 447–71; John Robert McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914* (New York: Cambridge University Press, 2010).

⁶² Arner, "Making Yellow Fever American," 455.

urban atmosphere.⁶³ Early American urban life was immersed in a frequently overwhelming sea of sight, sounds, and smells and residents and physicians widely believed that strong smells, inhaled into the body, possessed the power to either sicken or cure. One 1798 report on the history of pestilence in the city noted, “there are few cities that can vie with Philadelphia in point of elegance or even cleanliness,” but authors Thomas Condie and Richard Folwell still conceded that the open sinks fed by city gutters “exhale the most noxious effluvia.”⁶⁴ Jean Devèze, a French physician at Bush Hill hospital in Philadelphia, who previously experienced and treated the fever as a surgeon in Saint-Domingue in the Caribbean, proposed that inhalations of “corrupted air” introduced maladies like yellow fever into the body.⁶⁵

Smoke and fire occupied a contested role in the discourse of late eighteenth-century disease origin and prevention. Smoke had long been considered a nuisance in the home: a 1793 British architectural text lamented, “no situation in life can be more uncomfortable and unhealthy than residing in a smoky house: it is not only offensive to our sensations, but destroys all domestic enjoyment.”⁶⁶ In 1776, stoves were removed from the Pennsylvania State House after members of the Continental Congress

⁶³ Benjamin Rush, *An Enquiry into the Origin of the Late Epidemic Fever in Philadelphia: In a Letter to Dr. John Redman, President of the College of Physicians* (Philadelphia: Matthew Carey, 1793), 6–9.

⁶⁴ Thomas Condie and Richard Folwell, *History of the Pestilence, Commonly Called Yellow Fever, Which Almost Desolated Philadelphia, in the Months of August, September & October* (Philadelphia: R. Folwell, 1798), 7–8. See also Upton, *Another City*, 43.

⁶⁵ Jean Devèze, *An Enquiry Into, and Observations Upon the Causes and Effects of the Epidemic Disease, Which Raged in Philadelphia from the Month of August Till Towards the Middle of December, 1793* (Philadelphia: Peter Parent, 1794), 20.

⁶⁶ Robert Clavering, *An Essay on the Construction and Building of Chimneys. Including An Enquiry into the Common Causes of Their Smoking and the Most Effectual Remedies for Removing so Intolerable a Nuisance: With a Table to Proportion Chimneys to the Size of the Room. Illustrated with Proper Figures*. (London: I. and J. Taylor, 1793), 7.

complained that the smoke was affecting their “Health and Eyesight.”⁶⁷ Just as powerful smells like rotting coffee were believed to cause disease, however, many citizens believed similarly strong odors, like garlic, vinegar, and smoke, could ward off yellow fever. The publisher Matthew Carey documented these popular remedies during the 1793 epidemic, reporting that bonfires lit Philadelphia street corners at night in an effort to purify the air and houses reeked of gunpowder and burnt tobacco.⁶⁸ Because tobacco smoke was regarded as preventative, “many persons, even women and small boys, had [cigars] almost constantly in their mouths.”⁶⁹ Carey’s description of citywide bonfires and cigar-smoking women, however, positioned these popular remedies as misguided, even ridiculous, superstitions of a less-educated class. In contrast to these practices, most authorities on health and medicine specifically attributed the cause of disease to contaminated city air. William Buchan’s *Domestic Medicine*, a popular medical guide published in Philadelphia in 1771, for example, described the unwholesomeness of the urban atmosphere as “not only breathed repeatedly over and over by thousands, but is likewise exhausted by fires, loaded with sulphur, smoke, and other exhalations.”⁷⁰ Even the physician and devoted contagionist, William Currie, believed the “combustion of fuel” encouraged the spread of fever. He wrote:

In populous cities in sultry weather, the exhalations, from the vaults, privies, sinks, sewers, gutters, shambles, slaughter-houses, tan-yards, from respiration, and the combustion of fuel, and a variety of other processes of

⁶⁷ Quoted in Edgerton, Jr., “Heating Stoves in Eighteenth Century Philadelphia,” 64.

⁶⁸ Matthew Carey, *A Short Account of the Malignant Fever, Lately Prevalent in Philadelphia: With a Statement of the Proceedings That Took Place on the Subject in Different Parts of the United States*, 4th ed. (Philadelphia: The Author, 1794), 18, 21. See also Upton, *Another City*, 55.

⁶⁹ Carey, *A Short Account of the Malignant Fever*, 1794, 21.

⁷⁰ William Buchan, *Domestic Medicine; Or, The Family Physician* (Philadelphia: John Dunlap, 1772), 49.

nature and art, are inconceivably great. Nor can such exhalations fail of filling the air with a noxious mass of invisible corpuscles.⁷¹

Despite contrary popular belief, the city's physicians—climatists and contagionists—alleged that the city's corrupted air and the "combustion of fuel" exacerbated the fever.

The association between disease and environmental conditions proliferated in the popular press and literature as well. In a poem entitled, "Pestilence," the poet and editor of Philadelphia's *National Gazette*, Philip Freneau blamed the disease on the city's climate and atmospheric conditions:

Nature's poisons here collected,
Water, earth, and air infected
O, what a pity
SUCH A CITY
Was in such a place erected!⁷²

In his gothic novel on the 1793 outbreak, *Arthur Mervyn*, published in two parts from 1799-1800, Charles Brockden Brown repeatedly linked the disease to the contaminated, corrupt urban environment. Arthur's companion Medlicote insists that the yellow fever is the product of "a morbid constitution of the atmosphere, owing wholly or in part to filthy streets, airless habitations and squalid persons."⁷³ Arthur describes his own contraction of yellow fever as an inhalation of foul air:

As I approached the door of which I was in search, a vapour, infectious and deadly, assailed my senses. It resembled nothing of which I had ever before been sensible. Many odours had been met with, even since my arrival in the city, less

⁷¹ William Currie, *A Treatise on the Synochus Icteroides, or Yellow Fever; as It Lately Appeared in the City of Philadelphia. Exhibiting a Concise View of Its Rise, Progress and Symptoms, Together with the Method of Treatment Found Most Successful; Also Remarks on the Nature of Its Contagion, and Directions for Preventing the Introduction of the Same Malady, in Future* (Philadelphia: Thomas Dobson, 1794), 72; Finger, *The Contagious City*, 154–55.

⁷² Capitalization original. Phillip Freneau, *Poems Written Between the Years 1768 & 1794* (Monmouth, N.J.: The Author, 1795), 370.

⁷³ Charles Brockden Brown, *Arthur Mervyn*, vol. 3, *The Novels and Related Works of Charles Brockden Brown* (Kent, Oh.: Kent State University Press, 1980), 161.

insupportable than this. I seemed not so much to smell as to taste the element that now encompassed me. I felt as if I had inhaled a poisonous and subtle fluid, whose power instantly bereft my stomach of all vigour. Some fatal influence appeared to seize upon my vitals; and the work of corrosion and decomposition to be busily begun.⁷⁴

Brown's text here not only viscerally describes an imagined point of contact with disease through infectious air—which is tangible to the narrator through the senses of smell and taste—it also alludes to the “corrosion” and “decomposition” associated with the symptoms of yellow fever. According to Benjamin Rush, symptoms of the fever included suffusion of blood in the face, discoloration or yellowing of the skin, hemorrhages of blood from the nose and ears, excessive vomiting, diarrhea, and even “eruptions of various kinds on the skin” as if internal processes were bubbling up and through the surface of the body, causing it to lose its structural integrity.⁷⁵ Such visible eruptions of blood and bile led Rush to conclude that the fever could only be cured by bloodletting and purging, in order to relieve the accumulation of fluids within the body.⁷⁶

Historians have long asserted that the heated debates surrounding the cause of yellow fever were explicitly political. Katherine Arner demonstrated that in arguing that the cause of yellow fever was local, non-contagionists, including Rush and his colleagues at the Academy of Medicine, promoted themselves as the most credible arbiters of knowledge regarding the fever, because they witnessed the disease and its environs first-hand. This emphasis on empiricism allowed Philadelphia physicians to assert their intellectual independence from Europe after the Revolutionary War, despite continued

⁷⁴ Ibid., 144.

⁷⁵ Benjamin Rush, *An Account of the Bilious Remitting Yellow Fever, as It Appeared in the City of Philadelphia, in the Year 1793* (Philadelphia: Thomas Dobson, 1794), 39–78. For description of “eruptions” on the skin, see Ibid., 71.

⁷⁶ Rush, *An Account of the Bilious Remitting Yellow Fever*, 71–72.

dependence on foreign sources and networks.⁷⁷ This emphasis on local, environmental causes of disease, however, proved problematic at a time when the political well-being of the young nation was closely tied to the physical health of its citizens. In 1789, Rush wrote to John Adams that, “passions produce fewer diseases in a republic than in a monarchy. [Therefore,] the effects of the political passions upon health and life will be still less perceptible in our country.”⁷⁸ This connection of public and political health made the yellow fever epidemic particularly challenging. Since Benjamin Rush and his followers attributed the spread of disease to environmental conditions, the noxious urban atmosphere—including smoke—not only affected the health of the individual body, but the political body of the nation as well. The presence of disease additionally signaled that something was inadequate or failing within the national body.⁷⁹ Peale’s fireplace and stove models and designs, therefore, in their rational, classical forms, provided an ideal counterpoint to the messy, amorphous, yellow-fever wracked body that haunted early national Philadelphia citizens. These technological bodies could be controlled and manipulated and, in the case of the smoke-eaters, their sooty interior and its byproducts were contained and consumed, improving air quality for the general populace.

In developing his smoke-eaters in 1798, Peale was not the first Philadelphian to concern himself with the removal of smoke, nor did he originate the bodily metaphor of

⁷⁷ Arner, “Making Yellow Fever American,” 455.

⁷⁸ Benjamin Rush to John Adams, Philadelphia, June 15, 1789. Benjamin Rush, *Letters*, ed. L. H. Butterfield (Princeton, N.J.: Published for the American Philosophical Society by Princeton University Press, 1951), 517.

⁷⁹ Benjamin Rush, *An Oration, Delivered Before the American Philosophical Society, Held in Philadelphia on the 27th of February 1786; Containing an Enquiry into the Influence of Physical Causes upon the Moral Faculty* (Philadelphia: Charles Cist, 1786); Jacquelyn C. Miller, “The Body Politic and the Body Somatic: Benjamin Rush’s Fear of Social Disorder and His Treatment of Yellow Fever,” in *A Centre of Wonders: The Body in Early America*, ed. Janet Moore Lindman and Michele Lise Tarter (Ithaca, N.Y.: Cornell University Press, 2001), 61–74.

ingestion associated with that process; Benjamin Franklin designed a smoke-eater of his own in 1771 for his London lodgings (Fig. 2.21).⁸⁰ This stove consisted of a classical urn on a pedestal, placed within a cast iron niche inside the chimney. The smoke in the urn was drawn down through the stove, burned, and the resulting hot air was dispersed under the floor throughout the entire room. Its striking likeness to a funerary urn was noted at the time by a poet named Hannah Griffiths, who composed the following epitaph for Franklin:

Let candor then write on this urn
Here lies the renowned inventor
Whose fame to the skies ought to burn
But inverted descends to the center.⁸¹

Here, we find the metaphorical embodiment of a stove, as Griffiths imagined the cremated body of the inventor being consumed by his smoke-eating invention.

When envisioning an efficient heating device, Charles Willson embraced metaphors of circulation and respiration evident in the natural world and the human body. A written description of his fireplace models, published in the *American Philosophical Society Transactions*, contains multiple mentions of chimney anatomy, referencing “arms,” “tongues of sliding mantel,” “breast work,” “marble cheeks,” and the “throat of the chimney.”⁸² Franklin, as a point of comparison, did not use any of these corporeal terms in describing his Pennsylvania fireplace, although he did refer to the “ears” and

⁸⁰ Benjamin Franklin, “Description of a New Stove for Burning of Pitcoal, and Consuming All Its Smoke,” *Transactions of the American Philosophical Society* 2 (1786), 57-74.

⁸¹ Hannah Griffiths, “Inscription on a Curious Stove in the Form of an Urn Contrived in such a Manner as to make the flame descend instead of rising from the fire, invented by Dr. Franklin,” manuscript, The Library Company of Philadelphia. Reprinted in Edgerton, Jr., “Heating Stoves in Eighteenth Century Philadelphia,” 25.

⁸² Peale and Peale, “Description of Some Improvements in the Common Fire-Place.”

“shoulders” of the stove’s cast iron plates when describing how to assemble them.⁸³

Peale’s frequent reference to components of the respiratory system—cheeks, tongue, throat, and breast—closely aligns the efficient burning of fuel with the inhalations and exhalations of a human body.

The conflation of nature, body, and machine was not uncommon in the eighteenth century, not only in descriptions of “republican machines” within a political context, but also in medical publications, where natural and mechanical processes were frequently intertwined. In *The Art of Preventing Disease and Restoring Health*, published in New York in 1794, Doctor George Wallis proclaimed it “unavoidable to give some account of the human machine, with regard to the structure, dependencies, and action of its parts.”⁸⁴ Similarly, Charles Willson Peale used mechanical terms to refer to the body in an 1803 text entitled *Epistle to a Friend on the Means of Preserving Health, Promoting Happiness, and Prolonging the Life of Man to its Natural Period*. As Peale observed in that epistle, improper modes of living “wear out the machine,” leading to an early demise.⁸⁵ Peale recommended internal and external cleansing of the body, through regular bathing and periodic purgative enemas, which he claimed presented “the most ready and effectual means to cleanse away filth.”⁸⁶ As art historian David Ward has

⁸³ Franklin, *An Account of the New Invented Pennsylvania Fire-Places*, 13–23.

⁸⁴ George Wallis, *The Art of Preventing Diseases and Restoring Health, Founded on Rational Principles, and Adapted to Persons of Every Capacity* (New York: Samuel Campbell, 1794), 19.

⁸⁵ Charles Willson Peale, *An Epistle to a Friend on the means of Preserving Health, Promoting Happiness; and Prolonging the Life of Man to its Natural Period*, Philadelphia, March 1803, in Miller and Hart, *The Selected Papers*, 2:495.

⁸⁶ Peale, however, did not ascribe to aggressive invasions of the body through blood-letting as championed by Rush, but instead internally and externally cleansed the body through enemas and bathing in order to achieve equilibrium. Ibid., 2:507. See also David C. Ward, *Charles Willson Peale: Art and Selfhood in the Early Republic* (Berkeley, Calif.: University of California Press, 2004), 111–31.

explained, Peale's obsession with self-regulating and improving internal circulation was directly related to concerns about the loss of identity within the modernizing economy and shifting cultural contexts of the early national period. At a time when bodily pollutants threatened an individual's physical and moral health, good citizens needed to remain vigilant in order to repel corruption.⁸⁷

Much like an eighteenth-century body, a fireplace was viewed as a system of intake and output that must remain in balance in order to maintain equilibrium. Peale described the internal processes of his fireplaces in bodily terms of respiration and circulation, explaining, "the back and cheeks of the fire-place may be made hollow, yet strong...and a small hole made near the hearth of this hollowed way, communicating to the external air if convenient."⁸⁸ This passage corresponds with descriptions of respiration and circulation in contemporary medical texts. Wallis, for example, explained that the lungs, like stoves, were responsible for heating the body as they inhaled atmospheric air, circulated heat-generating particles to the blood and excreted useless and harmful matter.⁸⁹ Such references to biological circulation correspond with images like Charles Bell's depiction of the lungs in *A System of Dissections* (Fig. 2.22), published in 1798, the same year Peale's columnar smoke-eater was reproduced in Philadelphia's *Weekly Magazine*. In Bell's image, the cadaver's sternum has been cut from the ribcage and raised like a lid in order to reveal the internal organs underneath, much like the flue

⁸⁷ Ibid., 126. See also Charles E. Rosenberg, *Explaining Epidemics and Other Studies in the History of Medicine* (New York: Cambridge University Press, 1992), 9–31.

⁸⁸ Peale and Peale, "Description of Some Improvements in the Common Fire-Place," 323.

⁸⁹ Full quotation: "the quantity of atmospheric air which rushes into the lungs at every inspiration [are] loaded with those particles creating heat, they are separated from the air and pass into the blood, and by their evolution through the course of circulation, form an universal stimulus to the vascular system – and at the same time they perform the office of excretion, throwing out such matter which have become useless, and would be hurtful if continued in the habit." Wallis, *The Art of Preventing Diseases*, 29.

door that visitors could lift to view the smoke-eater's consumption of smoke in Peale's Museum. Like Peale's engraving of a smoke-eater, different components of the body are labeled with letters and described within the main body of the text. Through its careful delineation of both the internal processes and external countenance of the stove, Peale's "smoke-eater" design recalls illustrations in contemporary anatomical texts, like Bell's *A System of Dissections* and William Cruickshank's *The Anatomy of Absorbing Vessels of the Human Body* (Fig. 2.23), which includes an engraving of the human body that simultaneously reveals its outer appearance and its underlying systems.⁹⁰ These anatomical engravings also recall the "broke open" or cut-away views afforded by the Peales' miniature fireplace and stove models, particularly the kitchen chimney (Fig. 2.4). Its exposed interior suggests a dissected body, especially compared with the other models and their skin-like, paper, classical façades. Peale's parlor fireplace even evokes a body in its composition (Fig. 2.6); the two round, adjustable vents suggest rotating eyes or breasts and the hearth brings to mind a mouth, animated by a sliding, metal fire screen that opens and shuts. A few years after installing the smoke-eaters in his Museum, Peale would construct "models of the human throat and wind pipe" in papier-mâché and wax for use by the physician Caspar Wistar, demonstrating his knowledge of the human chimney, as well as the mechanical one.⁹¹ By viewing these unusual smoke-eaters within Peale's Museum, whether appreciating their warmth or opening a door to observe the

⁹⁰ One example is William Cruickshank, *The Anatomy of the Absorbing Vessels of the Human Body* (London: G. Nicol, 1786), plate 1. This volume was donated to the American Philosophical Society by Benjamin Smith Barton in 1787 and therefore would have been available to Charles Willson Peale and his colleagues. "Presents Received by the American Philosophical Society, since the Publication of Their 2d Vol. of Transactions, with the Names of the Donors," *Transactions of the American Philosophical Society* 3 (1793): 352.

⁹¹ Charles Willson Peale Autobiography, Miller and Hart, *The Selected Papers*, 5:356–57.

consumption of smoke, the Museum audience perceived an efficiently operating body with structural integrity that stood in stark contrast to the fever-wracked figure that haunted the city nearly every summer. The smoke-eater additionally operated on a paradigm of visibility and knowability, whereas yellow fever proved frustratingly elusive, invisible, and inexplicable. The stoves' consumption of smoke not only improved the air quality of the room and the urban atmosphere, they also educated the public as to how a body should aspire to equilibrium.⁹²

Smoke-Eaters and Sooty Africans

In 1787, a decade before he constructed his first fireplaces, Charles Willson Peale depicted another body intimately connected to their operation: the chimney sweep. Peale's etching, *An Accident in Lombard Street* (Fig. 2.24), depicts a young white girl who, after absent-mindedly dropping her pie on the ground, has been surrounded by barking dogs and mocking chimney sweeps. Text accompanies the image:

The pye from the Bake-house she had bought
But let it fall for want of thought
And laughing Sweeps collect around

⁹² Such comparisons between a body and a stove were made even more explicit only a few decades later in the writings of Samuel Thomson, a physician who promoted the use of botanical drugs and steam baths to clear the corporeal system and restore vital heat. In his *New Guide to Health*, Thomson described the application of medicine to restore the digestive system and clear the stomach and bowels as akin to clearing "a stove and the pipe when clogged with soot, that the fire may burn free, and the whole room be warmed as before." Samuel Thomson, *New Guide to Health; Or, Botanic Family Physician, Containing a Complete System of Practice On a Plan Entirely New*, 3rd ed. (Boston: J. Howe, 1831), 8. Coinciding with this stove-body analogy in medical texts, stove designs became even more corporeal by the mid-nineteenth century. In 1841, an Alonzo Blanchard of Albany manufactured dumb or radiant parlor stoves consisting of a cast iron, hollow statue placed upon a pedestal. Hot air would circulate within the figure, providing a large radiating surface to distribute heat within a room. Blanchard's models—which could also be used as garden ornaments—included a female figure and George Washington, both of whom are depicted flanking the entrance of Charles Gilbert's Philadelphia Stove Manufactory in an 1846 lithograph by W.H. Rease (Library Company of Philadelphia). John I. Mesick and Tammis Kane Groft, *Cast with Style: Nineteenth Century Cast-Iron Stoves from the Albany Area* (Albany, N.Y.: Albany Institute of History and Art, 1984), 31–34. Peale's models were, therefore, only the beginning of a longer tradition linking bodies and stoves in the nineteenth century.

The pye that's scatter'd on the ground

The long, perspective view of Peale's etching appears to anticipate the Birches' prospects of the city in their 1800 *City of Philadelphia*, but, unlike the engravings in that later series, a genre scene provides the primary focus of this moralizing print. The dark, sooty faces of the sweeps obscure their racial identity, but their ragged clothes and amusement at the girl's misfortune suggest a low moral character and marginal position within urban society. Peale and his family lived on Lombard Street, in the large house on the left, foreground corner, in front of which walks a tall, upright woman who has managed to remain attentive to her pie. This image, therefore, is not only a commentary on foolish carelessness; it is also a statement on the moral superiority and virtuousness of the Peale household. Peale's house stands tall and unsullied, in contrast to the darkened sweeps and frantic girl; the building even bears a fire mark beneath the upper, attic window, indicating that the house is responsibly insured from fire.⁹³

In this etching, the chimney sweeps, with their dark faces and attire, appear as unwelcome intrusions in an otherwise refined urban setting.⁹⁴ At the time Peale

⁹³ Bernard L Herman, *Town House: Architecture and Material Life in the Early American City, 1780-1830* (Chapel Hill, N.C.: Published for the Omohundro Institute of Early American History and Culture, Williamsburg, Virginia, by the University of North Carolina Press, 2005), 261–266; *Charles Willson Peale and His World*, 75–79. Megan Walsh has also investigated this etching in an article for *Early American Literature*. While Walsh argues that “the placement of the errant woman and black chimney sweeps in the center of the image only draws attention to their marginal status in the political order,” she also compares the etching to zograscope prints, which were viewed through an optical device that made distant objects—like the New Market at the end of Lombard street—appear larger, visually marginalizing the central figures. Peale never marketed this etching as a zograscope print, however. Megan Walsh, “The Politics of Vision: Charles Willson Peale in Print,” *Early American Literature* 46, no. 1 (2011): 78–81.

⁹⁴ Two decades after Peale's etching, the genre-painter John Lewis Krimmel painted a similarly unwelcome encounter with chimney sweeps in “*Worldly Folk*” *Questioning Chimney Sweeps and Their Master before Christ Church, Philadelphia* (1811-ca. 1813, watercolor and graphite on paper, Metropolitan Museum of Art). This watercolor depicts a pair of young, black, apprentice chimney sweeps and their master, who have accidentally collided with a fashionably dressed white couple. This “worldly” couple appears shocked and appalled by the appearance of the ragged, dirty sweeps, who wear mischievous expressions as they scamper away. When Peale viewed Krimmel's watercolor, among others on display at the 1812 Annual Exhibition at the Pennsylvania Academy of the Fine Arts, he expressed his “admiration for the genre paintings so

completed his print, the city's free black population was increasing exponentially following the Revolutionary War and the gradual abolition of slavery in the state beginning in 1780. Free blacks settled in south and southwestern Philadelphia—especially in the Cedar, New Market, and Locust wards and Southwark—lured by cheap housing tenements built by eager land developers. Two prominent black churches—St. Thomas's African Episcopal Church and Bethel African Methodist Episcopal Church, founded by Absalom Jones and Richard Allen respectively—opened in 1794, only a few blocks from Peale's residence. By 1810, over seven hundred families—two-thirds of Philadelphia's freed black population—settled in South Philadelphia. The intersection of Fourth and Lombard Streets, depicted in Peale's engraving, became a transitional space between a white and black Philadelphia at a time when race relations were strained. The city was a refuge for freed slaves from the region's hinterlands, the South, and the Jacobin Revolution in West Indies, who competed with European immigrants for jobs in an unstable economy.⁹⁵ White Philadelphians were wary of these new arrivals, as refugees from the 1791 slave uprising in Saint-Domingue brought horrible tales of black violence with them to Philadelphia's port. A former plantation owner, John Thomas Carré, in a note thanking Peale for sponsoring his passage to America, told his patron of his children watching the murder of forty white people, "barbarously butchered by their own Negroes."⁹⁶ While some freed blacks succeeded as artisans, doctors, ministers, and

pointed, spirited, and contemporary, of the young German." Quoted in Anneliese Harding, "British and Scottish Models for the American Genre Paintings of John Lewis Krimmel," *Winterthur Portfolio* 38, no. 4 (Winter 2003), 224.

⁹⁵ Gary B. Nash, *Forging Freedom: The Formation of Philadelphia's Black Community, 1720-1840* (Cambridge, Mass.: Harvard University Press, 1988), 163–71.

⁹⁶ John Thomas Carré to Charles Willson Peale, Philadelphia, 1793. Miller and Hart, *The Selected Papers*, 2:80.

teachers in Philadelphia, many more became common laborers, sawyers, porters, ashmen, bootblacks, and mariners. Because the position was so dirty, hazardous, and undesirable, chimney sweeping was overwhelmingly conducted by black men and young boys in the decades after the Revolutionary War.⁹⁷

An engraving of sweeps from the popular illustrated text, *The Cries of Philadelphia* visualized a close association between dark skin and chimney soot (Fig. 2.25). Here, the engravers' dense hatching of parallel lines overwrote the sweeps' facial details and expression, obfuscating any sense of identity or agency. The central figure in the engraving appears partially subsumed by the house's shadow, an erasure exacerbated by the page's wear over time. On the roof of the building, a shadowy figure emerges from, or descends into, the chimney like a puff of smoke, essentially equating the sweep with the soot he was hired to remove. Benjamin Latrobe recognized the blackening effect of smoke during a visit to Pittsburgh in 1813. The architect explained in a letter:

The town is half made up of Glass houses, Smith Shops, foundries, and some steam Engines, together with the large fires in the poorest homes, and in every room of them: so that there hangs over all this beauty, a thick cloud of smoke, impenetrable to the rays of the Sun: and as the Coals fry like so much butter, the soot is a fat blacking, which lights upon every thing and every body. White clothes are inadmissable white skin not less so. Every body wears a black Mask.”⁹⁸

Here, Latrobe blamed industry and poorly managed domestic fires as the cause of pervasive soot that blocked the sun and covered the otherwise genteel town like a “fat

⁹⁷ Paul A. Gilje and Howard B. Rock, “‘Sweep O! Sweep O!’: African-American Chimney Sweeps and Citizenship in the New Nation,” *The William and Mary Quarterly* 51, no. 3 (July 1994): 511–12.

⁹⁸ Benjamin Henry Latrobe to James Eakin, December 18, 1813, in *The Correspondence and Miscellaneous Papers of Benjamin Henry Latrobe*, ed. John C. Van Horne and Lee W. Formwalt, The Papers of Benjamin Henry Latrobe. Series IV, Correspondence and Miscellaneous Papers (New Haven, Conn.: Published for the Maryland Historical Society by Yale University Press, 1984), 3:497.

blackening.” He specifically noted the incompatibility of white skin with darkening smoke, implying that the opposite—dark skin—was more suited to such a smoky environment.⁹⁹

Chimney sweeps were prevalent in the early nineteenth century, as chimneys required frequent cleanings in order to prevent a build-up of soot that clogged flues and caused fires. In order to fit through these tight spaces, young sweeps crawled the entire length of the chimney with a scraper and brush, frequently wearing only underwear and a stocking cap with eye slits to cover the face, which may explain the facial blankness of the sweeps in the *Cries of Philadelphia* engraving. Sweeps still frequently suffered infected lacerations, cancer of the scrotum or “sooty wart,” infected eyes, and consumption or tuberculosis from inhaling soot.¹⁰⁰ The text of *The Cries of Philadelphia* both dehumanized and sympathized with the sweeps that traversed the city:

About the break of day, and through the forenoon, the ears of the citizens are grated with this uncouth sound, from figures as unpleasant to the sight, clothes in rags, and covered with soot—a necessary and suggesting class of human beings, indeed; much to be pitied.¹⁰¹

While offensive to the author’s ears and eyes, chimney sweeps were still perceived as “necessary” and “to be pitied” in Philadelphia.

In the aftermath of the 1793 yellow fever outbreak, blackness also became uneasily associated with disease. Several physicians believed that black people were immune to the fever. The publisher Matthew Carey reported that a Dr. Lining, analyzing

⁹⁹ Latrobe noted however, that despite Pittsburgh’s polluted air and mud that turned into an “unfathomable quagmire” after a rain storm, the city was generally prosperous: “here are no poor, and cold and hunger are unknown. Those who do not grow rich—even I—must be either stupid, lazy, or drunken.” In his letter, therefore, Latrobe recognizes both the negative and positive effects of industrialization. Ibid.

¹⁰⁰ Gilje and Rock, “Sweep O! Sweep O!”.

¹⁰¹ *The Cries of Philadelphia: Ornamented with Elegant Wood Cuts* (Philadelphia: Johnson and Warner, 1810), 32.

the fever from South Carolina, contended “there is something very singular in the constitution of the negroes...which renders them not liable to this fever.”¹⁰² Carey conceded that some African Americans did contract the fever, but “the number seized with it was not great, and, as I am informed by an eminent doctor, it yielded to the power of medicine in them more readily than in the whites.”¹⁰³ That “eminent doctor,” Benjamin Rush, called for black citizens to offer their services as nurses and attendants during the fever, explaining:

A noble opportunity is now put into their hands, of manifesting their gratitude to the inhabitants of that city which first planned their emancipation from slavery, and who have since afforded them so much protection and support, as to place them, in point of civil and religious privileges, upon a footing with themselves.¹⁰⁴

In response, African American ministers Absalom Jones and Richard Allen volunteered the services of their Free African Society to the city. It was soon discovered, however, that although African Americans from the South, the West Indies, or Africa may have been previously exposed to the fever and developed resistance, black people were not universally immune. Rush admitted in his *Account*, that soon after “these worthy Africans undertook the execution of their humane offer of services to the sick,” he learned he was mistaken: “They took the disease, in common with the white people, and many of them died with it.”¹⁰⁵

¹⁰² Matthew Carey, *A Short Account of the Malignant Fever, Lately Prevalent in Philadelphia: With a Statement of the Proceedings That Took Place on the Subject in Different Parts of the United States* (Philadelphia: The Author, 1793), 77–78.

¹⁰³ Ibid.

¹⁰⁴ Rush, *An Account of the Bilious Remitting Yellow Fever*, 96.

¹⁰⁵ Ibid., 97. See also Otter, *Philadelphia Stories*, 25–69; Philip Gould, “Race, Commerce, and the Literature of Yellow Fever in Early National Philadelphia,” *Early American Literature* 35, no. 2 (2000): 157–86.

Because they became the visible nurses, corpse-collectors, and hearse-drivers of the yellow fever, African Americans were viewed in published literature describing the outbreak as handmaidens of death. Black nurses frequently drew blood under the supervision of physicians like Rush, and stayed with suffering patients after the rest of their family abandoned them. Even Rush, an active abolitionist, wrote:

What medicine could act upon a patient who awoke in the night, and saw through the broken and faint light of a candle, no human creature, but a black nurse, perhaps asleep in a distant corner of the room, and who heard no noise, but that of a hearse conveying perhaps, a neighbor or friend, to the grave?¹⁰⁶

Samuel Otter noted that, with his employment of the conjunction, “but,” Rush positioned the black nurse as nonhuman and by rhyming “nurse” with “hearse,” the physician implied an uneasy connection between the two terms.¹⁰⁷ Matthew Carey accused black attendants of extorting and plundering the homes of the sick, arguing that, “the great demand for nurses offered an opportunity for imposition, which was eagerly seized by some of the vilest of the blacks.” While Carey did admit that it was “wrong to cast censure on the whole for this sort of conduct, as many people have done,” Jones and Allen published a scathing response to his accusations. Nor did Carey amend his text to include white nurses as equally guilty of extortion until the fifth and final edition of his account, published in 1830.¹⁰⁸

¹⁰⁶ Rush, *An Account of the Bilious Remitting Yellow Fever*, 311.

¹⁰⁷ Otter, *Philadelphia Stories*, 35.

¹⁰⁸ Carey, *A Short Account of the Malignant Fever*, 1793, 77; Absalom Jones and Richard Allen, *A Narrative of the Proceedings of the Black People, During the Late Awful Calamity in Philadelphia, in the Year 1793: And a Refutation of Some Censures, Thrown Upon Them in Some Late Publications* (Philadelphia: William W. Woodward, 1794). Carey did concede that “the extortion here mentioned, was very far from being confined to the negroes; many of the white nurses behaved with equal rapacity” in a footnote of his fourth edition, but he did not change the body of his text describing the “vilest of the blacks” until the 1830 edition. Otter, *Philadelphia Stories*, 53–54.

Peale himself promoted harmonious relations between races but also believed in a natural hierarchy and subordination of blacks to whites. David Brigham has demonstrated that, even though Peale advertised his museum as accessible to all, the majority of the subscribers and patrons who attended exhibits and lectures, sat for silhouettes, and donated objects were white men.¹⁰⁹ Peale lobbied for the Pennsylvania legislation that required the manumission of slaves over the age of twenty-eight, freeing his own slaves, Lucy and Scarborough, in 1786. Their son, Moses Williams, however, remained a slave in the Peale household until 1802, after which he continued to cut silhouettes in the Philadelphia Museum. As David Brigham, Gwendolyn Shaw, and others have demonstrated, while Peale educated Williams in taxidermy, animal husbandry, museum operations and the physiognotrace used to cut silhouettes, he did not teach him the fine art of painting, as he did for his own sons.¹¹⁰ Shaw explained, “the slave was relegated to the mechanized blackness of the silhouette, and it effectively removed him from any significant artistic and financial competition with the others.”¹¹¹ Williams passed out handbills for the 1802 exhibition of the mastodon dressed as a Native American, further emphasizing his subordinate status.¹¹² By performing multiple roles as an “other” within the Museum’s daily operations, Williams became a specimen on exhibit with a mere

¹⁰⁹ Of the many extant silhouettes produced at the museum, only two feature black men: “Mr. Shaw’s blackman,” after 1802, The Library Company of Philadelphia and a possible Self-Portrait of Peale’s black silhouette cutter, Moses Williams, after 1802, The Library Company of Philadelphia. See Brigham, *Public Culture in the Early Republic*, 1-12, 30-31, 70-71.

¹¹⁰ Brigham, “Ask the Beasts, and They Shall Teach Thee”; Gwendolyn DuBois Shaw, “‘Moses Williams, Cutter of Profiles’: Silhouettes and African American Identity in the Early Republic,” *Proceedings of the American Philosophical Society* 149, no. 1 (March 2005): 22-39; Ellen Sacco, “Racial Theory, Museum Practice: The Colored World of Charles Willson Peale,” *Museum Anthropology* 20, no. 2 (1996): 25-32.

¹¹¹ Shaw, “Moses Williams, Cutter of Profiles,” 25.

¹¹² Sacco, “Racial Theory, Museum Practice,” 28.

changing of costume. In 1799, Peale advertised the display of an “Ourang Outang, or Wild Man of the Woods,” in his Museum with an engraving of the ape standing upright, gazing directly at the viewer, and holding a stick like a gentleman holding a cane (2.26). This depiction purposefully blurred the boundaries between human and apes. In a description of the museum and its collections, Peale described the orang-outang as “next to man” and explained that the audience’s first reaction to the specimen would be: “How like an old Negro?” essentially designating blacks as intermediaries between apes and whites in Peale’s natural hierarchy.¹¹³

Charles Willson demonstrated his own awareness of the close association between the black body, disease, and soot by advertising an exhibition of “waxen figures of men, large as life, (some of them casts from Nature),” including “the North American Savage and the Savage of South America,” “a labouring Chinese, and the Chinese Gentleman,” and “the sooty African.”¹¹⁴ In a Federalist attack on the Museum in the *Porcupine’s Gazette*, editor William Cobbett expressed his annoyance with Peale’s wax display, writing, “since when, I pray you, has the ‘sooty African’ become a curiosity at Philadelphia?”¹¹⁵ Cobbett referred to the city’s increasing population of freed blacks and perhaps specifically the chimneysweeps, whose “unpleasant and unnecessary bawling” disrupted the city streets every morning.¹¹⁶ In the fall of 1797, Philadelphia suffered from another outbreak of yellow fever and in the same advertisement promoting his wax

¹¹³ Charles Willson Peale, “A Walk Through the Philadelphia Museum,” 1805-06, 7, Peale Family Papers, coll. 0481, The Historical Society of Pennsylvania; Brigham, *Public Culture in the Early Republic*, 130.

¹¹⁴ Charles Willson Peale, “Peale’s Museum,” *Aurora General Advertiser*, September 30, 1797.

¹¹⁵ William Cobbett, “Of the Wonderful Works of Nature!,” *Porcupine’s Gazette*, October 3, 1797. See also Brigham, *Public Culture in the Early Republic*, 127, note 10.

¹¹⁶ *The Cries of Philadelphia*, 33.

figures, Peale reassured visitors that his Museum was a safe place to visit. Despite his display of a “sooty” African, Peale emphasized the wholesome atmosphere of the building, claiming that it “stands in an airy and healthy situation, and free from the epidemic that at present afflicts the city.”¹¹⁷ This “airy and healthy situation” would soon be even more improved by the addition of his cleansing smoke-eaters.¹¹⁸ Within Peale’s Museum, therefore, a visitor could view the smoke-eater, in its whitewashed neoclassical form, consuming smoke and soot, epitomized by the wax African figure’s dark skin. Such a display provided audiences with two contrasting versions of the body: one mechanical, clean and rational and the other “sooty” and savage.

With its white classical bust, the smoke-eater might even be understood as consuming blackness in a cannibalistic way, bringing to mind a tradition of racist, anatomical humor exemplified by Francis Hopkinson’s 1788 satirical poem, “An Oration, Which Might Have Been Delivered to the Students in Anatomy.”¹¹⁹ Frequently a racial other unearthed from Potter’s Fields, the eighteenth-century anatomical body inspired a mixture of fascination and revulsion from its white male audience. This fetishization is evident in the way Hopkinson described caressing and consuming his “Brown CADAVERA,” the main focus of his poem:

¹¹⁷ Peale, “Peale’s Museum.”

¹¹⁸ Peale advertised his wax figures in the *Aurora General Advertiser* from September of 1797 until July of 1798; it is highly likely, therefore, that they overlapped with Peale’s columnar smoke-eater, which was introduced in *The Weekly Magazine* that same month. Charles Willson Peale, “Original Communications: Description of the Stove Lately Built by Mr. Charles Willson Peale, in His Museum, and Which Burns the Smoke of Its Fuel,” *The Weekly Magazine*, July 21, 1798.

¹¹⁹ Francis Hopkinson, “An Oration, Which Might Have Been Delivered to the Students in Anatomy,” in *American Poems, Selected and Original*, vol. 1 (Litchfield, Conn.: Collier and Buel, 1793), 151–63. See also Nemerov, *The Body of Raphaelle Peale*, 109–11; Alan C. Braddock, “‘Jeff College Boys’: Thomas Eakins, Dr. Forbes, and Anatomical Fraternity in Postbellum Philadelphia,” *American Quarterly* 57, no. 2 (June 2005): 369–70.

Her naked charms now lay before my sight
I gaz'd with rapture and supreme delight
Nor could forbear, in extasy, to cry—
Beneath that shrivell'd skin what treasures lie!
Then feasted to the full my amorous soul,
And skinn'd, and cut, and slash'd without control¹²⁰

Hopkinson conceded, “Now where’s the difference?—to the impartial eye / A leg of mutton and a human thigh.”¹²¹ As Braddock has demonstrated, the close study and cutting up of these marginal bodies reaffirmed white male identity and superiority at a moment when social and political changes questioned these hierarchical structures.¹²² Peale’s erect, classical stoves and their consumption of smoke—and, by association, sooty black bodies—may have similarly reinforced the natural hierarchy illustrated by Peale’s museum displays and advertisements.

Within the context of an increasing population of freed blacks in Philadelphia—indeed, in Peale’s own neighborhood—and their established connection to the blackened interiors of chimneys, Peale’s stoves served as reforming, whitening devices through their design and reduction or elimination of smoke. This “whitening” occurred externally, both in terms of the busts adorning the smoke-eaters—Cicero and Linnaeus—and the stoves’ color. The published engraving of the smoke-eater from the *Weekly Magazine* depicts the stove as an erect, white column, and Peale noted in his accompanying text that “it would be well in smoothing and polishing [the plaster], to give it a thin coat of white-wash, which will make a good ground to lay on the colours in imitation of marble.”¹²³

¹²⁰ Hopkinson, “An Oration,” 149.

¹²¹ Ibid., 151.

¹²² Braddock, ““Jeff College Boys.””

¹²³ Peale, “Original Communications.”

The refined exteriors of Peale's stoves ordered and masked the dirty and sooty interiors that allowed the devices to generate heat.¹²⁴

The sliding mantel door in the Peales' miniature fireplace and stove models, for example, provided not just a means to prevent the escape of heat and smother the fire, it also established a physical barrier between the sooty and smoky interior world of the chimney—the realm of the chimney sweep—and the domestic interior of the house. The Peales' engraving of a "common fireplace" (Fig. 2.27), reproduced in the American Philosophical Society's *Transactions*, depicts the mantel door partway open, revealing a blackened hearth that recedes back to a depth as dark and indeterminate as the faces of the chimney sweeps in *The Cries of Philadelphia*. This sooty space threatened the neoclassical refinement exemplified by the ornamented chimneypiece. Peale described one of the important achievements of his designs as their allowance for the "work surrounding the fireplace" to become "susceptible of the greatest elegance or neatness."¹²⁵ While the ornament and decoration of Peale's heating devices ordered and refined their exteriors, his fireplaces and stoves were still intimately entangled with issues of race. As narrower chimneys, like those promoted by Franklin, Rumford, Rittenhouse, and Peale, replaced larger hearth fireplaces in the late eighteenth century, they required more frequent cleaning, resulting in a greater reliance on chimneysweeps.

¹²⁴ In an article investigating the structuring, yet not fully conscious, presence of race relations in Norman Rockwell's 1950 *Shuffleton's Barbershop*, Jennifer Greenhill describes the stove as a "cipher of black identity," due to the linkage of black skin to stove polish used in blackface performances. Both Greenhill and Bill Brown reference an illustration from Edward S. Ellis's circa 1868 novel, *The Huge Hunter; or, The Steam Man of the Prairies*—in which a metal, mechanical figure pulling a cart appears in the guise of a black man—to demonstrate the racial-coding of machinery, manipulated by the hand of its master, in the nineteenth century. Jennifer A. Greenhill, "The View from Outside: Rockwell and Race in 1950," *American Art* 21, no. 2 (Summer 2007): 79–80; Bill Brown, "Science Fiction, the World's Fair, and the Prosthetics of Empire, 1910-1915," in *Cultures of United States Imperialism*, ed. Amy Kaplan and Donald E. Pease (Durham, N.C.: Duke University Press, 1993), 130–35.

¹²⁵ Charles Willson Peale Autobiography, Miller and Hart, *The Selected Papers*, 5:242.

Marble Cheeks and Breast Work

In 1773, proud of being able to provide for his large family, Peale began painting “the Portraits of the whole in one piece, emblematical of family concord.”¹²⁶ In *The Peale Family* (Figs. 2.28), the Peale family gathers closely around a table, engaging in the various activities of child-minding, sketching, and painting. On the easel pictured at left, three maidens signify “Concordia Animae,” or “agreement of the spirits,” highlighting the family’s intimate bond. Along the right side of the composition appears a mantel, indicating the presence of an unseen fireplace. In keeping with the aesthetic theme presented by his fireplace models and museum prototypes, Peale depicted the bottom corner of a gilt-framed overmantel painting and four, classically-inspired portrait busts on the mantel. One is a self-portrait and the other visible two commemorate influential figures in his career; Benjamin West, his teacher, and Edmund Jennings, one of his first patrons.¹²⁷

By placing these busts upon the mantel, Peale saturated the fireplace with bodily metaphors of “cheeks” and “breastwork” in a manner consistent with his more technical designs. The dark, sooty interior of the hearth is here hidden behind either a screen or the back of a canvas propped between the fireplace and a chair on which two women—Peale’s sister Elizabeth and his mother Margaret, who holds his daughter Eleanor in her lap—are seated. This image of a happy and healthy family, participating in intellectual and artistic pursuits near the comfort of a warm and presumably efficient fireplace,

¹²⁶ Ibid., 5:41.

¹²⁷ New York Historical Society, *Catalogue of American Portraits in the New York Historical Society*, vol. 2 (New Haven, Conn.: Published for the New York Historical Society by Yale University Press, 1974), 609–11.

exemplifying classical ideals with its line of portrait busts, perfectly summarizes the goals of Peale's fireplace designs. Peale even applied his signature and an inscription to the fireplace mantel frieze: "C. W. Peale painted these Portraits of his family / in 1773. / wishing to finish every work he had undertaken / -completed This picture in 1809!" Peale, therefore, worked on this family portrait at the same time he experimented with his efficient heating devices. As Lillian Miller has observed, "the group portrait encapsulated Peale's biography—his origins, his artistic and social beliefs, and the influences that shaped his art and life and contributed to his achievement."¹²⁸ It is therefore unsurprising that the fireplace and its populated mantel occupy a prominent anchoring position in the room, mirroring the painting of the three muses on the left. Together, the painting—along with the palette held by Charles Willson in his outstretched right hand—and the fireplace form a book-like enclosure for the family, demonstrating the equal importance the mechanical and fine arts held in Peale's perceived legacy.

While Peale boasted in his autobiography that the instances of his fireplaces' success in Philadelphia are "numerous, and have produced in the minds of all who have adopted his plan a strong conviction of its superior benefits," little evidence exists that any of Peale's fireplaces and stoves were adopted by the general populace.¹²⁹ Although Peale's fireplace designs have been understood as examples of eighteenth-century "fuel philanthropy," their high cost, partially resulting from Peale's own assessment of a ten dollar patent fee for the right to alter a single fireplace or chimney in accordance with his

¹²⁸ Lillian B. Miller, "The Peales and Their Legacy, 1735-1885," in *The Peale Family: Creation of a Legacy, 1770-1870*, ed. Lillian B. Miller (New York: Published by Abbeville Press in association with the Trust for Museum Exhibitions, and the National Portrait Gallery, Smithsonian Institution, 1996), 17.

¹²⁹ Charles Willson Peale Autobiography, Miller and Hart, *The Selected Papers*, 5:241.

designs, kept them out of the reach of all but wealthy patrons or large institutions.¹³⁰

Even the columnar smoke eater was eventually retired to a back room at Belfield, Peale's farm in Germantown.¹³¹ The one successful implementation of Peale's fireplaces occurred at the New York City Alms House, where, prior to their installation, "the smoke was so dense that a person could not be seen at the further end of the room."¹³² To improve this smoky atmosphere, the Alms House installed six of Peale's stoves, but they were required to hire Peale to oversee the construction. It is not clear how long or how efficiently the fireplaces operated at the Alms House, but ultimately, due to his museum responsibilities, Peale was not able to capitalize further on his heating devices. The technological and aesthetic complexity of several of his designs, especially the smoke-eaters, made them too costly for most Americans to afford and too complicated to reproduce for wide distribution.¹³³ Although studied and praised by members of the American Philosophical Society and wondered over by museum visitors, ultimately Peale's fireplace and stove designs did not benefit "the poorer class of people" as envisioned.

Intended to alleviate issues of air pollution and escalating fuel costs caused by smoky chimneys and deforestation, Peale's heating devices perhaps accrued their greatest value as models for healthy, virtuous living. Through their evocations of the body, in both form and description, Peale's unusual fireplaces and stoves demonstrated both

¹³⁰ I have borrowed the phrase, "fuel philanthropy," from Adams, "Warming the Poor and Growing Consumers."

¹³¹ Charles Willson Peale Autobiography, Miller and Hart, *The Selected Papers*, 5:240.

¹³² Ibid., 5:242. Brewer, *From Fireplace to Cookstove*, 43.

¹³³ Hart, "To Encrease the Comforts of Life," 340–41.

structural refinement and efficient circulatory operation for their early national audience, who were haunted by decomposing bodies in the wake of disastrous yellow fever outbreaks. By reducing or consuming smoke and enclosing the sooty blackness of hearth and chimney interiors, Peale's stoves and smoke-eaters also provided a means to whiten the city at a time when soot, black skin, and disease became increasingly intertwined. Such an occlusion gains greater significance considering the uneasy, tenuous position of freed blacks in Philadelphia following the American Revolution and the Pennsylvania's Act for the Gradual Abolition of Slavery. Conflating of body and machine, Charles Willson Peale's fireplaces, stoves, and smoke-eaters directly associated public and environmental health and corporeal integrity in a time of political, economic, and social change in early national Philadelphia.

CHAPTER 3

“COVERT OF DANGER AND BLOOD”: THE INCORPORATION OF THE CENTRE SQUARE WATERWORKS

While Thomas and William Russell Birch's *City of Philadelphia* opened with a frontispiece of the city port viewed beneath the branches of the Treaty Elm, a symbol of the city's historical and sylvan foundation (Fig. 1.1), the publication ended with a vision of the future: the neoclassical Waterworks at Centre Square, designed by architect and engineer, Benjamin Henry Latrobe (Fig. 3.1). Located in the physical center of Philadelphia's urban grid, but outside the boundaries of the developed city—noted by the shaded, populated blocks spreading west from the Delaware River in the Birches' plan of the city (Fig. 3.2)—the Centre Square Waterworks were the westernmost subject addressed in *The City of Philadelphia*. Traffic behind the Engine House emphasizes the site's liminal location; a city carriage and gentlemen on horseback circle around the Waterworks to the left, while travelers to the right head west on High Street in covered wagons, like pioneers setting off into the unknown. Within the landscaped square, a female figure and three children engage in polite activities of hoop-rolling and observing nature while the Engine House emits a small plume of smoke, alluding to the industrious steam engine hidden beneath its classical, columned façade.

The Birches' engraving of this white marble temple to civic engineering visualized a symbol of civility, economic prosperity, and refined taste for the expanding city. Since the building was not completed until 1801, after the *City of Philadelphia*'s publication, the image also served as a speculation on the city's future. In 1800, Philadelphia's status as a political and economic center appeared in jeopardy, as the

national capital decamped to the newly built City of Washington and New York City surpassed Philadelphia in economic prominence. In the wake of these setbacks, Latrobe's Engine House envisioned a new prospect of scientific and artistic achievement for the city.¹

Unfortunately, the actual success of the Centre Square Waterworks proved short-lived. The Engine House only functioned for fourteen years at this location, shut off from the city's growing underground pipe network in 1815. During its brief operation, the perception of the building darkened considerably as urban entertainments, crime, corruption, and fears of internal and external blockage and failure became progressively associated with the site. In an 1816 letter to *Poulson's American Daily Advertiser*, an anonymous author with the moniker "Civis" called for the demolition of the Engine House and its surrounding park with a spectacular censure of the space:

Let any serious man, traverse the Centre Square on the afternoon or night of the Christian Sabbath, he will be annoyed by rude and profane noises, or by the disgusting spectacle of human bodies lying on the ground, in the state of torpid stupefaction. Remove, then, those nuisances and facilities of vice, by the demolition of that absurd edifice, and of that ugly darksome wood, the haunt of profligacy, and the covert of danger and blood.²

Civis's letter provides an illuminating example of how corporeal analogies dominated the discourse surrounding the Waterworks' construction, processes, and subsequent decline; Philadelphia citizens believed that the Works possessed the potential to improve or contaminate the bodies of the populace, both physically and morally. The remarkable transformation of the Centre Square Waterworks from a site of civic achievement to one of spectacle and corruption therefore speaks to shifting ideas of the body and urban

¹ Cooperman and Sherk, *William Birch*, 124–26.

² Civis, "To the Select and Common Councils of the City of Philadelphia," *Poulson's American Daily Advertiser*, August 26, 1816.

space, as Philadelphia artists and architects negotiated artistic promotion, metropolitan expansion, and environmental reform during the early national period.

The Waterworks were initially conceived to improve the health of Philadelphia's urban bodies in an effort to decrease the risk of yellow fever. Latrobe, its architect, closely studied the natural world, and his extant writings, sketches, and watercolors demonstrate that a deep knowledge of biological processes, hydrology, and interrelated systems framed his aesthetic perceptions of, and designs for, the Philadelphia environment. A highly detailed survey of the Susquehanna River by Latrobe, for example, suggests that the architect comprehended the interrelatedness of various human and nonhuman elements on and along this important waterway. Latrobe saw the natural world as dynamic, not static, and he understood that environmental change impacted public health. For him, the waterworks functioned as a circulatory network, watering and cleansing a diseased city.

During the early national period, major American cities, including Philadelphia, expanded outwards beyond their gridded borders while mobility of people and goods increased due to the penetration of turnpikes and canals into previously inaccessible regions. Latrobe's Waterworks simultaneously participated in and challenged this unchecked growth through a dramatic ordering and alteration of the natural and urban landscape that was not entirely visible to the public; its waterways were hidden underground and innovative (yet faulty and dangerous) steam engines were enclosed within a classical, temple-like structure.³ As Latrobe and Philadelphia citizens soon

³ This linkage of invisibility and modernity recalls Michel Foucault's famous examination of a new disciplinary society circa 1800, which sought to reform the physical body through a "carceral network" of prisons, schools, hospitals, and reformatories with interiorized bureaucratic and technological systems of control. Foucault does not, however, consider how these systems were also utilized in attempts to control

learned, however, some natural resources and processes proved difficult to tame. The unique American landscape, with its rocky, mountainous terrain and variable water flow, persistently thwarted regulation and inland navigation, granting the nation's waterways an agency of their own. Latrobe's Waterworks, much like his Ionic temple design for the Bank of Pennsylvania, constructed at the same time, were intimately entangled in the very unpredictability and unruliness that characterized natural and urban environments; its refined, neoclassical exterior occluded a destructive, chaotic, and secretive interior. The Centre Square Waterworks ultimately did not accommodate the changing environs of the growing city, motivating citizens to call for its destruction, condemning the building and its surrounding park as a "haunt of profligacy, and the covert of danger and blood."⁴

The Introduction of Good, Wholesome Water

In the 1970s and '80s, Edward Carter and the Maryland Historical Society diligently located and published the work of Benjamin Latrobe in four series of journals, architectural and engineering plans, sketchbooks, and correspondence, producing a total of ten volumes of writings and drawings.⁵ Unlike the publication of the Peale Family

the environment. Michel Foucault, *Discipline and Punish: The Birth of the Prison* (New York: Pantheon Books, 1977).

⁴ Civis, "To the Select and Common Councils of the City of Philadelphia."

⁵ Benjamin Henry Latrobe, *The Virginia Journals of Benjamin Henry Latrobe, 1795-1798*, ed. Edward Carlos Carter, 2 vols., *The Papers of Benjamin Henry Latrobe: Series I, Journals* (New Haven, Conn.: Published for the Maryland Historical Society by Yale University Press, 1977); Benjamin Henry Latrobe, *The Journals of Benjamin Henry Latrobe, 1799-1820: From Philadelphia to New Orleans*, ed. Edward Carlos Carter, John C. Van Horne, and Lee W. Formwalt, *The Papers of Benjamin Henry Latrobe: Series I, Journals*; v. 3 (New Haven, Conn.: Published for the Maryland Historical Society by Yale University Press, 1980); Benjamin Henry Latrobe and Darwin H. Stapleton, *The Engineering Drawings of Benjamin Henry Latrobe*, ed. Darwin H. Stapleton, *The Papers of Benjamin Henry Latrobe: Series II, The Architectural and Engineering Drawings* (New Haven, Conn.: Published for the Maryland Historical Society by Yale University Press, 1980); Latrobe, *The Correspondence and Miscellaneous Papers of Benjamin Henry Latrobe*; Edward Carlos Carter, John C. Van Horne, and Charles E. Brownell, eds., *Latrobe's View of America, 1795-1820: Selections from the Watercolors and Sketches*, *The Papers of*

Papers, however, this series did not prompt a surge of scholarship on the architect and engineer.⁶ Only a handful of art and architectural historians have since reevaluated portions of Latrobe's production and they have primarily focused on his projection of a national, democratic identity in his domestic architectural designs and sketchbook watercolors. In their comprehensive volume on Latrobe's British and American country and town houses, Michael Fazio and Patrick Snadon argued that Latrobe consciously responded to the specifics of the social and physical context of North America as he developed a house form for the democratic republic.⁷ More recently, Julia Sienkewicz explored how Latrobe's writings and depictions of the Virginia landscape, soon after his arrival in the United States, served as investigations of "American-ness" for the architect.⁸

With the exception of a couple of recent texts, there has been very little investigation of the architect's engineering projects and their dramatic negotiation and manipulation of the early national environment. A few articles and the introduction to *Engineering Drawings of Benjamin Henry Latrobe* by Darwin Stapleton in the 1980s, while laying the foundation for these investigations, focused almost entirely on the

Benjamin Henry Latrobe. Series III, *The Sketchbooks and Miscellaneous Drawings* (New Haven, Conn.: Published for the Maryland Historical Society by Yale University Press, 1985); Jeffrey A. Cohen and Charles E. Brownell, eds., *The Architectural Drawings of Benjamin Henry Latrobe*, 2 vols. (New Haven, Conn.: Published for the Maryland Historical Society and the American Philosophical Society by Yale University Press, 1994); Edward C. Carter, "The Papers of Benjamin Henry Latrobe and the Maryland Historical Society, 1885-1971: Nature, Structure and Means of Acquisition," *Maryland Historical Society Magazine* 66 (1971): 436-55.

⁶ Miller and Hart, *The Selected Papers*.

⁷ Michael W. Fazio and Patrick A. Snadon, *The Domestic Architecture of Benjamin Henry Latrobe* (Baltimore: Johns Hopkins University Press, 2006).

⁸ Julia A. Sienkewicz, "Citizenship by Design: Art and Identity in the Early Republic" (Ph.D. diss, University of Illinois at Urbana-Champaign, 2009).

technical aspects of Latrobe's designs.⁹ This scholarly neglect may be due to the fact that most of these physical structures no longer exist. For large projects like the Centre Square Waterworks, demolished in 1827 and currently the site of Philadelphia's City Hall, we must rely upon extant architectural drawings, written descriptions, and visual depictions of the site in order to reconstruct its reception and context. The Waterworks, however, also left a significant footprint in the urban and regional landscape that still persists today, as Philadelphia's underground pipe network continues to follow the original path of Latrobe's system. Two texts produced in the last few years, however, demonstrate a growing interest in the social, political, and even environmental contexts of Latrobe's Waterworks design.

City Water, City Life: Water and the Infrastructure of Ideas in Urbanizing Philadelphia, Boston, and Chicago by historian Carl Smith, argued that the plan and construction of Philadelphia Waterworks, along with similar systems introduced later in Boston and Chicago, reveal how local citizens framed their conceptions of urban democracy, the natural and the built environment, individual health, the well-being of society, and qualities of time and history. Smith's comprehensive look at water supply systems between 1790 and 1860, however, neglected much of the visual material that dictated the Centre Square Waterworks design, reception, and demolition. While Smith recognized that the Waterworks—connecting individual bodies through a network of pipes—helped imagine the city as a living body, he did not investigate how these

⁹ Darwin H. Stapleton and Edward C. Carter, "I Have the Itch of Botany, of Chemistry, of Mathematics... Strong upon Me': The Science of Benjamin Henry Latrobe," *Proceedings of the American Philosophical Society* 128, no. 3 (1984): 173–92; Darwin H. Stapleton, "William Weston, Benjamin Henry Latrobe, and the Philadelphia Plan for Improvements," in *Science and Technology in the Eighteenth Century: Essays of the Lawrence Henry Gipson Institute for Eighteenth Century Studies*, ed. Stephen H. Cutcliffe ([Bethlehem, Pa.: The Lawrence Henry Gipson Institute for Eighteenth Century Studies], 1984), 17–49; Latrobe and Stapleton, *The Engineering Drawings of Benjamin Henry Latrobe*.

corporeal metaphors altered perceptions of natural resource control in the early nineteenth century.¹⁰

A recent thesis investigated what author Jennifer Chuong termed, a “transitional aesthetic,” or the positive tension between an autonomous and human-determined nature, which concerned Latrobe in his architectural plans, sketches, and writings.¹¹ Chuong posited that climate and geology shaped Latrobe’s designs for the Waterworks, as he saw the two as coexisting systems of order. Chuong characterized the Waterworks as an active intervention in the urban landscape that relied on natural systems—the Schuylkill and Delaware Rivers—already in place to enable transformation. According to Chuong, “by accepting the ultimate irreconcilability of human and natural orders, Latrobe imagined a new way in which the human, working in a careful and controlled fashion, could use nature to transform nature.”¹² While I agree with Chuong’s argument that the environmental conditions preoccupied Latrobe as he proposed his Waterworks design, Chuong is only concerned with the architect’s intent and does not investigate how ongoing environmental changes, urban development, and corporeal anxiety impacted the plans for and reception of the Waterworks by Latrobe and the general populace during its brief operation.

¹⁰ Carl S. Smith, *City Water, City Life: Water and the Infrastructure of Ideas in Urbanizing Philadelphia, Boston, and Chicago* (Chicago: University of Chicago Press, 2013). An in-progress dissertation by Catherine Bonier at the University of Pennsylvania, entitled *Benjamin H. Latrobe’s Philadelphia Waterworks: Republican Emblem and Democratic Instrument of Healthy Equilibrium*, will also consider Latrobe’s design within the context of eighteenth-century theories of health, nature, and balance. Bonier, however, does not investigate the interplay of art, architecture, and natural dynamism within the structure’s design.

¹¹ Jennifer Y. Chuong, “‘Art Is a Hardy Plant’: Benjamin Henry Latrobe and the Cultivation of a Transitional Aesthetics” (master’s thesis, Massachusetts Institute of Technology, 2012).

¹² *Ibid.*, 154–55.

Building upon these recent arguments by Smith, Chuong, and others, in this chapter, I will demonstrate that the design and construction of the Philadelphia Waterworks were intimately connected to developing conceptions of urban planning and infrastructure systems in the early national period. Similar to Charles Willson Peale's fireplace and stove models, Latrobe's Waterworks were expressly planned to combat problems of public health and scarcity then plaguing the city. Through his design, Latrobe, like Peale, also negotiated important debates about empire, the body, and equilibrium. While the Waterworks were inspired by his close study of biological and hydrological systems and intimately connected to the popular rhetoric of national expansion, Latrobe's plans also wrestled with issues of resource use, corruption, and the many difficulties in controlling an unpredictable river. The Centre Square Waterworks, therefore, deserve a closer look by art and environmental historians.

Disastrous outbreaks of yellow fever in the late eighteenth century mobilized Philadelphia citizens to improve the sanitary conditions of their city.¹³ As discussed in the previous chapter, Peale and others sought to improve urban air quality through the development of fuel-efficient fireplaces and "smoke-eaters." Another pressing contemporary environmental concern was the "wholesomeness" of the city's water. In 1798, a Select Council acknowledged that regardless of whether environmental conditions or a foreign contagion from the West Indies caused yellow fever, the establishment of a water system for the city would alleviate the spread of disease:

In this state of uncertainty, prudence dictates the propriety of guarding in the best possible manner against both sources & it seems generally agreed, be the Origin foreign or domestic, that the Introduction of good wholesome Water for drinking & Culinary purposes & for the occasional

¹³ See Finger, *The Contagious City*, 154–55.

flooding of the Streets of this City will be the best means of promoting the Health of its Inhabitants & of correcting the State of our Atmosphere so as to render it less recipient of Contagion.¹⁴

Philadelphians previously obtained their water from wells and cisterns, easily polluted by filth draining from the streets, nearby cesspools, and outhouses. The popular physician William Buchan explained the dangers of obtaining water from wells in 1774: “when either animal or vegetable substances are suffered to lie at the bottom of wells, they corrupt and taint the water. Even the air itself, when confined in wells, becomes poisonous, and must render the water less wholesome.”¹⁵ According to physician William Currie, the best pump-water in Philadelphia was still “impregnated with selenite, or a combination of mineral acid with calcareous earth.”¹⁶ Even when mixed with potash to precipitate the selenite, Philadelphia water proved “disagreeable to the palates of most people who reside at a distance from the city, and [was] sometimes offensive to their stomach and bowels.”¹⁷

This water proved both “unwholesome” for consumption and inadequate in fighting fires, a great fear of any growing city. When laying out Philadelphia’s grid plan in 1683, Thomas Holme and William Penn intended to keep the city free of the fires, plagues, and congestion endemic to the twisting, medieval alleyways of London—a city that suffered from both a disastrous Great Plague and a Great Fire in 1666. Penn hoped

¹⁴ *Aurora*, December 13, 1798. Cited in Nelson Manfred Blake, *Water for the Cities: A History of The Urban Water Supply Problem in the United States* (Syracuse, N.Y.: Syracuse University Press, 1956), 23.

¹⁵ William Buchan, *Domestic Medicine; Or, The Family Physician* (Philadelphia: Joseph Cruikshank for R. Aitken, 1774), 50.

¹⁶ William Currie, *An Historical Account of the Climates and Diseases of the United States of America, and of the Remedies and Methods of Treatment, Which Have Been Found Most Useful and Efficacious, Particularly in Those Diseases Which Depend Upon Climate and Situation* (Philadelphia: T. Dobson, 1792), 67.

¹⁷ *Ibid.*, 68.

large individual plots in Philadelphia would house orchards and gardens and provide adequate space between residences.¹⁸ By 1800, however, the expanding population along the Delaware River—the center of trade and manufacture for the city—resulted in the subdivision and overcrowding of Penn’s original lots, increasing both water pollution and the risk of fire. In the words of the Select Council, a “flooding” of water was needed to cleanse Philadelphia, both externally and internally, of its disease-causing filth and grime.

When Benjamin Latrobe first visited Philadelphia in the spring of 1798, he noted, “it is true, the inhabitants of Philadelphia drink very little water. It is too bad to be drunk.”¹⁹ In his native England, Latrobe assisted with the design and construction of canals and dams and he brought his engineering and architectural skills to Virginia in 1796, where he resided for two years. Immediately following his arrival in the United States, several companies, including the Upper Appomattox Navigation Company and the Dismal Swamp Land Company, retained Latrobe to consult on river surveys and navigation projects.²⁰ Latrobe also designed houses for wealthy Virginia residents and oversaw construction of the State Penitentiary in Richmond. The architect, however, expressed his frustration with the intellectual culture of Virginia: “I have the itch of botany, of Chemistry, of Mathematics, of general Literature strong upon me yet, and yawn at perpetual political or legal discussion, especially conducted in the cramp, local

¹⁸ Craig Zabel, “William Penn’s Philadelphia: The Land and the Plan,” in *Nature’s Entrepôt: Philadelphia’s Urban Sphere and Its Environmental Thresholds*, ed. Brian C. Black and Michael J. Chiarappa (Pittsburgh, Pa: University of Pittsburgh Press, 2012), 24; Milroy, ““For the like Uses, as the Moore-Fields.””

¹⁹ Benjamin Latrobe to Dr. Giambattista Scandella, [Richmond], April 30, 1798. Latrobe, *The Virginia Journals*, 2:381.

²⁰ Latrobe, *The Engineering Drawings*, 8. In 1796, the Old Dismal Swamp Land Company engaged Latrobe to “to make a survey of all their Land in the Swamps, to cut a compleat lane round it, and to lay off canals for the supply of Jericho and Smith Mills.” Benjamin Latrobe to Governor James Wood, Richmond, February 14, 1798. Latrobe, *The Journals*, 2:364.

manner in which it is treated in Virginia.”²¹ Latrobe perceived Philadelphia society as more “English” in its manners, style of living, and opinions of fashion, taste, and comforts than Virginians and he decided to relocate there after his 1798 visit to the city.²² The architect had ancestral ties to the area; his mother left him land near Bethlehem, Pennsylvania, where she was raised in the local Moravian community and her relations, the Antes family, still lived nearby. After meeting with Bank of Pennsylvania president, Samuel M. Fox, Latrobe also received the prestigious commission for a new bank building in Philadelphia that same year.

On the title page of “Designs of Buildings Erected or Proposed to be Built in Virginia” (Fig. 3.3), a portfolio containing architectural designs for his Virginia commissions, realized and unrealized, Latrobe included a fanciful, trompe l’oeil watercolor visualizing his aspirations for his move to Philadelphia. In this vignette, a winged allegorical figure, wearing a crown of marble structures, flies above a rocky landscape. Behind her, a series of buildings, which Latrobe called his “castles in the air,” float in a billowing cloud. An accompanying handwritten description by the architect explained that the two edifices depicted on terra firma are the only commissioned designs that he executed in Virginia: Captain William Pennock’s house at Norfolk, in the harbor in the left background, and Colonel John Harvies’s home in Richmond, on the hill in the middle ground. Latrobe explained, the “figure of the Architect’s imagination...is leaving the Rocks of Richmond & taking her flight to Philadelphia,” holding a model of the Bank

²¹ Benjamin Latrobe to Dr. Giambattista Scandella, Richmond, January 24, 1798. Latrobe, *The Virginia Journals*, 2:341.

²² *Ibid.*, 2:374.

of Pennsylvania in her hand.²³ For the architect, Philadelphia offered an opportunity to realize his “castles in the air,” where Richmond—suggested by the resolutely earthbound, mottled rocks and thick vegetation in the foreground of the vignette—did not. Although none of the structures resembles the Centre Square Engine House, the hovering buildings foreshadow the neoclassical designs that Latrobe would eventually design and construct for Philadelphia. The drawn tears in the paper appear like lightning bolts, illuminating the products of his architectural imagination, while the trompe l’oeil edges of the image, depicted as if peeling up and away from the title page, suggest that Latrobe has already become detached from his first American home.

Immediately following his arrival in Philadelphia, a Joint Committee on Supplying the City with Water—christened the “Watering Committee” in 1802—retained Latrobe to make his recommendations on the best means to water the city. Two weeks later, on December 29, 1798, despite severe winter weather which made explorations of the countryside difficult, Latrobe submitted a very complete *View of the Practicality and Means of Supplying the City of Philadelphia with Wholesome Water* to John Miller, the chair of the committee.²⁴ This document, published and distributed in early 1799, outlined plans for a city waterworks, which Latrobe optimistically projected to have in full operation by July of 1799, two years earlier than its actual opening. To bring water from the Schuylkill River—which he argued was cleaner and less susceptible to the dramatic tidal changes that affected the Delaware River—Latrobe proposed the

²³ Benjamin Latrobe, “Buildings Erected or Proposed to Be Built in Virginia” (Richmond and Philadelphia, 1798-99), Benjamin Henry Latrobe Archive, The Library of Congress.

²⁴ Benjamin Henry Latrobe, *View of the Practicability and Means of Supplying the City of Philadelphia with Wholesome Water. In a Letter to John Miller, Esquire, from B. Henry Latrobe, Engineer. December 29th. 1798: Printed By Order of the Corporation of Philadelphia* (Philadelphia: Zachariah Poulson, Jr., 1799). See also Blake, *Water for the Cities*, 25.

construction and installation of two steam engines. Latrobe's selection of steam power was an innovative choice; at the time of his proposal, only three steam engines were currently in operation in the United States. Latrobe's engines would pump water through a large, underground tunnel, six feet in diameter, from the Schuylkill to a reservoir at the top of a cylindrical engine house at Centre Square. From this elevated reservoir, water would be distributed to smaller, wooden pipes supplying free public hydrants, fountains, and commercial and residential subscribers in the eastern part of the city.²⁵

Latrobe primarily focused on engineering and public health issues in his Waterworks proposal. Several months prior to receiving the Joint Committee's commission, the architect speculated that the current state of Philadelphia's water supply was the primary cause of the city's yellow fever epidemics. He explained in his journal that household privies and drains easily polluted the city's water, located in a sand stratum, or aquiferous layer, beneath several feet of clay bed. The sand typically acted as a filter, producing water "universally as chrystal and tastes as sweet and as free from heterogeneous particles as possible."²⁶ Latrobe speculated that this good water, "must have appeared the most tempting inducement, to found here a City to its projector Penn."²⁷ This same geological make-up however, that precipitated city's foundation at this particular site, also contributed to its eventual water pollution. Citizens dug bog holes deep into the sand layer for their waste and, because these holes never filled up, residents

²⁵ Latrobe considered the water of both the Schuylkill and Delaware Rivers to be wholesome, but Delaware water was more impure due to contamination from marshes, a strong running flood tide, and filth from ships and public sewer run-off. The narrow and rocky Schuylkill also carried its water through limestone, which Benjamin Rush believed had "a medicinal effect in bilious cases." In 1819, the system's wooden pipes (spruce and yellow pine) were replaced with cast iron pipes. Latrobe, *View of the Practicability and Means of Supplying the City of Philadelphia with Wholesome Water*, 114.

²⁶ Latrobe, *The Virginia Journals*, 2:379.

²⁷ Ibid.

rarely emptied them. This problem became exponentially worse as the city's population grew. Latrobe wrote, "those who now live in the heart of the town, as in 5th, 6th or 7th Streets, but can remember when their houses, were in the Skirts of the City, complain that their Water is *grown worse* since the accumulation of houses beyond them," demonstrating the architect's awareness of the effect of environmental change on the city's population.²⁸ Latrobe even described a perplexing occurrence where "the lower class of people" who drank directly from the spout of the public pumps in the summertime occasionally fell down dead from inhaling noxious sewer gas. Latrobe reported that, according to a reliable source, no less than thirteen men died from these circumstances in one day!²⁹

In addition to outlining the technical aspects of the Waterworks in his *View of the Practicality and Means of Supplying the City of Philadelphia with Wholesome Water*, Latrobe also argued for the establishments of public baths in Philadelphia to improve citizen health. The architect admitted, "our abstinence [of public baths] is commendable, as it arises from industry, and our attention to more serious pursuits, but highly blameable as it injures our health," particularly in Philadelphia's hot climate.³⁰ A growing interest in bathing as a means of exciting circulation and promoting perspiration prompted a connection between clean water and public health in the 1790s. Historian Kathleen Brown has argued that North Americans viewed bathing as a contentious practice during

²⁸ Italics are original. Benjamin Latrobe, journal entry, April 27, 1798. Ibid., 2:380.

²⁹ According to Latrobe, the introduction of iron ladles chained to the pumps solved this issue. It is highly unlikely that people died from inhaling sewer gas, although they may have fainted from inhaling air with too high a concentration of methane or carbon dioxide. Ibid., 2:380.

³⁰ Latrobe, *View of the Practicability and Means of Supplying the City of Philadelphia with Wholesome Water*, 19.

the later decades of the eighteenth century. Associated with nudity, vulnerability, and—particularly after the Revolutionary War—European corruption and excess, washing the body initially appeared incompatible with the virtuous citizenship of the new nation. More and more physicians, however, promoted bathing in cold or hot water as a means to stimulate the nervous system and improve blood flow.³¹ Charles Willson Peale, for example, believed bathing was essential in preventing disease. As he explained in his *Epistle to a Friend*, “When I was exposed to the infection of yellow fever, it was my practice to take a pail of cold water to my bed-room and wash from head to foot either in the morning or evening.”³² Baths, of course, required large amounts of easily accessible water and were therefore limited to wealthier citizens in Philadelphia, who could afford to purchase and maintain baths and showers.

In his recommendation of public baths, Latrobe also appealed to the city’s anxiety over its loss of the national capital to Washington:

Such baths would be a source of a large revenue and perhaps it might not be bad policy in the citizens of this primary metropolis of North America, to counterbalance the fashionable inducements which point to the Potowmac, by conveniences and advantages which cannot for many years be thought of in a city, which is at present almost destitute of dwellings.³³

Latrobe argued that the watering of Philadelphia would not only improve the health of its residents but also reassert its reputation as the “primary metropolis of North America,” enabling the city to achieve new prominence over the underdeveloped Washington.

³¹ Kathleen M. Brown, *Foul Bodies: Cleanliness in Early America* (New Haven, Conn.: Yale University Press, 2009), 195–211.

³² Charles Willson Peale, *An Epistle to a Friend*, 1803. In Miller and Hart, *The Selected Papers*, 2:506.

³³ Latrobe, *View of the Practicability and Means of Supplying the City of Philadelphia with Wholesome Water*, 19.

Unfortunately, most likely due to the escalating costs of the Waterworks, these baths were never built.

Latrobe barely mentioned the architectural design of the Centre Square Engine in his initial Waterworks proposal. He only hinted briefly, that “it may, at the same expence [sic] that would render it useful, be made an ornamental building.”³⁴ Latrobe and the Joint Committee later agreed that the Engine House should be beautiful, admitting that they “would [not] have been easily pardoned by the present age, or by posterity, had they determined to place a homely mass of a building, in the best situated square belonging to the citizens of Philadelphia.”³⁵ Latrobe’s subsequent design for the Engine House combined the architect’s interest and knowledge in harnessing and manipulating natural resources with an opportunity to erect a building that could additionally showcase his neoclassical ideal.

In his earliest extant drawing of the Engine House, from March of 1799 (Fig. 3.4), Latrobe envisioned a circular drum on a square foundation, appropriating temple and funerary forms from antiquity to house the elevated reservoir and steam engine. He may also have been inspired by designs for a Hunting Casine and a National Mausoleum by British architect John Soane, published in his 1793 *Sketches in Architecture*. These buildings also combined domed, central structures on a square or rectangular base.³⁶ Latrobe deviated from pure centrality by positioning the building’s two major entrances on the west and east sides, underscoring the west-to-east progression of water from the

³⁴ Ibid., 6.

³⁵ Philadelphia Councils, *Report to the Select and Common Councils, on the Progress and State of the Water Works* (Philadelphia: Zachariah Poulson, Jr., 1799), 29.

³⁶ Cohen and Brownell, *The Architectural Drawings*, 229.

Schuylkill to Delaware Rivers. In the early sketch, Latrobe enlivened the drum façade with a palistrade of pilasters, which he later replaced with recessed square panels and windows in the final design (Fig. 3.5). The east and west porticos were ornamented with four—later reduced to two—marble, Doric columns. While the March 1799 elevation includes the faint, pencil outline of smoking tripod over the Engine House’s dome, Latrobe eventually capped the roof with a raised, rimmed oculus. The oculus, most likely intended to reference the Pantheon, emanated smoke during the building’s operation, recalling the vestiges of a burnt altar offering—also alluded to by Peale in his fireplace designs—and further underscoring the Engine House’s frequent comparison to a classical temple.³⁷

Through the strategic incorporation of these neoclassical elements, the Waterworks projected Latrobe’s ideal vision of Philadelphia as an “Athens in the wilderness,” serving as visual evidence for the architect’s later argument in his 1811 Anniversary Oration at the Society of Artists that the arts can be both pleasing and useful. To provide a classical precedent for this combination, Latrobe described an ancient water system:

When we consider the fifteen or sixteen aqueducts, which once supplied Rome, and of which some still supply the city with water, and others constructed and remaining over the whole empire, all of which were erected and decorated by the best skill of the age, the strict connexion of the interests and enjoyments of the people, of the cultivation of the arts of design is still more illustrated.³⁸

³⁷ Ibid., 237–39. The comparison of the Centre Square Pumphouse to a temple was not always a positive association. Civis wrote, for example, “when we contemplate the present use and application of the Centre Square, we revert involuntarily to the licentious stories of the Temples and Sacred Groves of the Ancient Pagans; impure descriptions and allusions.” Civis, “To the Select and Common Councils of the City of Philadelphia.”

³⁸ Benjamin Henry Latrobe, *Anniversary Oration, Pronounced Before the Society of Artists of the United States by Appointment of the Society, on the Eighth of May, 1811* (Philadelphia: Bradford & Inskeep, 1811), 16.

As the city faced environmental, economic, and political changes—numerous fatalities from yellow fever, competition with rapidly-growing New York and Baltimore for local resources and markets, the loss of the state government seat to Lancaster and the federal government to Washington—Latrobe’s Greek Doric Engine House provided the city with clean water as well as a symbol of stability in the face of distressing vagaries, restoring Philadelphia’s eroded confidence.

Blood Vessels and Subterraneous Tunnels

In an article discussing the transformation of Philadelphia’s public squares in the early nineteenth century, art historian Elizabeth Milroy described the Waterworks’ dissemination of Schuylkill water throughout Philadelphia as “a transfusion, renewing the physical and psychological health of a city traumatized by disease.”³⁹ Milroy does not investigate the contextual relevance of such medical terminology, but her corporeal metaphor of a “transfusion” is inadvertently appropriate for understanding contemporary perceptions of water and the city in the early national period. I posit that Latrobe’s curiosity regarding biological processes and interrelated natural systems, which frequently occupied him during his first decade in the United States, framed his aesthetic interventions within the Philadelphia environment. As designed by Latrobe, the Waterworks aligned with a growing civic interest in improving urban health by establishing an internal circulatory system for the city.

Latrobe’s interest in natural history is readily apparent in the many watercolors he added to his sketchbooks between 1795 and 1820. As Edward Carter explained in the

³⁹ Milroy, “Repairing the Myth,” 59.

introduction to *Latrobe's View of America*, “his natural history drawings and discussions reflect an architect’s sense of spatial relations and an engineer’s concern with function.”⁴⁰ These drawings also exhibit Latrobe’s curiosity that extended beyond the discipline of architecture to the natural and built environments his structures inhabited. Multiple drawings of a dolphin fish, for example, encountered during Latrobe’s journey across the Atlantic Ocean to Virginia, highlight the species’ aerodynamic shape and its “peacock”-like skin (Fig. 3.6). In a watercolor of a dirt- or mud- dauber, a type of wasp he described as “architectonic,” Latrobe paid close attention to the parallel, tube-like cells constructed to incubate the wasps’ eggs (Fig. 3.7).⁴¹ Latrobe observed these wasps constructing their “pipes” or “fortresses” behind several framed prints in the drawing room of Colonel Thomas Blackthorn’s Rippon Lodge in Prince William County, Virginia. He relished this unusual combination of art and utility, admiring the way the wasps ingeniously used the frames as part of the internal finishing for their cells.⁴² Latrobe described these insects as “rational creatures,” concluding that if their construction process “was not the result of consideration, I give up all claim to reason.”⁴³ In both his drawings and writings, Latrobe emphasized the importance of inscribing nature as a way to understand its animate qualities. He explained, “the habit of copying the beauties of nature, strengthens the talent

⁴⁰ Carter, Van Horne, and Brownell, *Latrobe's View of America, 1795-1820*, 13.

⁴¹ Several scholars have recently explored nonhuman aesthetics and architecture. See Michael H. Hansell, *Animal Architecture* (New York: Oxford University Press, 2005); Michael H. Hansell, *Built by Animals: The Natural History of Animal Architecture* (New York: Oxford University Press, 2007); David Rothenberg, *Survival of the Beautiful: Art, Science, and Evolution* (New York: Bloomsbury Press, 2012).

⁴² Ibid., 87. Latrobe published an official account on these “mud daubers” in Benjamin Henry Latrobe, “On Two Species of Spheg, Inhabiting Virginia and Pennsylvania, and Probably Extending through the United States,” *Transactions of the American Philosophical Society* 6 (1809): 73–78.

⁴³ Benjamin Henry Latrobe, “An Essay on Landscape, Explained in Tinted Drawings” (Richmond, Va, 1798), 502-03, The Library of Virginia, Richmond.

and the pleasure of observing them, and, of course, renders this world, which is so full of them, a more delightful habitation while we stay in it.”⁴⁴ Drawing, therefore, provided a means to comprehend the natural world and its agency, increase the appreciation of its beauty, and draw connections between related processes.

Scholars have attributed Latrobe’s interest in natural history to his Moravian upbringing and education in England and Germany. Latrobe’s parents were directors of the Moravian school in Fulneck, England, and they sent him to paedagogium and seminary in Germany at the age of twelve, where he learned natural philosophy, physics, botany, and drawing. When Latrobe returned to England in the 1780s, he studied with John Smeaton, a respected British engineer and active member of the Royal Society trained in astronomy, scientific instrumentation, and mathematics who published several articles in the society’s *Transactions*. Latrobe’s preoccupation with natural history intensified after he left England for America in 1795. His journals and sketchbooks from his voyage across the Atlantic are filled with observations and drawings describing barnacles, dolphins, and the Gulf Stream, among other topics. After landing in Virginia, Latrobe became acquainted with several distinguished naturalists investigating North America’s unique flora, fauna, and geology, including the physician and agricultural enthusiast Giambattista Scandella as well as the geologist William Maclure, who published the first geological map of the United States in 1809. Latrobe traveled with Maclure from Richmond to Philadelphia in 1798, conducting geological surveys of the region along the way. Latrobe’s first publication in the American Philosophical Society’s *Transactions*, investigating the sand deposition by wind at Cape Henry, Virginia, was

⁴⁴ Ibid., 1:60. The same quotation is repeated on the title page of Latrobe’s Sketchbook IV, begun July 24, 1798, Maryland Historical Society.

based on observations from those travels. In this article, Latrobe argued that wind—as opposed to water—was responsible for the current state of Virginia’s coastal geology, and this submission precipitated his election to the American Philosophical Society in 1799. As a member, Latrobe indulged his interests in natural history, geology, hydrology, and acoustics and met other respected physicians and naturalists in Philadelphia, including Benjamin Rush, Charles Willson Peale, Thomas Jefferson, and Robert Hare.⁴⁵

Latrobe’s investigation of the movement of matter in natural and man-made systems closely aligned with a growing emphasis on the circulatory system as the most important factor of health within the human body. As Laura Rigal demonstrated in an essay on Benjamin Franklin’s studies of electricity, the dynamics of and relations between fluid systems—including hemodynamics (blood flow), heat, respiration, and “nervous fluid”—preoccupied philosophers in Europe and America in the second half of the eighteenth century.⁴⁶ Even though Latrobe never illustrated human anatomy, he wrote in his journals that he “found pleasure in the study of anatomy and attended very many dissections in England, and on the European continent,” and therefore, “a few leading principles remain in my memory.”⁴⁷ Latrobe closely followed the teachings of his contemporary and colleague, the Philadelphia physician Benjamin Rush, who believed that healthy blood flow through arteries and veins was “of the greatest consequence” to

⁴⁵ Stapleton and Carter, “I Have the Itch of Botany, of Chemistry, of Mathematics... Strong upon Me”; Edward C. Carter, “Benjamin Henry Latrobe (1764-1820): Architect, Engineer, Traveler, and Naturalist,” in *Latrobe’s View of America*, 3–16.

⁴⁶ Laura Rigal, “Benjamin Franklin, the Science of Flow, and the Legacy of the Enlightenment,” in *A Companion to Benjamin Franklin*, ed. David Waldstreicher, Blackwell Companions to American History (Malden, Mass.: Wiley-Blackwell, 2011).

⁴⁷ Benjamin Latrobe, Journal Entry, October 2, 1798, Richmond. Latrobe, *The Virginia Journals*, 2:438.

the health of American citizens.⁴⁸ Rush believed that internal circulation and external stimulation were intimately connected; both must be balanced for ideal health. As noted in the previous chapter, many scholars have demonstrated the political permeability of Rush's medical theories; his focus on the importance of blood vessels provided a more republican model of circulation, for example, than the model of British physician William Harvey, who envisioned the circulatory system as dependent on the heart, much like a monarchy.⁴⁹ Sari Altschuler recently argued that Rush, who served as treasurer of the United States Mint, applied his theory of circulation to his philosophy on national and transnational trade. Rush worried that commercial and ideological transnational exchange could corrupt the young, American nation without proper regulation.⁵⁰

Efficient bodily circulation also provided a useful model for conceptualizing a healthy city. In the eighteenth century, German anthropologist, physician, and philosopher Ernst Platner connected bodily and environmental circulation by arguing that air, like blood, must be permitted to flow freely in order to improve public health. According to Richard Sennett, this growing importance of circulation greatly affected urban planning: "Planners sought to make the city a place in which people could move and breathe freely, a city of flowing arteries and veins through which people streamed

⁴⁸ In his journals, Latrobe cites Benjamin Rush's success in the treatment of yellow fever with bloodletting as evidence that the fever is a "disease of the blood." Ibid., 2:437.

⁴⁹ In 1628, William Harvey's *De motu cordis* introduced a new understanding of the body as a system of circulation. His discovery that the heart pumps blood through the arteries of the body, and received blood to be pumped from the veins, challenged the previous belief that blood flowed through the body due to heat. This revelation introduced a new mechanistic perception of human body, disputing the ancient notion that the soul or anima is the source of life's energy. Richard Sennett, *Flesh and Stone: The Body and The City in Western Civilization*, 1st ed (New York: W.W. Norton, 1994), 259. See also Miller, "The Body Politic and the Body Somatic," 61–74; Terrell, "'Republican Machines,'" 100–32.

⁵⁰ Altschuler, "From Blood Vessels to Global Networks of Exchange."

like healthy blood corpuscles.”⁵¹ Early National Philadelphians were very much concerned with circulation in their city. The physician James Mease, for example, critiqued the practice of subdividing lots near the Delaware, which blocked “a refreshing body of air from the river,” resulting in an “accumulation of filth...to the great injury of the inhabitants.”⁵²

As demonstrated by the design and implementation of the Waterworks, Philadelphians believed the circulation of water in their city was as important to their health as the circulation of “a refreshing body of air.” In the seventeenth and eighteenth centuries, nerves were understood to function as a hydraulic system, conveying “nervous fluid” through their hollow interiors from the brain to the muscles and extremities. In 1649, Harvey had explicitly conceived of the circulatory system as analogous to hydraulic system of pipes with the heart acting as pump:

When water is forced up to a height through lead pipes, by the force and stroke of a siphon...it is noted in the case of water that there is a continual outflow, although it sometimes shoots further, sometimes nearer and it is so in arteries.⁵³

This hydraulic conception of the nervous system persisted until the early nineteenth century, when anatomists began to explore electricity as a means of communication within the body.⁵⁴ Benjamin Rush directly compared blood vessels and nerves to city systems in his medical lectures, describing the paths of external stimuli to the brain as

⁵¹ Sennett, *Flesh and Stone*, 256.

⁵² James Mease, *The Picture of Philadelphia: Giving an Account of Its Origin, Increase and Improvements in Arts, Sciences, Manufactures, Commerce and Revenue; with a Compendious View of Its Societies, Literary, Benevolent, Patriotic, & Religious* (Philadelphia: B. & T. Kite, 1811), 24.

⁵³ William Harvey to Jean Riolan, 1649. Quoted in David F. Channell, *The Vital Machine: A Study of Technology and Organic Life* (New York: Oxford University Press, 1991), 33.

⁵⁴ Laura Otis, *Networking: Communicating with Bodies and Machines in the Nineteenth Century* (Ann Arbor, Mich.: The University of Michigan Press, 2002), 1–48.

conduits into a city: “the Brain may be aptly compared to a large city accessible by many different ways—By canals under ground—by passing through the air, or by sailing into the Harbor.”⁵⁵ Philadelphia, like the brain, was constantly inundated with external stimuli—disease, people, goods, air, and water—that circulated throughout its streets. Only with vigilance could these invasions be regulated, if not entirely controlled.

Perhaps no natural history drawings attributed to Latrobe are more architectural than a series of highly detailed watercolors of rattlesnake anatomy at the American Philosophical Society (Figs. 3.8-10). Edward Carter attributed these drawings, located in the papers of Philadelphia naturalist Benjamin Smith Barton, to Latrobe because their technical skill exceeded the Barton’s capabilities as a draughtsman and the handwriting and pictorial ties matched those of the architect and engineer. Latrobe recorded his interest in snakes in his sketchbooks, where he investigated the anatomy of a “horse runner” (possibly a Northern Black Racer) in Virginia, carefully delineating the construction of the snake’s jaw, mouth, and tongue (Fig. 3.11). Latrobe and Barton both served as active members of the American Philosophical Society, which frequently referred papers proposed by Barton to Latrobe for evaluation as to their suitability for publication in the Society’s *Transactions*.⁵⁶ Latrobe may have composed the watercolors

⁵⁵ Benjamin Rush, *Notes on Physiology Taken from Lectures Delivered in the University of Pennsylvania by Benjamin Rush, Notes Enlarged by Micajah Clark*, 1809, 153, Historical Medical Library, The College of Physicians. Altschuler, “From Blood Vessels to Global Networks of Exchange,” 222.

⁵⁶ Latrobe reviewed the following memoirs, memorandums, and descriptions by Barton: “Sketch of a Geographical View of the Trees & Shrubs of N. America” (February 7, 1800); “New Species of *Vallisneria* growing near Philada., called by him *V. Americana*” (February 6, 1801); “On Wildenow’s *Bartonia*” (May 7, 1802); “New vegetable *Muscipula*” (February 18, 1803); “New Species of American Lizard” (April 15, 1803). See Minutes of the American Philosophical Society, reproduced in, American Philosophical Society, “[1800],” *Proceedings of the American Philosophical Society* 22, no. 119 (July 1, 1885): 294; American Philosophical Society, “[1801],” *Proceedings of the American Philosophical Society* 22, no. 119 (July 1, 1885): 309; American Philosophical Society, “[1802],” *Proceedings of the American Philosophical Society* 22, no. 119 (July 1, 1885): 323; American Philosophical Society, “[1803],” *Proceedings of the American Philosophical Society* 22, no. 119 (July 1, 1885): 333, 336.

for an illustrated treatise on the “Anatomy and Physiology of the Rattle-Snake and other North-American Serpents,” which Barton prepared in 1803, but never published.⁵⁷

Barton’s earlier memoir on rattlesnakes, published in 1796, used direct observation to disprove the popular belief that the reptile could hypnotize or “fascinate” its prey. His interest in rattlesnakes was therefore driven by a desire to debunk persistent superstitions about the natural world with correct, firsthand observation.⁵⁸ Like Barton’s text, Latrobe’s anatomical drawings offer detailed, empirical investigations of structure meant to reveal underlying truths.

Alexander Nemerov recently argued that a forty-inch-long watercolor of a rattlesnake skeleton in the Barton collection (Fig. 3.8) shares the spatial concerns of Latrobe’s architectural drawings and served as a declaration of beauty at a moment when the American public was skeptical of the fine arts and their association with luxury. Nemerov attributed the skeleton’s “ideal quality” to an aspiration to “bring into being, as though beheld for the first time, the model for some future vision made palpable in the present—to unveil, as Latrobe unveiled building plans to patrons, the look of something yet to exist.”⁵⁹ I propose that rather than simply shaping and assigning meaning to natural

⁵⁷ Multiple copies of the title page, “Preparing for the Press, The Anatomy and Physiology of the Rattle-Snake, and Other North- American Serpents. Illustrated by Coloured Engravings,” exist in the Violetta Delafield-Benjamin Smith Barton Collection, Mss.B.B284d, at the American Philosophical Society. Latrobe began to withdraw from his involvement with the American Philosophical Society in 1803, due to his recent appointment as Surveyor of Public Buildings in the new national capital. He and his family moved to Delaware from 1803-05 and then to Washington in 1807. In 1808, Latrobe stopped attending American Philosophical Society meetings altogether and ceased contact with the Society. A visible watermark—“J. Whatman, 1804”—on the rattlesnake skeleton dates these watercolors to 1804 at the earliest. Stapleton and Carter, “I Have the Itch of Botany, of Chemistry, of Mathematics... Strong upon Me,” 179; Alexander Nemerov, “The Rattlesnake: Benjamin Henry Latrobe and the Place of Art in America,” in *Knowing Nature*, 226.

⁵⁸ Benjamin Smith Barton, *A Memoir Concerning the Fascinating Faculty Which Has Been Ascribed to the Rattle-Snake and Other American Serpents* (Philadelphia: Henry Sweitzer, 1796).

⁵⁹ Nemerov, “The Rattlesnake,” 236.

phenomena, Latrobe's rattlesnake and other natural history drawings demonstrate a heightened interest in internal structure, function, and circulatory processes that Latrobe manifested in his architectural and engineering drawings. Indeed, Latrobe's knowledge of these processes may have even shaped his designs of buildings and water management devices. While visual comparisons of Latrobe's rattlesnake and his waterworks designs are certainly compelling, I do not intend to draw a direct relationship between the two bodies of work, as I do not believe that Latrobe considered them interchangeable or analogous. Instead, I argue that Latrobe's architectural and natural history drawings should be understood as modes of inscription, mobilized to generate new systemic knowledge about the natural and built environment and their interrelationships. This interest in the interchange between the human and nonhuman initially appears similar to Peale's understanding of the "oeconomy" of nature and similarities between bodies and machines, but Latrobe's drawings and writings demonstrate an acute awareness of, and fascination with, the dynamic and transformative qualities of these systems.

Visual and conceptual similarities are evident, for example, in a drawing of the "rattlesnake muscles of the Scuta" (Figs. 3.9), and a 1799 cross-section of the Centre Square Engine House (Figs. 3.12-13). In the drawing of the scuta, the rattlesnake skin has been pinned to form a peaked roof, pulling up the esophagus—labeled A—beneath it to create a type of inner dome similar to the structure supporting the Engine House's reservoir. Latrobe here delineates both the rattlesnake's anatomy and the tools—the pins and string—that make its exposure possible, making his dissection and inscription process visible to the watercolor's viewers and facilitating the snake's legibility and

transparency. In these drawings, therefore, both the natural and the artificial collaborate in creating knowledge for the artist and his audience.

Viewing Latrobe's architectural elevations in the context of his contemporary natural history drawings amplifies the uncanny, anatomical qualities of his hypothetical buildings; his designs were additionally inflected by nonhuman qualities observed in his study of hydrology, fish, wasps, and snakes. Latrobe predominantly used flesh tones in his architectural drawings, utilizing the same palette as his rattlesnake and other natural history watercolors. These colors differentiated between different materials; red delineated brickwork, purple represented marble, timber was tinted yellow, and blue stood for water. These seemingly rational choices of color, however, inadvertently created sensual, flesh-like representations of building interiors. While Latrobe's exterior drawing of the Centre Square Engine House, in the same portfolio as the cross-section (Fig. 3.14), presented the building in the off-white colored marble that characterized its façade, the interior sketch of that structure evokes an exposed—even flayed—corporeal being.

These types of visual exposés would have been familiar to early national audiences, as Wendy Bellion and Dell Upton have explained. Illustrations in the *Encyclopédie* by Denis Diderot and Jean Le Rond d'Alembert and engravings by Giovanni Battista Piranesi, produced in the eighteenth century, opened up man-made machines, natural subjects, and Roman antiquities to the viewer, producing a “visual model of planar dissection.”⁶⁰ According to Bruno Latour, images like Latrobe's architectural and natural history drawings and the *Encyclopédie* engravings served as

⁶⁰ Bellion, *Citizen Spectator*, 259.

“immutable mobiles,” establishing a two-way relationship between the thing—whether a rattlesnake or a waterworks—and its reproducible and transportable representation.⁶¹ Immutable mobiles appear to convey information without distortion because they all possess the same optical consistency. Eighteenth- and early nineteenth-century philosophers—including David Hume and Immanuel Kant—were fascinated with the imagination and its ability to synthesize data into a grander order and perceive hidden connections, linking material and immaterial worlds.⁶² Upton explored linkages of different bodies and networks in his investigation of urban perception in the early republic, which conceived of the city “as a system of systems drawn from disparate registers of human life and landscape,” integrated into an “embodied republican society.”⁶³ Upton termed this way of seeing “spatial imagination.”⁶⁴ In summary, immutable mobiles like Latrobe’s drawings encouraged both planar dissection and spatial imagination, challenging a hierarchy of subjects and persuading early national audiences to compare and contrast the interiors of very different entities.

Latrobe’s rattlesnake and waterworks drawings both emphasize the progression of matter, whether blood, nutrients, or water, through a structure, further blurring the boundaries between biological and architectural networks. In Latrobe’s drawing of a rattlesnake stomach (Fig. 3.10) for example, the snake’s skin has again been pulled back and held up with small pins, in order to open up the snake’s stomach, its esophagus, and

⁶¹ Bruno Latour, “Drawing Things Together,” in *Representation in Scientific Practice*, ed. Michael Lynch and Steve Woolgar (Cambridge, Mass.: MIT Press, 1990), 19–68.

⁶² Upton, *Another City*, 123.

⁶³ *Ibid.*, 144.

⁶⁴ *Ibid.*, 123.

arteries to the viewer, as if tacking up a curtain. The left segment of the snake, showing the *constrictores abdominis*, is carefully labeled in layered text on the right side, demarcating the center line of the scuta, carotid artery, trachea, carotid artery, and esophagus that proceed laterally, like a network of pipe-like passageways, conveying matter from one end of the snake to the other. Remarking upon this process in his written descriptions of the drawings, Latrobe explained the view as showing the “constrictores abdominis as proceeding from the inside of the ribs, & attached to the center line of the scuta. Along this line a blood vessel runs...divides and runs opposite ways towards the head & tail.”⁶⁵ Similarly, in a section of the Waterworks from the Schuylkill River to the Lower Engine House (Fig. 3.15), Latrobe sliced vertically through the landscape to reveal his underground water system. This geological cross-section depicting layers of clay, sand, gravel, and granite rock traversed by a “subterraneous tunnel” (Fig. 3.16), is labeled and colored in a method comparable to the rattlesnake stomach, emphasizing the transportation of Schuylkill water from the river to the “extremities”—Latrobe’s term—of the pipe network. Latrobe’s rattlesnake drawings and his waterworks designs therefore expose previously hidden elements and functions, such as blood vessels, muscles, pipes, supports, and flywheels, permitting the architect to track, apprehend, and construct their interior processes.

Once completed, the Centre Square Engine House, centrally located within the city’s hydraulic network of underground tunnels and pipes, served as a regulator for the Waterworks circulatory system. Water from its reservoirs flowed into an iron,

⁶⁵ Benjamin Latrobe, attributed, “View, shewing the Constrictores Abdominis [Rattlesnake stomach],” (detail) n.d. watercolor, Violetta Delafield-Benjamin Smith Barton Collection, American Philosophical Society, Philadelphia.

distributing chest—another use of a bodily metaphor evoking the circulatory system—where brass cocks directed its distribution to the city pipes. Envisioned by Penn and Holme as the heart of the city where Penn planned to build “houses for public affairs, as a meeting house, assembly or state House, market house, school-house, and several other buildings for public concerns,” Centre Square had instead languished for most of the eighteenth century; a meetinghouse located there was eventually abandoned because of its distance from the populated eastern portion of the city.⁶⁶ Latrobe’s Engine House reclaimed this public space and, through its neoclassical architecture and circular form, symbolized and reinforced the square’s centrality and circulatory function.

Trees and a fountain were also introduced to Centre Square to improve the circulation of air and water within the space. Tall Lombardy poplars, first brought to the United States from Europe in the 1780s, lined the pathways of the square.⁶⁷ According to James Mease, these Poplars served “not only greatly to ornament the city, but to promote public health by the circulation of air they produce, and the shade they afford during summer.”⁶⁸ Latrobe shared this belief that trees enhanced circulation; he wrote, “leaves are to plants, what lungs are to animals—organs of respiration.”⁶⁹ In his 1799 proposal,

⁶⁶ William Penn, *A Short Advertisement upon the Situation and Extent of the City of Philadelphia and the Ensuing Plat-form thereof, by the Surveyor-General*, 1683. Quoted in Jean R. Soderlund, Richard S. Dunn, and Mary Marples Dunn, eds., *William Penn and the Founding of Pennsylvania, 1680-1684: A Documentary History* (Philadelphia: University of Pennsylvania Press : Historical Society of Pennsylvania, 1983), 322.

⁶⁷ According to John Fanning Watson, these trees were introduced by William Hamilton, the proprietor of the Woodlands estate outside of the city. Many American cities planted Lombardy poplars after 1799, the year of George Washington’s death, because they were believed to be the first president’s favorite tree and their fast growth and easy transplanting only increased their popularity. Watson, *Annals of Philadelphia*, 202. Henry W. Lawrence, *City Trees: A Historical Geography from the Renaissance Through the Nineteenth Century* (Charlottesville: University of Virginia Press, 2006), 164.

⁶⁸ Mease, *The Picture of Philadelphia*, 26.

⁶⁹ Latrobe, “An Essay on Landscape,” 2:23.

Latrobe also recommended the installation of fountains throughout the city, deemed essential to better urban air quality. According to the architect, “the air produced by the agitation of water is of the purest kind, and the sudden evaporation of water, scattered through the air, absorbs astonishing quantities of heat.”⁷⁰ Together, the poplars and fountain—prominently featured in an 1812 painting of Centre Square by John Lewis Krimmel, to be discussed in greater detail in a later section of this chapter—augmented the air and water circulation of Centre Square, already facilitated by the Engine House.

Latrobe’s drawings and writings establish that his sophisticated understanding of natural history and anatomy preoccupied him during the planning and construction of the Philadelphia Waterworks. Contemporary theories privileging the process of circulation—both inside and outside the body—supported a regulated flow of matter as a model for early national urban planning. This ideal, however, did not always hold up in execution, as Mease’s complaints regarding the congestion along the Delaware River demonstrate. Issues with the design and execution of the Engine House and the evolving landscape of the city eventually caused the Waterworks to fail as a regulatory body. Latrobe’s debates with the Delaware Schuylkill Canal Company, published during the early stages of the project, demonstrate that this failure, couched in the rhetoric of bodily harm, haunted the Waterworks even before its completion.

A View to Divide the Body from the Head

In 1798, when Latrobe proposed his Waterworks design to the Select Council, the greater Philadelphia region experienced an additional alteration of its landscape through

⁷⁰ Benjamin Henry Latrobe, *View of the Practicability and Means of Supplying the City of Philadelphia with Wholesome Water*, 18.

the widespread construction of canals. A 1796 *Plan of the City of Philadelphia and its Environs Shewing the Improved Parts*, by John Hills (Figs. 3.17-18) depicts the completed sections of a canal—one of the “improved parts” of the terrain—cutting across the northern part of the city, slicing through hills, and extending the city’s grid in order to eventually link the Delaware and Schuylkill Rivers that border the city. In the front of *An Historical Account of the Rise, Progress and Present State of the Canal Navigation in Pennsylvania*, published one year earlier by the Schuylkill and Susquehanna Navigation Company, a large, fold-out map captures the expanding network of road and inland navigation that joined various cities and towns in Pennsylvania (Figs. 3.19-20).⁷¹ Here, the route of the proposed Delaware Schuylkill Canal is outlined in a bright red ink, like a blood vessel transporting matter between the city’s two major waterways. The text included a poem on the title page, which drew upon corporeal language to praise the labor of canals as they extended throughout the country:

Here smooth Canals, across th’ extended plain
Stretch their long arms to join the distant main.
The sons of Toil, with many a weary stroke,
Scoop the hard bosom of the solid rock;
Resistless through the stiff, opposing clay,
With steady patience, work their gradual way.⁷²

The pamphlet explained that canals were beneficial to the country because they fertilized the land, made carriages and beast of burden less necessary, drained unhealthy marshes, and extended traffic, “animat[ing] all parts of a country.”⁷³ Canals, therefore, as drawn

⁷¹ Schuylkill and Susquehanna Navigation, *An Historical Account of the Rise, Progress and Present State of the Canal Navigation in Pennsylvania: With an Appendix, Containing, Abstracts of the Acts of the Legislature Since the Year 1790, and Their Grants of Money for Improving Roads and Navigable Waters Throughout the State* (Philadelphia: Zachariah Poulson, Jr., 1795).

⁷² *Ibid.*, title page.

⁷³ *Ibid.*, iv.

and described by these maps and texts, possessed a type of agency, stretching out their arms to connect major waterways and animating the landscape with travelers and trade.

Many Americans, including George Washington and Thomas Jefferson, saw canals, along with the uniformity, drainage, and communication they exemplified, as the route to an orderly empire, balancing the natural landscape with utility.⁷⁴ According to an 1808 report by Albert Gallatin, the Secretary of the Treasury, government-funded roads and canals were in the best national interest because they “shorten distances, facilitate commercial and personal intercourse, and unite, by a still more intimate community of interests, the most remote quarters of the United States.”⁷⁵ Unlike Great Britain, which Gallatin considered small enough to profit from a purely artificial network of short canals, America’s expansive landscape required the re-conceptualization of canals as links in an already existing system of natural waterways, creating a complex assemblage of the human and nonhuman. Canals were not so important on their own, but as the means of opening “a communication with a natural extensive navigation which will flow through that new channel.”⁷⁶ Gallatin’s report envisioned the United States as an expanding network of natural and artificial waterways, uniting disparate regions of the nation.

Like a canal, Latrobe’s Waterworks regulated and manipulated the natural water supply and both systems directed water through an enclosed conduit; the word “canal”

⁷⁴ John D. Seelye, *Beautiful Machine: Rivers and the Republican Plan, 1755-1825* (New York: Oxford University Press, 1991), 5–12.

⁷⁵ Albert Gallatin, *Report of the Secretary of the Treasury, on the Subject of Public Roads and Canals; Made in Pursuance of a Resolution of Senate, of March 2, 1807* (Washington: R. C. Weightman, 1808), 8.

⁷⁶ *Ibid.*, 7.

derives from the Latin, *canallis*, meaning “a pipe.”⁷⁷ Despite the superficial similarities between these two artificial waterways, the differences between their physical forms—one heroically visible and the other structurally invisible—and management occasionally caused friction, especially in regards to their implementation in supplying urban populations with wholesome water. These tensions are particularly evident in debates between Latrobe and the Schuylkill Delaware Canal Company, the Waterworks’ most significant competition in bringing water to Philadelphia. The arguments between these two entities were marked by pointed accusations of bodily harm—both metaphorical and physical—through their respective designs.

As previously mentioned, Latrobe became involved with canals and river navigation in Virginia soon after his arrival in the United States, and this interest preoccupied him after his relocation to Philadelphia. In 1801, Latrobe directed the navigational improvement of the lower Susquehanna River, one of the most important commercial rivers on the Atlantic because of the agriculture and lumbering industries that developed on its shores and branches. Rapids, small islands, and large rocks, however, impeded passage on the lower portion of the river, from Columbia, Pennsylvania, to Conowingo Falls, Maryland. Earlier attempts to build private canals around Conewago Falls in Pennsylvania were unsuccessful and, due to budgetary restrictions, Latrobe himself was only marginally effective in making the river more navigable, by clearing or blasting rocks to make a channel close to shore. A survey map of the Susquehanna River proved to be a more significant result of the project (Fig. 3.21). The original, presented to Pennsylvania Governor Thomas McKean along with an annexed report, hung in the

⁷⁷ Seelye, *Beautiful Machine*, 8.

House of Representatives in Lancaster and was sent to Washington in 1808, when Gallatin presented his report on canals and public roads before Congress. Latrobe speculated that the map remained in the United States House of Representatives until it was likely destroyed in 1814, when the British burned the Capitol. Luckily, Latrobe presented a seventeen by two feet facsimile to the Maryland Historical Society in 1817, providing a detailed engineering and natural history record of the lower Susquehanna in the early nineteenth century.⁷⁸

Like the watercolor of the rattlesnake skeleton, Latrobe's Susquehanna River survey portrays its serpentine subject with an astonishing degree of detail and clarity on a large scale. The map is stored on two wooden rollers and its seventeen-foot length limits viewing to smaller, more manageable sections. The process of unrolling and revealing elicits a response of awe and wonder from the viewer.⁷⁹ Town plans, farms—with their owners identified—roads, streams, and individual trees—each evenly spaced with its own unique shadow—received the same careful delineation (Figs. 3.22-23). Latrobe commented on the map that, “great care has been taken in laying down all the rocks accurately both as to place and stratification.” This comprehensive survey and his experience improving the Susquehanna's navigation permitted Latrobe to assess the interrelatedness of various elements of the river's ecology. In his later correspondence, Latrobe reflected, “the improvement of the navigation of the Susquehanna has taught me that a thorough knowledge of the river in all its stages of rise and fall is necessary on each particular spot, before it can be judged whether a very plausible scheme of improvement

⁷⁸ Latrobe and Stapleton, *The Engineering Drawings*, 89–109.

⁷⁹ There is no reason to suspect that the original map was smaller or stored a different way, although Latrobe described it as “hung” when it was on display in Lancaster.

in one state of the river may not be an absolute obstruction in another.”⁸⁰ In a communication published in Gallatin’s 1808 report, the architect argued that the technology utilized by unsuccessful canal companies to bypass rapids and falls in otherwise navigable rivers failed to take into account the inconsistencies of the rivers themselves, which included fluctuating tides, low water, and the accumulation of sand or mud bars, confirming the architect’s acute awareness of dynamism in the natural world.⁸¹ Overall, the Susquehanna map reveals the interconnectedness between water, geology, vegetation, and human interventions, making it “an incomparable statement of human ecology,” according to Darwin Stapleton.⁸²

Latrobe’s writings additionally reveal a deep interest in the relationship between land and water, which the architect perceived as a “species of landscape” that was unique to America. In an 1806 journal entry, the architect outlined the “*Systems of Landscape* that may be Classed under a few heads.”⁸³ He lamented that America possessed no craggy, snow-covered mountains or abbeys, castles, ruins, or any “Artificial objects of interest.” Instead, Latrobe classified the majority of the North American landscape as “watery scenery in immense expanse combined with wood. This species of scenery extends along our coast more than 1000 Miles, and is to be found in endless variety.”⁸⁴

By referring to the landscape in terms of “species” and “classes,” Latrobe utilized the

⁸⁰ Benjamin Latrobe to Richard Bate, Washington, November 21, 1809. Latrobe, *The Correspondence and Miscellaneous Papers*, 2:786.

⁸¹ Gallatin, *Report of the Secretary of the Treasury*, 79–107.

⁸² Stapleton, however, does not investigate the implications or wider context of this statement. Latrobe and Stapleton, *The Engineering Drawings*, x.

⁸³ Italics original. Benjamin Latrobe journal entry, Washington, August 10, 1806. Latrobe, *The Journals*, 65.

⁸⁴ *Ibid.*, 66.

terms of natural history to describe his surrounding environment. Two volumes of an *Essay on Landscape*, hand-written by Latrobe in Virginia and Philadelphia from 1798-99, explore these ideas further.⁸⁵ Julia Sienkewicz argued that this treatise, written to instruct Susan Catherine Spotswood on landscape painting, encouraged its reader(s) to shape the American environment through authorial perception.⁸⁶ Many of Latrobe's entries in this text, however, also recognized the vital properties of nonhuman entities that challenge or subvert human conquest. Latrobe identified trees, for example, as "beings endowed with sensation—in which opinion I am not singular or original—I feel pleasure in preserving as many as possible from pain, mutilation, and death."⁸⁷ In order to negotiate and enter this dynamic natural world, Latrobe recommended including a body of water in landscape sketches, in order to produce greater pleasure in the viewer and introduce a historical effect. This sentiment is illustrated by a series of tree studies included in the *Essay* which all combine water passing through hilly, wooded landscapes (Fig. 3.24), similar to the overmantel scene drawn on the Peales' parlor fireplace model. For Latrobe, rivers or other bodies of water served as visual passages into an unfamiliar landscape, permitting entry into spaces and habitations via imagination, much like how Benjamin Rush's "canals" facilitated access to the brain and an underground pipe system carried water to the Centre Square Engine House.⁸⁸

Despite his interest in canals and river navigation, Latrobe indirectly challenged the Delaware Schuylkill Canal Company when he submitted his proposal for the

⁸⁵ Latrobe, "An Essay on Landscape."

⁸⁶ Sienkewicz, "Citizenship by Design," 142–61.

⁸⁷ Latrobe, "An Essay on Landscape," 500.

⁸⁸ *Ibid.*, 1:14–17.

Philadelphia Waterworks in 1798. Begun in 1792, the Company's canal was intended to run sixteen miles from Norristown to Philadelphia, effectively connecting the Delaware and Schuylkill River. The Canal Company advertised two main goals for their project: the implementation of a navigation route that would bypass the rocks and rapids of the Schuylkill Falls, west of the city, and the distribution of potable water to the city from a high point north of Broad Street. By 1795, as documented in John Hills's map, three miles of canal were dug at the Norristown end and three more were soon to be completed in Philadelphia. Financial issues, however, hindered the canal from its inception. Rumors circulated that the canal was routed across less favorable terrain so it passed through the estates of the company directors. Stockholders, unimpressed with the canal's slow progress, ceased to pay their subscriptions and periodic lotteries proved inadequate to alleviate the company's monetary woes. The city's call for clean, copious water in 1797 encouraged the Delaware Schuylkill Canal Company as they sought government aid to complete their project; the company believed that the canal would be the most effective solution to the city's water problem, especially since its construction was already underway. The city, however, remained reluctant to invest in the canal. The Joint Committee on Supplying the City with Water identified their top priority as water supply, not inland navigation, and it did not trust that the canal could be completed in a timely manner. The Joint Committee believed the Canal Company to be more concerned with profit than public health and Committee members were suspicious of the political ambitions of several prominent Company associates.⁸⁹

⁸⁹ Blake, *Water for the Cities*, 18–22.

Furious that the city abandoned the construction of the canal in favor of Latrobe's plan, the Canal Company embarked on a media campaign to attack him and his project. In a published pamphlet, the Company denounced the architect for his "officious interference and ostentation of professional abilities," condemning his report as "a confused and enormously expensive project of aerial Castles, and elevated Reservoirs, of different stories, Fountains, Baths, &c."⁹⁰ The Canal Company's use of the term "aerial castles" here recalls Latrobe's own earlier description and illustration of the unrealized buildings he designed in Richmond, his "castles in the air."⁹¹ Whereas Latrobe described these projects wistfully as means to occupy his time before moving to Philadelphia, the Canal Company mocked his plans as expensive and overdesigned novelties.

In their published debates, both corporations relied upon corporeal metaphors, conceiving of water flow, or hydrodynamics, in explicit bodily terms. When initially addressing the canal—whose construction was under way in 1799—Latrobe expressed a fear in his Waterworks proposal that "ice would embarrass the winter supply for culinary use."⁹² The Canal Company argued that the same quantity of water would pass from river to canal without any impact from winter freezing because water still flows beneath ice. Latrobe responded patronizingly in a "language free from technical phraseology," and compared a "head" of water to a vessel or cask discharging water from a hole in its side. According to Latrobe, water above the head, or discharging hole, of a vessel, acts upon

⁹⁰ Delaware and Schuylkill Canal Company, *Remarks on the Second Publication of B. Henry Latrobe, Engineer, Said to Be Printed by Order of the Committee of the Councils; [of the City] and Distributed among the Members of the Legislature* (Philadelphia: John Ormrod, 1799), 2.

⁹¹ Latrobe, "Buildings Erected or Proposed to Be Built in Virginia," 2v.

⁹² Latrobe, *View of the Practicability and Means of Supplying the City of Philadelphia with Wholesome Water*, 15.

water beneath it, just as water upstream acts upon the water downstream. Water near the bottom of a river, therefore, runs faster than that closer to surface and water from lower portion of a cask is discharged more quickly than that above the hole. Latrobe compared this process to grated nutmeg floating on a bowl of hot toddy; the nutmeg follows the motion of the surface, retreating from the mouth when the bowl is tipped towards the drinker. One can only affect the flow of water by making the hole smaller or larger. Latrobe concluded by asking, if ice or drought reduces the canal's opening at the river, how can the quantity of water in the canal not be affected?⁹³ The Canal Committee wittily retorted:

When the Toddy is drank up, the whole quantity drawn in any given time from the Bowl, will have gone down the throat in the same time, but not in less; for a moment will not intervene between the emptying the whole toddy out of the bowl, and passing it through the mouth, down the throat, except a mouthful should be withheld, along with the nutmeg to season or wash the gullet, at more leisure!⁹⁴

By describing water flow (or obstruction) through canals and pipes as a hot toddy garnished with nutmeg passing down a throat, Latrobe and the Canal Company repeatedly drew upon corporeal metaphors of ingestion in their repartee critiquing their competitor's plans.

A new type of United States body controlled both the Waterworks and the Delaware Schuylkill Canal Company: the corporation. Imported from England as a means for wealthy urban elites to retain economic influence in the face of egalitarian

⁹³ Benjamin Henry Latrobe, *Remarks on the Address of the Committee of the Delaware and Schuylkill Canal Company to the Committee of the Senate and House of Representatives, as Far as It Notices the "View of the Practicability and Means of Supplying the City of Philadelphia with Wholesome Water."* (Philadelphia: Zachariah Poulson, Jr., 1799), 11.

⁹⁴ Delaware and Schuylkill Canal Company, *Remarks on the Second Publication of B. Henry Latrobe, Engineer*, 7.

early national politics, the corporation served as a base of power for a group of individuals, with the support of the state. As historian Andrew Schocket has explained, corporations in early America allowed the “consolidation of control over credit and precious resources crucial to growing cities and their increasingly interconnected hinterlands.”⁹⁵ Corporations flourished in Philadelphia, especially in the banking and water supply sectors, two businesses with which Latrobe was intimately connected. Corporations not only provided economic power, they also supplied the means for a small group of urban elites to stabilize, establish order, and reacquire control over the early national landscape. The Watering Committee, for example, held a separate budget from the rest of the city government, possessed the authority to enter into contracts, collected taxes, had the ability to hire and fire employees, owned land, kept separate records from the city council and racked up debt. It was funded through public money and the issuing of bonds; from 1799-1825, Philadelphia’s water system consumed approximately half of the city’s budget, receiving even more money than fortifications erected during the War of 1812. The specifications of Latrobe’s underground main-and-pipe system meant that the Watering Committee retained control over those who received water; residents and businesses had to lobby the Committee to have a main installed, pay a fee of up to one hundred dollars for a permit, and hire a Committee-appointed plumber to install the appropriate hookup.⁹⁶ Similar to the environmental and social injustice that mitigated the reforms achieved by Peale’s fuel-efficient stoves, the Waterworks primarily delivered water directly to the homes of wealthy Philadelphia citizens; residents of poorer

⁹⁵ Andrew M. Schocket, *Founding Corporate Power in Early National Philadelphia* (DeKalb, Ill.: Northern Illinois University Press, 2007), 8.

⁹⁶ *Ibid.*, 117–29.

neighborhoods could only access the system via a public spigot. Although underground pipes connected homes and individuals to the body of the city and the Schuylkill's source in the Pennsylvania hinterland, they also excluded certain, less affluent, members of the urban population.⁹⁷ Corporations like the Watering Committee and the Delaware Schuylkill Canal Company therefore enabled simultaneous diffusion and consolidation of power and opportunity, as they centralized, routed, and controlled the flow of water through the city.

Critics of corporations frequently employed corporeal terms to attack these organizations as if they were a physical body. The Canal Company, for example, equated Latrobe's disparagement of the canal with a type of dismemberment. In one assessment of the system, Latrobe delivered a backhanded compliment to William Sansom, the Chair of the Canal Company and author of the initial remarks against Latrobe's Waterworks proposal; the architect wrote that he respected Sansom too much "to believe he had the smallest share in the manner of the Piece."⁹⁸ The Canal Company considered this to be a "disorganizing compliment" with "a view to divide the *Body* of the Canal Committee from its *Head*."⁹⁹ The Canal Company used the same language to mock Latrobe's theory of hydrodynamics, stating that if the quantity of water flow was not constant, "the water

⁹⁷ Finger and Smith both acknowledge the interconnectedness of urban citizens as a result of water systems. Smith, *City Water, City Life*, 5–6; Finger, *The Contagious City*, 154.

⁹⁸ Latrobe, *Remarks on the Address of the Committee of the Delaware and Schuylkill Canal Company*, 3.

⁹⁹ Delaware and Schuylkill Canal Company, *Remarks on the Second Publication of B. Henry Latrobe, Engineer*, 1.

would rise in one place and fall in another, or the BODY *might run away* and leave its HEAD *behind*.”¹⁰⁰

Both entities—the Delaware Schuylkill Canal Company and the Watering Committee—sought to harness and control, alter, and extend the nation’s natural waterways in order to better public health or improve transportation. These corporations, as a type of body, attempted to exert power over the natural landscape in an effort to domesticate its more unpredictable elements. To convince the public of their authority, however, the Canal Company and the Watering Committee (as represented by Latrobe) had to dismember each other metaphorically. In order to prove that its system was the most effective, feasible, and healthy option, each corporation sought to represent itself as a more cohesive and efficient body than its competition.

The Haunt of Profligacy

On January 27th, 1801, after several months of delays and escalating costs, the Philadelphia Waterworks began operation with an official celebration at Centre Square. Although the *Philadelphia Gazette* described the first release of water as “turbid” due to accumulation of filth in the unused pipes, the newspaper reassured readers that “it very soon assumed a limpid appearance” suitable for drinking and culinary purposes.¹⁰¹ The gushing water provided quite a spectacle; one newspaper reported that visitors from the country witnessing water issuing from public hydrants, “gaped with astonishment, as at

¹⁰⁰ Capitalization and italics are original. William Sansom, *Address of the Committee of the Delaware and Schuylkill Canal Company to the Committees of the Senate and House of Representatives on the Memorial of Said Company* (Philadelphia: John Ormrod, 1799), 26.

¹⁰¹ “Water Works,” *Philadelphia Gazette and Daily Advertiser*, January 28, 1801.

the tenth wonder of the world.”¹⁰² Fears that the “complexness of the works would render them ever and constantly liable to be disordered,” in the words of one citizen, however, soon proved to be valid, as issues with the steam engines and high fuel consumption plagued the Centre Square Engine House.¹⁰³ Philadelphia’s shifting landscape and growing population also transformed the formerly unpopulated section of the city into a center for urban entertainment, aligning Centre Square with corruption and immoral activities. Despite Latrobe’s knowledge of hydrology and his interest in the circulation and progression of matter, evident in his architectural and natural history drawings, his Philadelphia Waterworks became associated with the sort of corporeal degradation he accused the Delaware Schuylkill Canal Company of perpetuating in their design.

Unlike the Birches’ widely reproduced engraving of the Centre Square Engine House, John Lewis Krimmer’s 1812 *View of Centre Square on the Fourth of July* (Fig. 3.25) hints at the growing apprehension of the site as a potentially corrupt and unhealthy space. Most scholarly analysis of the painting has focused on the diverse crowd congregated to celebrate the nation’s independence.¹⁰⁴ Figures extend across the middle- and foreground of the painting, collected together in small gatherings representing different social groups. A group of wealthy, elegantly dressed women and men congregate to the right, while unattached bachelors, a woman, and five small children, both white and black, gather around an older woman selling refreshments. Around the circular fence that encloses a fountain sculpture carved by William Rush, a black man

¹⁰² “[On Tuesday the Centre Square Engine...],” *The Spectator*, January 31, 1801.

¹⁰³ A Citizen, “Philadelphia Water Works,” *Poulson’s American Daily Advertiser*, December 25, 1800.

¹⁰⁴ Elizabeth Johns, *American Genre Painting: The Politics of Everyday Life* (New Haven, Conn.: Yale University Press, 1991), 5–7; Anneliese Harding, *John Lewis Krimmel: Genre Artist of the Early Republic* (Winterthur, Del.: Winterthur Publications, 1994), 22–23.

and woman observe a group of boys climbing over the barrier. In the center foreground, a Quaker gentleman leads his son and wife away from the unruly scene. To their right, a white dog with brown spots greets a brown dog with white patches, perhaps alluding to the intermingling of different races within the square. When the painting was displayed at the Pennsylvania Academy of the Fine Arts in 1812, a *Port Folio* reviewer remarked, “There are few people (if any) who visit the Academy, who are not perfectly acquainted with the scene of which this is so familiar and pleasing a representation. It is truly *Hogarthian*, and full of meaning.”¹⁰⁵ As Elizabeth Johns has noted, this “Hogarthian meaning”—as intended by the artist or as perceived by the *Port Folio* reviewer—remains unclear. Was the painting read as a moral corrective or as a subtle reinforcement of social and racial hierarchies?¹⁰⁶ Carl Smith concluded that Krimmel presented the Centre Square Engine House as “a convergence of industry and art that provides the basis of a sound society...at once the cause and symbol of the concord it hosts.”¹⁰⁷ An investigation of the wider social and spatial context of the Centre Square, to which the painting hinted, offers a different view of the Philadelphia Waterworks. I argue that Krimmel’s painting, and other textual and visual representations of the Centre Square Engine House in the early nineteenth century, instead confront the structure’s failure as a healthy, efficient circulatory system and the incapability of art and architecture to suppress or ameliorate corporeal or environmental degradations.

In previous interpretations of Krimmel’s painting, scholars have generally overlooked the appearance of the Engine House, which is far removed from the

¹⁰⁵ G.M., “Review of the Second Annual Exhibition,” *The Port Folio* 8, no. 1 (July 1812): 24.

¹⁰⁶ Johns, *American Genre Painting*, 6–7.

¹⁰⁷ Smith, *City Water, City Life*, 73.

gleaming, white vision depicted by the Birches in *The City of Philadelphia* (Fig. 3.1), a popular text that would have been familiar to Krimmel.¹⁰⁸ In *View of Centre Square on the Fourth of July*, the façade of the Engine House is mottled and discolored, both emulating and providing a contrast to the colorful crowd convening in front of it. A billowing cloud of smoke undulates out of the dome's oculus, a feature traditionally intended to admit light. Two windows in the building's cylindrical tower are partially open, and it appears as if a glass pane of the center window has been punched out, in an attempt to admit fresh air to the hidden interior. Despite the installation of air-purifying poplars and fountains in the square, a haze appears to permeate the space beneath the trees in the background, suggesting that these features cannot adequately filter the Engine House's excessive production of smoke and soot. Krimmel's painting, therefore, visualized the persistent congestion and blockage plaguing the Waterworks, as reported by the Watering Committee and newspapers accounts in the early decades of the nineteenth century. Such visual and textual descriptions marked the Engine House as an unhealthy, contaminated body, with internal corruption seeping out through its stained marble walls.

Latrobe wrestled with issues of congestion in his Engine House design throughout his planning process. The architect's earliest extant cross-section of the building reveals that its restrictive circle-and-square design required sacrifices in functionality (Fig. 3.4-5). Like Peale's smoke-eater stoves and fireplaces, the Waterworks' illusion of classical integrity was of equal, if not greater, importance to the architect as the structure's internal operations. In order to accommodate the structural foundation shape, Latrobe tightly

¹⁰⁸ Extant letters suggest Krimmel was good friends with Thomas Birch. See Harding, *John Lewis Krimmel*, 52–56.

crammed the machinery within the Engine House's domed cylinder. A timber brace supporting the engine thrust obtrusively into the lobby to the right and the flywheel had to be slotted into the masonry wall. Latrobe later weighted the flywheel with iron in order to increase its momentum, because no room existed to accommodate an increase in the wheel's diameter. Even the reservoir, seemingly the most important component of a functioning waterworks, appears as an afterthought, squeezed between the building's inner and outer domes. In 1807, the Watering Committee decided to erect two reservoirs inside the building, instead of three, because "the contracted space of the building will not admit a greater number, without intercepting the light, which is necessary for so complicated a machinery."¹⁰⁹

A floor plan delineated by Latrobe in his 1799 portfolio, *Designs of Buildings Erected in the Year 1799 in Philadelphia* (Fig. 3.26) betrays the tightness of the available space within the Engine House's core, despite the architect's clear, pastel-colored organization. Two boilers, labeled "i," occupy a large proportion of the circular room, barely permitting enough space for stairs or the flywheel, still protruding into the masonry wall. In the cross section from that portfolio (Fig. 3.12-13), Latrobe attempted to hide much of the building's internal clutter, choosing to depict only the timber beams, blockings and frame of the flywheel, in order to make the interior appear more harmonious, symmetrical, and open. In their first volume on Latrobe's architectural drawings, Jeffrey Cohen and Charles Brownell described the Engine House, like the John Soane designs that inspired it, as "in large degree a caprice, an investigation of architectural and urbanistic form for which the programmed use of space was a secondary

¹⁰⁹ Philadelphia Watering Committee, *Report of the Watering Committee to the Select & Common Councils, November 13th, 1807* (Philadelphia: Jane Aitken, 1807), 3.

concern.”¹¹⁰ The clarity and composure that characterized the exterior of Latrobe’s design, projecting an outward vision of health and classical virtue, ultimately masked the actual chaos and congestion within. Krimmel’s painting and other visual and textual responses to the site, however, suggest that the building’s internal corruption still manifested itself externally, within the urban landscape, in various ways.

The steam engines, advocated by Latrobe in his proposal, caused the greatest delay, obstruction, and even bodily harm within the Engine House’s design. When Latrobe planned for their inclusion, no established steam engine builders existed in the United States. Latrobe and the Watering Committee eventually contracted Nicholas J. Roosevelt at Soho Works—named after Boulton & Watt’s engine works in Birmingham, England—in Northern New Jersey to construct the engines. Roosevelt appeared to be the most qualified candidate, as he was then engaged in constructing an engine for a steamboat invented by Robert Livingston and John Stevens. For the Waterworks, Soho designed and built Boulton & Watt type engines with separate condensers, parallel motions linking the piston and working beam, and double-acting steam cylinders. Soho, however, substituted wood for cast iron in many parts, including the boilers and flywheels.¹¹¹ The inexperience of the New Jersey Works consistently delayed the installation of the engines. Watering Committee annual reports frequently listed complaints and frustrations with Nicholas Roosevelt specifically and his failure to adhere to his contracts. Meanwhile, the Committee and the general public became increasingly concerned that the steam engines would break down, cause fires, or explode. Latrobe

¹¹⁰ Cohen and Brownell, *The Architectural Drawings*, 230.

¹¹¹ Latrobe and Stapleton, *The Engineering Drawings*, 34.

attempted to assuage these fears in a special report; he explained that while earlier models of steam engines were “justly considered as dangerous...and now and then they did a little mischief, [a] steam engine is, at present, as tame and innocent as a clock.”¹¹² The Waterworks’ steam engines, however, caused mischief throughout their tenure.

Once installed and operational, the volatile steam engines and their related machinery required frequent and expensive repairs and generally wreaked havoc on the waterworks system. Two workmen died from suffocation when working in the cramped space of the Centre Square boiler chamber in 1801.¹¹³ The system proved unreliable in crisis situations, failing to supply enough water to quench an 1805 fire because Roosevelt, appointed the manager of the Lower Engine House on the Schuylkill River, siphoned excess steam power, with the city’s permission, to run his own manufacturing business. Newspapers decried this inept management, citing fears of blockage: the *Aurora General Advertiser* encouraged the Watering Committee to “release the city from this pernicious obstruction” through offers of payment to the offending manager.¹¹⁴ Roosevelt proved difficult to appease—he warned the Watering Committee that if they did not agree to his terms and forgive his debts, he would stop the water supply altogether; he even threatened to blow up the Lower Engine House with gunpowder. Roosevelt made these threats in September, when fears of yellow fever still ran high, generating unease among urban citizens.¹¹⁵

¹¹² Benjamin Henry Latrobe, *An Answer to the Joint Committee of the Select and Common Councils of Philadelphia, on the Subject of a Plan for Supplying the City with Water, &c* (Philadelphia, 1799), 7.

¹¹³ Schocket, *Founding Corporate Power*, 117.

¹¹⁴ “[The Recent Fire...],” *Aurora General Advertiser*, September 24, 1805.

¹¹⁵ *Ibid.*

These intimations of explosion and destruction may have reminded Philadelphia citizens of a sinister literary structure also associated with the Schuylkill River: the temple built by Wieland Senior in Charles Brockden Brown's 1798 novel, *Wieland*. Brown placed this circular building, "edged by twelve Tuscan columns, and covered by an undulating dome," on a precipice above the Schuylkill River, "fluctuating and rippling in a rocky channel" below.¹¹⁶ The temple serves as the setting for Wieland Senior's spontaneous combustion, which occurred as he addressed his Deity. After this horrible death, Wieland Junior converted his father's temple of religion into a temple of reason, complete with a bust of Cicero—which Peale, coincidentally, installed on one of his "smoke-eaters"—and a harpsichord, but, with the appearance of the mysterious, ventriloquist stranger Carwin, the summer retreat became increasingly associated with irrational acts and madness. Carwin eventually manipulates Wieland Junior into killing his wife and children.¹¹⁷ According to Robert Lawson-Peebles, the fact that Brown sent a copy of this text to Thomas Jefferson suggests perceived similarities between the Wieland temple and Monticello.¹¹⁸ It seems that Latrobe's Engine House, however, conceived as a "temple of reason" with the "fluctuating" Schuylkill River running beneath it—albeit through pipes—and later threatened by combustion, provided an even

¹¹⁶ Charles Brockden Brown, *Wieland; or The Transformation: An American Tale* (New York: T. & J. Swords, for H. Caritat, 1798), 9.

¹¹⁷ Both Lawson-Peebles and Seelye discussed Brown as an antagonist to a utopian vision of the American landscape, as he sees it as a backdrop to violence. Robert Lawson-Peebles, *Landscape and Written Expression in Revolutionary America: The World Turned Upside Down* (New York: Cambridge University Press, 1988), 237–43; Seelye, *Beautiful Machine*, 162–66.

¹¹⁸ Lawson-Peebles, *Landscape and Written Expression in Revolutionary America*, 241.

more apt ancestor of Brown's fictional temple, even though this resemblance was never recorded.¹¹⁹

The billowing smoke emanating from the Engine House's dome in Krimmel's painting additionally alludes to the huge expense of fueling the Centre Square steam engine. The city continued to suffer from a fuel crisis decades after Peale advertised and displayed his fuel-efficient fireplaces and smoke-eaters, especially during a series of harsh winters in the early nineteenth century. In 1805, for example, thirty inches of snow blanketed the city, and the price of oak firewood escalated to twelve dollars a cord, more than double the cost of the previous year. *Poulson's American Daily Advertiser* reported, "having expended all their wood [one family] was under the direful necessity, in order to keep themselves from perishing, to burn their table, washing-tub, and many other articles of household furniture."¹²⁰ The Waterworks' Lower and Centre Square steam engines ran on a mixture of wood and bituminous coal, with the ratio dependent on market price. In 1806, one year after that devastating winter, the Watering Committee reported that fueling the Lower Engine House with wood, as opposed to coal, remained more cost effective, but how long it would remain this way depended upon "the quantity of wood exposed for sale, the current price in the market, and whether the consumption will not operate to the great detriment of the surrounding inhabitants and the citizens

¹¹⁹ It should be noted that Brown was also invested in geographic and environmental issues. After writing his last novel, *Jane Talbot*, in 1801, Brown translated C.F. Volney's geographical treatise, *A View of the Soil and Climate of the United States* (1804), and worked on a two-volume book on geography, *A System of General Geography*, which he advertised in a prospectus shortly before his death in 1810. Martin Brückner, *The Geographic Revolution in Early America: Maps, Literacy, and National Identity* (Chapel Hill, N.C.: Published for the Omohundro Institute of Early American History and Culture by University of North Carolina Press, 2006), 175.

¹²⁰ *Poulson's American Daily Advertiser*, January 25, 28, 1805. See also Adams, "Warming the Poor and Growing Consumers," 69.

generally.”¹²¹ The Committee’s statement demonstrates their awareness that the Waterworks’ large consumption of fuel could negatively affect prices for Philadelphia citizens.

In addition to their expensive consumption of wood, the Waterworks’ steam engines also burned large quantities of bituminous coal. By 1808, the Watering Committee estimated that the Centre Square Engine House consumed 20,000 bushels of this coal annually.¹²² The cost of fueling the Centre Square engine only increased during the War of 1812, when British blockades prevented bituminous coal from arriving from England and Virginia, and the Watering Committee was forced to pay a premium for wood to fuel both Lower and Centre Square engines.¹²³ According to Samuel Hazard’s *Register of Pennsylvania*, sometime after 1806, anthracite coal mined in the Lehigh Valley was “tried under the broiler of the engine at the Centre Square, but only served to *put the fire out*, and the remainder was broken up and spread on the walks in place of gravel!”¹²⁴ It was not until the 1820s that entrepreneurs discovered how to efficiently burn anthracite with limited oxygen and high heat.¹²⁵ When Krimmel displayed his *View of Centre Square* at the Pennsylvania Academy in 1812, Frederick Graff and John Davis,

¹²¹ Philadelphia Watering Committee, *Report of the Watering Committee to the Select & Common Councils, November 13th, 1806* (Philadelphia: Jane Aitken, 1806), 5.

¹²² Philadelphia Watering Committee, *Report of the Watering Committee to the Select & Common Councils, November 14th, 1808* (Philadelphia: Jane Aitken, 1808), 6.

¹²³ Philadelphia Watering Committee, *Report of the Watering Committee to the Select and Common Councils, November 11th, 1813* (Philadelphia: Lydia Bailey, 1813), 3.

¹²⁴ Samuel Hazard, ed., *The Register of Pennsylvania, Devoted to the Preservation of Facts and Documents and Every Other Kind of Useful Information Respecting the State of Pennsylvania*, vol. 3 (Philadelphia: W.F. Geddes, 1829), 302.

¹²⁵ Schocket, *Founding Corporate Power*, 141; Sean Patrick Adams, *Old Dominion, Industrial Commonwealth: Coal, Politics, and Economy in Antebellum America* (Baltimore: Johns Hopkins University Press, 2004), 48–83.

two former Latrobe assistants, had already submitted a proposal for a more secure and economical Engine House to be built at Fairmount on the banks of the Schuylkill River.¹²⁶ The Centre Square Engine House in Krimmel's painting, churning out a ribbon of dark smoke and surrounded by paths graveled with unburned anthracite, therefore became a very visible symbol of inefficiency and fuel waste to local citizens. Indeed, in his published condemnation of Centre Square cited in the beginning of this chapter, "Civis" described the Engine House as vomiting "torrents of smoke and soot," contributing to its "gloomy condition" within a "polluted field."¹²⁷

The Square's fountain sculpture, carved by William Rush and installed in 1809, however, provides the true focus of *View of Centre Square on the Fourth of July*. Presiding over the crowd from her elevated perch, the female figure offers a bright contrast to the smoking Engine House and dark rows of Lombardy poplars, but she was also closely connected to the processes and goals of the structure behind her. Carved out of pine and painted white to resemble marble, this allegorical figure, entitled *Water Nymph and Bittern*, stood in classical *contrapposto* and wore a draped garment cinched at the waist with a belt of willow branches. It is likely *Water Nymph* was inspired by the Venus d'Medici—available to Rush in the form of plaster casts at the Pennsylvania Academy of the Fine Arts—and emblematic figures of rivers printed in George Richardson's *Iconology*.¹²⁸ Despite its classical and academic references, *Water Nymph*

¹²⁶ Frederick Graff and John Davis, *Report of the Watering Committee, Upon the Present State of the Works for Supplying the City with Water, And Several Other Plans Proposed for That Purpose. May 2, 1812* (Philadelphia: Jane Aitken, 1812).

¹²⁷ Civis, "To the Select and Common Councils of the City of Philadelphia."

¹²⁸ A plaster copy of the Venus d'Medici was available for study in Philadelphia as early as 1783, when the painter Robert Edge Pine brought a cast of the sculpture with him from England. Both the Columbianum and the Pennsylvania Academy of the Fine Arts—where Rush was a founding member—displayed this cast

and *Bittern* became a touchstone of controversy within Centre Square, provoking a wide range of reactions from Philadelphia citizens. While initially celebrated for their artistic and technological achievement, both Latrobe's Centre Square Waterworks and *Water Nymph and Bittern* became beleaguered by their persistent associations with corruption, immorality, and even corporeal peril.

William Rush, whose sculptures will be discussed in greater detail in the following chapter, served as an active member of the Watering Committee, which oversaw the Waterworks' operation, and he made key symbolic choices to visually reference the source of the city's water supply in his *Water Nymph* sculpture. As far as we know, Rush never titled the work nor assigned any specific symbolic meaning to the figure—contemporary viewers were content to describe the fountain as a “water nymph” and “large water fowl”—but it is likely that Rush chose a bird who inhabited the Schuylkill River as his feathered model, in order to visually reference the new source of the city's water supply.¹²⁹ Later in the nineteenth century, while researching the artist for his painting *William Rush Carving His Allegorical Schuylkill River* (Fig. 3.27), Thomas Eakins identified the water nymph's bird as a bittern.¹³⁰ According to ornithologist Alexander Wilson, the American bittern could grow up to three feet long, and was

in their exhibitions. The English drawing master James Cox brought a copy of George Richardson's *Iconology; or a Collection of Emblematic Figures...Moral and Instructive; in Which are Displayed the Beauty of Virtue and Deformity of Vice* (London, 1779) to Philadelphia in the late eighteenth century and he later sold this copy to the Library Company. D. Dodge Thompson, “The Public Work of William Rush: A Case Study in the Origins of American Sculpture,” in *William Rush, American Sculptor* (Philadelphia: Pennsylvania Academy of the Fine Arts, 1982), 35–37.

¹²⁹ “Communication,” *Poulson's American Daily Advertiser*, August 28, 1809; *Philadelphensis*, “For the American Daily Advertiser,” *Poulson's American Daily Advertiser*, October 4, 1809; *William Rush, American Sculptor*, 116.

¹³⁰ Henri Marceau assigned the title, *Water Nymph and Bittern*, to the sculpture in the 1937 Rush retrospective at The Pennsylvania Academy of the Fine Arts. Henri Marceau, *William Rush, 1756-1833: The First Native American Sculptor* (Philadelphia: Philadelphia Museum of Art, 1937), 26–29.

“common to all our sea and river marshes” in the early nineteenth century.¹³¹ Wilson specifically described a smaller bittern, the lesser bittern, as making their nests in the swampy places and “in the meadows of Schuylkill and Delaware below Philadelphia.”¹³² The branches of willow—another Schuylkill inhabitant—that bound the nymph’s waist and hair and the fountain water, issuing to a height of seventeen feet from the bird’s upraised beak and bubbling from artfully arranged rocks at the base, also recalled the fast-moving, rocky Schuylkill.¹³³ In Krimmel’s painting, the line of water emerging from the bittern’s mouth echoes the shape of a lightning rod installed on the Engine House’s roof in 1807; both the water and rod offered protection from fire.¹³⁴ Through these subtle references to local inhabitants and acknowledged characteristics of the Schuylkill River, *Water Nymph and Bittern* made visible the hidden processes of the Waterworks behind it, albeit in an aestheticized and allegorical way, representing both the water’s source at the Schuylkill and its subsequent dispersal.

Rush’s bittern, however, described in the local press as “struggling to flee” from the nymph’s grasp, hints at the difficulties the city experienced in harnessing, regulating, and containing the Schuylkill’s resources.¹³⁵ The Watering Committee moved *Water Nymph and Bittern* to the landscaped grounds surrounding the Fairmount Waterworks after the Centre Square site was demolished in 1827. Decades of water circulating inside

¹³¹ Alexander Wilson, *American Ornithology; Or, the Natural History of the Birds of the United States*, vol. VII (Philadelphia: Bradford and Inskeep, 1813), 35.

¹³² Ibid., VII:37.

¹³³ “Communication”; Philadelphiensis, “For the American Daily Advertiser”; William Rush, *American Sculptor*, 116.

¹³⁴ Philadelphia Watering Committee, *Report of the Watering Committee to the Select & Common Councils, November 13th, 1807*, 4.

¹³⁵ Philadelphiensis, “For the American Daily Advertiser”; “Communication.”

its body and rushing out from the bittern's mouth over its surfaces, however, caused it to become "very much decayed [both inside and out] and likely to become a complete wreck."¹³⁶ In 1872, the city elected to preserve *Water Nymph*'s likeness in a bronze copy (Fig. 3.28). Only the nymph's original wooden head survives today (Fig. 3.29). As the previous pages have already demonstrated, by 1809, when Rush first installed his fountain, the Engine House also experienced multiple difficulties in manipulating the Schuylkill's water and the Watering Committee acknowledged that a new system needed to be introduced.

The multiple and varied reactions to *Water Nymph and Bittern* depicted in Krimmel's painting and recorded in the popular press speak to public fascination and anxiety regarding the structure she embodies. The men to the far left appear enamored with the sculpture; one gestures wildly with his cane as he remarks on the figure to his neighbor. The elegantly dressed women on the right mirror aspects of the water nymph's pose and dress, while the rhythmic procession of top hats throughout the square echo the drum of the Waterworks in the background. The Quaker gentleman in the center leads his wife and son away from the offending nymph; he shakes a finger at his son who is eager to climb over the fountain fence with another group of young boys while his wife surreptitiously glances behind her to examine the allegorical figure. The gentleman's index finger, however, like that of his son's, echoes the fountain's upward spouts of water, suggesting a more ambivalent reaction to the sculpture.

One observer in *Poulson's American Daily Advertiser* described the *Water Nymph* as a "graceful figure in wet drapery," only subtly alluding to the sexually revealing nature

¹³⁶ Philadelphia Select Council, "Annual Report of the Chief Engineer of the Water Department for the Year 1872," in *Journal of the Select Council of the City of Philadelphia* (Philadelphia, 1873), 22.

of Rush's design, but in *The Tickler*, a letter pronounced her a scandalous figure, embodying the failed morals of the city's politicians.¹³⁷ The author of that piece described encountering a group of "tittering" females observing the Centre Square fountain. One "grave matron" exclaimed, "why is so immodest a representation exhibited to public view; and under a government like ours, where *virtue* ought to be the basis of our public institutions." A gentleman bystander instructed the woman to consider the "political phrenzy" which has raised "a bundle of presuming, ambitious, and ignorant fellows...to political consequence." He explained, "They have temporarily succeeded, and this modest representation is but a trifling consequence of their success."¹³⁸ It is possible that this gentleman was alluding to the Waterworks—widely understood to be an expensive and unsuccessful endeavor by 1809—as the greater, more troublesome consequence of ambitious and ignorant city politicians.¹³⁹ The varied reactions to Rush's allegorical figure in the press and in Krimmel's painting speak to the growing concern regarding the structure she represented and the council that supported it.

In *View of Centre Square on the Fourth of July*, Rush's *Water Nymph*, with its painted white surface and jubilant fountains, captures the attention of the crowd and provides a focal point in the busy square. Krimmel, however, does not specify whether the figure is an innocent or a distracting seductress. Nemerov described *Water Nymph and Bittern* as a rallying point of commonality for the artist's diverse crowd. The

¹³⁷ Philadelphiensis, "For the American Daily Advertiser."

¹³⁸ Mores, "For the Tickler," *Tickler*, September 27, 1809.

¹³⁹ Ironically, William Gerdtz used *Water Nymph and Bittern* in his essay for the 1982 William Rush catalog as an example of a work by the sculptor that did not engage cultural debates about the appropriateness of classicism and nudity in an American style, discussed in greater detail in the following chapter. William H. Gerdtz, "William Rush: Sculptural Genius or Inspired Artisan?," in *William Rush, American Sculptor*, 75.

sculpture's ambiguity as an allegorical figure, however, ultimately baffled its audience and failed to represent a cohesive, personal or civic identity. In the end, the nymph became a "golden calf, licensing frivolous amusement rather than civic virtue."¹⁴⁰

According to Nemerov, "Krimmel's joke is that highbrow art cannot be treated as a device that simply sluices beauty to a populace thirsty for culture as for so much fresh water."¹⁴¹ Philadelphia citizens, in other words, proved too uneducated or uninterested to appreciate Rush's and Latrobe's classical interventions in the urban landscape. I posit that Krimmel's "joke" here also references the faulty technology, environmental pollution, and the failure of art and architecture to mask these modern realities behind a classical façade.

Krimmel again combined a classical building designed by Latrobe with a raucous crowd in his 1811-13 *Black Sawyers Working in Front of the Bank of Pennsylvania* (Fig. 3.30). In this watercolor, the bank, located on Second Street between Chestnut and Walnut, provides a stoic, refined background for three black carpenters cutting firewood, a black woman holding a white baby, and a white man in a top hat, with his back to the viewer, tending a cart full of uncut timber. In both *Black Sawyers* and *View of Centre Square*, the crowd, for the most part, ignores the building that comprises their setting. These buildings instead appear as theater backdrops, which, in early national Philadelphia, frequently depicted recognizable city landmarks as settings for the action taking place on stage. In 1805, for example, a Chestnut Theater benefit for its "principle scene painter," the British-born artist John Joseph Holland, featured displays of scenery,

¹⁴⁰ Nemerov, *The Body of Raphaelle Peale*, 175.

¹⁴¹ Nemerov, "The Rattlesnake," 243.

including a view of Philadelphia from Penn's Treaty Elm and the Waterworks at Centre Square, most likely inspired by the Birches' *The City of Philadelphia*. These scenes served as "act drops," which covered the stage in between theatrical presentations during the two-person comedy, "The Wives as They Were."¹⁴² Nemerov argued that the diagonal lattice of the cart in *Black Sawyers* disrupts the verticality of the Bank's straight, Ionic columns, with the rough wood providing a contrast to the building's gleaming marble. For Nemerov, this juxtaposition visualizes the tension between artists and architects like Latrobe, who sought to impose order and refinement upon the city by shaping it into an "Athens in the wilderness," and the rougher, uncontrollable elements of urban life.¹⁴³

Unlike the theater backdrops they resemble, however, these buildings were deeply enmeshed in and implicated by the very unpredictability and unruliness that characterized natural and urban environments. The crowds that populate Krimmel's genre paintings and watercolors should instead be viewed as extensions of the buildings' own messy, corrupt, and mysterious interiors that their refined exteriors attempted to mask. Opened only a few months after the Waterworks on June 29, 1801, the Bank of Pennsylvania, like the Centre Square Engine House, utilized neoclassical architecture to convey a sense of permanence, security, and control in order to alleviate public fears and concerns regarding the building's contents and functions. The Birches paired the Bank and the Waterworks to conclude their *The City of Philadelphia* (Fig. 3.31) and the projects were inextricably linked in both Latrobe's mind and his public reputation. In 1812, ironically the same year

¹⁴² Wendy Bellion, "City as Spectacle: William Birch's Views and the Chestnut Street Theatre," *Studies in the History of Gardens & Designed Landscapes* 32, no. 1 (2012): 15–34.

¹⁴³ Nemerov, "The Rattlesnake," 243–44.

the city accepted plans to overhaul his Waterworks' design, Latrobe wrote, "for my professional reputation I should have done enough had I only built the Bank of Pennsylvania and supplied the city with Water."¹⁴⁴ Many important figures on the city's Watering Committee also held an interest in the Bank, including Samuel Fox, the first president of the Bank of Pennsylvania, and Thomas P. Cope, one of the bank's first stockholders. Like the Engine House, the Bank was primarily constructed with white marble that stood out against the surrounding brick buildings characterizing Philadelphia's urban landscape. Both the exterior and interior of the Bank—from the tall, marble Ionic columns lining the front portico to the soaring, vaulted ceiling in the main room—were designed to produce a sublime sense of awe. Like the Waterworks, the Bank's architecture distracted the public from its more nefarious and controversial internal workings.

Corporations also ran Philadelphia's banks during the early national period and to many citizens, even with state oversight, the establishment of corporate banks produced anxiety because the incorporation of banks meant the incorporation of money itself. Schocket explained that, reflecting the physical manifestations of their impressive buildings, "banks represented the most wonderful, frightening, and bewildering form of incorporation, mysterious instruments for creating wealth."¹⁴⁵ The Bank of Pennsylvania possessed a particularly ambiguous—and occasionally hostile—relationship with the state government and other corporate banks as it tried to limit state investment and oversight in order to assert control over their own institution and the state economy. It

¹⁴⁴ Benjamin Henry Latrobe to Joseph Delaplaine, January 23, 1812. Latrobe, *The Correspondence and Miscellaneous Papers*, 3:236–237.

¹⁴⁵ Schocket, *Founding Corporate Power*, 80.

would be several years before the nation experienced the catastrophic economic impact of the “abuses of the banking system” following the financial Panic of 1819, but a few concerned citizens vocalized their concerns much earlier. Matthew Carey, the Philadelphia printer and publisher, for example, published multiple condemnations of the Bank of Pennsylvania’s corrupt practices and favoritism even while he served on the Bank’s board.¹⁴⁶ For the general public, unable to ascertain the hidden complexities of corporate banking and steam engine power, the lack of transparency in the buildings of the Centre Square Waterworks and the Bank of Pennsylvania served to simultaneously reassure and heighten suspicions regarding their processes—whether the underground circulation of water or the mysterious production and exchange of money that occurred behind closed doors.¹⁴⁷

An 1800 map of Centre Square, inscribed with later notations by Frederick Graff, illuminates the changing environs of this contested space (Figs. 3.32-33). Graff’s scrawling notes disrupt the ordered, symmetry of the plan, providing insight and context where the pastel-colored lines cannot. The location of a gambling house to the southeast and the Lombardy Gardens, which offered fireworks displays and turtle soup, to the West, situates Centre Square within Philadelphia’s unruly entertainment district by the early nineteenth century. Close by, the Tivoli or Columbian Garden at 13th and High

¹⁴⁶ Commonwealth of Pennsylvania, *Report of the Senate, Appointed to Enquire into the Extent and Causes of the Present General Distress* (Lancaster: Pennsylvania Senate, 1820), 2–3; Schocket, *Founding Corporate Power*, 77–108.

¹⁴⁷ In 1857, the federal government purchased the building and the property after the Bank of Pennsylvania moved into new quarters on Chestnut Street. The government demolished Latrobe’s bank in 1867 in order to erect an appraisers’ warehouse for United States customs. Six of the Bank’s marble columns were repurposed for patriotic monuments, including the Adrian Soldiers’ Monument in Adrian Michigan (1870), the Soldiers’ and Sailors’ Monument in Wilmington, Delaware (1871), and a memorial column in the Veterans Administration Center Cemetery in Dayton, Ohio (1873-77). A parking lot currently occupies the former site of Latrobe’s Bank of Pennsylvania. Cohen and Brownell, *The Architectural Drawings*, 1:198.

Street and the Vauxhall Garden, two blocks southeast of the Square, offered pantomimes, elaborate fireworks displays, music halls, and promenades. John Lewis Krimmel captured the unruly character of the Centre Square crowd when he revisited Independence Day festivities in his *Fourth of July Celebration in Centre Square, Philadelphia, 1819* (Fig. 3.34). In this watercolor, the boisterous throng has pushed the Engine House—now abandoned and partially obscured by a passing parade of soldiers—even further into the image’s background. Krimmel’s preparatory sketches for the watercolor depict ordered tents in a sparsely populated square (Fig. 3.35), suggesting the artist dialed up the drama in his final watercolor. While Krimmel’s figures appear good-natured and celebratory, an incident that occurred later that year may have reminded viewers how quickly such crowds could turn violent. In September, a mob at the Vauxhall rioted while impatiently waiting for a hot-air balloon ascent by a Monsieur Michel. A man inside the gardens used a board to strike down a boy attempting to climb the fence to gain entry and the crowd waiting outside “immediately commenced the work of destruction,” tearing down the garden fence, breaking lamps and windows, drinking and spilling wine and liquors in the bar-room, and, finally, setting fire to the garden temple, which burnt to the ground.¹⁴⁸

The map references another sensational event in the southwest quadrant of Centre Square’s circular confines. An ominous X marks the spot where “Matthew Henderson body found murdered by Luckett – an English officer Jan 10/1813” (Fig. 3.33). This “horrid” murder, where an officer robbed Henderson and stabbed him forty-six times,

¹⁴⁸ James Long, “Destruction of Vauxhall,” *Nile’s Weekly Register*, September 11, 1819. Milroy, “Repairing the Myth,” 59–61.

was reported in newspapers throughout North America.¹⁴⁹ The murder site's prominence and close proximity to the Waterworks marked the square as a place of mortal, corporeal danger. Not even allegorical bodies were safe; in 1816, according to local newspapers, a "deranged person" escaped from his confinement to Centre Square, where he stripped off his coat and proceeded to "mutilate the beautiful figure which decorated the fountain of that place."¹⁵⁰ The destruction and disfigurement of these bodies—both living and sculpted—at Centre Square inspired Civis's impassioned letter to *Poulson's American Daily Advertiser* and cemented the site's reputation as a "haunt of profligacy."

In 1815, the Centre Square Engine House was taken offline of the city's pipe network and replaced by a more easily regulated Waterworks at Fairmount on the banks of the Schuylkill River, designed by Graff and John Davis. The Engine House building was considered as an observatory and a public library, briefly used as a watch house, and finally demolished in 1827. In 1829, High and Broad Streets cut through Centre Square, facilitating a smoother circulation of traffic until the construction of a massive City Hall blocked the intersection again in 1871.¹⁵¹ Due to its early experiments with the technology, Philadelphia developed into a leading producer and manufacturer of steam engines, which were eventually used to power breweries, sawmills, and locomotives.¹⁵² Outbreaks of yellow fever decreased after the Waterworks' construction 1801, with the last major Philadelphia epidemic occurring in 1822, although this decline was more likely

¹⁴⁹ "[The Body of a Gentleman...]," *New-York Gazette & General Advertiser*, December 24, 1813; "[Mr. Matthew Henderson...]," *Alexandria Gazette*, December 28, 1813; "[A Horrid Murder...]," *The True American*, January 5, 1814.

¹⁵⁰ "Curious Notion," *Poulson's American Daily Advertiser*, May 27, 1816.

¹⁵¹ Milroy, "Repairing the Myth"; Latrobe and Stapleton, *The Engineering Drawings*, 26.

¹⁵² Schocket, *Founding Corporate Power*, 116.

due to the elimination of cisterns and shallow wells, where mosquitoes carrying the disease bred.

On New Year's Day in 1860, the *Philadelphia Public Ledger* distributed its "Ledger Carriers Annual Greeting," an engraving typically featuring a local scene of historical significance combined with a short poem. Intended to be collected by subscribers, framed and displayed in the home, these prints—which featured Independence Hall, Girard College, and Penn's Treaty Elm in the three years following 1860—frequently encouraged nostalgic contemplations of past Philadelphia landmarks.¹⁵³ The 1860 Greeting depicted a view of the Centre Square Waterworks, drawn by John James Barralet and engraved by A.B. Walters (Fig. 3.36). In this print, Barralet appropriated elements of the Birches' 1800 engraving of the site, although he moved the carriage traffic to the foreground and added William Rush's fountain sculpture, significantly enlarged so that it appears to dwarf the cloaked woman observing the figure from its surrounding fence. By highlighting the horse-drawn carriage and covered wagon on the road encircling the Engine House, Barralet underscored the passage of time that significantly altered the site and its later perceptions. Despite the controversy that defined Centre Square several decades earlier, the accompanying poem celebrated the Engine House as an "ancient landmark" of the city:

Yon Marble Hall – Irreverently Styled.
The Pepper Box was once our city's pride
Around it, lofty trees and verdure smiled –
Now swept away by times unsparing tide
Alas: 'Tis sad – with every fading year, -

¹⁵³ John Neagle and H. Quig (printer), "Ledger Carriers Annual Greeting 1861: The Hall of Independence," engraving, 1861, The Library Company of Philadelphia; "Ledger Carriers Annual Greeting 1862: Girard College," engraving, 1862, The Library Company of Philadelphia; John Serz and H. Quig (printer), "Ledger Carriers Annual Greeting, 1863: Fairman's Mansion & Treaty Tree. Built 1702. Taken down 1825," engraving, 1863, The Library Company of Philadelphia.

To see our “ancient landmarks” disappear
Increase of population on the banks
of Schuylkill must the water soon pollute
Then Fairmount’s buildings, mounds and rock-hewn tanks
will pass away. Its waterwheels be mute
Thus, - though improvement marks each changing year, -
‘tis sad to see old “landmarks” disappear.¹⁵⁴

This poem mourns the effect of time on Centre Square and its “irreverently styled” Marble Hall, here identified by its popular nickname, the “pepper box,” due to its stylistic similarity to the domed, tankard-like pepper shaker that graced the tables of wealthy citizens. John Fanning Watson noted in 1850: “even though [the Engine House] was an ornamental structure...it nevertheless bore the disparaging name of the ‘pepper box’, in allusion to its circular form and appearance.”¹⁵⁵ “Pepperbox” was also the name of a multiple-barrel, repeating revolver that became particularly popular in the United States from the 1830s until the Civil War.¹⁵⁶ In mobilizing the “pepperbox” nickname, therefore, the public may have made additional associations between the Waterworks’ volatile steam engines and the grinding of pungent pepper or an explosive gunshot. The poem additionally worried about the environmental degradation of the Schuylkill River as the increasing population on its banks threatened the “wholesomeness” of the water prized by Latrobe when he proposed his Waterworks’ plan. To protect the water supply from industrial pollution, the city purchased land along the Schuylkill River and established Fairmount Park in 1855.

¹⁵⁴ A. B. Walters and H. Quig (printer), “Ledger Carriers Annual Greeting 1860: Centre Square. Erected in 1800. Taken down in 1828.” engraving, 1860, The Library Company of Philadelphia.

¹⁵⁵ John Fanning Watson, *Annals of Philadelphia and Pennsylvania, in the Olden Time; Being a Collection of Memoirs, Anecdotes, and Incidents of the City and Its Inhabitants, and of the Earliest Settlements of the Inland Part of Pennsylvania*, vol. 2 (Philadelphia: The Author, 1850), 457.

¹⁵⁶ Lewis Winant, *Pepperbox Firearms* (New York: Greenberg, 1952).

Initially conceived to improve the health of Philadelphia citizens by establishing an underground circulatory system to flood the city with wholesome water, the design of the Centre Square Engine House embodied Latrobe's knowledge of classical architecture, the natural world, and the interconnectedness of hydrological systems. Latrobe's Waterworks failed, however, because of its own internal malfunctions and because it did not accommodate the changing landscape of the growing city. The widespread employment of natural and bodily metaphors by Latrobe, the Watering Committee, and Philadelphia citizens to visually and textually describe the Waterworks' structure and functions allude to the corporeal anxiety that characterized the site's reception. Intended to cleanse the diseased city, the Waterworks were instead plagued by blockage, obstruction, and corruption, becoming a diseased body itself: a "covert of danger and blood."

CHAPTER 4

“APPROPRIATE IN A SYLVAN STATE”: WILLIAM RUSH’S *SELF-PORTRAIT* AND ENVIRONMENTAL METAMORPHOSIS

Thirteen years after carving the *Water Nymph* figure for the Centre Square fountain, the sculptor William Rush completed a *Self-Portrait* that I argue also engaged with a series of environmental concerns impacting the city. Produced circa 1822, Rush’s *Self-Portrait* (Fig. 4.1) is undoubtedly one of the most unusual examples of early American portrait sculpture. In a significant departure from genre conventions, Rush fashioned his stern head as if rising from the knotty trunk of a pine tree instead of a human torso. A needled branch delineates his right shoulder and collarbone and fragments of bark encircle his neck in a scalloped collar. In the back of the bust (Fig. 4.2), clusters of pine needles flare upwards to meld with his hair. Rush here sculpted his bust in terracotta rather than his usual medium of wood, a material ostensibly better suited to the tree conceit. The resulting deception has led many scholars to interpret the *Self-Portrait* as an experiment in trompe l’oeil, inviting early national viewers to look closely and critically in order to determine the bust’s true composition.¹ So convincing was Rush’s illusion that nineteenth-century accounts insisted the bust was cast from an original version of carved pine; this claim has since been refuted.²

The authority of Rush’s head over the wild knot of pine initially suggests a celebration of the artist’s supremacy over his medium and the natural world. Yet, as this

¹ William Rush, *American Sculptor*, 165. For an investigation of how of trompe l’oeil, optical devices, and spectacles of deception shaped citizens’ understanding of knowledge, representation, and subjectivity between 1790-1825, see Bellion, *Citizen Spectator*.

² Henri Marceau noted that William Dunlap never mentioned a self-portrait in wood, which “would have been in the nature of a *tour de force* and almost certainly would have been reported.” Marceau, *William Rush*, 54.

chapter will demonstrate, the *Self-Portrait* also poignantly embodied the fraught relationship between urban residents of Philadelphia and their environment during the early republic, amid rapid transformation and exploitation of the area's sylvan resources. As the city and nation expanded into formerly inaccessible terrain, aided by the Louisiana Purchase and corporation-sponsored roads and canals, Rush and his contemporaries faced growing evidence of limits and scarcity within the natural world. Through its prominent depiction of an American white pine, a tree praised for its column-like trunk, and subtle allusions to classical portraiture, Rush's *Self-Portrait* projected a patriotic message of empire and victory grounded in the nation's natural landscape. Rush's simulated pine foundation, however, also associated the artist and his work with the abundant forests of Pennsylvania at the very moment they were slipping into memory, decimated by the timber trade and agricultural clear-cutting. *Self-Portrait* and descriptive accounts of Rush at work imagine the sculpting process as a collaboration of artist and material during a period when anatomy and botany were epistemologically entangled. This period recognition of the vibrant materiality of wood and other natural resources reframes our understanding of early nineteenth-century environmental development and expansion: for early Americans like Rush, wood and trees were not simply a passive material for human consumption, but active participants in negotiating the development and preservation of the environment.³ I argue that Rush's *Self-Portrait*, where man and tree compete to become subject, upholds both Enlightenment ideals about the cultivation and domestication of the local landscape and provides a nostalgic meditation on the region's quickly receding sylvan past.

³ I borrow the term "vibrant materiality" from Bennett, *Vibrant Matter*.

Modeling a Carver

William Rush has been conspicuously neglected in scholarship of early American art, despite his contemporary success as an artisan-sculptor of prominent public projects and his central role in the foundation of important artistic institutions in Philadelphia as the Columbianum and the Pennsylvania Academy of the Fine Arts. Only Rush's evocative large-scale anatomical models, commissioned by the physician and anatomist Caspar Wistar in 1808, have received attention of late, reevaluated as problematically democratic objects in recent studies by Alexander Nemerov and Martin Berger.⁴ The last serious investigation of the sculptor's oeuvre occurred in the 1982 Pennsylvania Academy of the Fine Arts exhibition catalogue, *William Rush, American Sculptor*. While Linda Bantel and the other contributors to that volume recognized Rush's status as a key figure in the artistic and civic life of early national Philadelphia, their primary concern was to reconstruct his biography and oeuvre through formal and technical analysis and interpret his work politically or socially. Rush's unusual *Self-Portrait* receives no attention from either Nemerov or Berger and minimal interpretation in the 1982 catalogue essays, despite its prominent placement on the cover and Bantel's stated recognition that the work constitutes "something of an anomaly." Thus the strangeness of Rush's *Self-Portrait* remains unexamined.⁵

For some scholars, William Rush and his work have exemplified merely an inchoate, pre-artistic state of aesthetic development in the United States. For example, in

⁴ Nemerov, *Mammoth Scale*; Berger, "The Anatomy of the Early Republic."

⁵ *William Rush, American Sculptor*, 165.

an essay for *William Rush, American Sculptor*, William H. Gerdts concluded that later neoclassical sculptures, such as Horatio Greenough's *George Washington* (1840) and Hiram Power's *Greek Slave* (1844) "bespeak the new nation's more complete cultural aspirations than does the work of the inspired Philadelphia wood-carver." According to Gerdts, debates about classicism, nationalism, and the nude surrounding marble sculptures by Greenough and Powers "were as much or more germane to the ethos of the striving young republic than the enthusiasm of the dockside crowds for William Rush's figureheads." Ultimately, Gerdts defines Rush's sculptures as "significant monuments of material culture" as opposed to "Art."⁶

Since Gerdts articulated those sentiments three decades ago, scholarship in American art history has come a long way forward in its appreciation of and critical engagement with material culture.⁷ Through a close examination of Rush's curious *Self-Portrait*, this chapter realigns our conception of William Rush and situates him within the historical milieu of early nineteenth-century Philadelphia, challenging earlier caricatures of him as an "inspired wood-carver" for the "dockside crowds" or as citizen-sculptor engaged exclusively with sociopolitical themes. A consideration of the shifting materialities and environmental realities in which Rush produced sculpture demonstrates his awareness of a wider set of historical concerns arising from ecological change, proving that the artist grappled with the implications of dynamic interrelationships and transformations in nature for which the term "ecology" would eventually be coined.

⁶ Gerdts, "William Rush: Sculptural Genius or Inspired Artisan?," 75.

⁷ Some notable, recent studies which blur the boundaries between art and material culture in early American art history include Wendy Bellion, "The Return of the Eighteenth Century: Introduction and Overview," *American Art* 19, no. 2 (Summer 2005): 2–10; Bellion, *Citizen Spectator*; Margaretta M. Lovell, *Art in a Season of Revolution: Painters, Artisans, and Patrons in Early America* (Philadelphia: University of Pennsylvania Press, 2005).

Born in 1756, the son of a ship carpenter, Rush began his artistic career during the 1790s by carving expressive figureheads from wood for merchant vessels and some of the first post-Revolutionary United States Navy vessels. One of his earliest surviving works, *Peace* of 1805-1810, demonstrates the walking attitude that characterized Rush's approach to figurative composition (Fig. 4.3). Despite their lack of high finish, Rush's figureheads received praise for their "exquisite beauty," due to the sculptor's ability to convey motion through his carvings. According to Benjamin Latrobe, when viewed in situ on the prow of a boat, the figures "seem rather to draw the ship after them than to be impelled by the vessel."⁸ Greatly impacted by a series of events occurring over less than two decades—the 1807 Embargo Act, which prohibited the sale of American goods to Britain or France, the War of 1812, and the economic ascendancy of New York City—Philadelphia's maritime industry gradually declined during the early nineteenth century. Responding to that industrial change of fortune, Rush turned to portrait busts, ornamental sculpture, and civic commissions to sustain his artistic career.⁹ Annual exhibitions hosted by the Pennsylvania Academy of the Fine Arts, where Rush served as a founding member and Academician, offered the sculptor an opportunity to display terracotta busts of respected local personages and market plaster replicas for purchase. Plaster copies of a terracotta bust of Caspar Wistar (Fig. 4.4), for example, were ordered by the esteemed physician's colleagues and presented to the American Philosophical Society and the

⁸ Latrobe, *Anniversary Oration*, 24–25.

⁹ For more on Rush and the maritime industry, see Linda Bantel, "William Rush, Esq.," in *William Rush, American Sculptor*, 9–16.

Pennsylvania Hospital after the original was displayed at the Pennsylvania Academy's 1813 exhibition.¹⁰

It is unclear when or from whom Rush learned how to model portrait busts in clay. No terracotta portrait busts prior to 1808 have been attributed to the artist, although he may have initially used clay to sketch his ideas for his wooden sculptures.¹¹ According to early American art historian William Dunlap, Rush learned the skill from Joseph Wright, a painter, sculptor and the son of wax modeler, Patience Wright. Joseph Wright resided periodically in Philadelphia from 1783 until his death from yellow fever in 1793, providing multiple opportunities for Rush to study with him.¹² One of Rush's earliest terracotta busts is a posthumous portrait of Wright, circa 1810 (Fig. 4.5), which perhaps served as an homage to his late mentor. Rush may also have been inspired by European sculptors – most notably Jean-Antoine Houdon and Giuseppe Ceracchi – who traveled to the United States to execute portrait busts of the country's famous citizens, including Thomas Jefferson, John Jay, David Rittenhouse (Fig. 4.6), and George Washington. Unlike Houdon and Ceracchi, however, Rush never attempted to carve in marble as “time would never permit” him to learn the skill, according to Dunlap.¹³

During Rush's lifetime, only a handful of marble sculptures were produced in Philadelphia; most notably, a local stone-cutter, James Traquier, employed the Italian-

¹⁰ For more on Rush's portrait busts, see Frank H. Goodyear, “‘Tolerable Likenesses:’ The Portrait Busts of William Rush,” in *William Rush, American Sculptor*, 47–56.

¹¹ Rush's portrait busts of daughters Elizabeth and Mary, dated 1808–10, are considered his earliest examples of the genre. *Ibid.*, 48.

¹² See Monroe H. Fabian, *Joseph Wright, American Artist, 1756–1793* (Washington, D.C.: Published for the National Portrait Gallery by the Smithsonian Institution Press, 1985).

¹³ William Dunlap, *History of the Rise and Progress of the Arts of Design in the United States* (New York: B. Blom, 1834), I:374.

born sculptor Giuseppe Jardella to carve busts of George Washington, William Penn, Benjamin Franklin and Alexander Hamilton in Carrara marble between 1802 and 1804. Marble deposits in Montgomery County, Pennsylvania, yielded stone of suitable quality for building and sculpting after the Revolutionary War.¹⁴ According to architect and engineer Benjamin Latrobe, however, even though the United States possessed marble “superior in texture to that of Carrara in Italy,” quarries holding this high-quality stone were seldom open.¹⁵ Locating, procuring, transporting, and carving large blocks of marble in the United States, therefore, entailed a significant expense. Sculptors like Rush were consequently restricted in terms of the materials they could obtain and manipulate. Although Rush continued to work in wood throughout his career, his increasing interest in clay suggests a growing ambition to attain the status of cosmopolitan artist within the limits posed by the materials he could obtain, while sanctifying his work and medium as a local artisan. Even though Rush never worked in marble, he still emulated that material’s characteristic white surfaces in his sculptures. He applied multiple layers of white paint to his carved wooden figures and, with few exceptions, primarily used clay that fired in an off-white or bisque color.

Just as Rush’s wooden sculptures developed out of the city’s booming shipbuilding industry, his terracotta busts took advantage of the widely available local clay used to make the brick that characterized Philadelphia’s architecture. A rich bed of clay twelve feet below much of the city’s surface sustained a thriving brick-making

¹⁴ John Thomas Scharf and Thompson Westcott, *History of Philadelphia, 1609-1884* (Philadelphia: L.H. Everts & Co., 1884), 1066–67; Donna J. Rilling, *Making Houses, Crafting Capitalism: Builders in Philadelphia, 1790-1850* (Philadelphia: University of Pennsylvania Press, 2001), 118.

¹⁵ Benjamin Latrobe to Nathaniel Macon, January 9, 1816. Latrobe, *The Correspondence and Miscellaneous Papers*, 2:719–22.

industry in the late eighteenth and early nineteenth centuries. Brickyards and claypits dotted the peripheries of the developed city, eventually becoming the cellars of houses to accommodate the growing urban population after the clay was extracted.¹⁶ Rush executed one of his earliest portrait busts, depicting his young daughter Elizabeth, in a coarse, red clay combined with crushed brick and sand (Fig. 4.7)—the same mixture used for the period’s high-quality brick. Elizabeth’s portrait, therefore, visually and materially connected her to the urban environment she inhabited. Rush did not use this soft, porous, the brick clay mixture for any of his other surviving portrait busts, possibly because its reddish hue was incompatible with his interest in mimicking marble. Rush continued to use local clay for his later terracotta sculptures, but removed large foreign particles and soluble impurities in order to obtain a whiter color after firing. These artistic choices demonstrate the sculptor’s employment of local, everyday materials found in Philadelphia’s brickyards and workshops.¹⁷

Despite focusing more attention on terracotta late in his career, Rush continued to carve figures in wood. Public sculptures like *Tragedy* and *Comedy* (Fig. 4.8), created to ornament the façade of the New Theatre on Chestnut Street in 1808, and *Wisdom* and *Justice* (Fig. 4.9), displayed as part of a triumphal arch erected for the Marquis de Lafayette’s 1824 visit to Philadelphia, were all fashioned out of pine, showing Rush’s continued dedication to the material. The sculptor even carved the occasional wooden portrait bust; the sharply defined curls in a pine bust of the Swedish naturalist Carl Linnaeus reveal Rush’s dexterity as he achieved a comparable level of detail in that

¹⁶ Rilling, *Making Houses, Crafting Capitalism*, 103.

¹⁷ Virginia Norton Naudé, “Toolmarks and Fingerprints: A Technical Discussion,” in *William Rush, American Sculptor*, 84–86.

medium as in his terracotta portraits (Fig. 2.9). Rush never met Linnaeus, who died in 1778, but the sculptor was likely familiar with the naturalist's admired and widely-published theories on natural equilibrium and the interrelationships of various species in their cycles of growth and decay. As discussed in Chapter Two, Rush may have carved the bust for Charles Willson Peale's Philadelphia Museum, which displayed flora and fauna according to Linnaeus's celebrated system of taxonomy.¹⁸

Rush's labor in wood would eventually be celebrated by Thomas Eakins in *William Rush Carving the Allegorical Figure of the Schuylkill River*, which commemorated the sculptor in a spirit of centennial-era retrospection (Fig. 3.31). In Eakins's painting, Rush appears at work in his studio, using a mallet and chisel to carve *Water Nymph and Bittern*, discussed in the previous chapter. The model, her knitting chaperone, and a chair over which the model's clothes have been draped, are bathed in light and color, while the rest of the studio recedes into the shadowy background. Relegated to this space, Rush almost disappears among a proliferation of carved ornaments, wood shavings, elaborately sketched designs, and his wooden sculptures, including the *Allegory of the Waterworks*, carved for a later millhouse at Fairmount, and a full-length portrait of George Washington. Eakins's placement of Rush among his creations and the murky, brown background not only associates Rush with a historic and

¹⁸ William Rush, *American Sculptor*, 133–35. Linnaeus's 1749 thesis, "The Oeconomy of Nature," was translated into English in 1759. See Benjamin Stillingfleet, trans., *Miscellaneous Tracts Relating to Natural History, Husbandry, and Physick* (London: R. and J. Dodsley, S. Bakerm and M. Cooper, 1759). For more on the importance of Linnaeus and his system of taxonomy to American naturalists, see Worster, 26-55.

artistic past but also visually obscures differences between the sculptor and his medium; Rush himself appears as if he is also constructed of wood.¹⁹

Rush emphasized his achievements in wood carving throughout his career; when his *Self-Portrait* was displayed at the Pennsylvania Academy of the Fine Arts in 1822, its label read, “Wm. Rush, Carver, modeled in Clay burnt.”²⁰ In a list of featured American artists located in the back of the exhibition catalog, Rush additionally identified himself as a “Sculptor in Wood, &c.,” even though seven of the eight works he exhibited that year—including portraits of Benjamin Rush (1812), Caspar Wistar, Philip Syng Physick (1812-13) Commodore Oliver Hazard Perry (c. 1814) Major General Winfield Scott (c. 1814), and Andrew Jackson (1819)—were terracotta or plaster casts.²¹ Rush’s primary designation here as a “carver” and “sculptor in wood” both references the resemblance of his *Self-Portrait*’s base to wood and underscores his primary identity as a wood-carver, even when he worked in clay.

According to objects conservator Virginia Norton Naudé, Rush’s method of modeling terracotta was surprisingly similar to his wood-carving process. After building up masses of clay, Rush used tools in the same manner as a chisel to remove elements and establish fine details. His method for delineating eyes, which involved incising the circular line of the iris and removing a ball of clay to form the pupil, was the same in

¹⁹ Elizabeth Johns, *Thomas Eakins: The Heroism of Modern Life* (Princeton, N.J.: Princeton University Press, 1983), 82–114. For an ecocritical analysis of this painting and others by Eakins, see Braddock, “Bodies of Water.”

²⁰ *Eleventh Annual Exhibition of the Pennsylvania Academy of the Fine Arts* (Philadelphia: Hickman & Hazzard, 1822), 21.

²¹ The only wooden sculpture Rush exhibited in 1822 was a full-length portrait of George Washington. *Ibid.*, 11, 21, 24.

wood and terracotta.²² Components of his terracotta busts even appear to emulate characteristics inherent in the wood of his carved portraits. The sculpted pine knot on Rush's left shoulder in his *Self-Portrait*, for example, echoes the location of an actual pine knot on the artist's 1812 portrait bust of *Samuel Morris* (Fig. 4.10), visible on the subject's left collar, even beneath multiple layers of original white paint.²³ Rush used wires, loops, sticks, knives, and his fingers to work his clay instead of a claw chisel, the preferred tool of European terracotta sculptors. These tools suggest an intimacy between Rush and his clay busts that could not have been achieved with the less malleable material of wood.²⁴ One can imagine Rush's fingers pushing into the clay in order to dig out the knots visible on the base of his *Self-Portrait*, resulting in a more tactile likeness that still celebrates the sculptor's primary medium even as it translates that medium into another.

Rush's visual allusion to his preferred material in *Self-Portrait* acquires more significance when considered in the context of the state of local forests circa 1820. Wood was a primary resource for Pennsylvania, a state that—true to its Latin name, meaning “Penn's Woods”—possessed abundant forests of many varieties of trees during the eighteenth century. In 1773 alone, ships carried more than four million feet of boards and scantling from Philadelphia and by 1810, approximately two thousand sawmills in the state produced nearly seventy-five million feet of sawn lumber. Philadelphia exported or

²² For more on Rush's methods of modeling clay, see Naudé, “Toolmarks and Fingerprints,” 86–87.

²³ The Schuylkill Fishing Company commissioned the bust of Morris, former governor of the social club, following his death in 1812. *Samuel Morris* is the only extant wooden sculpture by Rush in which the original two coats of paint are preserved. Ibid., 82.

²⁴ Ibid., 87. For an analysis of tool markings in terracotta sculptures, see John Larson, “The Conservation of Terracotta Sculpture,” *The Conservator* 4, no. 1 (1980): 40–41.

utilized huge quantities of this wood in shipbuilding, housing, construction, tanning, and fuel. As a result of rapid wood consumption, timber in easy proximity to navigable waterways became scarce by the beginning of the nineteenth century. Large forests of oak, chestnut, pine, and cedar in Southwestern New Jersey, directly across the Delaware River from Philadelphia, almost completely disappeared due to agricultural clear-cutting and fuel consumption.²⁵ One sawmill operator reported in 1821 that the number of large rafts of sawn lumber floated downstream to Delaware River wharves north of Vine Street that “have decreased [and] they must more & more...the Timber in most places is nearly all cut away.”²⁶ This increasing scarcity and regional competition for choice timber forced lumbermen to harvest trees in more remote areas farther away from urban centers.

Rush primarily used eastern white pine (*Pinus strobus*) for his wooden sculptures and he depicted the same species, with its distinctive bundles of long, finely serrated needles, in his terracotta *Self-Portrait*. Only a few years earlier, in 1817-19, the French botanist François André Michaux wrote a foundational treatise of American forestry titled *The North American Sylva*, in which he illustrated (Fig. 4.11) and praised the white pine saying “this ancient and majestic inhabitant of the North American forests is still the loftiest and most valuable of their productions, and its summit is seen at an immense distance aspiring towards heaven, far above the heads of the surrounding trees.”²⁷

Published in an English translation available in Philadelphia, Michaux’s *Sylva* documented the practical uses of American forest trees in order to encourage preservation

²⁵ Donna J. Rilling, “Sylvan Enterprise and the Philadelphia Hinterland, 1790-1860,” *Pennsylvania History* 67, no. 2 (Spring 2000): 196.

²⁶ Samuel Preston to Lewis S. Coryell, June 26, 1821, Lewis S. Coryell Correspondence, Historical Society of Pennsylvania. Quoted in *Ibid.*

²⁷ Michaux, *The North American Sylva*, 1819, 3:161.

of the nation's most valuable resources, a practice that was already enforced by governments in France and Germany. Michaux specifically commented on the growing scarcity of the white pine, a softwood prized for shipbuilding and carving because it was easy to manipulate, durable, and lightweight. Large forests of white pine that dotted the northern part of Pennsylvania were systematically harvested and the timber was floated down the Delaware River to Philadelphia during the eighteenth century and early nineteenth centuries. Michaux remarked that the pine's vast consumption locally and abroad "renders it necessary every year to penetrate farther into the country, and inroads are already made, in quest of this species only, upon forests which probably will not be cleared for cultivation in 25 or 30 years."²⁸

In *Sylva*, Michaux recommended the white pine as a desirable transplant to Europe for its quality and versatility, noting, "sculptors employ it exclusively for the images that adorn the bows of vessels."²⁹ The latter comment may specifically recall Rush's celebrated ship figureheads, for Michaux spent several months in Philadelphia gathering material for *Sylva* and wrote that he frequently "entered work-shops of every description where wood is wrought."³⁰ Without examining the *Self-Portrait*, political historian Lisa Ford recently speculated that the French naturalist might have visited Rush's workshop on Front Street to learn about the artisanal uses of American wood,

²⁸ Ibid., 3:166.

²⁹ Ibid., 3:163.

³⁰ François André Michaux, *The North American Sylva, or A Description of the Forest Trees, of the United States, Canada and Nova Scotia. Considered Particularly with Respect to Their Use in the Arts and Their Introduction into Commerce; to Which Is Added a Description of the Most Useful of the European Forest Trees*, vol. 1 (Paris: C. d'Hautel, 1817), 2.

though there is no evidence of such a visit.³¹ Even if Michaux and Rush never met, the sculptor's reliance on wood and his connections within the shipbuilding community would have made him aware of the declining availability of valuable forest trees, especially the white pine.

Sylvan Metamorphosis

Despite the growing scarcity of wood, Rush championed it as the ideal material for visual expression in America in a plea for more commissions near the end of his life. A poignant 1830 advertisement by the sculptor in *The Philadelphia Gazette and Daily Advertiser* stated, "wooden statues are well adapted to the present state of the country, and seem perfectly appropriate in a Sylvan state."³² Even though "Sylvan state" refers to Pennsylvania specifically, Rush's patriotic language suggests the phrase applied to the entire nation as well. While there are practical reasons for this declaration, including the lower cost of wood compared to marble and its perceived durability, Rush invoked classical authority for his work in this medium, since wood was said to be used by the mythical Greek sculptor Daedalus, whom the Philadelphia artist deemed the "William Rush of Greece."³³ According to Rush, Philadelphia should embrace wooden statues in the manner of early Athenians in order to rival, and eventually surpass, the excellence of

³¹ Lisa L. Ford, "A World of Uses: Philadelphia's Contribution to Useful Knowledge in François-André Michaux's North American Sylva," in *Knowing Nature*, 296–97.

³² William Rush, "Advertisement," *Philadelphia Gazette and Daily Advertiser*, July 20, 1830.

³³ Ibid.

that ancient civilization.³⁴ It is likely that Rush knew of Daedalus from a variety of sources, but *The Artist's Repository; or Encyclopedia of Fine Arts*—an instructional text that Rush owned by 1812—listed the achievements of the ancient sculptor in the last volume.³⁵ According to *The Artist's Repository*, Daedalus utilized wood to commemorate his likeness. The text recounted that Daedalus's vestibule of the Temple of Vulcan at Memphis earned the sculptor such glory that "his statue in wood, made by himself, was placed in the temple [and] acquired divine honors."³⁶ By sculpting his own *Self-Portrait* with a "wooden" foundation, Rush emulated and paid homage to his Greek predecessor.

The arboreal base of Rush's *Self-Portrait* additionally alludes to elements of classical portraiture. The pine knot on Rush's left shoulder bears a subtle resemblance to the clasp of a Roman tunic while the pine needles that meld with Rush's hair in the back of the bust imitate the classical practice of crowning a victor with laurel leaves. Even the sweep of the terracotta branch across Rush's collarbone and his slightly elevated right shoulder suggest the truncated, outraised arm of a Roman orator. In 1805, a few years before Rush began sculpting busts in terracotta, Nicholas Biddle, the secretary to the American Minister in France, acquired a number of plaster casts from the studio of Getti, the official plaster cast maker for the new Louvre museum in Paris. This collection, sent to the young Pennsylvania Academy, included casts of not only the Apollo Belvedere, Venus de Medici, Laocoön and His Sons, and the Borghese Gladiator, but also twenty-five portrait busts, mostly of Roman emperors and senators, which would have featured

³⁴ For an interpretation of the literary war between ancients and moderns as a catalyst for the first fin de siècle in an earlier century, see Joan E. DeJean, *Ancients Against Moderns: Culture Wars and the Making of a Fin de Siècle* (Chicago: University of Chicago Press, 1997).

³⁵ Volumes two and four of Rush's series are located in the Philadelphia Museum of Art Library.

³⁶ *The Artist's Repository; or Encyclopedia of Fine Arts*, vol. 4 (London: C. Taylor, 1808), 107.

customary trappings of authority and conquest. Through the collection and display of these casts, the Academy provided a means for local artists like Rush, who never traveled abroad, to study the principles of classical sculpture.³⁷ Early nineteenth-century sculptors even occasionally portrayed their modern subjects in a classical guise. Giuseppe Ceracchi, for example, appropriated Imperial Roman portraiture conventions in his marble bust of George Washington (Fig. 4.12), displayed in the same 1822 Pennsylvania Academy exhibition as Rush's *Self-Portrait*.³⁸ Ceracchi presented a realistic likeness of the former president adorned in a Roman toga with clasp and breastplate—elements subtly echoed in arboreal form in Rush's *Self-Portrait*—rendering Washington in the guise of Cincinnatus, the legendary Roman hero with whom he was often associated in the American press.³⁹

The placement of Rush's *Self-Portrait* within the 1822 annual exhibition at the Pennsylvania Academy of the Fine Arts heightened these associations with the classical past. Instead of displaying *Self-Portrait* in the “Statues, Busts, &c.” section, which featured sculpted portraits of historical figures, including Rush's terracotta busts of Andrew Jackson and Commodore Oliver Hazard Perry, the Academy exhibited the carver's *Self-Portrait* in the “Antique Statue Gallery” with the Parisian casts of classical sculpture and mythological figures. The appearance there of the portrait bust of *George Washington* by Ceracchi and a clay model entitled *Genius of America* by the German-

³⁷ The majority of the Academy's original casts were lost in an 1845 fire. Cheryl Leibold, “The Historic Cast Collection at the Pennsylvania Academy of the Fine Arts,” *Antiques & Fine Art Magazine*, Spring 2010, 186–91.

³⁸ *Eleventh Annual Exhibition of the Pennsylvania Academy of the Fine Arts*, 20.

³⁹ For more on Washington's association with Cincinnatus in the visual arts and sculpture specifically, see Maurie D. McInnis, “Revisiting Cincinnatus: Houdon's George Washington,” in *Shaping the Body Politic*, 128–61.

born sculptor, engraver, and painter John Eckstein, suggests that the Academicians intended for visitors to draw connections between the art of the classical past and that of the American Republic. In the catalogue, for example, #34, Ceracchi's likeness of Washington in Roman dress, followed a portrait bust of Cicero, #33, implying an imagined lineage extending from the ancient orator to the nation's beloved first president.⁴⁰

Rush's expressed advocacy of wood in his *Self-Portrait* and the *Philadelphia Gazette* advertisement connected him and his sculptures with a more widespread period desire to locate the equivalent of a classical antiquity within the nation's forests. Although many American artists and architects, including Rush and Latrobe, willingly participated in the neoclassical craze then sweeping Europe, they were also sensitive to their own country's lack of an antique past and frequently turned to the natural world as an alternative site in which to locate the foundations of a classical architectural aesthetic. For Thomas Jefferson, the trees growing on the Natural Bridge in Virginia could be compared to vegetation covering Roman ruins in engravings by the eighteenth-century Italian artist, Giovanni Battista Piranesi (Figs. 4.13-14).⁴¹ Trees particularly took on classical associations during the early national period. Jesuit Marc Antoine Laugier reintroduced the Vitruvian theory that the "primitive hut" (Fig. 4.15)—composed of four tree trunks linked by horizontal branches—served as an ideal architectural model that inspired ancient Greek temples in his 1753 *Essai sur l'architecture*. This comparison

⁴⁰ *Eleventh Annual Exhibition of the Pennsylvania Academy of the Fine Arts*, 20–21.

⁴¹ Gordon M. Sayre, "The Mound Builders and the Imagination of American Antiquity in Jefferson, Bartram, and Chateaubriand," *Early American Literature* 33, no. 3 (1998): 225–49.

drew a direct connection between trees and free-standing columns.⁴² In his 1791 *Travels through North and South Carolina, Georgia, East and West Florida*, the Philadelphia naturalist William Bartram described the trunks of trees growing in Florida's Alachua Savana, as "imitating the shafts of vast columns."⁴³ As art historians Amy Meyers and Michael Gaudio have demonstrated, Bartram was primarily interested in locating recurring geometric forms, like cones and pyramids, in nature. The palm tree in the left foreground of Bartram's map of the Great Alachua Savana (Fig. 4.16), for example, resembles a classical column, providing an architectural rationalization of an unfamiliar landscape for the artist-naturalist and his audience.⁴⁴ The pine tree—the foundation of Rush's *Self-Portrait*—particularly invited these columnar associations because of its tall, straight trunk. In his 1792 *History of New Hampshire*, Jeremy Belknap called the white pine the "prince of the American forest" and explained that it "appears like a stately pillar, adorned with a verdant capital, in form of a cone."⁴⁵ Through its imitation of marble, the off-white clay of Rush's *Self-Portrait* not only visually connected the bust to the classical statues displayed in the Pennsylvania Academy; it also celebrated and preserved the artist's pine foundation as an object of antiquity, as if picturing the popular analogy between tree and column.

⁴² Antoine Picon, "The Freestanding Column in Eighteenth-Century Religious Architecture," in *Things That Talk: Object Lessons from Art and Science*, ed. Lorraine Daston (New York: Zone Books, 2004), 67–99.

⁴³ William Bartram, *Travels through North and South Carolina, Georgia, East and West Florida* (Philadelphia: James & Johnson, 1791), 198.

⁴⁴ Amy R. W. Meyers, "Sketches from the Wilderness: Changing Conceptions of Nature in American Natural History Illustration, 1680-1880" (Ph.D. diss, Yale University, 1985), 132–138; Gaudio, "Swallowing the Evidence."

⁴⁵ Jeremy Belknap, *The History of New Hampshire...*, vol. 3 (Boston: Belknap and Young, 1792), 102, 73.

Envisioning ancient Greece within the nation's sylvan landscape was not uncommon in the promotion of American arts. In his *Anniversary Oration*, presented before The Society of Artists in Philadelphia in 1811, Benjamin Latrobe proposed that "the days of Greece may be revived in the woods of America, and Philadelphia become the Athens of the Western world."⁴⁶ Artists frequently appealed to the classical past in order to gain patronage in America at a time when the fine arts were regarded with suspicion as superfluous distractions or dangerous luxuries.⁴⁷ Latrobe used the model of Athens in his lecture to argue that support of the fine arts was necessary in a free, democratic state. He additionally introduced a botanical metaphor to describe the benefits and perseverance of the arts in the young nation:

Art is a hardy plant. If nursed, tended, and pruned, it will lift its head to heaven, and cover with fragrance and beauty the soil that supports it; but, if neglected, stunted, trodden under foot, it will still live; for its root is planted in the very ground of our own existence.⁴⁸

Rush was the first president of the Society of Artists and the only American-born artist to be praised at any length within Latrobe's *Oration*. Latrobe again utilized botanical terms when describing the sculptor as "at the head of a branch of the arts which he has himself created."⁴⁹ This statement provides a verbal analogy for the visual metaphor evident in Rush's *Self-Portrait*, where the sculptor is literally the "head of a branch" that he modeled in clay.

⁴⁶ Latrobe, *Anniversary Oration*, 17.

⁴⁷ For an investigation of Latrobe's vision of art and beauty in American culture, see Nemerov, "The Rattlesnake."

⁴⁸ Latrobe, *Anniversary Oration*, 20.

⁴⁹ *Ibid.*, 24.

Through its allusion to traditional components of classical portraiture and incorporation of a laurel-like crown of pine, Rush's *Self-Portrait* perhaps unintentionally recalled the United States' recent political victories, which made their own significant impact on the nation's forests. In the eighteenth century, the Royal Navy Board ordered that pine be used for British colonial ship carving and masts, instead of oak, to reduce superfluous weight of seafaring vessels. White pine trees in the American colonies were especially desirable for shipbuilding because they grew taller and straighter than any type of pine tree available in Europe. Designated mast trees from Nova Scotia to New Jersey were emblazoned with a "broad arrow" blaze from 1704 until 1775, identifying them as Admiralty property. The British enacted severe penalties for the cutting of these mast trees, so as to protect this valuable resource in the American colonies. Such restrictions provoked discontent among colonists, who protested this perceived violation of their lumbering practices and encroachment on private property. Ironically, these "broad arrow" laws actually sought to ameliorate the rapid destruction caused by colonial lumber practices, which obliterated whole forests in order to access valuable trees. In 1766, colonials in New York City erected a pine mast on the Common near the British barracks to celebrate the rescinding of the Stamp Act. This "Liberty Pole" was repeatedly cut down and destroyed by British soldiers, but four more reinforced masts were raised to replace it. When the Revolution began, patriots towed felled mast trees awaiting shipment away from northern ports to secluded spots to prevent them from falling into British hands. By erecting and concealing these tall, white pine masts, colonists transformed a previous symbol of economic and political oppression into an emblem of rebellion and resiliency. The obsolescence of "broad arrow" laws after the Revolution, however, meant

that the American timber industry operated with very little regulation well into the nineteenth-century, felling trees at a precipitous rate.⁵⁰

Thanks to his sense of nationalism and background in ship carving, Rush was probably well aware of the political connotations of the white pine he used so frequently in his sculptures. He possessed a deep knowledge of emblematic devices that enabled him to incorporate patriotic symbolism in his figural sculptures. In 1795, Joshua Humphreys, the nation's first naval constructor, invited Rush to submit designs for figureheads to ornament six new frigates intended to serve as the foundation of the United States Navy.⁵¹ In a letter to Humphreys, Rush proposed an elaborate figure group for the ship *Revolution*:

As the REVOLUTION of America was a struggle for freedom and gave birth to a great Republican Empire, it ought to be an Elegant Figure, representing the Genius of America binding the fasces with her right hand, and raising the emblem of Liberty out of the top of the fasces with the left, the bottom of the fasces with the left, the bottom of the fasces resting on a rock, the Emblem of firmness and Independence, the American Eagle Darting upon and Destroying the Vitals of Tyranny, with the shackles of Despotism, etc. – and hurling them under the feet of the Genius of America.⁵²

This florid description of a “Republican Empire” aligns Rush with the nation's imperial project, as the United States negotiated rapid expansion and the undeniable regional

⁵⁰ William Cronon, *Changes in the Land: Indians, Colonists, and the Ecology of New England*, 1st ed (New York: Hill and Wang, 1983), 108–13; Joseph J. Malone, *Pine Trees and Politics* (New York: Arno Press, 1979); William R. Carlton, “New England Masts and the King's Navy,” *The New England Quarterly* 12, no. 1 (March 1939): 4–18. See also Wendy Bellion, “The Afterlife of Iconoclasm: Sculpture in Early New York,” (paper presented at the Third Annual Steuben and Vivian Granger Lecture in American Art, Temple University, Philadelphia, Pennsylvania, February 7, 2013).

⁵¹ Ralph Sessions, *The Shipcarvers' Art: Figureheads and Cigar-Store Indians in Nineteenth-Century America* (Princeton, N.J.: Princeton University Press, 2005), 44; Bantel, “William Rush, Esq.,” 12–13.

⁵² William Rush to Joshua Humphreys, April 30, 1795. Joshua Humphreys Papers, Pennsylvania Historical Society.

differences between states after the Revolutionary War.⁵³ It is clear from Rush's description that the "Republican Empire," represented in his *Revolution* figurehead, was unparalleled in its elevation of liberty and victory over "tyranny" and "despotism," justifying the nation's unchecked growth and westward expansion. These sentiments were heightened after the United States' perceived victory in the War of 1812. In addition to the other symbols of conquest suggested in Rush's *Self-Portrait*, pine needles fan out along Rush's shoulders like epaulettes, a military insignia of rank, depicted in Rush's terracotta bust of *Andrew Jackson* (Fig. 4.17), sculpted only a few years earlier. Jackson rose to political prominence during the War of 1812, thanks to his 1815 victory at the Battle of New Orleans. He was also associated with wood when his determination on the battlefield earned him the nickname, "Old Hickory."⁵⁴

In its articulation of white pine and other motifs evoking a mélange of classical references to empire and victory, Rush's *Self-Portrait* offered a more beneficent, democratic American form of European imperialism. These allusions would have been particularly poignant to a visitor to the Pennsylvania Academy of the Fine Arts Annual Exhibition in 1822, where *Self-Portrait* was exhibited with a selection of drawn, painted, and sculpted portraits of Napoleon Bonaparte, displayed to commemorate his death the previous year while in exile on the island of St. Helena. Early national Americans closely followed Napoleon's military successes and losses with interest and growing unease; while he served as a political check to Great Britain, he also threatened the political

⁵³ Edward Larkin, "Nation and Empire in the Early US," *American Literary History* 22, no. 3 (Fall 2010): 501–26. See also Peter S. Onuf, *Jefferson's Empire: The Language of American Nationhood* (Charlottesville, Va.: University Press of Virginia, 2000).

⁵⁴ Milo M. Naeve, "William Rush's Terracotta and Plaster Busts of General Andrew Jackson," *American Art Journal* 21, no. 1 (1989): 19–39.

freedom that the United States so vehemently advocated. After Napoleon's abdication in 1814, Joseph Hopkinson, the son of Francis Hopkinson and president of the Pennsylvania Academy of the Fine Arts, wrote to Andrew Daschkoff, the Russian consul-general at Philadelphia: "If a fire which threatened to devour the world had been in a moment extinguished, it could not have excited in my heart more lively and deep emotions of gratitude and joy."⁵⁵

Despite Hopkinson's great relief at Napoleon's downfall, the Pennsylvania Academy still displayed a number of the French general's portraits in 1822, including a few lent by Joseph Bonaparte, Napoleon's elder brother, who lived in exile in Bordentown, New Jersey. Among these portraits were Jacques-Louis David's *Napoleon Crossing the Alps* and a bust by Antonio Canova (Fig. 4.18). Rush would have also been familiar with portraits of Napoleon wearing his traditional laurel crown, a common accessory in visual representations of the French Emperor, which appeared in a medallion by Andre Galle (Fig. 4.19), displayed in earlier annual exhibitions at the Pennsylvania Academy.⁵⁶ Rush's *Self-Portrait*, with its rustic, humble pine base would have provided a stark contrast to these sumptuous, glorifying portraits serving as propaganda for Napoleon's controversial imperial ambitions. Even though Rush's expression, stern mouth, and determined gaze are similar to that of Canova's *Napoleon*, the rough texture and expressive lines of the terracotta *Self-Portrait* invites closer looking and

⁵⁵ Joseph Hopkinson to His Excellency Andrew Daschkoff, Philadelphia, June 17, 1814, Hopkinson Papers, The Historical Society of Pennsylvania. Patricia Tyson Stroud, *The Man Who Had Been King: The American Exile of Napoleon's Brother Joseph* (Philadelphia: University of Pennsylvania Press, 2005), 18–19.

⁵⁶ The Galle medallion was displayed in 1811. Peter H. Falk and Anna Wells Rutledge, *The Annual Exhibition Record of the Pennsylvania Academy of the Fine Arts*, vol. 1 (Madison, Conn.: Sound View Press, 1988).

contemplation as opposed to the slick, marble surfaces of Canova's sculpted portrait. As Jefferson famously proclaimed in the Declaration of Independence, the United States would "assume among the powers of the Earth, the separate and equal station to which the Laws of Nature and of Nature's God entitle them."⁵⁷ Through the coarse articulation of Rush's "natural" pine base, these imperial ambitions appear literally rooted in nature—North America's version of classical antiquity—and therefore divinely sanctioned, as opposed to the loftier goals expressed in Canova's *Napoleon*.

As part of this richly inventive conversation with classicism, victory, and empire, by recoding man as tree represented in clay, Rush's *Self-Portrait* additionally engaged the themes of myth and metamorphosis, a theme best known from Ovid's account of the nymph Daphne, who was turned into a laurel tree in order to escape the advances of Apollo. Rush was likely familiar with the most famous visual depiction of this mythic transformation, *Apollo and Daphne* by Gianlorenzo Bernini, through published artist biographies.⁵⁸ He could have read the story in an American edition of Ovid's *Metamorphoses* published and widely advertised in Philadelphia by 1790.⁵⁹ As a term, "metamorphosis" referred to everything from circus arts to political deception in the American popular press. In a 1792 article entitled "Ovid's *Metamorphoses* Revived in

⁵⁷ Quoted in Onuf, *Jefferson's Empire*, 6.

⁵⁸ A description and critique of Bernini's *Apollo and Daphne* was included, for example, in John Moore, *View of Society and Manners in Italy: With Anecdotes Relating to Some Eminent Characters*, 6th ed. (London: A. Strahan & T. Cadell, 1795), available at the Library Company of Philadelphia. See also Alexander Chalmers, *The General Biographical Dictionary: Containing an Historical and Critical Account of the Lives and Writings of the Most Eminent Persons in Every Nation, Particularly the British and Irish, from the Earliest Accounts to the Present Time* (London: Nichols, Son, and Bentley, 1812), 113–14.

⁵⁹ Ovid, *P. Ovidii Nasonis Metamorphoseon Libri X. Or, Ten Select Books of Ovid's Metamorphoses; with an English Translation, Compiled from the Two Former Translations, by Davidson and Clarke; a Prosody Table and References, (after the Manner of Mr. Stirling) Pointing Out, at One View, the Scanning of Each Verse; and Davidson's English Notes* (Philadelphia: William Spotswood, 1790).

Philadelphia,” an anonymous author warned readers of the *Gazette of the United States* that creatures present at a Philadelphia debate “would have made Ovid stare.” The author was referring to “aristocrats” and “democrats,” men whose politics had changed them into vermin.⁶⁰ As in this account of political alteration, Rush’s *Self-Portrait* appropriated the idea of metamorphosis without specifically referencing the details of Ovid’s stories. In the Pennsylvania Academy’s 1822 exhibition, *Self-Portrait* was exhibited alongside plaster casts of Jupiter, Marsyas, a faun, an Amazon, and a self-portrait by Antonio Canova.⁶¹ The curatorial choice to place Rush’s *Self-Portrait* near Canova’s *Self-Portrait* made a bold statement, directly comparing the native-born American carver with the revered Italian sculptor. The display of these two self-portraits with mythological figures from antiquity additionally invites an interpretation of the artist-sculptor’s transformative powers and the vitalism of matter.

The ability to convert materials resonates with Rush’s frequent association with the Ovidian sculptor, Pygmalion, both during and after his lifetime. In *Philadelphia and Her Merchants*, Abraham Ritter recalled peering into Rush’s shop with other young boys and “wonder[ing] at the transformation of unwrought timber to the form and appearance of a human being.”⁶² According to John Fanning Watson, Rush’s life-like figurehead of a River God for the ship *Ganges* caused “the Hindoos [to come] off in numerous boats to pay their admiration and perhaps reverence to the various emblems in the trail of the

⁶⁰ A Traveller, “Ovid’s Metamorphoses Revived in Philadelphia,” *Gazette of the United States*, August 18, 1792.

⁶¹ *Eleventh Annual Exhibition of the Pennsylvania Academy of the Fine Arts*, 20–21.

⁶² Abraham Ritter, *Philadelphia and Her Merchants: As Constituted Fifty @ Seventy Years Ago : Illustrated by Diagrams of the River Front and Portraits of Some of the Prominent Occupants, Together with Sketches of Character and Incidents and Anecdotes of the Day* (Philadelphia: Abraham Ritter, 1860), 105.

image.”⁶³ Dunlap recollected that Rush proclaimed, “it was immaterial what the substance was, the artist must see distinctly the figure in the block, and removing the surface was merely mechanical.”⁶⁴ Several literary scholars have convincingly argued that Rush’s career served as the inspiration for Nathaniel Hawthorne’s Pygmalion character in his 1844 short story, “Drowne’s Wooden Image,” which investigates both the conversion of wood into flesh and an artisan—a carver of figureheads—into an artist. Drowne’s artistic statement, “the figure lies within that block of oak, and it is my business to find it,” along with his expressed disinterest in sculpting in the prestigious medium of marble may have been directly inspired by Dunlap’s account of the Philadelphia sculptor in his *History of the Rise and Progress of the Arts of Design in the United States*, a text Hawthorne called “deeply interesting.”⁶⁵ Canova also drew praise for his refined method of producing sensual figures that appeared as if they had been “made by caressing marble rather than by roughly carving and chipping.”⁶⁶ Such accounts appear to grant these sculptors alchemical powers of transformation, as they locate figures inherent unworked blocks and create life-like flesh out of wood and marble. In Rush’s *Self-Portrait*, however, it is not clear whether the artist is meant to be

⁶³ Watson, *Annals of Philadelphia*, 551.

⁶⁴ Dunlap, *History of the Rise and Progress of the Arts of Design in the United States*, 315.

⁶⁵ Nathaniel Hawthorne, “Drowne’s Wooden Image,” in *Mosses from an Old Manse* (Boston: Ticknor and Fields, 1854), 2:81. Hawthorne praises Dunlap’s *History of the Rise and Progress* in a note to his short story, “The Prophetic Pictures,” in Hawthorne, *Twice-Told Tales* (Boston: American Stationers Co., 1837), 237. Sarah I. Davis, “Hawthorne’s Pygmalion as William Rush,” *Studies in Short Fiction* 19, no. 4 (Fall 1982): 343–49; Deanna Fernie, *Hawthorne, Sculpture, and the Question of American Art* (Burlington, VT: Ashgate, 2011), 119–162.

⁶⁶ Leopoldo Cicognara described Canova’s carving process in a July 24, 1813 letter to the Italian sculptor, quoted in *Canova* (New York, Marsilio, 1992), 180, cat. 93.

emerging from the tree, triumphant over his natural material foundation, or transforming back into it, seduced by his material.

Sylvan Agency

Rush's *Self-Portrait* and the alteration of the natural environment during the early national period coincided with another metaphorical tradition in art, medicine, and literature that conflated plants and trees with the human body. Recognized for his visual comparisons of humans and animals (Fig. 4.20), the Swedish physiognomist Johann Caspar Lavater also drew parallels between the human body and trees in his highly influential *Essays on Physiognomy*, published in 1797. Although Lavater did not illustrate this man/tree analogy, he emphatically stated, "the human body may be considered as a plant, of which every part preserves the character of the stem."⁶⁷ Lavater's description corresponded with anatomical imagery of the period, like an engraving mapping the arteries of the human body, published in James Drake's *Anthropologia Nova* and reproduced in later eighteenth-century medical texts (Fig. 4.21). In this plate, the body dissolves into a plant-like structure, with its blood vessels spreading upwards and outwards like the branches of a tree. In an essay explaining the harmony and uniformity of the organization of the human body, Lavater referred to the growth of a tree: "the root rises into the stem, the stem pushes out branches, the branches produce the flowers and fruit."⁶⁸ According to Lavater, this is comparable to the human body in the way that the "back unites itself to the head; the shoulder produces the arm;

⁶⁷ Johann Caspar Lavater, *Essays on Physiognomy*, trans. Rev. C. Moore, vol. 3 (London: H.D. Symonds, 1797), 271.

⁶⁸ Lavater, *Essays on Physiognomy*, 3:269.

from the arm springs the hand; and the hand, in turn, sends out the fingers.”⁶⁹ Such perceptions about human growth processes resonate visually in Rush’s *Self-Portrait*, wherein pine needles stretch upwards and outwards across Rush’s chest and head like extending fingers.

Self-Portrait also bears resemblance to anatomical sculptures like Jean-Antoine Houdon’s *Ecorché*, or *Flayed Man* (Fig. 4.22), which was displayed in the Antique Statue Gallery at the Pennsylvania Academy of the Fine Arts 1822 exhibition, along with the casts of mythological figures and Rush’s *Self-Portrait*. In the *Ecorché*, the figure’s skin has been peeled away in order to reveal the underlying muscles structure for Academy students studying anatomy, recalling the flayed structures by Peale and Latrobe discussed in the previous chapters. The branch sweeping across Rush’s chest and the segments of bark reaching upwards around his neck appear to mimic *Ecorché*’s exposed tendons. Such a visual comparison suggests parallels between the Rush’s arboreal foundation and the underlying anatomical foundation of the human body.⁷⁰

Alexander Nemerov has demonstrated that botany and anatomy were closely intertwined epistemologically in America during the early republic, as exemplified in the theories of naturalist and physician, Benjamin Smith Barton. Barton wrote about vegetable physiology and the anatomical structure of plants in his 1803 treatise on *The Elements of Botany* and his illustrations of roots and human blood vessels suggest that he

⁶⁹ Ibid. The Library Company of Philadelphia owned *Essays on Physiognomy* by 1807 and inexpensive, abridged versions were published in America as early as 1788. See Naeve, “William Rush’s Terracotta and Plaster Busts of General Andrew Jackson,” 38, note 27; John S. Crawford, “Physiognomy in Classical and American Portrait Busts,” *American Art Journal* 9, no. 1 (Spring 1977): 49–60.

⁷⁰ Anne L. Poulet, *Jean-Antoine Houdon: Sculptor of the Enlightenment* (Washington, D.C.: National Gallery of Art, in association with the University of Chicago Press, 2003), 63–66.

conceived of the two systems as analogous (Figs. 4.23-24).⁷¹ One engraving of an ambiguous, biomorphic subject by Barton at the American Philosophical Society proved so difficult to accurately identify, it is hesitantly titled “Fungus, tree, or anatomical part” (Fig. 4.25). Such slippage in distinguishing between fragments of animal, mineral, and vegetable is also evident in the series of pine anatomical models Rush built for Caspar Wistar in 1808. Commissioned by the physician and anatomist to illustrate his popular lectures at the University of Pennsylvania, these models were constructed to be gigantic enough to be seen by a larger audience. Removed from their corporeal context and enlarged to massive proportions, these sculptures became abstracted and generalized versions of the miniscule body parts they were intended to represent. Like Barton’s biomorphic fragments, Rush’s *Inner Ear* (Fig. 4.26), twenty times its original size of two and a half centimeters, invites visual comparison with a squid, sea creature, or even a curling vine, destabilizing boundaries between botany and anatomy by revealing underlying similarities.⁷² In the back of Rush’s *Self-Portrait*, it is likewise difficult to differentiate between tufts of the artist’s hair and bundles of pine needles; it appears as if Rush and the pine were composed of the same material.

Until the mid-nineteenth century, the quality of one’s inner character ostensibly determined one’s outer appearance, just as a tree’s flower is a product of its trunk and roots. Evidence of such analogical thinking can also be found in the works and words of Rush. According to Watson, Rush was interested in physiognomy as an expression of character and race; he stated that his “genius would be most displayed in carving the

⁷¹ Nemerov, *The Body of Raphaelle Peale*, 115–22. Benjamin Smith Barton, *The Elements of Botany* (Philadelphia: The Author, 1803).

⁷² For readings of Rush’s anatomical models as problematic, democratic objects, see: Nemerov, *Mammoth Scale*; Berger, “The Anatomy of the Early Republic.”

three great divisions of the human face—the negro, the American Indian, and the white man. The contour or profile of these run diametrically opposite.”⁷³ In his *Annals* manuscript entry on the sculptor, Watson sketched the physiognomic profiles of the “negro” and Indian (Fig. 4.27) in an attempt to illuminate the racial differences Rush described. This physiognomic profiling is also subtly evident in Rush’s surviving sculptures. Milo Naeve has speculated that Rush gave his portrait bust of Andrew Jackson wavy hair instead of the stuff and wiry hair he was reported to have, because straight hair was identified with weak intellect while soft, wavy curls advertised a noble character.⁷⁴ It is significant then that Rush chose white pine, a prized, noble tree, as the fictive support in his *Self-Portrait*. In the spirit of Lavater, Rush depicted himself as possessing a strong trunk, with political significance, holding up his own virtuous head.

Rush was closely associated with the Philadelphia medical community, both through his familial relationship to the prominent physician Benjamin Rush and his work sculpting anatomical figures for Wistar. It seems likely, therefore, that the carver perceived a connection between his sculptural excavations and the invasive surgical procedures carried out in the anatomical theaters of Philadelphia by doctors like John Godman, who promoted the empirical method of studying directly from the cadaver.⁷⁵ Rush, like Peale and Latrobe, demonstrated a keen interest in the benefits of circulation and he took great precautions to maintain the physical appearance and health of his

⁷³ Watson, *Annals of Philadelphia*, 551.

⁷⁴ Naeve, “William Rush’s Terracotta and Plaster Busts of General Andrew Jackson,” 24.

⁷⁵ Benjamin Rush was William Rush’s second cousin. For more on art and the culture of anatomy in early national Philadelphia, see Nemerov, *The Body of Raphaelle Peale*; Michael Sappol, *A Traffic of Dead Bodies: Anatomy and Embodied Social Identity in Nineteenth-Century America* (Princeton, N.J.: Princeton University Press, 2002), 44–73; Cozzolino, Marley, and Robson, *Anatomy/Academy*.

sculptures by achieving proper airflow within his wooden figures. In an 1815 letter to President James Madison, Rush explained that his carved portrait of *George Washington* (Fig. 4.28) was “executed in wood well-seasoned, the interiour is all hollow, so that air circulates through the inside, and leaves nothing to ferment and rot.”⁷⁶ Rush carved most of his full-size figures from a single block of pine with appendages joined by nails. The majority of his wooden sculptures were not carved in the round like *George Washington*, but instead were hollowed out in the back or bottom to prevent “checking,” where cracks traveling from the heartwood at the center would manifest themselves on the exterior, distorting the sculpture over time.⁷⁷ The removal of the heartwood required deep carving into the finished figure, a process that must have appeared highly surgical. The back of the figure *Justice* (Fig. 4.29), for example, exhibits aggressive hollowing of the figure’s body and deep excavations behind the head. By facilitating and describing the circulation of air inside the figure of George Washington and his other wooden sculptures through these precise removals, Rush complicated the relationship between the represented body and its material.

Terracotta figures required similar excavations in order to reduce stress on the clay during firing and Rush prominently referenced this procedure in his *Self-Portrait*. Even though the sculpture’s hollowed sections are not necessarily obvious from the front, Rush’s sideways gaze and the encircling pine branches direct us to see large, gaping holes in the sides and back of the bust, where the carver scooped out the interior clay. None of Rush’s other surviving portrait busts makes this negative space so visible to the

⁷⁶ William Rush to James Madison, November 30, 1815, Historical Society of Pennsylvania. Quoted in Marceau, *William Rush*, 80, note 10.

⁷⁷ Naudé, “Toolmarks and Fingerprints,” 80–81.

viewer; the sculptor typically kept the back of his portraits partially open and removed clay from the bottom. Rush, therefore, made a conscious decision to feature these carved-out voids conspicuously in his *Self-Portrait*, referring back to his sculpting process.⁷⁸

In 1835, a little over a decade after Rush completed his *Self-Portrait*, the painter Thomas Cole published an important “Essay on American Scenery,” in *American Monthly Magazine*. Expressing an outlook similar to that of Crèvecoeur, who proclaimed “men are like plants” when describing the impact of climate on national character in the late eighteenth century, Cole explained, “Trees are like men, differing widely in character.”⁷⁹ The rest of Cole’s statement, however, denotes a shift in perception of the American wilderness: “In sheltered spots, or under the influence of culture, they show few contrasting points...but in exposed situations, wild and uncultivated, they exhibit striking peculiarities, and sometimes grand originality.”⁸⁰ Cole’s sketches of trees—including one of a white pine (Fig. 4.30)—illustrate this sentiment in their remarkable individuality. Cole’s natural philosophy is further underscored in his 1839 painting, *The Architect’s Dream* (Fig. 4.31), which pairs a Gothic church, whose shadowy spires echo the shape of the darkened pine trees that surround it, with a series of brightly-lit buildings inspired by classical antiquity. The moralized environmental contrast between the solemn church in a forest at left and the grandiose, classical architecture in the treeless background at right clearly asserts Cole’s sense of the deeper spirituality inherent in wilder nature.

⁷⁸ See Ibid., 84–88.

⁷⁹ Crèvecoeur, *Letters From an American Farmer*, 53. Thomas Cole, “Essay on American Scenery,” *American Monthly Magazine* 1 (January 1836). Reprinted in Sarah Burns and John Davis, eds., *American Art to 1900: A Documentary History* (Berkeley, Calif.: University of California Press, 2009), 269.

⁸⁰ Burns and Davis, *American Art to 1900*, 269.

Whereas both Crèvecoeur and Cole agreed that men and trees were analogous products of their respective environments, Cole looked to the American wilderness for Romantic expression of man's and tree's true character and Crèvecoeur held a more hierarchical view of the American environment consistent with Enlightenment ideology. Rush's visual statement of environmental identity in his *Self-Portrait* occupies a somewhat more complex and ambiguous place between these two theories of wilderness. *Self-Portrait* portrays a close, symbiotic relationship between a sculptor and his material, as branches and needles composing the sculptor's foundation emulate musculature and veins. While Rush's stern head artistically surmounts and cultivates the wild tree beneath him, the asymmetrical and untamed projection of his base's branches and needles also appear to envelope him. The tension between these processes highlights the vital properties of Rush's sculptural matter, recognized by his contemporaries. As political theorist Jane Bennett has explained, artisans "encounter a creative materiality with incipient tendencies and propensities," through an intimate familiarity with their medium.⁸¹ The vitality of wood is evident in the previously quoted anecdotes by Dunlap and Ritter, where the medium is granted equal, if not more, agency than the sculptor; Rush can only locate and unearth the figure already present within the "unwrought timber" in a "merely mechanical" manner. The sculptor and his material are therefore presented as a collaboration of human and non-human agents, or "actants," to use a term coined by Bruno Latour, which together enable physical transformation.⁸² Rush's *Self-Portrait* makes this partnership explicit as its ambiguous transformation from pine to

⁸¹ Bennett, *Vibrant Matter*, 56.

⁸² Latour, *Politics of Nature*, 75.

artist and back both perpetuates and challenges the myth of the sculptor freeing figures from their material confines.

An earlier example of wooden metamorphosis in a political context demonstrates that the material agency of the region's trees concerned Philadelphians several decades before Rush produced his *Self-Portrait*. In 1782, Continental Congress delegate Francis Hopkinson penned an unusual letter to the *Pennsylvania Gazette* under the pseudonym "Silvester," a play on the word sylvan.⁸³ The letter described an imagined meeting in Philadelphia's House of Assembly, where a wooden column in the meeting hall was miraculously granted speech in order to challenge a bill proposing the removal of all city trees to prevent the spread of fire. Hopkinson's column insisted that he was "the true representative of a numerous race, descended in a direct line from the aborigines of this country; those venerable ancestors who gave the name of Pennsylvania to this State."⁸⁴ In his speech, Silvester acknowledged the porous boundaries between the human and vegetal world and described trees as animated, cognizant beings:

The superiority which man hath assumed over what he calls the irrational and inanimate creation, is a superiority only founded in their own pride and ignorance of our nature and faculties. The same divine hand that formed you, formed us also; the same elements that nourish you, nourish us also; like you we are composed of bones, blood vessels, fibres, and, for ought you know, nerves and muscles.⁸⁵

The column outlined the many benefits his tree ancestors provided, heralding them as the "best and safest Physicians," providing shade and cleaning the air of noxious, disease-causing particles. In a dramatic moment, Hopkinson's columnar narrator directed the

⁸³ Silvester [Francis Hopkinson], "Letter," *The Pennsylvania Gazette*, August 21, 1782.

⁸⁴ Ibid.

⁸⁵ Ibid.

senators to consider the changing landscape of Philadelphia: “look towards the banks of Schuylkill. Where are now those verdant groves that used to grace the prospect?—Alas! nought now remain but lifeless stumps, that moulder in the summer heat and winter frost.” The British destroyed those “verdant groves” for fuel when they occupied Philadelphia in 1777. According to the column, those trees sacrificed their lives in dedication to the Revolution: “we stood our ground, and we suffered in our country’s cause.”⁸⁶ Despite this impassioned speech, the House passed the bill, although it was later repealed due to citizen protest in the form of a petition.⁸⁷ This imagined scene illuminates the multi-layered, political symbolism and agency of the region’s trees.

Both Hopkinson’s column and Rush’s *Self-Portrait* appear as transformed beings whose classically inspired forms cannot completely suppress their wilder, material origins. While the frontal view of *Self-Portrait* gives the impression that the sculptor’s visage is heroically rising out of his pine collar, a sprig of pine encircles the back of his head, as if attempting to swallow him back into the tree. Rush’s portrayal of a pine base underscores the natural foundation of his work, and his emergence from the rough block of simulated wood highlights his ability to coax figures from his material, in the manner of Pygmalion. The celebratory emergence of the sculptor is thwarted, however, by the pine’s material agency, as it clings resolutely to the back of Rush’s head. Rush’s use of terracotta provides an additional moment of material metamorphosis—with clay masquerading as wood—but also imbues the sculpture with the spirit of commemoration, as the artist memorializes his foundation in woodworking and celebrates his dexterity in

⁸⁶ Ibid.

⁸⁷ John Fanning Watson, “The Annals of Philadelphia” (Philadelphia, 1829), 1:25–26, John Fanning Watson Collection on the Cultural, Social, and Economic Development of Pennsylvania 1693–1855, coll. 0697, The History Society of Pennsylvania.

multiple materials. By using a white pine, delineated in clay, as the basis of his artistic self-materialization, Rush—whether consciously or not—engaged with themes of empire and metamorphosis at the very moment when the abundant forests of his region were undergoing their own dramatic transformation, becoming a part of the nation’s past.

Negotiating Material Obstruction

Rush became intimately entangled with this environmental transformation, as he worked to alter and improve Philadelphia’s urban landscape through prolonged civic involvement. The sculptor served on multiple City Council committees from 1801 until 1826, including the Watering Committee, which oversaw the construction and upkeep of the Philadelphia Waterworks.⁸⁸ Rush also submitted designs for the city’s public squares, which demonstrate his interest in improving public health through the reintroduction of trees and water into the urban landscape. Despite his investment in these public works, the carver also acknowledged, through his writings and commissions, the dangers of neglecting to regulate and preserve natural resources that previously seemed so abundant within the region.

Originally conceived by William Penn and his surveyor Thomas Holmes in 1683, Penn’s five squares—with the exception of Centre Square, the location of Latrobe’s Waterworks—had fallen into disrepair by the 1820s; several were used as trash dumps, potter’s fields, and sites for public hangings. The city government attempted to rehabilitate these spaces through the assignment of commemorative names—Franklin, Washington, Logan, and Rittenhouse—and landscaping. Only Rush’s plan for Franklin

⁸⁸ Bantel, “William Rush, Esq.,” 18–19.

Square, hand-colored by the artist Thomas Birch, is extant today (Fig. 4.32). This northeastern square, bordered today by Sixth, Franklin, Race and Vine Streets, was formerly leased by the German Reformed Congregation as a burial ground, and the city promised that bodies interred there would not be disturbed unless family members wished to move them.⁸⁹ The square, therefore, literally served as an embodied site, located on top of the Congregation's cemetery.

Rush's design for Franklin Square depicts a picturesque view of nature, with winding paths, copses of evergreens and willows, and a central fountain bubbling up from a rocky foundation. Therese O'Malley has argued that an increased interest in landscaping after the Revolution was motivated by a desire to ornament the new republic, as well as a belief that gardens encouraged intellectual and moral improvement and social harmony.⁹⁰ Rush's symmetrical plan for the square exhibits this desire to order public space. The trees and fountain in Rush's plan not only harmonized and beautified Franklin Square; they also improved air quality and reclaimed a space previously used as a burial ground. The restoration of Franklin Square emulated the city's earlier attempt to better urban health through the installation of Lombardy poplars and a fountain at Centre Square. Besides cooling air and introducing a focal element to the plan, the Franklin Square fountain animated and visually connected the northeastern square to the Philadelphia Waterworks, and subsequently, Rush's public sculptures for those structures. Rush conspicuously chose not to incorporate a figural sculpture in his design

⁸⁹ Milroy, "For the like Uses, as the Moore-Fields," 281–282; Milroy, "Repairing the Myth," 61–66.

⁹⁰ O'Malley, "Landscape Gardening in the Early National Period."

for Franklin Square, but the fountain's rocky base and irregular water sprays may have been intended to remind viewers of Rush's *Water Nymph and Bittern*.

Rush is most well-known today for his program of public sculpture associated with the Waterworks. In addition to *Water Nymph and Bittern*, he sculpted the *Allegory of the Schuylkill River in its Improved State* (Fig. 4.33) and the *Allegory of the Waterworks* (Fig. 4.34) to ornament the entrances to the Fairmount Waterworks millhouse, as depicted in a watercolor by John Caspar Wild (Fig. 4.35). The neoclassical millhouse was constructed in 1822 to house the new waterwheels that replaced the expensive and inefficient steam engines that were initially implemented at the site.⁹¹ The reclining river god in the *Allegory of the Schuylkill River* is shown chained, symbolizing the power of the Waterworks to tame the river through locks, dams, and waterwheels. The river god's companion is a female allegorical figure representing the Waterworks itself. Just as Rush has merged with a pine tree in his *Self-Portrait*, making it difficult to distinguish between the locks of his hair and bundles of needles, the allegorical figure's drapery and hair dissolve into rushing water as it flows through the water wheel and up into the reservoir behind her. In these allegorical sculptures, Rush attempted to "tame" his medium of wood through a thick application of white paint—five coats according to an extant bill—to imitate marble.⁹² Like the struggling river god and the escaping bird in Rush's *Water Nymph and Bittern*, the wood still resists complete submission, as its grain and irregularities surface beneath the multiple layers of paint.

⁹¹ See Jane Mork Gibson and Robert Wolterstorff, "The Fairmount Waterworks," *Philadelphia Museum of Art Bulletin* 84, no. 360/361 (July 1988): 1–46.

⁹² Naudé, "Toolmarks and Fingerprints," 79.

Rush also experienced difficulties in managing water in his wooden sculptures. As mentioned in the previous chapter, Schuylkill River water gradually destroyed *Water Nymph and Bittern*, which was preserved in a bronze copy in 1872 (Fig. 3.28), providing an additional—although posthumous—example of material transformation in Rush’s oeuvre. Such strain and decay as represented by the statue’s subject and decomposition poetically reversed the triumphal dominance over water embodied in Rush’s early figureheads and the naval ships that carried them. Rush’s sculptures for Centre Square and Fairmount celebrated the Waterworks’ ability to control the Schuylkill River to the benefit of the city, but they also reveal signs of struggle with the obdurate materiality of natural resources. In both Rush’s *Self-Portrait* and the Waterworks figures, boundaries between natural forces and the body are blurred and occasionally overturned, as wood surfaces emerge beneath paint, hair melds with tree branches, and drapery flows into water.

In a similar vein, Rush’s excavated base in his *Self-Portrait* may have recalled another type of hollowed log that was ubiquitous in Philadelphia in the 1820s. The sculptor tunneled through his *Self-Portrait* at the same time the city began installing cast iron pipes to replace over thirty-two miles of bored spruce and yellow pine logs that supplied the urban center with water. As a Watering Committee official, Rush was intimately aware of the large quantity of timber—twenty-five thousand feet in 1802 alone—that the Committee ordered annually throughout the first decade of the nineteenth century to expand and repair the city’s underground pipe network.⁹³ By 1821, the

⁹³ Philadelphia Watering Committee, *Report of the Joint Committee, Appointed by the Select and Common Councils for the Purpose of Superintending and Directing the Water Works* (Philadelphia: Robert Cochran, 1802), 8.

Committee recognized that, due to the gradual decay of the pipes, “many leaks have taken place, beyond any former example, the repairs of which have absorbed the supply of pipes which was on hand.”⁹⁴ That year, the city dug up several miles of leaky wooden pipes from major streets in Philadelphia and replaced them with iron mains imported from London.⁹⁵ It is possible that Rush’s excavated pine log in his *Self-Portrait* recalled the hollowed pine logs only recently unearthed and discarded directly outside the Pennsylvania Academy of the Fine Arts on Chestnut Street, reminding Academy visitors of the wasteful consequences of unsustainable resource use. Rush’s sculpted pine foundation both acknowledges this material decay and works against it, by preserving the white pine in a more durable, terracotta medium.

Rush also recognized that the increasing industrialization of the Schuylkill threatened the Philadelphia’s water supply, decades before the city’s government began buying and preserving land along the river, eventually leading to the foundation of Fairmount Park. Alan Braddock has noted that while Eakins neglected to picture the industrial development and pollution that plagued the Schuylkill River in the late nineteenth century, his label text for *William Rush Carving the Allegorical Figure of the Schuylkill River* described the bittern held by the nymph as “a bird loving and frequenting the quiet dark wooded river of those days.”⁹⁶ According to Braddock, such a statement reveals an awareness of environmental change, implying that the bird no longer

⁹⁴ Philadelphia Watering Committee, *Report of the Watering Committee to the Select and Common Councils, Read January 18, 1821* (Philadelphia: Lydia R. Bailey, 1821), 4.

⁹⁵ Philadelphia Watering Committee, *Report of the Watering Committee to the Select and Common Councils, Read January 24, 1822* (Philadelphia: Lydia R. Bailey, 1822), 5.

⁹⁶ Thomas Eakins, “William Rush” (manuscript), c. 1878, Sartain Collection, Historical Society of Pennsylvania. Cited in Braddock, “Bodies of Water,” 132–33.

frequented the Schuylkill because of the river's deplorable condition circa 1876, as industrial waste and cesspool sewage contaminated the previously "wholesome" water. Waterborne diseases like typhoid claimed hundreds of lives each year, including that of Eakins's sister in 1882.⁹⁷

The Schuylkill, however, was evolving from a "quiet dark wooded river" into a site of industry and commerce during Rush's lifetime as well. In an 1832 letter to the Select and Common Councils of Philadelphia, penned a year before his death, Rush lamented that unregulated development on the Schuylkill's banks would replicate the "crowded stinking alleyways" that had infiltrated the city's original grid plan along the Delaware River, shutting out a "free circulation of air" and causing a "pestilential epidemic."⁹⁸ Rush also worried that the encroachment of docks into the deeper portions of the river would constrict water flow. In his impassioned address, the sculptor warned the councils, "in this age of enterprise and improvement, let us be careful, in our works on the river Schuylkill, to preserve its breadth, and to avoid any material obstruction of the course of its waters."⁹⁹ Rush, consciously or not, employed the same metaphors of circulation and respiration used by citizens and council members to support or critique the operation of the Centre Square Waterworks a few decades earlier. The sculptor forcefully urged the council to take immediate action: "now is the time to make the river Schuylkill useful or useless, in a future day."¹⁰⁰ The city agreed with Rush and took

⁹⁷ Braddock, "Bodies of Water"; Braddock, "Ecocritical Art History."

⁹⁸ Philadelphia Select and Common Councils, *Report of the Committee of the Select and Common Councils of Philadelphia, on the Navigation of the River Schuylkill* (Philadelphia: Lydia R. Bailey, 1832), 5–6.

⁹⁹ *Ibid.*, 4.

¹⁰⁰ *Ibid.*, 8.

measures to regulate development along with Schuylkill, but—as Eakins’s statement testifies—these efforts were not enough to prevent the environmental degradation and pollution that Rush feared.

This Unlooked for Change

Just as the Franklin Square plan organized trees in aesthetic groupings and the Waterworks directed the flow of the Schuylkill, Rush’s stern head initially appears to suppress the tree beneath it through the sculptor’s skill and dominance over his medium in *Self-Portrait*. The preceding pages remind us, however, that many Americans, including Rush, were becoming aware of the materiality and limits of natural resources in the early nineteenth-century. It is useful to compare Rush’s sculpted portrait with another celebrated self-portrait created the same year by an eminent Philadelphia artist also in the twilight of his career: *The Artist In His Museum* by Charles Willson Peale (Fig. 4.36). In this portrait, Peale pulls aside a curtain to reveal the natural history displays of his Philadelphia Museum. As previously discussed, Peale organized his museum according to the Linnaean system of taxonomy. The exhibits upheld the natural world as an interdependent hierarchy of distinct species and genera, with painted portraits of leading contemporary humans—intellectuals and Founding Fathers—representing the pinnacle of creation near the ceiling. The sketch of the Long Room by Titian Ramsay Peale (Fig. 2.10), attests that portrait busts of prominent American citizens sculpted by Rush in terracotta were also displayed in the Philadelphia Museum. Like Rush’s patriotic ship

figureheads and physiognomic profiling, Peale's museum displays illuminated a natural order of hierarchy and harmony as a political model for the American republic.¹⁰¹

Rush and Peale, both key figures of an American Enlightenment that was already becoming outdated in the 1820s, initially appear as imperial conquerors of nature in their respective late self-portraits. Both artists advertised their achievements in the manipulation of natural material. Peale is shown next to his palette and brushes and gestures towards mastodon bones and a turkey in preparation of taxidermy, highlighting his work preparing specimens in the museum. The replication of pine in terracotta in Rush's *Self-Portrait* likewise celebrates the artist's acquisition of knowledge about nature and natural materials through his craft, in this case producing an uncanny impersonation of wood. Working within the constraints of the portrait genre and sculpture medium, however, Rush condensed and embodied the authoritative, hierarchical message of Peale's painting into a single figure. The result is more ambiguous as Rush has physically merged with the wild tree, rather than preserving and categorizing it within a grid-like display.

These self-portraits underscore the changing perceptions of the economy of nature that occurred in the previous few decades. In 1787, when Thomas Jefferson listed the different flora and fauna of the young nation in his *Notes on the State of Virginia*, he famously included the Mammoth, or mastodon, explaining,

Why should I omit it, as if it did not exist? Such is the oeconomy of nature, that no instance can be produced of her having permitted any one

¹⁰¹ According to David Brigham, Peale invited his Philadelphia Museum visitors to reflect on their own status within a natural hierarchy of race, rank, and sex. Brigham, "Ask the Beasts, and They Shall Teach Thee." For an interpretation of *The Artist in His Museum* as a means to impose order within Peale's vision of American society and culture, see Ward, *Charles Willson Peale*, 155–92.

race of her animals to become extinct; of her having formed any link in her great work so weak as to be broken.¹⁰²

Jefferson's belief in the Great Chain of Being and the plenitude of a finely balanced nature was threatened by the idea of extinction; if one link was removed, the entire chain could collapse. In the early nineteenth century, the French naturalist Georges Cuvier published several texts on recently discovered fossils, including a series of publications in 1806 proving that the mastodon, whose skeleton lurks behind Peale's curtain, was not hiding in the western frontier as Jefferson believed, but was, in fact, extinct.¹⁰³ Several Philadelphia naturalists, including Benjamin Smith Barton, openly supported Cuvier's argument. In a lecture given in Philadelphia in 1807, Barton proclaimed, "no naturalist, no philosopher; no one tolerably acquainted with the history of nature's works and operations, will subscribe to the puerile opinion, that Nature does not permit any of her species of animals, or of vegetables, to perish."¹⁰⁴

By 1822, when both Rush's *Self-Portrait* and *The Artist in His Museum* were produced, Americans faced increasing evidence of limits to their unchecked physical and economic growth. The Panic of 1819, the first major financial crisis in North America, curtailed the rampant overspeculation that characterized the years following the War of 1812. Banks, recognizing the risk of unsustainable investments, called in their loans, leading to bankruptcies and widespread unemployment.¹⁰⁵ Thanks to Cuvier's efforts,

¹⁰² Jefferson, *Notes on the State of Virginia*, 83.

¹⁰³ Georges Cuvier, "Sur Le Grand Mastodonte," *Annales Du Muséum National D'histoire Naturelle* 8 (1806): 401–24; Barrow, *Nature's Ghosts*, 39–42.

¹⁰⁴ Benjamin Smith Barton, *A Discourse on Some of the Principal Desiderata in Natural History, and on the Best Means of Promoting the Study of This Science in the United States* (Philadelphia: Denham and Town, 1807), 20.

¹⁰⁵ For investigations of speculation, risk, and banking in the early republic, see Jane Kamensky, *The Exchange Artist: A Tale of High-Flying Speculation and America's First Banking Collapse* (New York:

extinction was also overwhelmingly accepted by European and American naturalists, and by 1814, Barton warned that the swift pace of settlement in North America could accelerate this process: “the steps of this vast and generally unlooked for change, are rapidly preparing, in different parts of the world; and in none, I think, more rapidly than in the portion of it which we inhabit.”¹⁰⁶ In *The North American Sylva*, Michaux lamented the “alarming destruction of trees” in the United States, denouncing it as “an evil which is increasing and which will continue to increase with the increase of population.”¹⁰⁷ The French naturalist noted that large cities, including Philadelphia, already suffered from rising costs of fuel and an insufficiency of useful timber.¹⁰⁸ Americans were forced to negotiate these potential boundaries to their expansion and consumption.

Both *The Artist in His Museum* and Rush’s *Self-Portrait* reveal the entrenched resistance to confronting these new realities of scarcity and limits among adherents to the traditional conception of a plentiful, harmonious nature. Peale placed his mastodon behind a red, velvet curtain, obscuring it from view, perhaps acknowledging its incompatibility with the Linnaean, hierarchical view of nature he illustrated with the ordered cases of birds along the opposite wall. The realities of deforestation and the recognition of nature’s limits likewise challenged the imperial message of Rush’s *Self-*

Viking, 2008); Schocket, *Founding Corporate Power*, 77–108; Bruce H. Mann, *Republic of Debtors: Bankruptcy in the Age of American Independence* (Cambridge: Harvard University Press, 2002).

¹⁰⁶ Benjamin Smith Barton, *Archaeological Americane Telluris, Collectanea et Specimina. Or Collections, with Specimens, for a Series of Memoirs on Certain Extinct Animals and Vegetables of North America, Together with Facts and Conjectures Relative to the Ancient Condition of the Lands and Waters of the Continent* (Philadelphia: The Author, 1814), 33. See also Barrow, *Nature’s Ghosts*, 15–46.

¹⁰⁷ Michaux, *The North American Sylva*, 1817, 1:4.

¹⁰⁸ Ibid.

Portrait, eroding the divine, natural foundation of the nation's Republican Empire even as it expanded westward. By modeling his bust in an off-white clay, Rush not only provided a visual pun of the "white" pine and commemorated wood and wood-carving in a more aesthetically resonate medium. He also presented his arboreal base as something transformed and calcified; a ghost or memorial of a pine. Rush's *Self-Portrait* therefore hints at the struggle to reconcile competing environmental theories: an Enlightenment belief which held nature to be a limitless resource divinely ordained for human cultivation and an emerging modern one which increasingly recognized nature to be a dynamic mesh of interconnected things and beings, including humans, subject to scarcity, conflict, and loss but also demanding preservation from destruction. In the introduction to his English translation of *North American Sylva*, for example, Augustus Lucas Hillhouse explained that the nation's perceived, sylvan abundance masked the dramatic changes occurring within North American woodlands: "though three fourths of our soil are still veiled from the eye of day by primeval forests, the best materials for building are nearly exhausted."¹⁰⁹ Hillhouse argued that only government intervention in the form of forest management could prevent future depletion of these important natural resources.¹¹⁰ Caught between paradigms of progress and preservation, Rush presented man and tree as competing to become the subject of art.

By choosing a tree as the foundation for his own self-portrait, Rush highlighted his favored medium, demonstrated his background in ship carving, and advertised his skill in manipulating various materials. His *Self-Portrait* additionally illuminates an

¹⁰⁹ Ibid., 1:xiv.

¹¹⁰ Ibid.

increasingly fraught and mediated corporeal relationship to the American environment during the early nineteenth century, as the recognition of scarcity and extinction challenged the eighteenth-century belief in the plenitude of nature. Even as the work upheld Enlightenment and imperial ideals about cultivation and domestication of the American landscape, it celebrated the vibrant matter of wood and provided a visual memorial to the region's diminishing sylvan past. Through its trompe l'oeil materiality, Rush's *Self-Portrait* both subdued and celebrated this environmental heritage in its reference to artistic achievement, empire, metamorphosis, theories of the body, and nonhuman agency, demonstrating the complex relationship of the American citizen to the natural world in the early national period.

CHAPTER 5

RELICS OF A VERDANT GROVE: THE MATERIALITY OF PENN'S TREATY ELM

On March 3rd, 1810, Philadelphia's cherished Treaty Elm, memorialized in the Birches' 1800 engraving of the city port (Fig. 1.1), fell down in a storm. Newspapers from Vermont to South Carolina reported the ancient tree's demise:

During the tremendous gale of Monday night last, the Great Elm Tree at Kensington, under which, it is said, William Penn, the Founder of Pennsylvania, ratified his first treaty with the Aborigines, was torn up by the roots. This celebrated tree, having stood the blast of more than a century since that memorable event, is at length prostrated to the dust! It had long been used as a land-mark, and handsomely terminated a north east view of the city and liberties on the Delaware.¹

In his *Annals of Philadelphia*, John Fanning Watson nostalgically recalled the tree's earlier life and implied a connection between the elm's fall and the dramatic alteration of the Kensington topography through razing and leveling:

Nothing could surpass the amenity of the whole scene as it once stood, before "improvement," that effactive name of every thing rural or picturesque, destroyed its former charms, cut down its sloping verdant bank, razed the tasteful Fairman mansion and turned all into the leveled uniformity of a city street.²

This local development and related erosion may have even contributed to the elm's ruin, and an admission by Watson suggests he also harbored this suspicion: "the blow was not deemed generally prevalent, nor strong. In its case, the root was wrenched and the trunk broken off."³ The tree had apparently been in danger for some time. One later nineteenth-

¹ "Liberties" refers to a neighborhood north of the city. *Poulson's American Daily Advertiser*, March 8, 1810; *Vermont Courier*, March 28, 1810; *Charleston Courier*, March 10, 1810; *New-York Gazette*, March 12, 1810; *Independent American*, Washington, D.C., March 24, 1810.

² Watson, *Annals of Philadelphia*, 125.

³ *Ibid.*, 129.

century report recalled that, prior to its fall, the elm leaned so far in a southwesterly direction that goats could run up along the trunk and out onto the main limb. A later engraving of the elm by George Lehman includes a goat perched on one of its lower branches—even though the tree appears relatively upright—visualizing this colorful anecdote (Figs. 5.1-2). Matthew Vandusen, on whose property the tree stood, reportedly was advised to prop up the limb, but he neglected to do so.⁴ In his *Annals*, Watson positioned the elm as a reluctant witness to, and casualty of, the city's expansion: "Once remote from city bustle, and blest in its own silent shades amid many lofty trees, it looked out upon the distant city, 'saw the stir of the great Babel, nor felt the crowd' ... Those days are gone."⁵

Following its fall, the elm's wood was converted into various artifacts—including boxes, chairs, and portrait busts of William Penn—that were disseminated throughout the nation and even across the Atlantic Ocean to England. According to Watson, the tree

fell on Saturday night, and on Sunday many hundreds of people visited it...several took their measures to secure some of the wood as relics. An arm-chair was made from it and presented to Doctor [Benjamin] Rush: a part of it is constructed into something memorable and enduring at Penn's park in England. I have some remains of it myself.⁶

The tree remained on the ground for several years, "each year getting less, of course, though being carried off piecemeal by the people to make canes, stools, frames, &c, out

⁴ This report was made by Jonathan Eggleton, whose father, John, reportedly hauled away the remains of the elm to be broken down into relics. Samuel Sloan and Charles J. Lukens, "The Penn Treaty-Ground and a Monument to William Penn," *The Architectural Review and American Builders' Journal*, July 1868, 21.

⁵ Watson, *Annals of Philadelphia*, 125. Watson here cites William Cowper's poem, *The Task*: "'Tis pleasant, through the loop-holes of retreat, / To peep at such a world. To see the stir. / Of the great Babel, and not feel the crowd.'" William Cowper, *The Task. A Poem. In Six Books* (Philadelphia: Thomas Dobson, 1787), Book IV, 92.

⁶ Watson, *Annals of Philadelphia*, 129.

of pieces of the relic, until it was nearly all taken away.”⁷ Finally, in approximately 1815, the last remnants of the tree—eight to ten feet of the trunk and the stump—were hauled to a neighbor’s saw shed and sawed into “two-inch plank to be used in making articles as mementos of the great and renowned treaty and tree.”⁸ According to historian Andrew Newman, the Treaty Elm’s demise in 1810 “not only signaled a loss of the memories of William Penn but also threatened a lapse in the values associated with him,” at a time of rapid development in Philadelphia, when people with firsthand memories of the colonial era had mostly died off.⁹ Through its destruction, commemoration, and veneration, the Treaty Elm served as a tangible symbol of the state’s sylvan past, saturated with mythic meaning, as it transformed from a living monument and historical eyewitness to a material point of contact with local environmental history.

Teresa Barnett recently advanced a conception of nineteenth-century American relics “not simply as representations of the past, but as the necessary means of negotiating affective transactions with the past.”¹⁰ While Barnett contended that this relic tradition was historically rooted in European collecting practices, she argued that early national and antebellum relics were not prized as objects of wonder or curiosity, but instead treasured as repositories of memory, facilitating interaction with the past on an intimate level and inspiring emotional reaction and sentimental feeling. Even though religious relics and historical relics are both forms of “homomaterial” representation—

⁷ Sloan and Lukens, “The Penn Treaty-Ground and a Monument to William Penn,” 21.

⁸ Ibid., 22.

⁹ Newman, *On Records*, 109.

¹⁰ Teresa Barnett, *Sacred Relics: Pieces of the Past in Nineteenth-Century America* (Chicago: University of Chicago Press, 2013), 5.

where the material fragment stands in for a larger event—Barnett claimed that relics were not typically imbued with religious associations in the early nineteenth century.¹¹ While the term “relic” carries explicit religious connotations for us today, in the early republic, “relic” referred to a variety of things remaining or left behind, from fossils to lingering sickness to meat leftover from a meal.¹² I propose, however, that Treaty Elm and other historic wood relics ultimately confused sacred and secular forms of veneration, inciting spiritual and emotional responses from their audience. Viewed as an animated, cognizant body when living, the elm achieved an afterlife comparable to that of a saint’s body through the construction and dissemination of its relics after its death.

This chapter investigates the vibrant materiality of the Treaty Elm relics as they conveyed meaning across time and space. For creators, collectors, and recipients of these Treaty Elm and other historic wood relics, an aspect of the object’s power resided in a perceived vital essence. By participating in an episode (Penn’s Treaty) and embodying a person (William Penn)—both of which were iconic in local, and even national, memory as symbols of peace, virtue, and justice—the wood of the Treaty Elm became saturated, and therefore animated, with associated moral values and lessons. The elm, however, was not simply a passive repository of ideas associated with Pennsylvania’s founder and Philadelphia’s establishment, as Barnett would claim. As discussed in the introduction of this dissertation, the tree’s large size and advanced age made it a natural beacon during its lifetime, generating historical associations and shaping the social-ecological assemblage

¹¹ Barnett cites Susan Stewart for her definition of “homomaterial,” who in turn borrows from Umberto Eco in her discussion of the “homomaterial replica” as souvenir. Susan Stewart, *On Longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection* (Durham, N.C.: Duke University Press, 1993), 136.

¹² The Latin *reliquiae*, for example, meant “residue,” “remainder,” and “that left behind.” For specific examples of nineteenth-century usage of the term, see Barnett, *Sacred Relics*, 51.

that embodied the city's creation myth. After its demise, its wood and even its offspring functioned like seeds, disseminating the tree's powerful agency into posterity and imagination.

I argue that these wooden relic artifacts possessed the capacity to produce effects, impart messages, and generate discourse. Ultimately, the Treaty Elm relics created what Jane Bennett calls an "ecological sensibility," demonstrating an intimate connection between human history and the natural world, as the tree's wood was gathered, refashioned, gifted, displayed, and used, passing through multiple hands.¹³ The relic's audience could not contemplate Penn's legacy and the region's socio-political history without simultaneously considering Philadelphia's own development and transformed landscape. A significant portion of this chapter focuses on a series of snuff boxes commissioned by Watson circa 1825, which combined a variety of historic relic woods relating to various moments of discovery, conquest, and development in the Philadelphia region and the nation as a whole, including that of the Treaty Elm. These boxes both visualized a finely-crafted Anglo-American history and materialized the complex network of natural resource trade that linked various ports in the Atlantic World. In some ways, objects like these might have helped ameliorate anxiety regarding the realities of extinction, as described in the previous chapter. Historic wood relics provided continued access to a local and national historic and environmental past, even as key agents of that past—trees and Native Americans—physically receded from the Philadelphia region.

¹³ Bennett, *Vibrant Matter*, xi.

Let Us Each Take a Relic from that Hallowed Tree

A variety of relics were produced from the wood of the Treaty Elm almost immediately following its demise in 1810. One would expect that the plethora of artifacts identified as Treaty Elm relics may have caused early national antiquarians to question the authenticity of these objects, but no record of this discourse exists. This is perhaps due to the fact that a majority of relics were constructed only a decade or two after the elm's passing and, therefore, were not so far removed from their source temporally. The elm was also very large—Watson reported that prior to its fall, “its girth around the trunk was 24 feet, and its age, as it was counted by the inspection of its circles of annual growth, was 283 years”—and many of the objects made from its wood were quite small or only incorporated diminutive fragments of the elm.¹⁴ Indeed, it appears that over time Treaty Elm relics became smaller and smaller as the quantity of elm wood decreased, with a few chairs and vases made within a decade of the tree's collapse and miniature portrait busts and snuff boxes—or only the veneers of snuff boxes—becoming more prevalent in the 1820s and later.

One of the earliest recorded Treaty Elm relics was a chair presented by a Mrs. Pritchard to the physician Benjamin Rush. His response, transcribed in an 1823 letter to Watson, demonstrates his reverence for both the tree and the source of the gift:

My dear Madam, I beg your acceptance of my thanks for the Elegant and acceptable chair you have done me the favour to present to me, made of the Stately Elm tree under which William Penn held his first treaty with the Indians, & which for more than a century adorned the village of Kensington. I shall enjoy a double pleasure in resting my weary & aged limbs in it. One is recollecting the illustrious Saint & Legislator whose presence, & Exploits of justice & benevolence imparted a value to the tree

¹⁴ Watson, *Annals of Philadelphia*, 129.

from which the chair was made. The other is recollecting the kind & affectionate hand that presented it to me.¹⁵

In recognizing Penn's importance as a "Saint" within Philadelphia's historical memory, Rush also acknowledged the power of the relic-wood chair itself to embody the proprietor's "presence" and values. He even alluded to the corporeal agency of the elm, by directly comparing his own body to that of the ancient tree, through a reference to his "weary & aged limbs." Although Rush's chair apparently does not survive, an extant armchair made from the Treaty Elm wood is in the collection of the State Museum of Pennsylvania. It features gilded acanthus leaf decoration and a small representation of Penn's Treaty pasted to the center of the top rail (Fig. 5.3).¹⁶ The vegetal motif of acanthus may have assisted the viewer, or sitter, to imagine the complete body of the tree, while the image of the treaty served to identify and authenticate the wood.

Rush was involved in multiple exchanges of Treaty Elm relics that register the historic tree's vital agency and circulating social life, even in death. On May 9th, 1810, only a few months after the tree's demise, he sent a small, turned bowl fashioned from its wood to Robert Barclay, great-grandson and namesake of the seventeenth-century Quaker apologist, in England. According to a notation on a draft of the accompanying letter, Rush stated that replicas were also sent to Benjamin West and John Penn, William Penn's grandson and the son of Thomas Penn, who commissioned West's *Penn's Treaty*

¹⁵ Benjamin Rush to Mrs. Prichett October 21, 1811, transcribed in letter from John Bacon to John Fanning Watson, August 23, 1823, John Fanning Watson Collection.

¹⁶ Information on the Treaty Elm chair was gathered from a series of email exchanges with Dr. Curt Miner, Senior Curator of the History and Fine Arts Collections at the State Museum of Pennsylvania, from February 19th to March 4th, 2014. According to Dr. Miner, the chair was displayed at the 1876 Centennial Exhibition in Philadelphia and could be the pair to a very similar chair in a private collection, loaned to the Winterthur Museum in 1995.

with the Indians.¹⁷ The next year, Rush sent inkstands made from the Treaty Elm to Governor Snyder and Lord Buchan in England.¹⁸

In 1813, the Philadelphia carver George Magraph displayed a pair of wooden vases made from the elm at the Pennsylvania Academy of the Fine Arts.¹⁹ One of these objects, now at the Winterthur Museum, features curvilinear carved decoration on its base and torso with a geometric ornamental border around the top (Fig. 5.4).²⁰ Here, acanthus leaves frame a portrait of William Penn and, on the opposite side, a round brass plaque is engraved with the text, “From Elm-tree under Which Wm. Penn Concluded His Treaty at Shackamaxon 1682.” The vase even tilts precariously to the side much like the tree was reported to do before its fall, although this is likely due to warping over time. These vases were the only objects ever exhibited by Magraph at the Pennsylvania Academy and likely were intended to showcase the carver’s skill while simultaneously commemorating the recent passing of the Treaty Elm through an ornate homage of visual and material references to that tree and its associated event.

A few existing relics embody Penn’s legacy quite literally, as fragments of the elm were carved into portrait busts of the Quaker proprietor. One bust combined a variety

¹⁷ Benjamin Rush to Robert Barclay, May 9, 1810, The Historical Society of Pennsylvania. Cited in Rush, *Letters*, 2:1046–47.

¹⁸ Benjamin Rush to the Earl of Buchan, July 8, 1811, Maine Historical Society, Fogg Collection. Cited in *Ibid.*, 2:1088–89.

¹⁹ The vase, identified as an urn by Winterthur, was described in the Academy’s exhibition catalog as follows: “A Vase, made from part of the tree under which William Penn formed his first treaty with the Indians—in 1682.” *Third Annual Exhibition of the Columbian Society of Artists and the Pennsylvania Academy* (Philadelphia: T. & G. Palmer, 1813), 7.

²⁰ The Philadelphia History Museum also owns an urn reportedly made from Penn’s Treaty Elm. I was unable to view this piece, due to roofing issues at their off-site storage facility. The object file does not mention a portrait of William Penn nor a brass plate with an inscription, but the size is comparable to the Winterthur vase, although the Philadelphia History Museum urn also includes a lid. Object File, Urn, HSP.1987.1, The Philadelphia History Museum. I wish to thank Susan Drinan, Registrar, for allowing me to view these files.

of woods affiliated with Penn, including that of the Treaty Elm, a fragment of the chair Penn reportedly sat in when the treaty was made—a detail apparently overlooked in West’s visual representation of the event and subsequent appropriations—and a piece of wood and nail from Letitia House, believed to be Penn’s residence in Philadelphia (Fig. 5.5). John Cadwalader presented this bust to Independence Hall in 1874 in anticipation of the approaching Centennial.²¹ Henry Russell Eyre, most likely a descendant of Franklin Eyre, on whose property the Treaty Elm fell in 1810, presented another bust of Penn to the Historical Society of Pennsylvania in 1887 (Fig. 5.6). This bust features a more rotund proprietor perched on a stack of books and a scroll of parchment.²² It is unclear exactly when these portraits were carved, but they may have been created around the time of the Centennial, when interest in the colonial past, and the legacy of Pennsylvania’s founder especially, was at a peak.²³

The creation and presentation of relics in the early republic coincided with a growing interest in recording and preserving the discovery and founding of North America and the United States. From August 1824 to September 1825, the Revolutionary general, the Marquis de Lafayette toured the United States to celebrate the fiftieth anniversary of United States Independence, prompting historical reverie and the dissemination of historic relics. The 1820s also saw the dying off of a Revolutionary

²¹ The Independence Hall Collection of Historical Objects became the responsibility of the National Park Service in 1950. Object File, Bust of William Penn, 23.091, Independence National Historic Park.

²² Object File, Bust, HSP.C-1-13, The Philadelphia History Museum. I was also unable to see this bust in person, due to roofing issues at the Museum’s off-site storage facility.

²³ See Robert W. Rydell, *All the World’s a Fair: Visions of Empire at American International Expositions, 1876-1916* (Chicago: University of Chicago Press, 1987); Richard Guy Wilson, Shaun Eyring, and Kenny Marotta, eds., *Re-Creating the American Past: Essays on the Colonial Revival* (Charlottesville, Va.: University of Virginia Press, 2006); Akela Reason, *Thomas Eakins and the Uses of History* (Philadelphia: University of Pennsylvania Press, 2010).

generation, inspiring a new appreciation of the nation's past and a simultaneous feeling of its loss.²⁴ In Philadelphia, both the Society for the Commemoration of the Landing of William Penn, popularly known as the Penn Society, and the Historical Society of Pennsylvania were founded in 1824 to care for and promote the state's legacy.

Whitney Martinko has demonstrated how Anglo-Americans constructed a common historical consciousness grounded in continuous change and progressive national development during the early Republic. These early Americans believed that preservation and improvement were co-constitutive practices designed to strengthen the country.²⁵ Martinko identified a trend of "republican antiquarianism," in which preservation was perceived as a civic and moral act and also a means to generate social, economic, and political cohesion and profit. By creating relics or retaining selective features of historic sites while simultaneously developing that site for revenue, republican antiquarians celebrated both a "shared history and autonomy from a determinative past."²⁶ According to Martinko, "whereas European antiquaries portrayed sites of antiquarian interest as places of waning influence and productivity, American antiquaries saw the historic landscape of the United States as a vital, inhabited one."²⁷ Antiquarians like Watson, Benjamin Rush, and others, therefore, used relics as a means of renewing

²⁴ Michael Kammen, *A Season of Youth: The American Revolution and the Historical Imagination* (New York: Alfred A. Knopf, 1978), 26–27; Andrew Burstein, *America's Jubilee* (New York: Alfred A. Knopf, 2001); Charlene Mires, *Independence Hall in American Memory* (Philadelphia: University of Pennsylvania Press, 2002), 57–79.

²⁵ Whitney Anne Martinko, "Progress through Preservation: History on the American Landscape in an Age of Improvement, 1785-1860" (Ph.D. diss., University of Virginia, 2012).

²⁶ *Ibid.*, 11.

²⁷ *Ibid.*, 37.

the memory of those who preceded them and confirming their commitment to the project of settlement, development, and empire-building that those earlier generations had begun.

Several popular late eighteenth and early nineteenth-century texts promoted the close study of relics as a worthy intellectual venture and interrogated the capacity of objects to inspire certain emotional responses. In *Essay on the Nature and Principles of Taste* (1790), Archibald Alison articulated his associational theory that objects gained meaning only in the context of a person's experiences. Building upon John Locke's theories of sensationalism, Alison explained that in a national literature, writers drew upon specific aspects of a place's environment and history to encourage readers to translate sensationalism into national feeling.²⁸ Walter Scott's *The Antiquary* (1816) achieved recognition in the United States for its assertion that a vision of the past could be created through the rational study of material documents.²⁹ One of Watson's correspondents even proposed a quotation from *The Antiquary* as a suitable motto for his *Annals of Philadelphia*, drawing a direct correlation between Watson and the gothic novel's title character: "Measured decayed entrenchments, made plans of ruined castles, read illegible inscriptions, & wrote essays upon medals in the proportion of twelve pages to each letter of the Legend."³⁰ These publications by Alison and Scott point to a growing interest in deciphering the power of objects in the early national period, which moved beyond an earlier vanitas tradition that moralized earthly objects and matter as memento

²⁸ Archibald Alison, *Essays on the Nature and Principles of Taste* (Dublin: P. Byrne, J. Moore, Grueber and M'Allister, W. Jones, and R. White, 1790).

²⁹ Walter Scott, *The Antiquary* (New York: Van Winkle and Wiley, 1816). For more on these texts and associational theory, see Martinko, "Progress through Preservation," 26–37.

³⁰ John J. Smith Jr. to John Fanning Watson, Dec. 19, 1825, John Fanning Watson Collection.

mori. Antiquarians believed Treaty Elm relics possessed a vital essence that handlers of the object could access through interaction and contemplation.

In his *Annals* manuscript, Watson justified his own construction and preservation of relics when relating his encounter with an Egyptian mummy, brought to Philadelphia and displayed Earl & Sully's Gallery in 1824. Next to a pasted clipping advertising the exhibition, Watson admitted that some may ask, "what is the occasion for visiting an old, shrivelled, & leathern crated mummy!—a body about which we know nothing!" Watson explained, "the secret of the interest we feel in the subject, is the fund of moral reflections & association of ideas to which the contemplation of the body leads us: the less we really can know of its history, the deeper & more intense, is the interest we feel."³¹ Watson prioritized sentiment over fact in his appreciation and understanding of history. James Mease, who penned an earlier history of the city, entitled *The Picture of Philadelphia*, in 1811, criticized this method of approaching the past. He declared that Watson's writings merely promoted "venerable traditions...as if historical truth were not more valuable than any tradition, however ancient, and gratifying to our national vanity, pride, or good feelings."³²

The veneration of Treaty Elm wood corresponded with the reverence of other historic trees in the United States and England. In his *Annals*, Watson recognized that "other cities of our Union have had their consecrated trees; and history abounds with those which spread in arborescent glory, and claimed their renown both from the pencil and the historic muse." Watson listed the Royal Oak, where Charles II hid from the

³¹ Emphasis is original. Watson, "The Annals of Philadelphia" (Philadelphia, 1829), 1:31.

³² Cited in Yvette R. Piggush, "Fancy History: John Fanning Watson's Relic Box," *Common-Place* 10, no. 1 (October 2009): online.

Parliamentarians in 1651, and Shakespeare's mulberry tree at Stratford-Upon-Avon as conceptual ancestors of the Treaty Elm; both of those British trees only existed in the form of relics in the early nineteenth century. It is likely that Watson also had in mind several revered, patriotic trees of the United States, including the Charter Oak in Connecticut, the Liberty Tree of Annapolis, and the Boston Liberty Tree.³³

As discussed in the introduction of this dissertation, the elm tree became an iconic figure of the developed northeastern landscape in the colonial and early national periods, since its wood was not commercially valuable and mature trees were challenging to cut down. The Boston Liberty Tree, in particular, provides an apt comparison with the Treaty Elm, since both were elms, and the Liberty Tree also experienced an afterlife in the form of relics following its deliberate destruction by the British in 1775. The Liberty Tree, located outside a tavern that was a popular meeting place for the Sons of Liberty, provided an important rallying point and performance site of rebellion during the Revolutionary period. Effigies of tax officers and the prime minister were hung from its branches as part of a demonstration against the unpopular Stamp Act. When the Act was repealed in May of 1766, colonials decorated the tree with bunting, flags, and lanterns and Paul Revere designed an illuminated, paper obelisk for the occasion. British soldiers

³³ Connecticut's Royal Charter of 1662 was hidden in The Charter Oak in Hartford in 1687 to its prevent seizure by Sir Edmund Andros for King James II. The Liberty Tree of Annapolis, a tulip poplar, was celebrated as the location of the first treaty between the British and the Susquehannocks. The Charter Oak fell down in 1856 and Hartford subsequently held a funeral for it. An article in the *Hartford Courant* lamented that a "token of universal feeling, that one of the most sacred links that binds these modern days to the irrevocable past, has been suddenly parted." *Hartford Courant*, August 21, 1856. Pieces of the Charter Oak were also made into a variety of relics, many of which are exhibited today at the Wadsworth Atheneum in Hartford. The Annapolis Liberty Tree stood on the grounds of St. John's College until 1999. Gayle Brandow Samuels, *Enduring Roots: Encounters with Trees, History, and the American Landscape* (New Brunswick, N.J: Rutgers University Press, 1999), 6–7; Robert Trent, "The Charter Oak Artifacts," *The Connecticut Historical Society Bulletin* 49, no. 3 (Summer 1984): 125–39; Newman, *On Records*, 107.

cut down the tree after fighting broke out in 1775.³⁴ In Thomas Campanella's words, "having stoked the flames of rebellion, the good elm was now reduced to fourteen cords of firewood."³⁵ When the Marquis de Lafayette toured the United States in 1824, he returned to the site of the Liberty Tree—where a Liberty Pole was erected in its place—and was presented with relics made from the tree's wood, including a tiny piece of root and a section of the trunk showing the bark, the sap, and the heart.³⁶

Relics played an important role in a commemorative dinner christening The Penn Society's foundation on November 4 of that same year, held at Penn's original house at Letitia Court, then an inn. After an address to the eighteen gentlemen present by the Society's president, Peter Stephen Du Ponceau, the group enjoyed a "sumptuous and well-served repast."³⁷ Du Ponceau sat in an English walnut chair, an "elegant relic of ancient times," that was reportedly used by William Penn.³⁸ John Bacon lent two arm chairs made of the wood of Penn's Treaty Elm and a model of a proposed monument for the site, also made from the elm's wood, ornamented the center of the table. The dinner concluded with a series of toasts to William Penn, Pennsylvania, Delaware, the treaty, Swedish and Dutch settlers, and civil and religious liberty. The region's earlier inhabitants also received a toast, as the Society members raised their glasses to the

³⁴ Campanella, *Republic of Shade*, 34–39.

³⁵ *Ibid.*, 38.

³⁶ *Ibid.*, 39. See also Arthur M. Schlesinger, "Liberty Tree: A Genealogy," *The New England Quarterly* 25, no. 4 (December 1952): 435–58.

³⁷ *Proceedings of a Meeting Held in Philadelphia on the 4th of November, 1824, (24th October, O.S.): To Commemorate the Landing of William Penn on the Shore of America, on the 24th of October, 1682, Being the 142d Anniversary of That Memorable Event* ([Philadelphia], 1824), 14.

³⁸ An inscription on a brass plate on the back of the chair declared, "Fruitful of Recollections. Sit and Muse. This seat of William Penn and James Logan, a gift to .J. F. Watson by Deborah Logan, 1824." *Ibid.*, 14–15.

“Lenni Lenape, our predecessors in this land, wherever they may be scattered. They have never forgotten their great friend Miquon [Penn’s Lenape name]; the friends of Miquon will never forget them.”³⁹ While the dinner and its accompanying events decidedly looked to the past, the toasts recognized the Lenape’s vanished presence in the Penn’s Woods of the early nineteenth century.

For the following year’s meeting of the Penn Society, Judge Richards Peters composed a lengthy poem that investigated the vitalism and moral character of Treaty Elm relics. Its opening stanzas read:

Let us each take a relic from that hallowed tree
Which, like Penn, whom it shaded, immortal should be
As the pride of our forests, let Elm be renown’d
For the justly priz’d virtues with which they abound.⁴⁰

Peters here draws a direct correlation between Penn and the tree, protagonists that are both worthy of continued commemoration. For Peters, the dissemination of the elm in the form of relics contributed to its immortality, as it embodied the virtues exemplified in Penn’s peaceful treaty with the Lenape. This emphasis on immortality and continuity via the distribution of relics provided a means for Anglo-Americans to maintain a connection to a past that was perceived as slipping away. Peters later suggested that the elm’s association with virtue and peace was not merely a result of its encounter with Penn, but these traits were also inherent to the tree itself. While the oak proved valuable for its construction of ships used in warfare and trade, “the Elm bears no part in such objects as these, its employment is solely in fabrics of peace.”⁴¹

³⁹ Ibid., 17.

⁴⁰ “Commemoration of the Landing of William Penn,” newspaper clipping, in Watson, “The Annals of Philadelphia,” v. 2, n.p.

⁴¹ Ibid.

Unlike Barnett, who maintains that religious and historical relics should be considered as distinctive categories, I argue that relics of the elm, through their form, function, and frequent association with Penn's own corporeal form, explicitly invite comparison with body-part relics and reliquaries of the Middle Ages. In some ways, Treaty Elm and other historic wood relics acted similarly to shaped, or "speaking," reliquaries, which, according to Cynthia Hahn, were not merely representational of their contents, but also participated in a fluid exchange of signs animated through performance and ritual in their liturgical setting.⁴² These speaking reliquaries, representing body-parts like arms, heads, hands, and feet, denoted a slippage of meaning and importance between container and contained. Additionally, these fragmented forms alluded to a larger body of which they were originally a part, as the relic's fragmentation and portability allowed that body increased action and power.⁴³ Unlike body parts of saints enclosed within a reliquary, however, Treaty Elm objects functioned as their own containers, taking on the utilitarian forms of boxes, bowls, vases, and chairs. Through this functionality, historic wood relics referred back to tree and timber as natural resource, since objects like boxes, ink stands, and chairs were traditionally made out of wood to begin with. The relics' employment of historic wood, however, imbued those previously mundane objects with a spiritual attraction. Just as arm reliquaries transmitted the power of God through the gesture of blessing, Treaty Elm relics conveyed the power of the elm through dissemination, interaction, and contact. As Rush noted, resting his own limbs in the

⁴² Cynthia Hahn, "The Voices of the Saints: Speaking Reliquaries," *Gesta* 36, no. 1 (1997): 20–31. See also Cynthia Hahn, "The Spectacle of the Charismatic Body: Patrons, Artists, and Body-Part Reliquaries," in *Treasures of Heaven: Saints, Relics, and Devotion in Medieval Europe*, ed. Martina Bagnoli et al. (New Haven, Conn.: Yale University Press, 2010), 163–71.

⁴³ Hahn, "The Voices of the Saints," 21.

Treaty Elm chair prompted meditations on justice and benevolence, properties embodied by the chair's wood. Both relic and reliquary, these wooden objects became animated through handling and use.

While many Treaty Elm relics were transformed into classically-inspired chairs, vases, busts, and other forms, a few relics were not manipulated at all, preserving a portion of the tree's natural configuration. A large segment of the tree, for example, was sent across the Atlantic to John Penn. An engraving published in an 1822 address of the Outinian Society, founded to celebrate the one hundred year anniversary of William Penn's death, depicts a couple admiring the tree branch, or portion of the trunk, in an enclosed space on the Penn estate of Stoke Park in Buckinghamshire, England, as if they were viewing a classical sculpture within a museum (Fig. 5.7). The accompanying lecture describes how the large segment of the tree, "saved from the rapid current, or at least awhile from the all-overwhelming stream of time, was sent far away, with the pious care, to rear its diminished form, less loftily than in its prouder days, yet in safety, where you see it palpably existing."⁴⁴ The "rapid current" mentioned here could refer simultaneously to time, the Delaware River that flowed by the elm's original location, and the hordes of relic-collectors who gathered up fragments of the tree. A brass tablet affixed to the relic, visible in the engraving, explained the history of the tree to curious viewers. The anonymous author of the lecture, liberally employing botanical metaphors of growth, expressed his belief that the fragment still possessed the power to impart lessons of morality and philanthropy, whether through a physical encounter or recollection through memory:

⁴⁴ Outinian Society, *Records of the Origin and Proceedings of the Outinian Society* (London: W. Nicol, 1822), 42.

I shall express my full confidence that this LIFELESS TRUNK, by attracting you all periodically around it—and, even where you most casually and remotely from it thus assemble, that similar substances, as if sympathizing, in this, with their parent tree, to speed the graft of your philanthropy, while duly nurtured by your tending care,—will vegetate with that rapidly creative vigor, which must produce yearly, monthly, weekly, daily, nay hourly, the beautiful and fragrant flowers of UNIVERSAL AMITY, followed by the nutritious fruits of UNIVERSAL UTILITY.⁴⁵

Even though the trunk is identified as “lifeless,” the author still recognized its agency in its ability to gather an audience around it, much like how it reportedly attracted Penn and the Lenape in the seventeenth century and drew eighteenth-century city residents and laborers, as depicted in the Birches’ 1800 engraving of the city port. Even when members of the Outinian Society gathered away from the elm fragment, sympathetic “similar substances”—likely referring to other Treaty Elm relics—helped “vegetate” amity and utility. Similar to body-part relics and reliquaries of the Middle Ages, Treaty Elm fragments directed viewers to contemplate the tree as a whole, and subsequently, the morals and character that tree embodied. The elm fragment remained on view at the ancestral Penn estate for at least several more decades. According to the recollections of John Jay Smith, an American who visited Stoke Park in 1845,

The house was not wanting in memorials to Pennsylvania, a large portion of the Treaty Tree, sent by some members of the Historical Society, with a silver label on it, ornamented the grand drawing room of the second storey, which was reached by a long, and rather fatiguing marble staircase.⁴⁶

⁴⁵ Emphasis original. Ibid., 47.

⁴⁶ Cited in Peter Pugh, *Stoke Park: The First 1,000 Years* (Cambridge, U.K: Icon Books, 2008), 62.

Other relics at Stoke Park, as described by Smith, included taxidermied Pennsylvania birds, Indian relics, and a preserved beaver.⁴⁷ Stoke Park, therefore, became a type of shrine to Philadelphia's historic and environmental past through the display of natural history and ethnographic objects.

Much like Stoke Park's curated assemblage demonstrating the entanglement of human and nonhuman entities in Pennsylvania's history, Treaty Elm relics also materialized the complex interactions of human and nonhuman agents involved in the Anglo-American settlement of the Philadelphia region. In an 1821 letter, Thomas Cadwalader—the father of John Cadwalader, who presented the bust of William Penn to Independence Hall in 1874—thanked Philadelphia lawyer Roberts Vaux for two boxes “made from the root of the celebrated tree under which the wise and illustrious founder of Pennsylvania is said to have made his first Treaty with the Native Lords of the Soil.”⁴⁸ Here, Cadwalader equated the Lenape with the soil, or foundation, of the tree, and the region. “Lords of the Soil,” was a common phrase used to denote Native American peoples by Anglo-Americans in the early republic. In *A New System of Modern Geography* (1813), for example, Benjamin Davies explained that while many Indian groups, including the Lenape, occupied Pennsylvania prior to European settlement, “at present there is hardly a cabin existing within the limits of the state of Pennsylvania that belongs to any of these ancient lords of the soil.”⁴⁹ Such an autochthonous title initially

⁴⁷ Ibid.

⁴⁸ T. Cadwalader to Roberts Vaux, January 7, 1821, in Vaux Family Papers, 1684-1923, coll. 0684, Historical Society of Pennsylvania.

⁴⁹ Benjamin Davies, *A New System of Modern Geography, or a General Description of the Most Remarkable Countries Throughout the Known World*, 3rd Edition (Philadelphia: Johnson and Warner, Bennett and Walton, Thomas and William Bradford, Benjamin C. Buzby, and Thomas M. Longstreth, 1813), 335.

seems to attribute land-owning rights to Native Americans, but the preceding adjectives of “native” and “ancient” firmly located those rights in the past. According to the account of Rosalie Vallance Tiers Jackson, a descendant of the Eyre family, when the Treaty Elm’s root was unearthed around 1815, “it was found to have an Indian vase imbedded in it, but this crumbled upon exposure to the air.”⁵⁰ The vase’s disintegration following its excavation from the earth proved its incompatibility with the present.

A Treaty Elm box owned by Deborah Logan, a historian and antiquarian with familial ties to James Logan, a close friend and agent of William Penn, betrays a close connection of the elm tree with nostalgic feelings towards vanishing Native Americans (Fig. 5.8). Logan used the box, printed with the text “Penn’s Treaty—Unbroken Faith 1682” on the lid, to store a bead of wampum claimed to have been taken from a belt presented to Penn at the famous Treaty. A paper label attached to the bottom of the box explains, “the Bead in this box was sent S. M. Walker from the Belt in the Archives at Harrisburg. On presenting it to Dear Aunt Logan, she expressed her pleasure by saying she valued it more highly than gold and would place it in the Treaty Tree Box.”⁵¹

Threaded onto a pink ribbon and enclosed in a box made of the wood of the elm, the wampum bead was contained, and therefore confined, within another relic, much like the vase trapped in the root of the tree. Logan’s box is one of several examples of a Treaty Elm box used to hold another relic, thereby serving more explicitly as a reliquary,

⁵⁰ The manuscript is undated but was likely written in the late nineteenth or early twentieth century. Rosalie Vallance Tiers Jackson, “Family tradition regarding the William Penn Treaty Elm as related by Rosalie Vallance Tiers Jackson to her nephew Clarence Van Dyke Tiers,” Historical Society of Pennsylvania.

⁵¹ Laura Keim, curator at Stenton, identified “S.M. Walker” as Sarah Miller Walker, a close friend of Deborah Logan’s. I want to especially thank Keim, curator at Stenton, for generously sharing her article manuscript on historic relics and pointing me towards the relic snuff boxes at Stenton, Wyck, and the Germantown Historical Society. Laura C. Keim, “Remembering the ‘Olden Time’: John Fanning Watson’s Cultivation of Memory and Relics in Early National Philadelphia,” unpublished manuscript.

although both container and contained object appear to work in tandem, as elm, wampum, and “unbroken faith”—written in a continuous, and therefore “unbroken” circle of text—together represented the multiple agents of Penn’s Treaty.

The Character of the Wood

On July 20th, 1825, the same day Lafayette visited the antiquarian’s hometown of Germantown, Watson gifted another unusual snuff box to Deborah Logan (Fig. 5.9).⁵² Approximately three and one quarter inches in diameter and one and one quarter inch high, the circular box is small enough to fit comfortably in one’s hand. The lid combines four different woods divided into quadrants, arranged so that the grains run in the same direction. A label pasted to the underside of the box identifies these woods in Watson’s own hand: “Relics of the Olden Time a gift from JF Watson to Deb. Logan. The Box is of the Walnut Tree of Penn’s day & stood till 1818 before State House. The Gum is of a Tree of Penn’s Forest still alive out Vine St. The Elm is of ye Treaty Tree. The Oak is of the first bridge over Dock Creek in 1683. The Mahogany is of Columbus’ House at St. Domingo.” Watson also presented boxes to Lafayette and his host, Ruben Haines that same day (Figs. 5.10-11), and he sent several more via post to friends and colleagues.⁵³ One, currently in the Germantown Historical Society (Figs. 5.12-13), does not identify a

⁵² Lafayette visited Philadelphia nearly a year earlier, in September of 1824 and the city celebrated his arrival with a parade and ceremonial reception in the Pennsylvania State House. Watson may have been inspired by these events to create commemorative souvenirs for when Lafayette returned to the area in 1825. Mires, *Independence Hall in American Memory*, 67–73.

⁵³ Haines’s box bears a similar inscription to Deborah Logan’s box on the underside: “Relics of the Olden Time! The box is of Walnut, a Forrest Tree when Penn visited Philda. In 1682. It stood till 1818 before the State House. The Sweet Gum is now, in 1825, the last living contemporary of Penn’s day. The Oak is the butment wharf of a bridge over Dock Creek—the first built in Philda. Dug up in 1823 in Ches[nut] St. at Hudson’s Alley—The Mahogany is part of the Beam of Columbus’ House, the first in America. The Elm is of the Treaty Tree of Shakamaxon—from J.F. Watson to R. Haines Esq.”

recipient and may, therefore, have belonged to Watson himself. While the extant boxes vary slightly in form (Figs. 5.14-16)—the result of the inexact nature of turning wood by hand—they are all generally the same size and include the collection of woods.⁵⁴

In a letter acknowledging the receipt of one of these snuff boxes from Watson, the founding president of the Penn Society, Peter Stephen Du Ponceau, proclaimed, “relics of former times increase in value as years roll over our heads, it is an honorable & a patriotic act to collect them & preserve them for posterity.”⁵⁵ Thomas Wharton, another founding member of the Penn Society, wrote of his snuff box:

Mere antiquarianism or an interest in the old things merely because old I profess a great regard for, but whatever excites a curiosity for, or leads our thoughts to dwell upon a period so pregnant with noble & excellent minds...as that of the first settlement & early annals of Penna., is worthy of study and constant attention.⁵⁶

Inarguably invested in preserving and commemorating the memory of William Penn’s Treaty and other events associated with European discovery, conquest, and development of the Americas, these boxes embodied and shaped these historic episodes through their sylvan matter. In a letter accompanying a similar box sent to Roberts Vaux, his colleague and founder of the Historical Society of Pennsylvania, Watson explained, “to a feeling & contemplative mind, [relics] present Remains calculated to impress the imagination with

⁵⁴ According to letters in Watson’s archive, other recipients of boxes included John Thomson, Peter Stephen Du Ponceau, Mayor Joseph Watson, and Thomas I. Wharton. Many of these boxes are unfortunately no longer extant, so it is not clear if they all included the same woods as the three boxes currently located in Germantown, but they all appear to have incorporated a comparable combination of historic woods. Du Ponceau, Joseph Watson, and Thomson specifically thank John Fanning Watson for the box and letter sent on July 20th, 1825, proving that Watson sent the majority of his boxes—if not all—on the same date Lafayette visited the region. Peter S. Du Ponceau to John Fanning Watson, July 23, 1825; Joseph Watson to John Fanning Watson, July 25, 1825; John Thomson to John Fanning Watson, August 5, 1825; James Barron, September 10, 1825; David Lewis to John Fanning Watson, December 13, 1825; Thomas I. Wharton to John Fanning Watson, January 27, 1826, John Fanning Watson Collection.

⁵⁵ Du Ponceau to Watson, July 23, 1825, John Fanning Watson Collection.

⁵⁶ Thomas I. Wharton to John Fanning Watson, January 17, 1826, John Fanning Watson Collection.

many grateful recollections connected with our primitive history.”⁵⁷ Such statements indicate that these relics “impress the imagination” through their material make-up or “remains.” By bringing together an assortment of important sylvan resources, Watson’s boxes also materialized the complex trade network that connected various ports in Philadelphia, England, and the West Indies. These relics, therefore, blurred the boundaries between human and nonhuman worlds and productions, effectively aligning a historical and environmental past.

One month after the dinner commemorating the founding of the Penn Society, Watson wrote to Roberts Vaux, “I have got it in my mind, to commemorate the [Penn Society] Dinner, by giving every one of you a Snuff box, to be made out of primitive wood, inlaid of at least four kinds on the top lid—& have a record of all their characters put upon the minutes.”⁵⁸ Nineteenth-century relic objects were routinely dismantled, carved, and combined with other relics, creating richly layered artifacts. The physical form of the historic relic was not as important, since its agency and historic value resided in its material.⁵⁹ Watson particularly created, admired, and collected these amalgamations of relic woods:

I have myself presented several snuff-boxes formed severally of a plurality of kinds of relic wood, including the treaty tree, Columbus’ house, the Blue Anchor tavern, &c. There is, in my house, a lady’s work-stand, of the treaty tree, ornamented with the walnut tree of the Hall of Independence, with the mahogany beam of Columbus’s house, &c.⁶⁰

⁵⁷ Emphasis is original. John Fanning Watson to Roberts Vaux, July 20, 1825, Vaux Family Papers.

⁵⁸ John Fanning Watson to Roberts Vaux, December 1, 1824, Vaux Family Papers.

⁵⁹ Barnett, *Sacred Relics*, 25.

⁶⁰ Watson, *Annals of Philadelphia*, 734.

Vaux established his own tradition of gifting Treaty Elm snuff boxes several years earlier; he sent boxes to respected personages on an almost annual basis until the mid-1830s, suggesting that he placed a high value on the boxes and who received them.⁶¹ A box owned by John Connors, current chairman of the Penn Treaty Park Committee, may have been one of Roberts Vaux's gifts (Fig. 5.17-18). A note inside the box, signed "S. Powel 1858," states: "This box made from the wood of the elm tree at Kensington called Penns Treaty tree was received from Mr. Roberts Vaux, by my father." It is possible Vaux presented a box to John Powel, a Pennsylvania senator who corresponded frequently with the Philadelphia lawyer.⁶²

These relic boxes also incorporated another important American natural resource through their intended function as containers for snuff, or finely ground tobacco inhaled through the nostrils. By the end of the Revolutionary War, tobacco was America's leading export, with plantations spreading west and south of Tidewater Virginia and Maryland, following patterns of national expansion.⁶³ Snuff-taking constituted the most popular mode of consuming tobacco in the eighteenth and early nineteenth centuries, especially in Europe and North America. By 1790, twenty snuff manufacturers

⁶¹ I have found references to at least nine boxes in Vaux's correspondence. Recipients included lawyer and general Thomas Cadwalader, journalist John Binns, William Evans, Supreme court Justice John Marshall, Governor George Wolf, Hartman Kuhn, a trustee of the University of Pennsylvania, William Wirt, attorney general, and Willis Gaylord Clark, poet and editor. William M. Evans to Roberts Vaux, January 22, 1821; Roberts Vaux to John Binns, March 19, 1822; George Wolf to Roberts Vaux, March 10, 1830; J. Marshall to Roberts Vaux, October 6, 1831; Hartman Kuhn to Roberts Vaux, June 14, 1832; William Wirt to Roberts Vaux, November 19, 1832; Willis Gaylord Clark to Roberts Vaux, February 4, 1833, Vaux Family Papers.

⁶² Samuel Powel was John Powel's eldest son. See Powel Family Papers, 1681-1938, Finding Aid, coll. 1582, The Historical Society of Pennsylvania.

⁶³ Carlos Franco Liberato, "Plantations," in *Tobacco in History and Culture: An Encyclopedia*, ed. Jordan Goodman (Detroit, Mich.: Charles Scribner's Sons/Thomson, 2005), 423-28; Eldred E. Prince, Jr., "United States Agriculture," in *Tobacco in History and Culture: An Encyclopedia*, ed. Jordan Goodman (Detroit, Mich.: Charles Scribner's Sons/Thomson, 2005), 653-61.

established themselves in Philadelphia.⁶⁴ Containers to hold snuff were made small enough to fit in a pocket, where the warmth of the body would improve the bouquet of the powder, frequently enhanced with scents and oils.⁶⁵ Snuff boxes, therefore, became valuable accessories, occasionally crafted in gold, enamel, hardstone, silver, and tortoiseshell, and encrusted with jewels.⁶⁶ Watson, Vaux and others producing reliquary wood snuff boxes clearly recognized the inherent value and interactive potential of these portable object types when choosing an appropriate form for their relics.

While Watson's multi-wood boxes extant at Wyck, Stenton, and the Germantown Historical Society do not retain any lingering smell of tobacco, suggesting that the owners of the relics did not actually use them to hold snuff, there is a record of at least one Treaty Elm box being used for that purpose. Peters wrote to Vaux in 1825, explaining an occurrence at the second Penn Society dinner:

The President [John Quincy Adams] took a pinch of snuff out of a very shabby box, said to be made from the wood of the elm. I was ashamed of the squalidity of the box. I told Mr. Adams, that such a box should only be used on a pinch, but I would endeavor to prevail on some of our society to have one made more respectful to Penn's memory; so that he should not turn up his nose at the box, whatever its contents might titillate him to do. Can such grave solemn assurance be effectuated? If all the wood be gone, we are all in a bad box.⁶⁷

Peters's letter conveys his dismay at Adams's use of the box to actually store tobacco snuff—perceived as disrespectful to the memory of Penn and the elm—despite the

⁶⁴ Clare Le Corbeiller, *European and American Snuff Boxes, 1730-1830* (New York: The Viking Press, 1966), 7; Jason Hughes, "Snuff," in *Tobacco in History and Culture: An Encyclopedia*, ed. Jordan Goodman (Detroit, Mich.: Charles Scribner's Sons/Thomson, 2005), 547–51.

⁶⁵ Catherine Jestin, *Powder Celestial: Snuff Boxes, 1700-1880* (New Haven, Conn.: Yale Center for British Art, 1990).

⁶⁶ Hughes, "Snuff."

⁶⁷ Emphasis is original. Judge (or Jurist) Richard Peters to Roberts Vaux, November 21, 1825, Dreer Collection, box 21, folder 48, The Historical Society of Pennsylvania

identification of these relics in correspondence as “snuff boxes” specifically. Peters’s language when asking Vaux if additional wood from the elm exists—describing his assurance to Adams as “grave” and categorizing their situation as “in a bad box” if no more wood remained—alludes to the death and dismemberment of the tree by relic-collectors. This statement also refers back to the squalid “bad box” Adams then possessed, indicating that Peters conceived of the boxes as receptacles, or coffins, for the Treaty Elm’s memory.

On July 20th, 1825, the same date as Lafayette’s visit to Germantown, Watson sent a multi-wood snuff box to Vaux with an accompanying letter stating, “receive herewith the Gift of the promised Snuff box formed of the Wooden Relics of the Olden time: They supply such Relics as devotion holds still sacred & preserved with pious care.” In the letter, Watson described, in detail, the “character of the several pieces of wood incorporated in the Box.”⁶⁸ When expounding on the inlaid woods of elm, walnut, sweet gum, oak, and mahogany, Watson only briefly mentioned the elm as the “Treaty Tree of Shackamaxon, which was blown down in 1810,” most likely recognizing Vaux’s own vast knowledge of that esteemed tree.⁶⁹ His descriptions of the other woods, however, are peppered with references to trees as “imposing conductors” and “living vestiges,” which, along with Watson’s desire to explain the “character” of the different woods, suggests his own recognition of an arboreal agency in shaping the city.

In his letter to Vaux, Watson explained that the black walnut used to make the box, came from a tree “of great magnitude, & which served as very imposing &

⁶⁸ John Fanning Watson to Roberts Vaux, July 20, 1825, Vaux Family Papers.

⁶⁹ Vaux would publish a memoir investigating the location of Penn’s Treaty the following year. Vaux, *A Memoir on the Locality of the Great Treaty*.

appropriate conductor to the venerable State House.” According to Watson, when Richard Penn, a descendant of William Penn, visited Philadelphia and saw “these last living vestiges” of his ancestor’s time, he was so moved that “he burst into a flood of tears!”⁷⁰ In his *Annals* manuscript, Watson noted that he received this wood from Jacob Ridgeway, Esq, who cut down the tree in 1818 because he feared it had become too “leafy & heavy” and posed a danger to his property. Watson counted the “concentric annual circles” of the tree and concluded that it was one hundred and forty-six years old.⁷¹ Phantom rings visible on the inside of the Watson’s snuff boxes (Fig. 5.16), imprinted during the process of wood turning, allude to this method of dating a tree and may have recalled for viewers the many “annual circles” possessed by the ancient black walnut. The boxes, therefore, through their rings and circular forms, evoked the advanced age, and therefore acquired wisdom, of the incorporated woods.

According to Watson, the sweet gum was from a tree that grew on the northern side of Vine Street in front of Bush Hill Mansion, and is a “specimen of a Cluster of little Forest Trees, of the last, present living Trees so near the city of Penn’s Forests.”⁷² Watson elucidated that these trees were spared for so long, “both by the British and by their owners,” because of sweet gum’s undesirability as firewood.⁷³ When initially proposing the construction of his snuff boxes to Vaux, Watson expressed a keen interest in a large elm tree at Race and Schuylkill Streets as an alternative to the sweet gum wood because he also believed it to also be of the original “Forest race.” Watson mused that he

⁷⁰ Watson to Vaux, July 20, 1825, Vaux Family Papers.

⁷¹ Watson, “The Annals of Philadelphia,” 39.

⁷² Ibid.

⁷³ Watson, “The Annals of Philadelphia,” 42.

might get “a lad up it & cut off a limb just big enough to make a part of the material” for the box inlay.⁷⁴ Ultimately, likely because another, more important elm was already included in the box, Watson chose the Gum instead for this role. In an 1824 letter to Watson, Vaux also expressed his interest in preserving the ancient trees of the city:

It gratifies me much to learn that within the limits of Phila any thing still lives, which had life at the time our adventurous ancestors originally committed themselves to the perils of wilderness. When I next go to the city, I will visit “the Last Tree of the Forest”, and contribute all my humble efforts to induce the proprietor of it, to preserve it from violation, and if he may permit, it will give me pleasure to make some arrangement for rendering it an object of interest to the present, and for succeeding generations. Such an inhabitant deserves the homage of respect, and if it be possible, I will cause it to be distinguished.⁷⁵

Vaux’s emphasis on the tree’s “life,” and its designation as a Philadelphia “inhabitant” deserving the homage of respect, underscores the animate qualities of trees in the early republic, designating them as worthy relics for historical contemplation.

The oak used in Watson’s snuff boxes reportedly derived from the “first bridge” built over Dock Creek. Watson explained that boats carrying wood used to pass underneath the bridge to reach a landing at High and Sixth Streets and its oak abutment of was recovered in 1823, buried six feet underground.⁷⁶ Thomas Holme’s 1683 map shows “a Bridg” over Dock Creek at Front Street between Spruce and Pine (Figs. 5.19-20), most likely the bridge Watson referred to in his letter. Once a vital entryway into the city, Dock Creek had been almost entirely erased from Philadelphia’s topography by 1825. In

⁷⁴ John Fanning Watson to Roberts Vaux, December 1, 1824, Vaux Family Papers.

⁷⁵ Roberts Vaux to John Fanning Watson, July 22, 1824, John Fanning Watson Collection.

⁷⁶ According to *Annals*, the first bridge was a “wooden structure laid across the Dock creek,—where the tide then ebbed and flowed, at Hudson’s alley and Chestnut street.” Watson, *Annals of Philadelphia*, 54. Watson to Vaux, July 20, 1825, Vaux Family Papers.

the eighteenth century, slaughterhouses, tanneries, and other industries that required access to water replaced the fashionable homes initially built along Dock Creek's banks, polluting the water and creating a toxic environment. A 1784 petition complained of the "Stench of Mud and putrifying Filth there exposed...rendered it a grievous Nuisance, offensive to the Senses and dangerous and injurious to the Health of neighboring Inhabitants."⁷⁷ That same year, the city began enclosing the open sewer with wooden archways built over the channel. The rest of the creek bed was filled in with earth from nearby areas that were correspondingly leveled; this massive project of earth removal likely uncovered the foundation of the early bridge.⁷⁸ The fragment of the oak abutment included in the snuff box therefore recalled both early and more recent urban development in Philadelphia, in the form of bridge construction, demolition, and leveling. Watson's preservation of the bridge fragment is therefore both celebratory and nostalgic about the changing topography of the city.

Watson received the mahogany included in his boxes from David Lewis, an insurance company president, in March of 1824. Lewis presented a "piece of one of the Beams of the first House built in America by a European, Christopher Columbus," that he received from a Spanish captain to thank the antiquarian for showing him his collection of relics.⁷⁹ In the decades following the Revolutionary War, Columbus, and his associated, female, allegorical form of Columbia, supplanted the Lenape chief Tamanend

⁷⁷ To the Honorable Representatives...the Petition...to Extend the Arch over the Common Sewer (Philadelphia, 1784).

⁷⁸ Some of the earth was drawn from Society Hill, which exists as a wealthy Philadelphia neighborhood today. Watson noted that the "hill" used to be ten feet higher prior to leveling. Watson, *Annals of Philadelphia*, 294. See also Charles S. Olton, "Philadelphia's First Environmental Crisis," *The Pennsylvania Magazine of History and Biography* 98, no. 1 (January 1974): 90–100.

⁷⁹ David Lewis to John Fanning Watson, March 30, 1824, John Fanning Watson Collection; Watson, *Annals of Philadelphia*, 34.

as America's patron saint. A poem read on the Fourth of July in Philadelphia in 1788 illuminated this process of decanonization:

The savage tribes their jubilee proclaim
A crown Saint Tammany with lasting fame.
E'en the poor Negro will awhile resign
His furrow, to adorn Saint Quaco's shrine;
While mimic Saints a transient joy impart,
The strikes the sense but reaches not the heart,
Arise Columbia!—nobler themes await
Th' auspicious day, that sealed thy glorious fate.⁸⁰

Here, the poem positions Tammany and Quaco as “mimic” Saints, worshipped only by “savage tribes” and the “poor Negro,” while eagerly anticipating the ascent of Columbia. In 1791, the St. Tammany's Society in New York, one of the most politically active Tammany Societies that were scattered throughout the United States, changed its name to the more secular “Tammany Society or Columbian Order” and began making plans to celebrate the Columbian Tercentenary.⁸¹ Only three years after Watson commissioned and disseminated his boxes, Washington Irving published his popular *A History of the Life and Voyages of Columbus*, crafting a fanciful and heroic biographical account of the explorer that solidified his new role as a national hero.⁸²

In several cases, including that of Columbus's mahogany, Watson's boxes were merely one component of a greater exchange of historic woods that linked his correspondents. In his letter accompanying the mahogany from Columbus's house, Lewis explained that he may have a larger piece of wood to give Watson after he turned a few

⁸⁰ “An address intended to have been spoken by Mr. Hallam at the Theatre in Philadelphia on 4th of July 1788,” quoted in Francis Von A Cabeen, “The Society of the Sons of Saint Tammany of Philadelphia (concluded),” *The Pennsylvania Magazine of History and Biography* 27, no. 1 (1903): 36.

⁸¹ Deloria, *Playing Indian*, 45–50.

⁸² Washington Irving, *A History of the Life and Voyages of Christopher Columbus* (New York: G. & C. Carvill, 1828).

mahogany boxes for friends, “in which case I should wish to exchange it with you for a piece of the large [Elm] Tree at Kensington.”⁸³ A letter sent over a year later suggests that Lewis did, in fact, send Watson more of the wood and received the snuff box in return. Lewis thanked the antiquarian for the box, writing,

I had retained a piece of the mahogany from Columbus’ House, intending to have had it made into a Snuff Box for myself, but cannot deny myself the pleasure of offering it for your acceptance, persuaded you will set a high value on it, and be enabled to divide it among a number of your Friends in smaller detachment, & thereby gratify them to a better purpose, than could be done by my retaining it for the single purpose above mentioned.⁸⁴

Lewis’s note implies that the mahogany has acquired greater meaning and value through its combination with other historic woods and its dispersal to various colleagues and friends.⁸⁵

The combination of woods in Watson’s boxes illuminates a very complex history of various sites relevant to the nation’s discovery and founding by Europeans settlers. The inclusion of the mahogany, in particular, linked William Penn and the founding and development of Philadelphia with the discovery of the Americas by Columbus. Watson’s

⁸³ Lewis to Watson, March 30, 1824, John Fanning Watson Collection.

⁸⁴ Lewis to Watson, December 13, 1825, John Fanning Watson Collection.

⁸⁵ Correspondence between Commodore James Barron and Watson illuminate another instance of historic wood exchange and combination. In a note accompanying a letter received from Barron, Watson wrote that the Commodore acknowledged the receipt of a “small box” made from the wood of the Walnut Tree that stood before Independence Hall and ornamented with a piece of mahogany from Columbus’s house and timber from the Revolutionary War Frigate Alliance, a ship that was abandoned on Petty Island in the Delaware River in the early nineteenth century. Commodore Barron promised to preserve the “invaluable Box with all the care in my power as long as I am permitted to live.” Barron also received from Watson a larger piece of timber from the Frigate Alliance, which he carved into a model of the ship. Barron wrote to Watson in December of 1825 requesting a piece of the table on which the Declaration of Independence was signed, to fashion into a mast to complete the model. Watson never sent this wood, so Barron finished the model without it and, according to Watson, the ship was presented to President Andrew Jackson and displayed in the “Mansion at Washington City.” James Barron to John Fanning Watson, September 10, 1825; December 11, 1825; May 24, 1826 and Watson’s note attached to James Barron’s September 10, 1825 letter, in John Fanning Watson Collection.

correspondence with Vaux, however, also indicated that the woods' "primitive" character ultimately unified the separate pieces. The amalgamation of woods—walnut, oak, sweet gum, elm, and mahogany—not only recalled key events in the nation's history, they also demonstrated the diverse nature of the hemisphere's autochthonous forests. Watson's relic boxes included wood from both dead and living trees, celebrated by the antiquarian and the receivers of his gifts for the historical events and personages they witnessed in their long arboreal lives. The mahogany and oak, however, were significant to Watson because of their later uses as building material for a house and a bridge. The combination of these materials with wood taken directly from living or recently departed trees, however, did not bother Watson and, in fact, only seemed to add value to the box. Even though Watson mourned the primitive forests of the city's, and nation's, ancient past, he marveled at the structures those trees were used to build.

Together, the various woods incorporated in Watson's snuff boxes materialize in miniature the complex timber trade that linked multiple ports in the Atlantic world, including Philadelphia. As Gaston Bachelard, Susan Stewart, John Mack, and others have noted, the miniature offers a density of information within a graspable, compressed form.⁸⁶ Through their categorization as relics and material reference to architecture via their incorporation of actual architectural fragments, Watson's snuff boxes appear related to Alina Payne's conception of *Kleinarchitektur*, or small architecture, which, she argued, established a bridge between mobile objects and related, larger structures.⁸⁷ Viewers of

⁸⁶ Gaston Bachelard, *The Poetics of Space* (Boston: Beacon Press, 1994), 148–82; Stewart, *On Longing*, 37–69; Mack, *The Art of Small Things*.

⁸⁷ Alina Payne, "Materiality, Crafting, and Scale in Renaissance Architecture," *Oxford Art Journal* 32, no. 3 (2009): 365–86; Alina Payne, *From Ornament to Object: Genealogies of Architectural Modernism* (New Haven, Conn.: Yale University Press, 2012), 146–49.

Watson's relic boxes, for example, could use the boxes' incorporated veneers to access a network of esteemed trees. While Watson clearly valued these particular woods for their historic value, he intentionally chose wood of different types of trees to combine in his snuff boxes. Most of the woods included—especially black walnut, oak, and mahogany—were valuable species native to the Americas and significant for shipbuilding, cabinetmaking, and trade. During his 1748 travels in North America, the naturalist and Linnaean protégé, Peter Kalm explained that Philadelphia merchants shipped goods—including timber—to the West Indies, “almost every day,” in return for sugar, molasses, rum, indigo, and mahogany. These goods from the West Indies, along with American woods, “especially black walnut and oak planks” were then shipped to England.⁸⁸ By including mahogany in the box, Watson not only recognized the growing importance of Columbus within the nation's construction of its historical past, he also selected a luxury wood that was becoming more and more difficult to acquire in the northeastern United States due to deforestation. By the mid nineteenth century, Philadelphia furniture maker George Henkels explained that “after the depletion of wood on [Santo Domingo], Cuba mahogany [is] the best to be had.”⁸⁹ Watson's incorporation of a small fragment of mahogany is inadvertently appropriate in this context, since, due to its growing expense, mahogany became increasingly consumed as thin slivers of veneer in the early republic.⁹⁰

⁸⁸ Kalm also explained that this wood is “properly bought in New Jersey, the forests of which province are consequently more ruined than any others.” Pehr Kalm, *Travels into North America; Containing Its Natural History, and a Circumstantial Account of Its Plantations and Agriculture in General* (London: T. Lowndes, 1772), 1:39.

⁸⁹ George Henkels, *Household Economy* (Philadelphia: King and Baird, 1867), 21. Cited in Anderson, *Mahogany*, 286.

⁹⁰ Santo Domingo, where Christopher Columbus's house was located, was almost completely stripped of mahogany by the early nineteenth century, as French colonial officials and the resisting native population competed to control the mahogany market. Many American merchants avoided the social and political upheaval in Hispaniola and purchased their mahogany from Cuba instead. *Ibid.*, 187–88, 197–98.

North American and European consumption of mahogany contributed to increased exploitation of slave labor, ecological destruction, and the decimation of native populations in the West Indies, Central and South America. Although the ornamental inclusion of such mahogany in these snuff boxes enhanced the reliquary value of the Treaty Elm, it associated that value with a wider history of colonialism while eliding the violence of that history.

Watson notably did not include white pine—the tree memorialized in William Rush’s *Self-Portrait*—in his relic boxes, perhaps because no ancient specimens remained locally. For the Penn Society’s founding dinner, however, he composed a toast to “Coaquannock,” the Lenape name for the Philadelphia region prior to European settlement, translated as “the grove of tall pine trees.” Watson wrote, “May forests of masts before our city always justify the truth of this ancient name.” Similar to the Birchs’ engraving of the elm and city port—with its own “forest of masts” on the horizon—sentiment and industry operate alongside each other in Watson’s boxes and toast; trees were venerated for the events they precipitated and witnessed, but also celebrated for the bridges, houses, ships, and boxes their wood constructed.

Watson’s most elaborate assemblage of historic woods and objects culminates in a relic box in the Winterthur Museum (Fig. 5.21).⁹¹ According to a paper label Watson pasted inside, the box was primarily constructed from the wood of Penn’s Treaty Tree, the walnut border is from a “cluster of forest trees” that stood before Independence Hall and the small star on the lid and front of the box is mahogany from Columbus’s house.

⁹¹ Yvette Piggush dates the box to 1823, but Deborah Waters speculated that the relic box was made for Watson circa 1830, when Watson commissioned a similar document box, made from a comparable assortment of woods, to store the early correspondence of the Penn Society. Deborah Dependahl Waters, “Philadelphia’s Boswell: John Fanning Watson,” *The Pennsylvania Magazine of History and Biography* 98, no. 1 (January 1974): 44; Piggush, “Fancy History.”

The box, a little over seven inches high and ten inches in width, perches on small, brass animal feet. Just as the wood itself projected agency through its material essence, the brass feet underscored the animate qualities of the relic as a whole. Indeed the mobility suggested by the brass feet is an appropriate metaphor for the portable qualities of the reliquary and its contained relics, many of which traveled great distances to Watson's box. The contents of the box span three hundred years, beginning with a twig from a tree under which Columbus rested after landing in the New World and ending with a fused group of beads recovered from the 1835 Great Conflagration in New York City.⁹² The box also includes buttons worn by Charles Willson Peale, a knitting bag and sheaf from a lady of Queen Elizabeth's court, a colonial silk, a piece of an old wharf found at the junction of Franklin Place and Chestnut Street in Philadelphia, a fragment of a Schooner which went over Niagara Falls in the Summer 1827, and a piece of leather tanned from a sheep killed the same day as Washington's Centennial Celebration.⁹³ According to his correspondence and notes in his *Annals* manuscript, Watson received most of these relics as gifts and may have even distributed his snuff boxes in exchange.⁹⁴

Yvette Piggush has argued that the relics contained in the box permitted Watson and other viewers to experience different conceptions of time; one could arrest time by holding and contemplating relics while simultaneously perceiving the accelerated motion of progress as those relics decay.⁹⁵ Rapid development in the city uncovered many of

⁹² Lois Amorette Dietz, "John Fanning Watson: Looking Ahead with a Backwards Glance" (master's thesis, University of Delaware, 2004), 5; Waters, "Philadelphia's Boswell," 44.

⁹³ Dietz includes a full transcript of the object labels found in the box. Dietz, "John Fanning Watson," 10–11.

⁹⁴ Watson, "The Annals of Philadelphia."

⁹⁵ Piggush, "Fancy History."

Watson's relics, including a fragment of a coffin unearthed during the laying of iron pipes for the new Fairmount Waterworks, Indian hemp discovered while constructing the foundation of a prison wall, and portions of the old Dock Creek Bridge retrieved during a concerted effort to level the city's topography.⁹⁶ These different perceptions of time are also referenced in a watercolor of Penn's Treaty Elm, painted by Watson and framed under glass inside the lid of the box (Fig. 5.22). Watson here appropriated imagery from the Birches' 1800 engraving of Philadelphia's port, including the dominant tree and bustling city stretching out along the horizon on the banks of the Delaware River. In both Watson's watercolor and the Birches' engraving, the tree stands as a symbol of the city's historic and environmental past, a relic in its own right by 1800. Watson, however, has removed the labors of shipbuilding that animate the foreground of Birches' print. Instead, Watson added a lone fisherman, seated on end of a dock. Piggush used the metaphor of a "fishing hole" to describe Watson's relic box, contending that the fisherman in the watercolor is a Rip Van Winkle type, removed from masculine labor and the crowded city, reeling "'keepers,' or keepsakes, up from the depths."⁹⁷

I agree that through the removal of shipbuilding activities, the watercolor heightens the contrast between the present or future, as represented by the city on the horizon, and the past, exemplified by the elm. It is important to remember, however, that approximately a quarter century and one fallen tree separated these two visualizations of the Treaty Elm and the city port. While the Birches' collection of engravings looked forward, visualizing the city as economically prosperous and genteel, Watson's

⁹⁶ To cite a few examples of the label text included the box: "Piece of coffin! In 1824 n digging 3 feet in Arch St to lay the iron pipes they came to several graves and found in them bones & hair" and "Specimen of Indian hemp found 18 feet under ground at the Arch St Prison Wall."

⁹⁷ Piggush, "Fancy History."

watercolor is an intentional memorial to the past. By distancing the tree from the city and its related labors of industry, Watson firmly located the, now dead, elm in a distant, yet tangible past, one that could be recalled by communing with the box and its contents. The watercolor invited the box's audience to use the fragment—the relic box—to conjure the corporeal presence and moral lessons of the Treaty Elm itself. The contrast between the pastoral foreground and urban background also emphasized the rapid development of the region in the early nineteenth century, recalling a time when the elm once “looked out upon the distant city, ‘saw the stir of the great Babel, nor felt the crowd.’”

Living Monuments Speaking Forth

In 1828, Watson retained the artist William L. Breton, only recently arrived in the United States from England, to create watercolor designs for engravings to accompany his published *Annals*.⁹⁸ One such watercolor, produced in either 1828 or 1829, depicts the “Treaty Ground of William Penn and the Indian Natives” (Fig. 5.23), a subject that would have undoubtedly been appealing to Watson. The watercolor and subsequent wood engraving by George Gilbert, published in the magazine, *The Casket*, in 1829 (Fig. 5.24), feature the marble monument erected by the Penn Society to commemorate the Treaty Elm. The side of the monument with the inscription, “Placed by the Penn Society A.D. 1827 to mark the site of the Great Elm Tree,” is prominently featured, suggesting that Watson specifically requested Breton to capture this view.⁹⁹ In the watercolor, a man

⁹⁸ Martin P. Snyder, “William L. Breton, Nineteenth-Century Philadelphia Artist,” *The Pennsylvania Magazine of History and Biography* 85, no. 2 (April 1961): 183–85; Waters, “Philadelphia’s Boswell,” 19–22.

⁹⁹ The left side of the monument, barely legible, reads: “Treaty ground of William Penn and the Indian Nations, 1682, Unbroken faith.”

walks along a path in the left middle ground. To the right, stand several trees, with logs and wooden planks beneath them. On the shore of the Delaware River, two men work on a ship's hull, reminiscent of the Birches' engraving of the city port. A steamboat, a relatively recent invention in the United States, travels along the river in the distance and emits a plume of smoke, as if signaling a new era of industrialization. In the scene's transition from watercolor to print, the unfinished ship hull and laborers have been replaced by a winding fence and two idly conversing figures, echoing the exclusion of labor in the foreground of Watson's relic box watercolor. This change implies that Breton, Gilbert, or possibly even Watson, wished to focus the viewer's attention on the monument itself, relegating labor to that of the steam engine—a machine—in the distance.

The *Casket* article accompanying the engraving described the location as the spot where,

not only do Pennsylvanians repair with pious emotion, but our fellow-citizens of other states, and travelers from distant lands, excited by the fame of the man, and the deed, which are consecrated on the site of the unbroken treaty, will hereafter go to render the homage due to both.¹⁰⁰

In the engraving and watercolor, however, the monument is positioned so that its depicted inscription emphasizes the elm specifically. The Treaty Elm here takes precedence over Penn and the monument itself is reminiscent of a grave marker for the fallen tree. This sentiment is reinforced by the line of recumbent logs behind it—their intended use no longer explicit without the ship's ribcage-like hull in the background—like bodies awaiting burial, unintentionally appropriate for a periodical entitled *The Casket*. Indeed, these logs recall the large Treaty Elm fragment displayed and admired at

¹⁰⁰ *The Casket*, January 1829, 25.

Stoke Park. While the original source of Breton's logs is left unclear, the history of the site implies that they are meant to remind the viewer of the departed elm and the subsequent relics produced from its timber.

To the right of the monument, a man gazes up at a stripped tree in contemplation. Watson described a descendant of the elm, or a "sucker," "growing on the original spot...amid the lumber of the ship yard," which he planned to box in and protect, but the tree unfortunately did not survive. Watson mused, "had it lived, it would have been an appropriate shade to the marble monument."¹⁰¹ Fortunately, other offspring of the elm flourished in different parts of the city and Watson took note of their growth with interest, believing that they materially passed along the narrative and ideas of Penn's Treaty: "May long the trees, so planted, endure to link one generation with another,—to stand like living monuments speaking forth their solemn and soothing lessons, as from fathers to sons and the sons of sons."¹⁰² The animate qualities of the Treaty Elm therefore persevered in the tree's offspring, who offered moral messages and cultural critiques much like Hopkinson's columnar narrator several decades earlier. Not everyone shared Watson's reverence for the Treaty Elm progeny, unfortunately. In a later edition of his *Annals*, Watson lamented that a tree grown from a scion of the elm, planted west of Pennsylvania Hospital, was cut down due to interference with newly constructed Clinton Street: "Alas! How little many care for *our antiquities!*"¹⁰³

¹⁰¹ Watson, *Annals of Philadelphia*, 129.

¹⁰² John Fanning Watson, *Annals of Philadelphia and Pennsylvania, in the Olden Time: Being a Collection of Memoirs, Anecdotes, and Incidents of the City and Its Inhabitants, and of the Earliest Settlements of the Inland Part of Pennsylvania, from the Days of the Founders ... Embellished with Engravings, by T.h. Mumford* (Philadelphia: The author, 1844), 1:141.

¹⁰³ Watson, *Annals of Philadelphia and Pennsylvania*, 1844, 2:604.

The man pondering the unsuccessful “sucker” in Breton’s engraving may be contemplating a number of things: his own mortality, the city’s own historic and environmental past or the rapid progression of time, emphasized by the steamboat also in his line of sight. It is significant, however, that he is accessing these concerns of death, history, and time through the medium of a dead, or dying, tree, despite the availability of a marble monument nearby. As this chapter and the previous chapter on William Rush’s *Self-Portrait* demonstrated, for Philadelphians, and Watson especially, the sylvan inhabitants of the region acted as generators of memory, animated with the moral values and lessons imparted via the events the trees witnessed and participated in. Such a connection between wood and events of local and national importance explicitly linked the region’s historic and environmental past, creating a type of “ecological sensibility,” where human and nonhuman histories were complexly intertwined.

It is also important to note, however, that while trees—including an ordered row of the ubiquitous transplant, the Lombardy poplar—still populate the engraved scene, Native Americans were almost entirely excluded from the visualization and discourse regarding Treaty Elm relics in the 1820s. When Native Americans were referenced, it was in terms of their status as a “vanish’d” race, one that made up the soil or roots of the region, emphasizing their decreasing significance as touchstones of American identity. While naturalists like Michaux lamented the growing scarcity of certain types of trees due to rapid expansion and development in the United States, the recognition of natural limits and extinction had different repercussions for North American Indians. Several historians have explained that theories of extinction were frequently used to explain, and even rationalize, human population decimations in the nineteenth century, inspired by the

economic speculations of Thomas Malthus in *An Essay on the Principle of Population*, published in six editions between 1798 and 1826.¹⁰⁴ In his *Essay*, Malthus warned that human population growth threatened to outstrip necessary natural resources, but he portrayed savagery and its associated customs of warfare, cannibalism, and human sacrifice as self-extinguishing.¹⁰⁵ In Andrew Jackson's first Annual Message to Congress in 1829, he asserted that, "by persuasion and force, [Indians] have been made to retire from river to river, and from mountain to mountain; until some of the tribes have become extinct, and others have left but remnants, to preserve, for a while, their once terrible names."¹⁰⁶ Jackson argued that the relocation of Indians was the only way to avoid or prolong their extinction. He also highlighted "remnants" as a means to preserve "their once terrible names." Historic wood relics, however, while attributed with a material essence, primarily recalled Penn and the associated values of the treaty, which were arguably as "vanish'd" as Native Americans in the northeast. By positioning trees as the nation's "antiquities" and "living monuments speaking forth," Anglo-Americans like Watson elided the agency of the Lenape and other Native American groups that originally inhabited the region.

¹⁰⁴ Sadiya Qureshi, "Dying Americans: Race, Extinction, and Conservation in the New World," in *From Plunder to Preservation: Britain and the Heritage of Empire, c. 1800-1940*, ed. Astrid Swenson and Peter Mandler (New York: Oxford University Press for the British Academy, 2013), 267–86; Patrick Brantlinger, *Dark Vanishings: Discourse on the Extinction of Primitive Races, 1800-1930* (Ithaca, N.Y.: Cornell University Press, 2003).

¹⁰⁵ Brantlinger, *Dark Vanishings*, 33–36.

¹⁰⁶ Andrew Jackson, "First annual message, Dec. 8 1829," Cited in Qureshi, "Dying Americans," 274.

Surprising Triumphs of Art

In 1825, Watson embarked on a journey along the newly-constructed Schuylkill Canal from Philadelphia to Reading, Pennsylvania, recording his observations of the transformed topography along the river's banks in his journal:

“Studious of change” I undertook in company with my daughter Lavinia an excursion on the Schuylkill Canal. Such an Expedition prepares the instructed mind, for deep contemplation & admiration. It expects to see in all the distance to Reading, the surprising triumphs of art;—To see the obstructions to navigation which nature once presented, overcome & subdued by the industry & ingenuity of civilized man. The contrast between the present & the past turns the mind to the contemplation of what must have been the rude Scenes in which it was not long since beheld by the tawny aborigines. Then must have been seen at every occasional bend of the River their clustered Wigwams, and the Silver surface of the wandering stream speckled with Indian canoes, giving repose or fishing or fowling Exercises to their possessors—Now these same Banks are every where diversified by the beauties of improvements & cultivation—“Lo the poor” Indian is no more! The Race is vanished & Men of other minds & other manners supply their place—The rude Wildness of the former scenery is in some places, so entire & unchanged as to present to the imagination some lively impressions of what they were even from the Creation—and we are persuaded that Trees still may be standing exposed to our view which the natives once claimed as their contemporaries & property—Same venerable oaks perchance give shade now to selected sites for the decorated Mansion, which was once a favorite shelter to the humble wigwam—once beneath its branches—Even there repose the ashes & the bones of their distinguished Chiefs—With thoughts like these, I may well be prepared to wonder to find myself by the facilities of a canal navigation making rapid advance to Reading in one day—and seeing in continued Succession the frequent and deep freighted arks of wealth & commerce.¹⁰⁷

This lengthy passage illuminates Watson's recognition of dynamic change within the natural and built environment as he contemplated the contrast between the present and an imagined past. While floating along the river, Watson simultaneously experienced nostalgia for past places and celebrated the canal that facilitated his speedy travel to

¹⁰⁷ John Fanning Watson, “Diary of Trip to Reading, 1825,” August 11, 1825, 8-10, Watson Family Papers, coll. 189, The Joseph Downs Collection of Manuscripts and Printed Ephemera, The Winterthur Library.

Reading. The combination of cultivated and wild places he encountered reminded Watson of how far American civilization had transformed. While the trees of native America endured, the Native Americans were gone—all that remained were “the ashes & the bones of their distinguished Chiefs.” The trees instead gave “shade now to selected sites for the decorated Mansion” which populated the riverbanks, providing refuge for wealthy citizens who escaped the city during outbreaks of yellow fever a couple decades earlier. Watson ultimately felt deeply ambivalent about the swiftly transforming landscape of the Philadelphia region. He noted that prior to his travels, he expected to see “surprising triumphs of art,” as the “industry & ingenuity of civilized man” overcame “the obstructions to navigation which nature once presented.” His later comments suggest, however, that “rude wildness” still prevailed along the canal’s banks, providing a jarring contrast to the “continued Succession [of] the frequent and deep freighted arks of wealth & commerce” he also encountered.

As Watson’s journal entry and the proliferation of historic wood relics demonstrate, the approaching fiftieth anniversary of the nation’s independence provided an opportune moment to reflect upon the changing landscape of the Philadelphia region. As this dissertation has demonstrated, however, the “triumphs of art,” over natural forces and obstructions was not always achieved or secured. The artists, architects, and patrons explored in my five chapters struggled in determining the role of the arts in shaping, preserving, and developing their natural and built environments. As Peale, Latrobe, Rush, and Watson sought corporeal harmony in their heating devices, waterworks, sculpture, and historic wood relics, they found their embodied perceptions of the Philadelphia environment shifting as they encountered evidence of scarcity, limits and extinction. Due

to a growing recognition of the interconnectedness of things and beings, productions and processes, and vital properties of air, water, and wood, Peale, Latrobe, Rush, Watson, and others intervened in a world they began to see as transformative and dynamic. While their artworks, structures, and artifacts impacted the Philadelphia region in surprising and contested ways, my case studies also demonstrate that environmental conditions and ecological change correspondingly played an instrumental part in shaping artistic production and urban development during the early republic.

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FIGURES



Fig. 1.1 William Russell and Thomas Birch, “The City & Port of Philadelphia,” in *The City of Philadelphia, in the State of Pennsylvania North America; as it appeared in the Year 1800* (Philadelphia: W. Birch & Son, 1800)

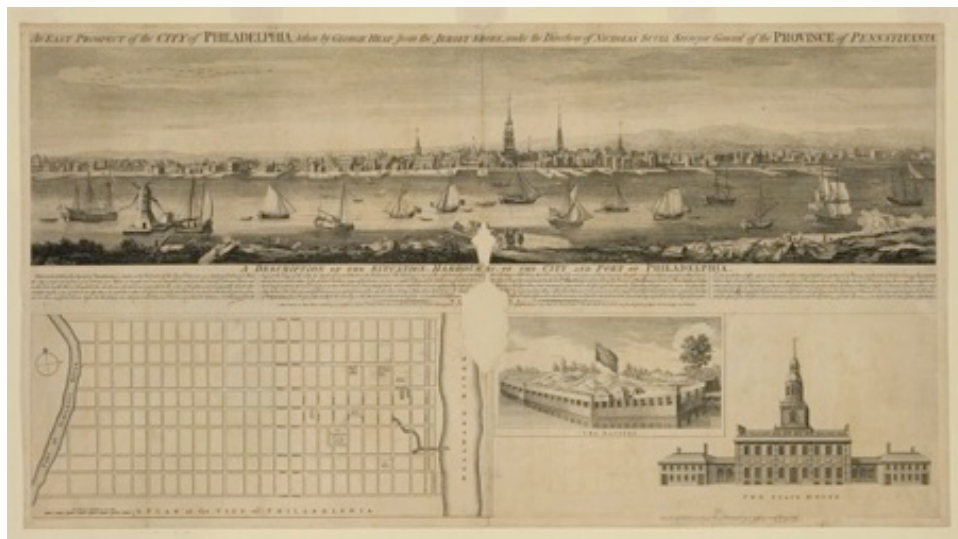


Fig. 1.2 T. Jefferys after George Heap, *An east prospect of the city of Philadelphia; taken by George Heap from the Jersey shore, under the direction of Nicholas Scull surveyor general of the Province of Pennsylvania, 1768*, engraving, London

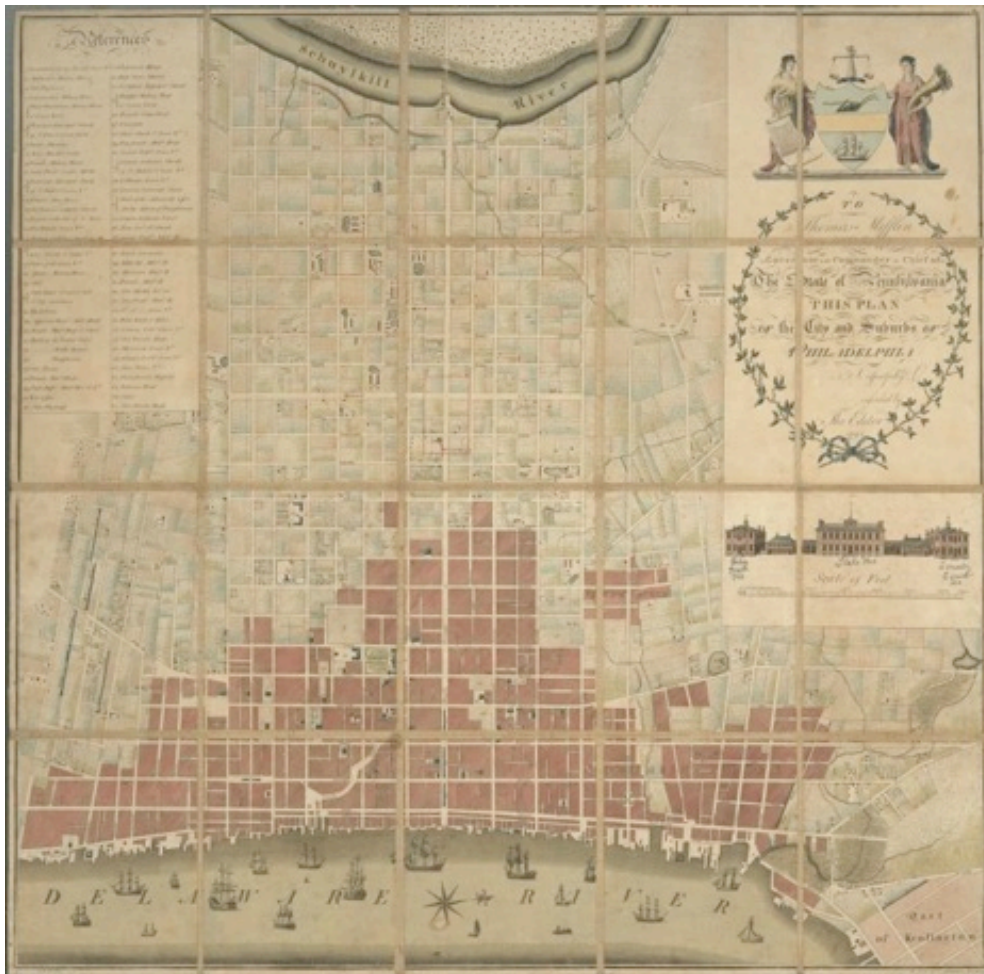


Fig. 1.3 R. Scot & S. Allardice after A.P. Folie, *To Thomas Mifflin, governor and commander in chief of the state of Pennsylvania, this plan of the city and suburbs of Philadelphia is respectfully inscribed by the editor*, 1794, 1794, colored engraving



Fig. 1.4 William Russell and Thomas Birch, “Library and Surgeons Hall in Fifth Street Philadelphia,” in *The City of Philadelphia, in the State of Pennsylvania North America; as it appeared in the Year 1800* (Philadelphia: W. Birch & Son, 1800)



Fig. 1.5 Benjamin West, *Penn's Treaty with the Indians*, 1771-72, oil on canvas, 75 ½ x 107 ¾ in., The Pennsylvania Academy of the Fine Arts



Fig. 1.6 John Boydell and John Hall after Benjamin West, *William Penn's treaty with the Indians, when he founded the province of Pennsylvania in North America, 1775*, engraving



Fig. 1.7 Jan van der Straet, engraved by Theodore Galle, *Vespucci Discovering America*, c. 1600, engraving



Fig. 1.8 “The Able Doctor, or America Swallowing the Bitter Draught,” *London Magazine*, May 1, 1774, etching



Fig. 1.9 Edward Duffield and Joseph Richardson, *Peace Medal (from the Friendly Association for Regaining and Preserving Peace with the Indians)*, reverse, 1757, silver, Library Company of Philadelphia



Fig. 1.10 Henry Dawkins, Sir. William Johnson's Indian Testimonial (detail of top), c. 1770, engraving, New-York Historical Society



Fig. 1.11 Lenape, Wampum Belt, c. 1680, whelk and quahog shell beads, cordage, 24 $\frac{4}{5}$ 5 $\frac{1}{2}$ in., National Museum of the American Indian, Smithsonian Institution



Fig. 1.12 William Russell and Thomas Birch, "New Lutheran Church, in Fourth Street Philadelphia," in *The City of Philadelphia, in the State of Pennsylvania North America; as it appeared in the Year 1800* (Philadelphia: W. Birch & Son, 1800)



Fig. 1.13 William Russell Birch, Artist's Study for New Lutheran Church, in Fourth Street, Phila., 1799, drawing and watercolor, The Library Company of Philadelphia

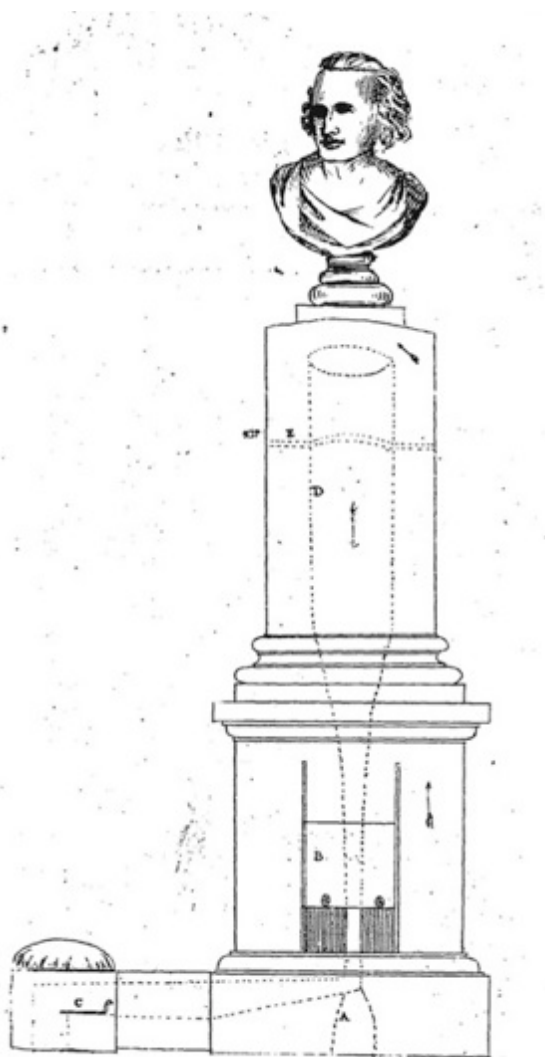


Fig. 2.1 Charles Willson Peale, "The Smoke-Eater," *The Weekly Magazine* (Philadelphia), July 21, 1798



Fig. 2.2 Charles Willson and Raphaelle Peale, attributed, Model of a Fireplace (“broke open nearly as high as the ceiling of the room, &c”), 1796-97, wood and paper, $9\frac{3}{4} \times 5\frac{1}{4} \times 3\frac{3}{8}$ in., American Philosophical Society Museum, Philadelphia



Fig. 2.3 Charles Willson and Raphaelle Peale, attributed, Model of a Fireplace (“The same principle in a different form”), 1796-97, wood and paper, $9\frac{1}{2} \times 5\frac{1}{8} \times 3\frac{5}{8}$ in., American Philosophical Society Museum, Philadelphia



Fig. 2.4 Charles Willson and Raphaele Peale, attributed, Model of a Fireplace (“A kitchen chimney”), 1796-97, wood and paper, 9 x 5 x 2 5/8 in. American Philosophical Society Museum, Philadelphia



Fig. 2.5 Charles Willson and Raphaele Peale, attributed, Model of Fireplace (“The common chimney altered &c”), 1796-97, wood and paper, 5 1/4 x 3 11/18 x 3 5/16 in., American Philosophical Society Museum, Philadelphia



Fig. 2.6 Charles Willson and Raphaelle Peale, attributed, Model of Fireplace (“chimney for a parlour”), 1796-97, wood and paper, $9\frac{3}{4} \times 5\frac{1}{4} \times 3\frac{1}{4}$ in., American Philosophical Society Museum, Philadelphia



Fig. 2.7 Detail of above: mantelpiece



Fig. 2.8 James Trenchard, after a drawing by Charles Willson Peale (attrib.), "Perspective View of the Country between Wilmington and the Delaware," published in the *Columbian Magazine* (April 1787), engraving



Fig. 2.9 William Rush, *Linnaeus*, c. 1812, painted pine, 24 x 20 x 9 $\frac{3}{4}$ in., The Corcoran Gallery of Art, Washington, D.C.



Fig. 2.10 Titian Ramsay Peale (over a drawing by Charles Willson Peale), *Interior of Front Room, Peale's Museum, State House, Philadelphia (The Long Room)*, 1822, Watercolor over graphite and ink on paper, 14 x 20 $\frac{3}{4}$ in., The Detroit Institute of Arts



Fig. 2.11 “A.C.,” Model of a Stove, 1790-97, wood, 17 ½ x 9 1/8 x 7 in., American Philosophical Society Museum, Philadelphia



Fig. 2.12 Richard Wilson, *Rome from the Villa Madama*, 1753, oil on canvas, The Yale Center for British Art, New Haven



Fig. 2.13 Thomas Milton, *The Chimney-Piece-Maker's Daily Assistant or A Treasury of New Designs for Chimney-Pieces* (London: Henry Webley, 1766): plate 14

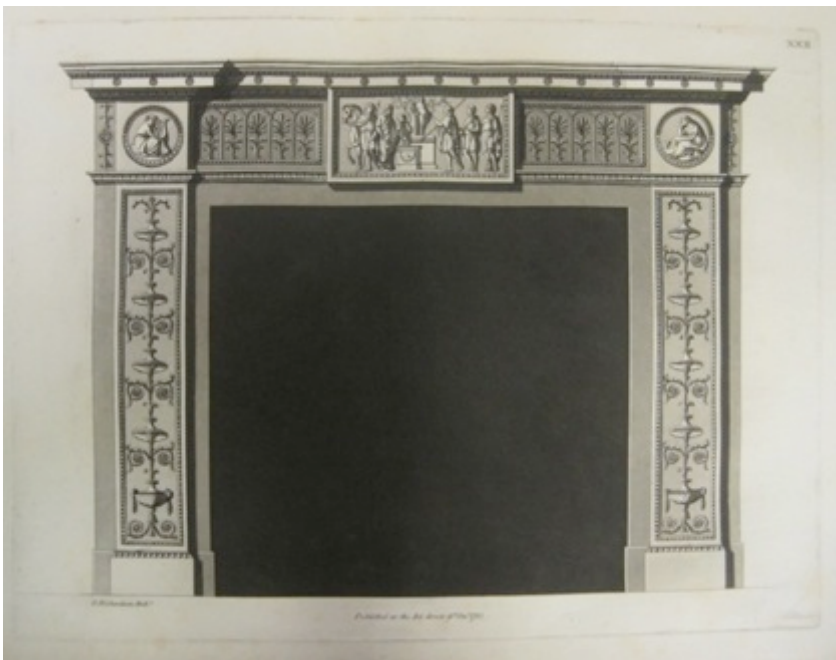


Fig. 2.14 George Richardson, *A New Collection of Chimney Pieces, Ornamented in the Style of the Etruscan, Greek and Roman Architecture: Containing Thirty Six Designs, Suitable to the Most Elegant Ranges of Apartments: With Descriptions of the Plates in English and French* (London: Printed for the Author, 1781): Plate 22



Fig. 2.15 Ferdinand Hassler, *Model of Mont Blanc*, c. 1805, painted plaster, 2 ¼ x 6 ½ x 3 7/8 in., American Philosophical Society Museum, Philadelphia



Fig. 2.16 William Henry, *Model of a Wind-Driven Carriage*, 1785, white pine, maple, cloth, string, 19 x 14 ½ x 14 ½ in., American Philosophical Society Museum, Philadelphia



Fig. 2.17 [Pattern Book of Chimney Pieces, Moldings, Pilasters, Etc.] London: John Jacques, 1795. Trade Catalog, The Winterthur Library

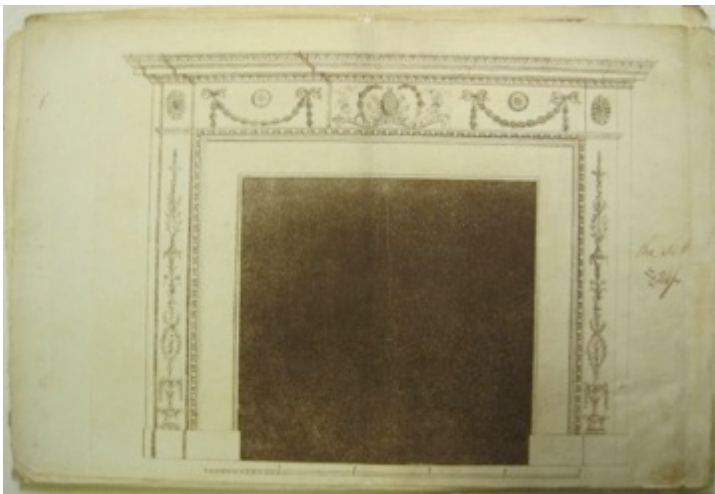


Fig. 2.18 [Pattern Book of Chimney Pieces, Moldings, Pilasters, Etc.] London: John Jacques, 1795. Trade Catalog, The Winterthur Library

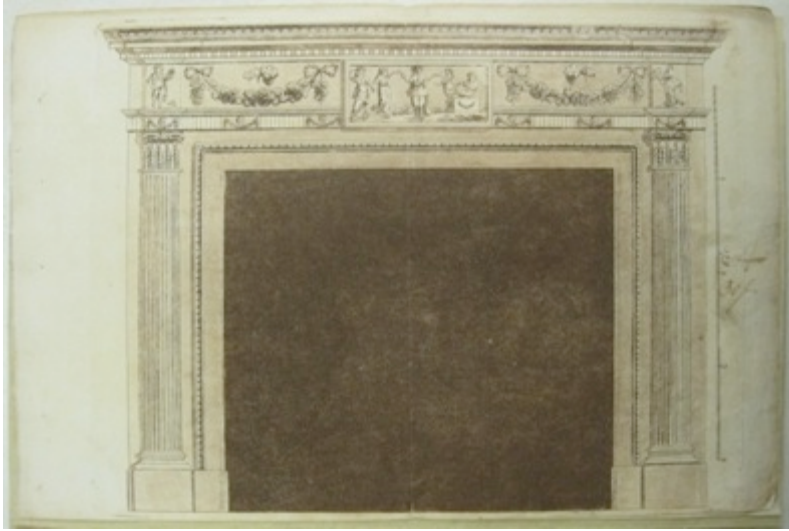


Fig. 2.19 [Pattern Book of Chimney Pieces, Moldings, Pilasters, Etc.] London: John Jacques, 1795. Trade Catalog, The Winterthur Library



Fig. 2.20 Raphaelle Peale, *Blackberries*, c. 1813, oil on panel, 7 ¼ x 10 ¼ in., The Fine Arts Museum of San Francisco

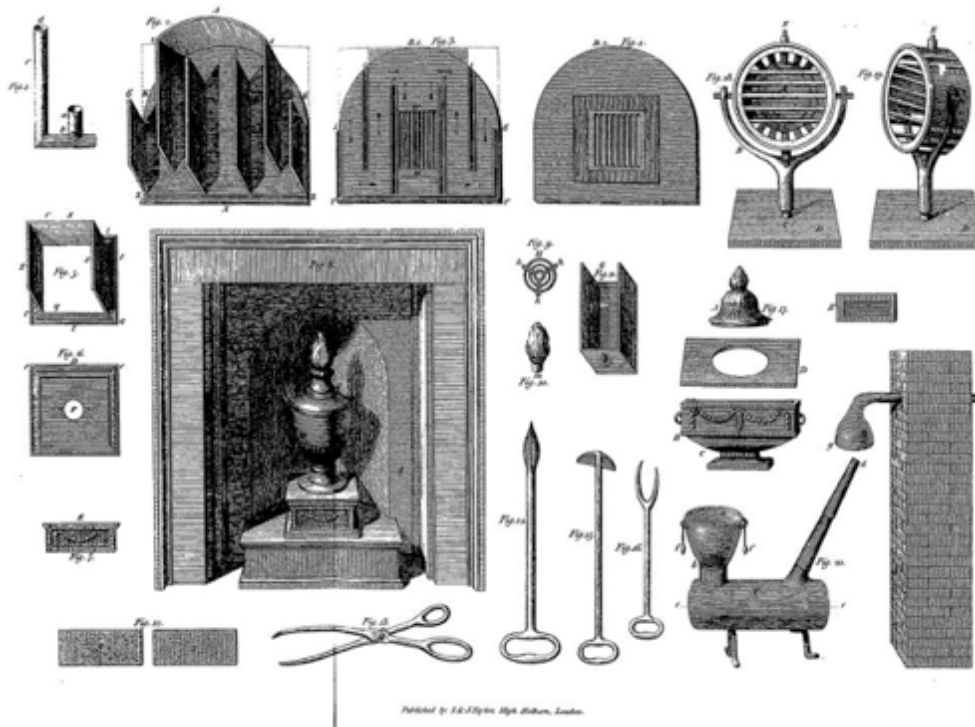


Fig. 2.21 Benjamin Franklin, “Smoke-eater stove,” illustrated in “Description of a New Stove for Burning of Pitcoal, and Consuming All Its Smoke,” *Transactions of the American Philosophical Society* 2 (1786)

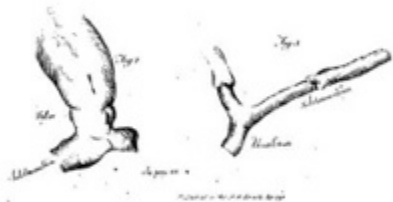


Fig. 2.22 Charles Bell, raised sternum, showing the lobes of the lungs, *A System of Dissections, Explaining the Anatomy of the Human Body, the Manner of Displaying the Parts, and the Varieties of Disease* (Edinburgh, 1798), plate VII



Fig. 2.23 William Cruickshank, “The General Appearance of the Human Body,” *The Anatomy of the Absorbing Vessels of the Human Body* (London, 1786), plate 1



Fig. 2.24 Charles Willson Peale, *An Accident on Lombard Street*, 1787, etching

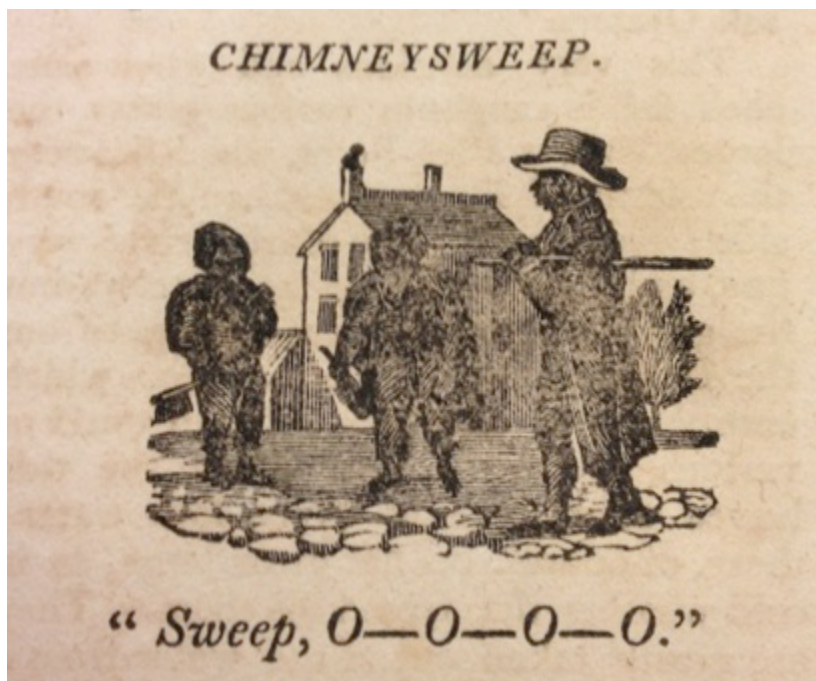


Fig. 2.25 “Chimneysweeps,” *The Cries of Philadelphia: Ornamented with Elegant Wood Cuts* (Philadelphia: Johnson and Warner, 1810) 32

PEALE'S MUSEUM.

OURANG OUTANG, or WILD MAN
OF THE WOODS.



THIS Curious Animal, so nearly approaching to the human species as to occasion some Philosophers to doubt whether it was not allied to mankind, is now in this useful repository; which is constantly encreasing by the accession of uncommon subjects from all parts of the globe—It consists at present of

QUADRUPEDS—more than 100 of
AMPHIBIOUS animals, upwards of 150 of
BIRDS—near 700.
INSECTS—many thousands.
FISHES—a number of—and a great variety of shells;
MINERALS & FOSSILS—1000 specimens of
PICTURES, and 11 figures of
WAX WORK,
Representing the persons of various savage nations, all in their proper habits, and surrounded by their implements of war, husbandry, &c.
Also, a powerful ELECTRICAL MACHINE with a medical apparatus. Admittance as usual one quarter of a dollar each time.

Fig. 2.26 “Ourang Outang, or Wild Man of the Woods” (Peale’s Museum advertisement), *Claypoole’s American Daily Advertiser*, April 13, 1799

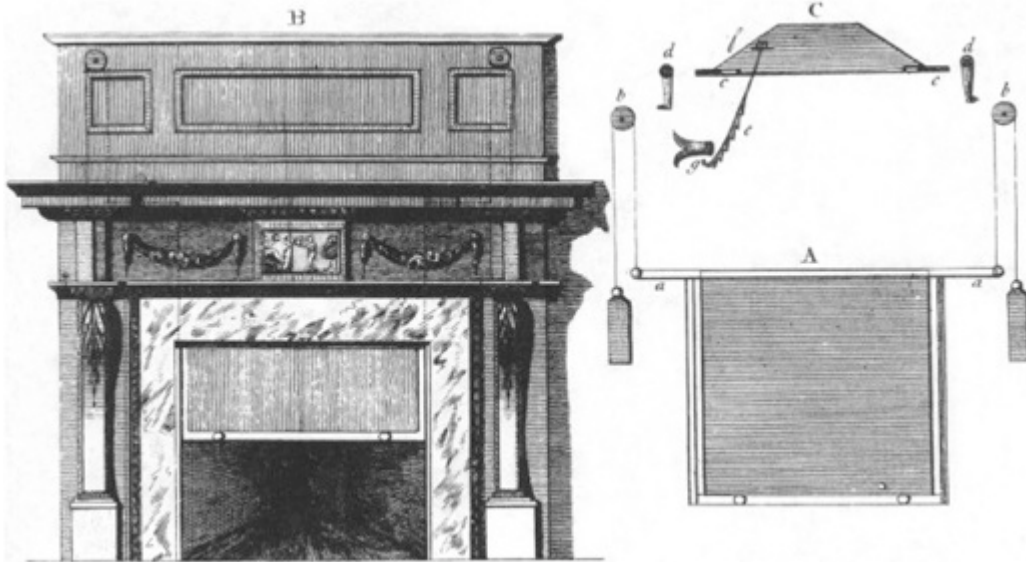


Fig. 2.27 Charles Willson and Raphaelle Peale, “Description of Some Improvements in the Common Fire-Place,” *Transactions of the American Philosophical Society* 5 (1802): Plate XIII



Fig. 2.28 Charles Willson Peale, *The Peale Family (Peale Family Group)*, 1773-1809, oil on canvas, 56 ½ x 89 ½ in., New-York Historical Society



Fig. 3.1 Thomas and William Russell Birch, "The Water Works in Centre Square, Philadelphia," from *The City of Philadelphia* (Philadelphia: W. Birch & Son, 1800)

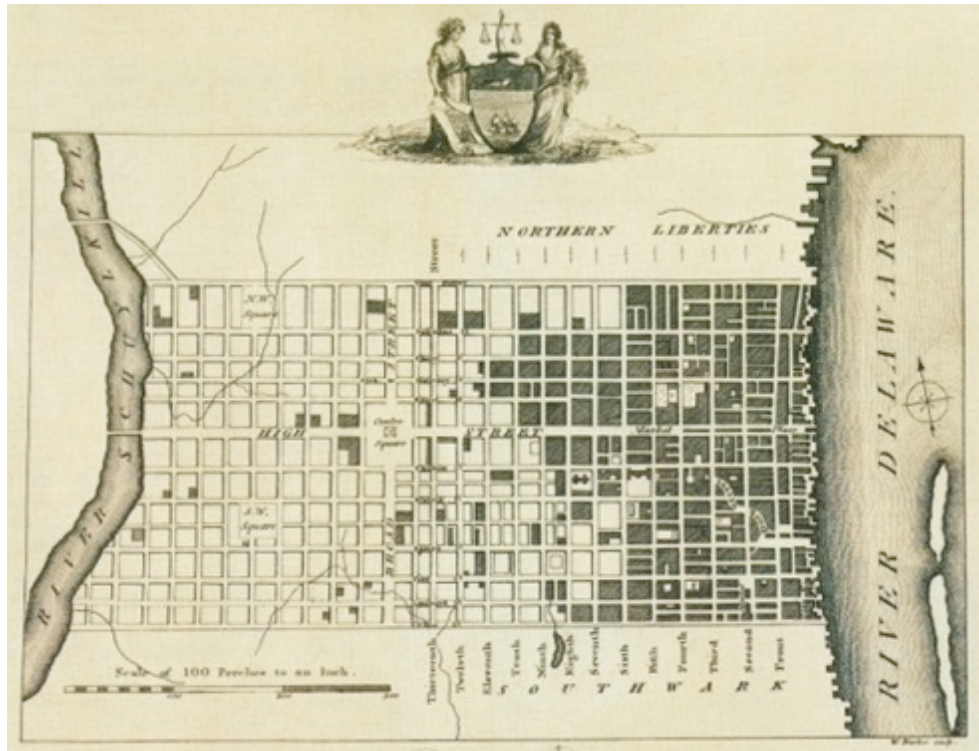


Fig. 3.2 Thomas and William Russell Birch, “Plan of the City of Philadelphia,” from *The City of Philadelphia* (Philadelphia: W. Birch & Son, 1800)

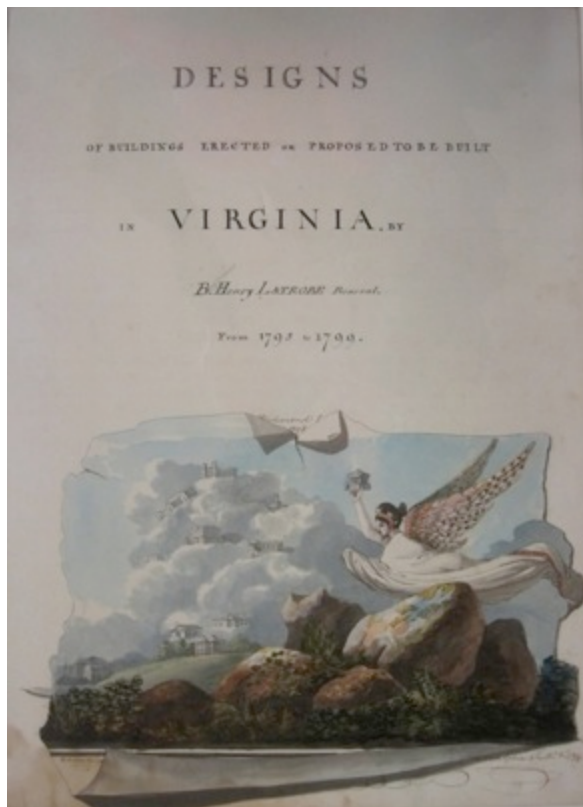


Fig. 3.3 Benjamin Latrobe, Title Page, *Designs of Building Erected or Proposed to be Built in Virginia*, by B. Henry Latrobe Boneval, from 1798 to 1799, Richmond, 1798 and Philadelphia, 1799, Prints and Photographs Department, The Library of Congress

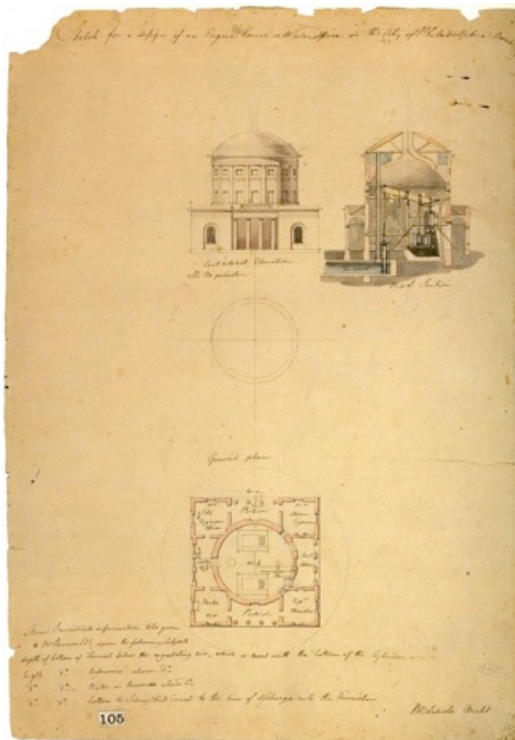


Fig. 3.4 Benjamin Latrobe, "Sketch for a design of an Engine house and Wateroffice in the City of Philadelphia March 1799," pencil, ink, and watercolor, Maryland Historical Society

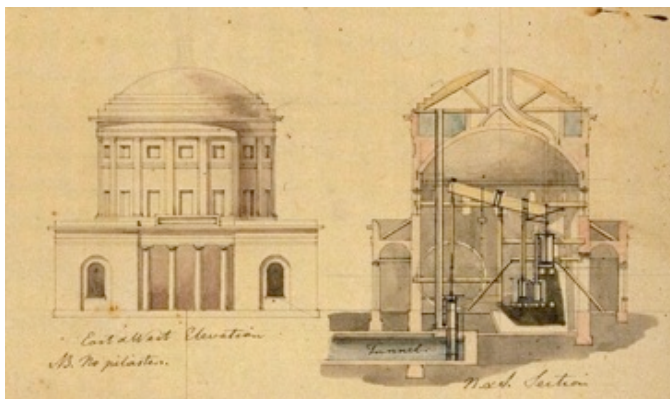


Fig. 3.5 Detail of above

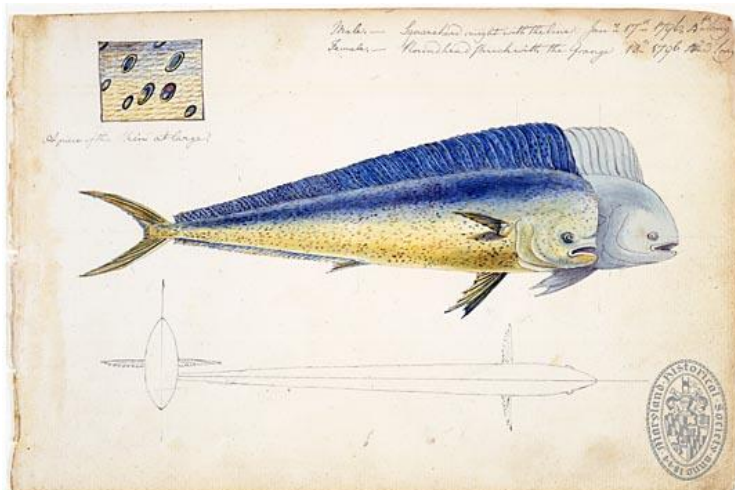


Fig. 3.6 Benjamin Latrobe, "Dolphins," c. 1796, pencil, pen, ink and watercolor, Sketchbook II, The Maryland Historical Society



Fig. 3.7 Benjamin Latrobe, "Masons or Dirtdaubers," 1796-97, pencil, ink and watercolor, Sketchbook II, The Maryland Historical Society

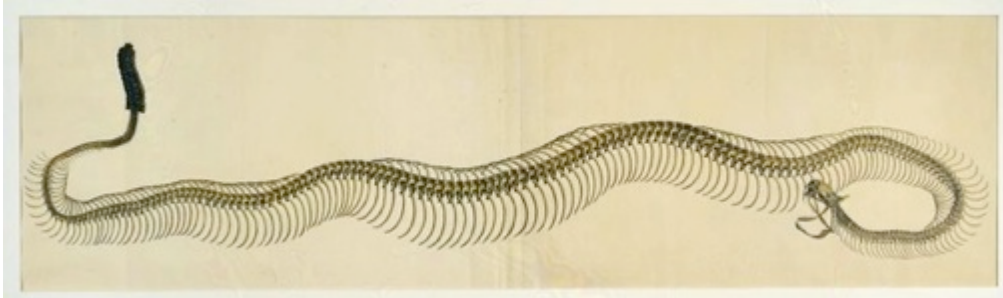


Fig. 3.8 Benjamin Henry Latrobe (attributed), *Rattlesnake skeleton*, c. 1804, watercolor, Violetta Delafield-Benjamin Smith Barton Collection, American Philosophical Society

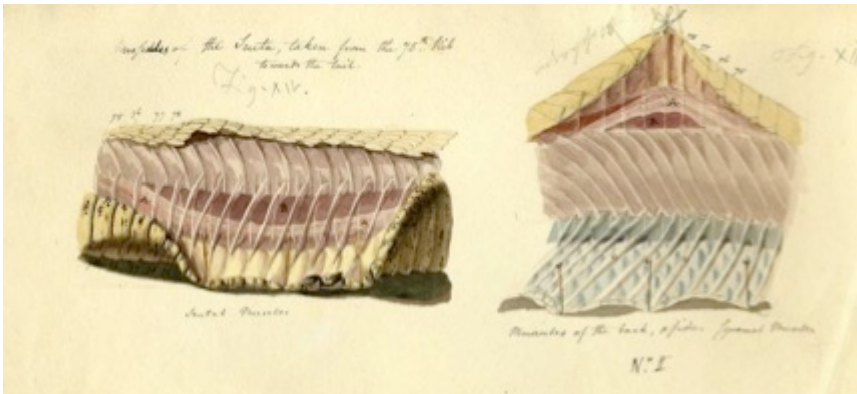


Fig. 3.9 Benjamin Latrobe, attributed, "Rattlesnake muscles of the Scuta," c. 1804, watercolor, Violetta Delafield-Benjamin Smith Barton Collection, American Philosophical Society, Philadelphia

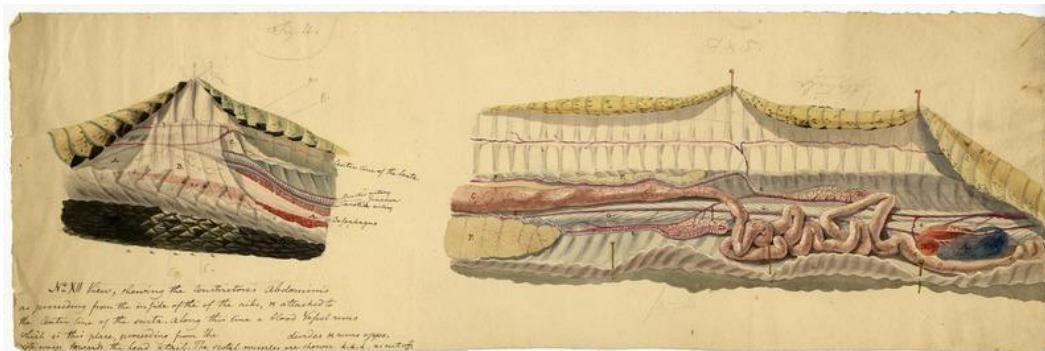


Fig. 3.10 Benjamin Latrobe, attributed, "View, shewing the Constrictores Abdominis [Rattlesnake stomach]," c. 1804, watercolor, Violetta Delafield-Benjamin Smith Barton Collection, American Philosophical Society, Philadelphia

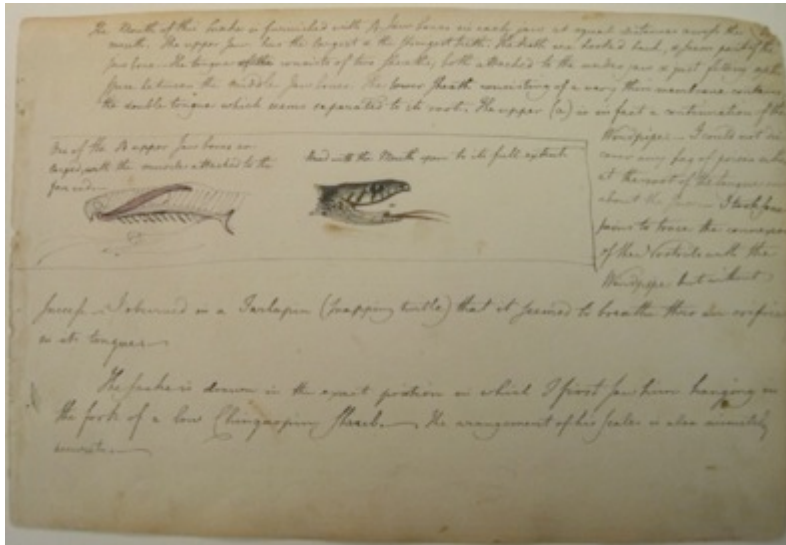


Fig. 3.11 Benjamin Latrobe, "Detail of the "Horse Runner's" mouth and tongue," Sketchbook 1, p. 42, c. 1795-96, pencil, ink and watercolor, The Maryland Historical Society

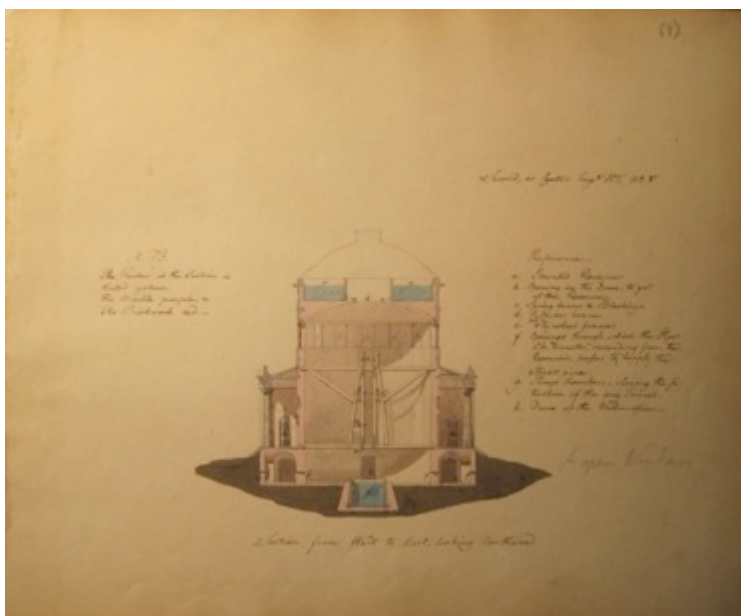


Fig. 3.12 Benjamin Henry Latrobe, "Second, or Center Eng. W No. V. Section from West to East, looking Northward," from *Designs of Buildings Erected in the Year 1799 in Philadelphia*, Historical Society of Pennsylvania

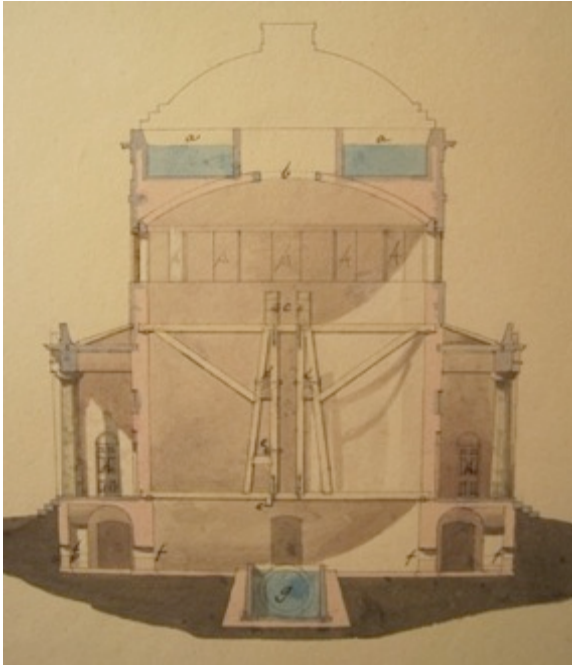


Fig. 3.13 Detail of above



Fig. 3.14 Benjamin Henry Latrobe, *Second, or Center Engine House No. III East and West Elevation, facing Market Street*, from Latrobe, “Designs of Buildings Erected in the Year 1799 in Philadelphia,” 1799. Historical Society of Pennsylvania

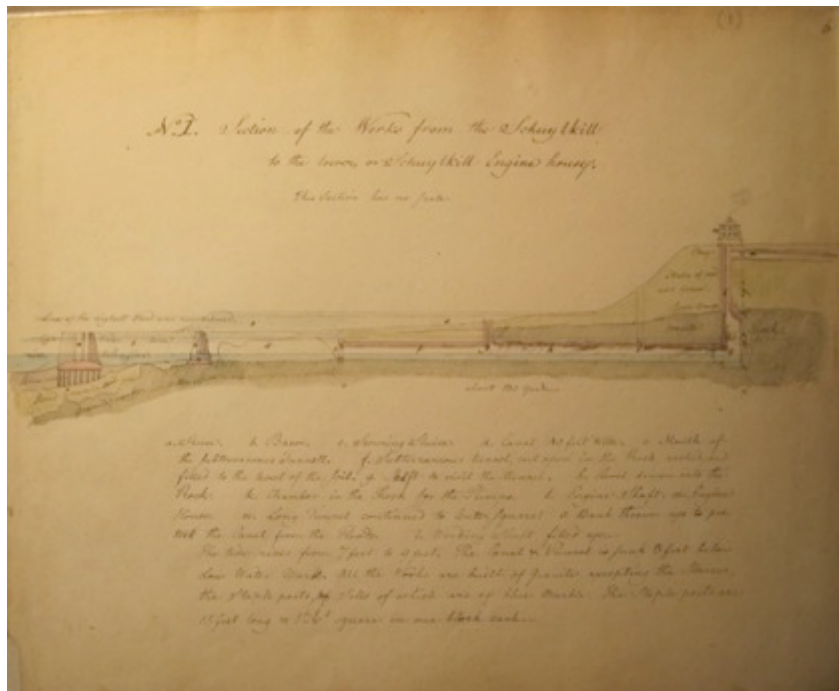


Fig. 3.15 Benjamin Henry Latrobe, *No. 1 Section of the Works from the Schuylkill to the lower, or Schuylkill Engine Houses*, from Latrobe, “Designs of Buildings Erected in the Year 1799 in Philadelphia,” 1799. Historical Society of Pennsylvania

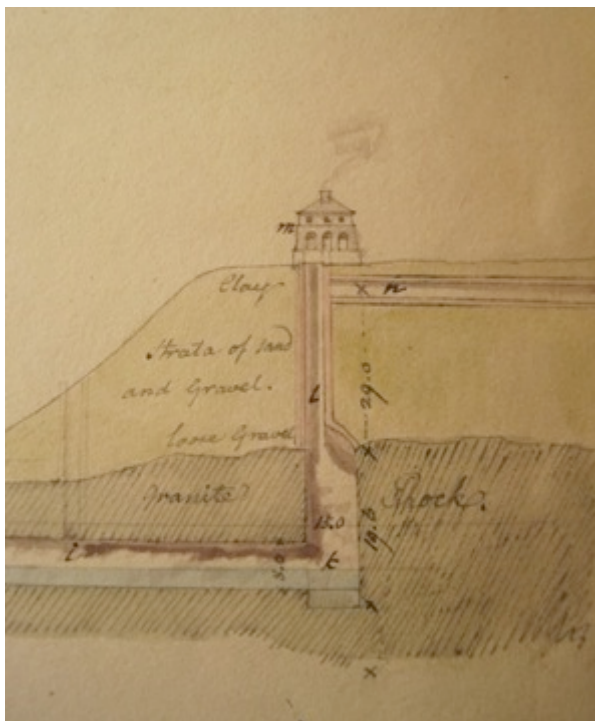


Fig. 3.16 Detail of above

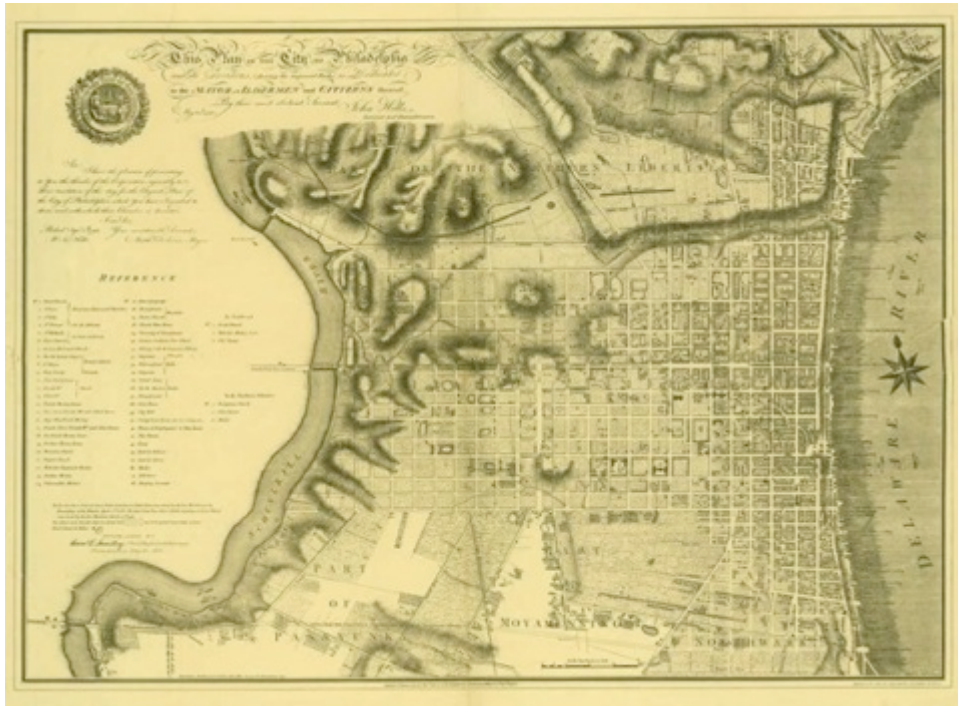


Fig. 3.17 John Hills, *Plan of the City of Philadelphia and Its Environs Shewing the Improved Parts*, 1796, engraving, (Philadelphia: Published and sold by John Hills, surveyor & draughtsman, 1797)



Fig. 3.18 Detail of above



Fig. 3.19 Reading Howell, “A Map of Pennsylvania and the Parts connected therewith related to the Roads and Inland Navigation,” in *Schuylkill and Susquehanna Navigation, An Historical Account of the Rise, Progress and Present State of the Canal Navigation in Pennsylvania* (Philadelphia: Zachariah Poulson, Jr., 1795)

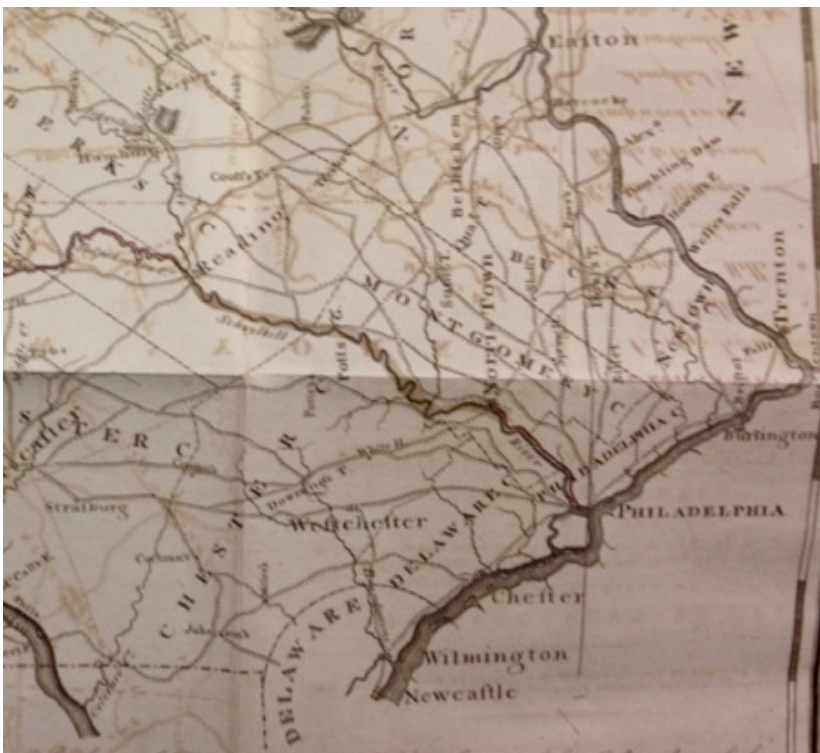


Fig. 3.20 Detail of above



Fig. 3.21 Benjamin Latrobe, *The Susquehanna from Columbia to the Pennsylvania Line & thence to Havre de Grace*, 1817, after 1801 original, pen, pencil and watercolor, The Maryland Historical Society



Fig. 3.22 Detail of above



Fig. 3.23 Detail of Fig. 3.24



Fig. 3.24 Benjamin Latrobe, Sketches of Trees, *An Essay on Landscape*, 1799, watercolor, The Library of Virginia



Fig. 3.25 John Lewis Krimmel, *Fourth of July in Centre Square*, c. 1812, oil on canvas, 22 $\frac{3}{4}$ x 29 in., The Pennsylvania Academy of the Fine Arts

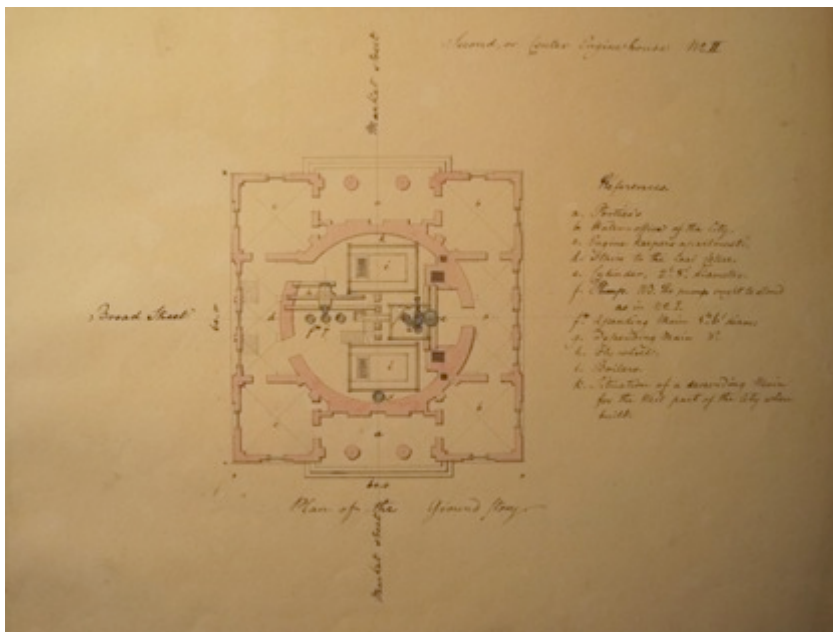


Fig. 3.26 Benjamin Henry Latrobe, "Second, or Center Engine house No. II," from *Designs of Buildings Erected in the Year 1799 in Philadelphia*, Historical Society of Pennsylvania



Fig. 3.27 Thomas Eakins, *William Rush Carving his Allegorical Figure of the Schuylkill River*, 1876-77, oil on canvas, 20 1/8 x 26 1/8 in., Philadelphia Museum of Art



Fig. 3.28 Robert Wood & Co. Brass Founders, after William Rush, *Water Nymph and Bittern*, 1872 bronze copy of 1809 original painted pine sculpture, Philadelphia Museum of Art



Fig. 3.29 William Rush, *Head of Water Nymph and Bittern*, 1809, painted pine, 10 x 9 ½ x 10 in., The Pennsylvania Academy of the Fine Arts



Fig. 3.30 John Lewis Krimmel, attributed, *Black Sawyers Working in Front of the Bank of Pennsylvania, Philadelphia*, 1811-c. 1813, watercolor and graphite on white laid paper, 9 1/8 x 6 3/4 in., The Metropolitan Museum of Art



Fig. 3.31 Thomas and William Russell Birch, "The Bank of Pennsylvania," from *The City of Philadelphia* (Philadelphia: W. Birch & Son, 1800)

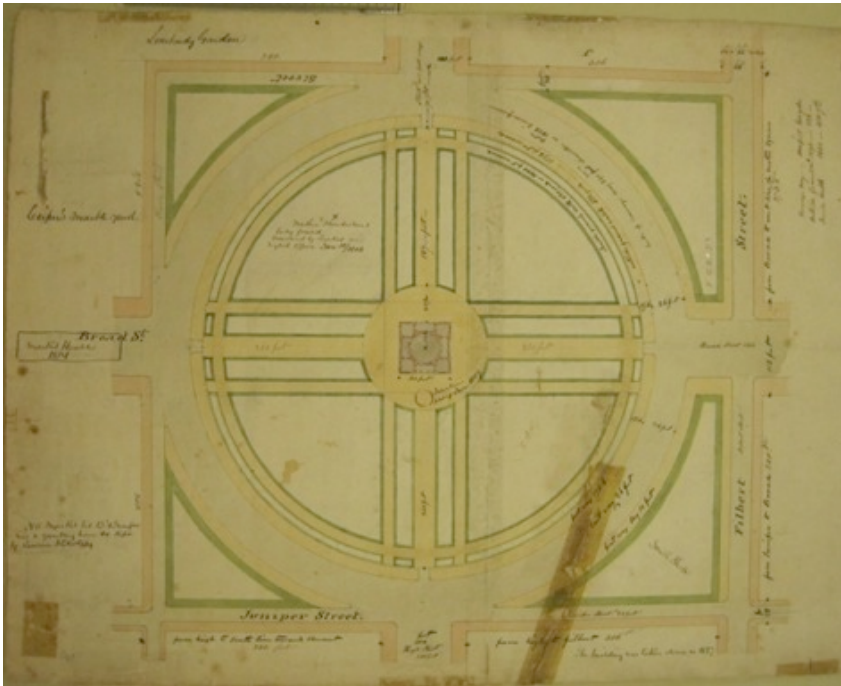


Fig. 3.32 Frederick Graff, *Plan of Centre Square Philadelphia*, ca. 1800 with additions to 1827, architectural drawing with notations, Library Company of Philadelphia

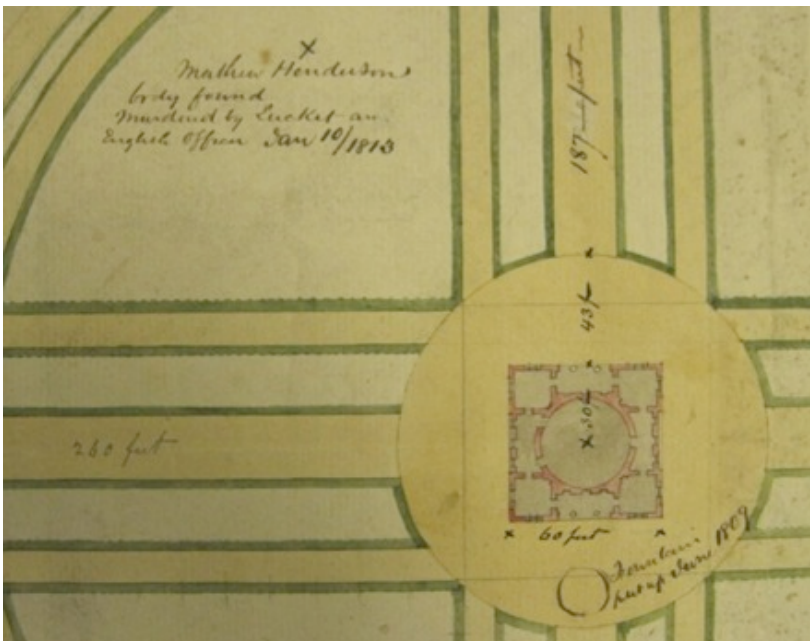


Fig. 3.33 Detail of above



Fig. 3.34 John Lewis Krimmel, *Fourth of July Celebration in Centre Square*, 1819, watercolor over pencil and ink, The Historical Society of Pennsylvania



Fig. 3.35 John Lewis Krimmel, *Two Views of Centre Square, Philadelphia, Monday, July 5, 1819*, ink and watercolor over pencil, ink inscription, Sketchbook 7, leaf 6 recto. Joseph Downs Collection of Manuscripts and Printed Ephemera, The Winterthur Library



Fig. 3.36 John James Barralet. *View of the Water Works at Center Square Philadelphia.* Ledger Carriers Annual Greeting, 1860, stipple engraving



Fig. 4.1 William Rush, *Self-Portrait*, c. 1822, terracotta, 15 ½ x 18 x 11 in.,
The Pennsylvania Academy of the Fine Arts



Fig. 4.2 William Rush, *Self-Portrait*, reverse, c. 1822, terracotta, 15 ½ x 18 x 11 in.,
The Pennsylvania Academy of the Fine Arts



Fig. 4.3 William Rush, *Peace*, c. 1805-10, painted pine, 70 x 24 ½ x 27 ½ in., Independence Seaport Museum, Philadelphia



Fig. 4.4 William Rush, *Caspar Wistar*, 1812-13, terracotta, 20 x 17 x 13 ½ in., The Pennsylvania Academy of the Fine Arts



Fig. 4.5 William Rush, *Joseph Wright*, c. 1810, terracotta, 19 ¾ x 16 ½ x 10 in., The Pennsylvania Academy of the Fine Arts

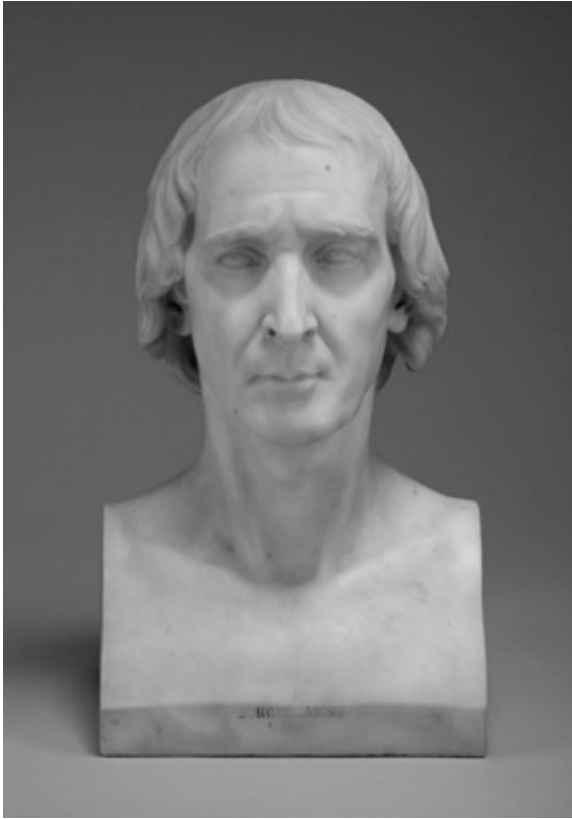


Fig. 4.6 Giuseppe Ceracchi, *David Rittenhouse*, 1794, marble, American Philosophical Society Museum



Fig. 4.7 William Rush, *Bust of Elizabeth Rush*, c. 1810, terracotta, 12 ½ x 8 ¾ x 6 ½ in., Philadelphia Museum of Art



Fig. 4.8 William Rush, *Tragedy and Comedy*, 1808, pine (originally painted), 90 ½ in. (height), Philadelphia Museum of Art



Fig. 4.9 William Rush, *Wisdom and Justice*, c. 1812-24, painted pine, 92 $\frac{3}{4}$ x 37 x 26 in. and 93 $\frac{1}{4}$ x 38 $\frac{1}{2}$ x 19 $\frac{1}{4}$ in., The Fairmount Park Commission, Philadelphia

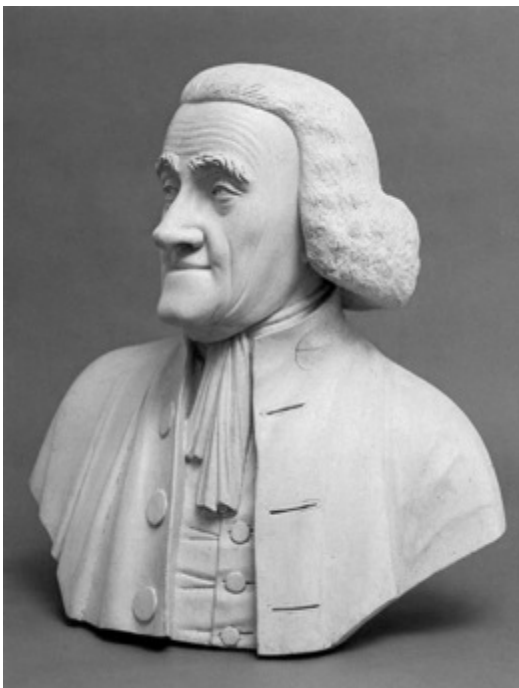


Fig. 4.10 William Rush, *Samuel Morris*, 1812, painted pine, 20 $\frac{1}{2}$ x 19 x 12 in., The Schuylkill Fishing Company of the State in Schuylkill, Cornwell Heights, PA



Fig. 4.11 Pancrace Bessa, “White Pine (*Pinus strobus*),” in François André Michaux, *The North American Sylva, or A Description of the Forest Trees, of the United States, Canada and Nova Scotia. Considered Particularly with Respect to Their Use in the Arts and Their Introduction into Commerce; to Which Is Added a Description of the Most Useful of the European Forest Trees* (Paris: Printed by C. d’Hautel, 1817), plate 10



Fig. 4.12 Giuseppe Ceracchi, *George Washington*, 1794–95, Marble, 28 7/8 x 22 x 13 in., The Metropolitan Museum of Art



Fig. 4.13 Joseph C. Stadler after William Roberts, *The Natural Bridge*, 1808, aquatint



Fig. 4.14 Giovanni Battista Piranesi, *Scenographia Pontis Hodie Mollis* (*The Bridge Known as Ponte Mollo*), c. 1762, engraving



Fig 4.15 Marc Antoine Laugier, frontispiece, *Essai sur l'architecture* (Paris, 1753)

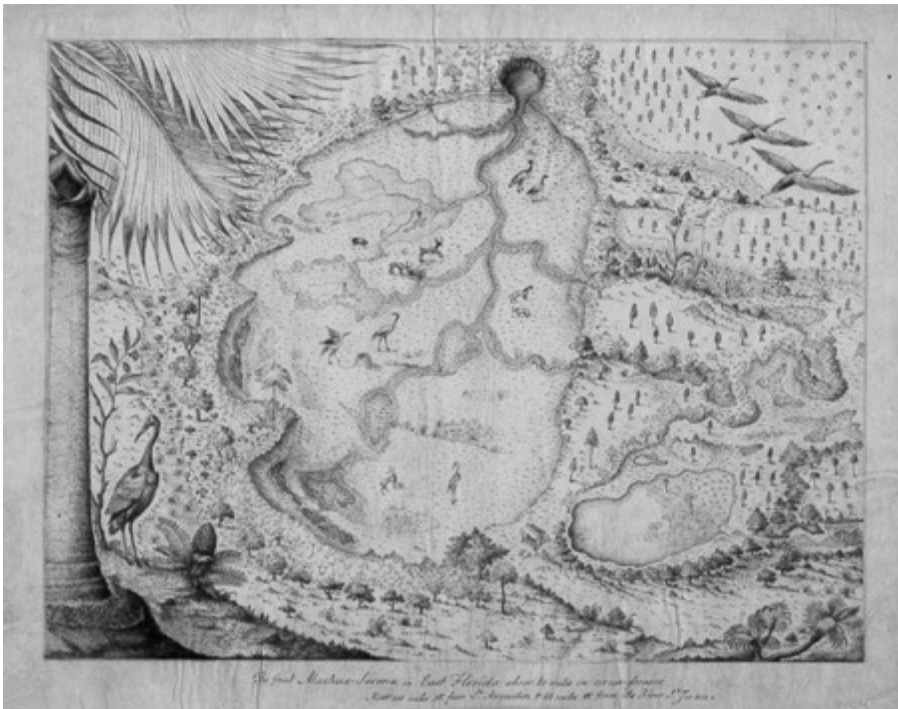


Fig. 4.16 William Bartram, *The Great Alachua Savana*, c. 1766, 12 ½ x 15 13/16 in., Benjamin Smith Barton Papers, American Philosophical Society



Fig. 4.17 William Rush, *Andrew Jackson*, 1819, terracotta, 19 7/8 x 18 7/8 x 8 3/4 in., The Art Institute of Chicago



Fig. 4.18 Antonio Canova, *Bust of Napoleon*, presented to Stephen Girard by Joseph Bonaparte in 1817, marble, Girard College Collection, Philadelphia



Fig. 4.19 André Galle, *Napoleo Imperator*, before 1811, bronze



Three caricatures of Men forced into a Resemblance of the Ox.

Fig. 4.20 Johann Caspar Lavater, "Three Caricatures of Men Forced into a Resemblance of an Ox," *Essays on Physiognomy*, trans. Rev. C. Moore, vol. 3 (London: H.D. Symonds, 1797), 122

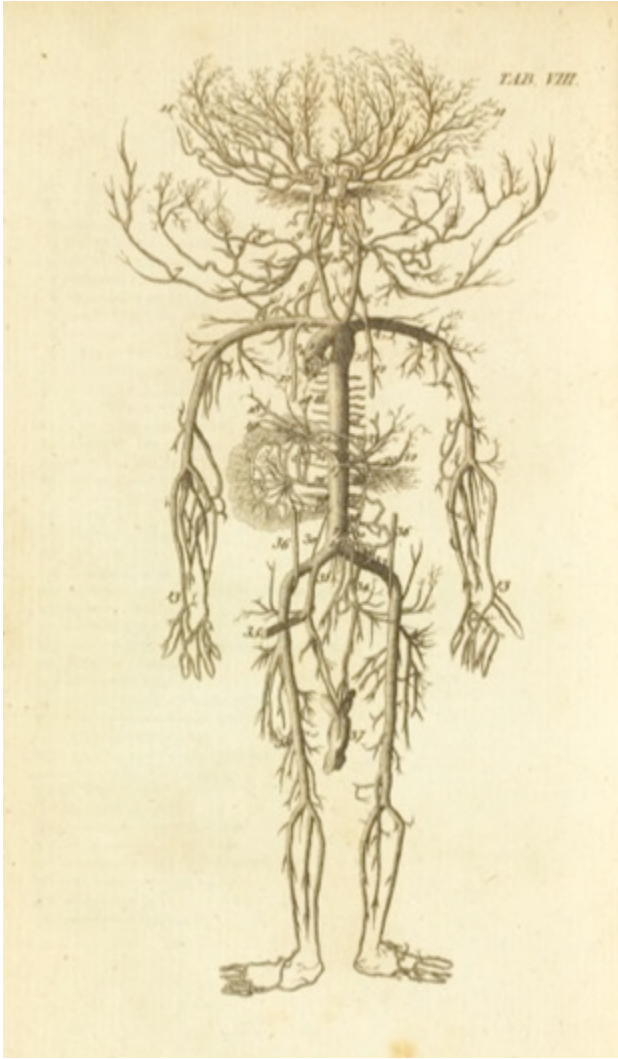


Fig. 4.21 Michael Vandergucht, “Figure of the Arteries,” originally printed in James Drake, *Anthropologia Nova, or A New System of Anatomy* 3rd ed. (London: W. & J. Innys, 1727): Tab. XX. Reprinted in Gentleman of the Faculty, *Anatomical Dialogues: or, a breviary of anatomy*. 2nd ed. (London: Printed for G.G. and J. Robinson, 1785): Tab. VIII



Fig. 4.22 Jean-Antoine Houdon, *L'Ecorché*, original 1767, plaster after Houdon by P.P. Caproni, Boston, c. 1890-1900, The Pennsylvania Academy of the Fine Arts

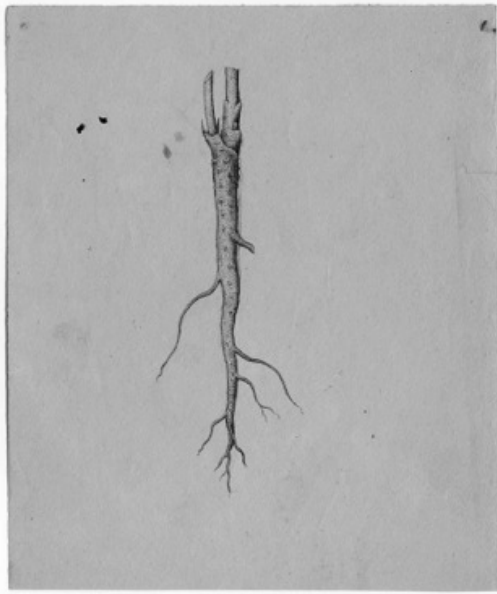


Fig. 4.23 Benjamin Smith Barton, *Root*, c. 1803, ink on paper, 8 ½ x 6 ½ in., Benjamin Smith Barton Papers, American Philosophical Society



Fig. 4.24 Benjamin Smith Barton, *Anatomical Torso*, 1784, engraving, 6 ¾ x 5 ½ in., Benjamin Smith Barton Papers, American Philosophical Society

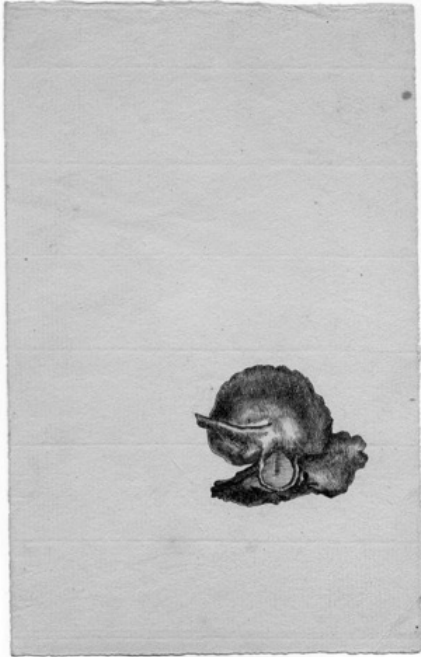


Fig. 4.25 Benjamin Smith Barton, “Fungus, tree, or anatomical part?” n.d., Benjamin Smith Barton Papers, American Philosophical Society



Fig. 4.26 William Rush, *Model of Inner Ear*, c.1808, painted pine, 13 x 9 x 6 in., The Wistar Institute, Philadelphia

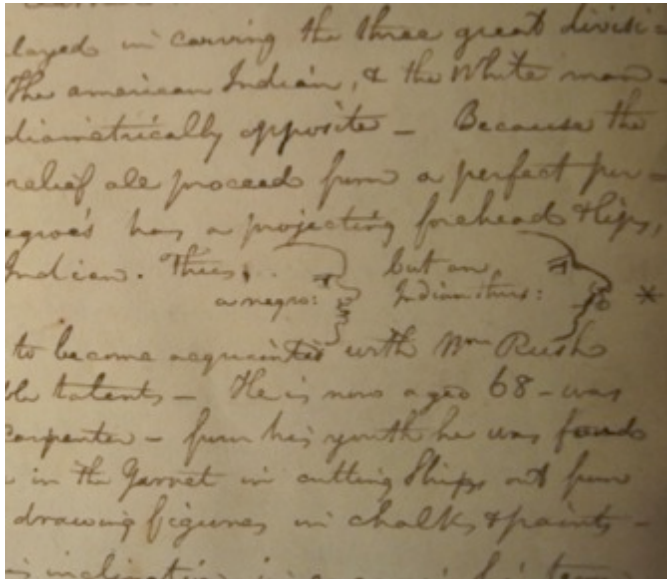


Fig. 4.27 John Fanning Watson, "The Annals of Philadelphia," Philadelphia, 1829, p. 29. John Fanning Watson collection on the cultural, social, and economic development of Pennsylvania 1693-1855, The History Society of Pennsylvania



Fig. 4.28 William Rush, *Statue of George Washington*, c. 1814, painted pine, 73 x 35 x 32 ½ in., Second National Bank, Philadelphia



Fig. 4.29 William Rush, *Justice*, showing the excavation of the log and head to remove the heartwood, 1812-24, pine (originally painted), Fairmount Parks Commission, photo by Virginia Norton Naudé



Fig. 4.30 Thomas Cole, *White Pine*, pen, ink, brush and wash on paper, 1827-28, Museum of Fine Arts, Boston



Fig. 4.31 Thomas Cole, *The Architect's Dream*, 1840, oil on canvas, The Toledo Museum of Art, Toledo, Ohio



Fig. 4.32 William Rush and Thomas Birch, *Plan for North East or Franklin Public Square, Philadelphia*, 1824, watercolor, pen, and ink on paper, 14 5/8 x 17 3/4 in., The Library Company of Philadelphia



Fig. 4.33 William Rush, *Allegory of the Schuylkill River in its Improved State*, 1825, Spanish cedar, painted, 39 $\frac{3}{8}$ x 87 $\frac{1}{4}$ x 26 $\frac{7}{16}$ in., Fairmount Park Commission, on loan to the Philadelphia Museum of Art



Fig. 4.34 William Rush, *Allegory of the Waterworks*, 1825, Spanish cedar, painted, 41 $\frac{3}{16}$ x 87 $\frac{1}{4}$ x 30 $\frac{7}{16}$ in., Fairmount Park Commission, on loan to the Philadelphia Museum of Art



Fig. 4.35 John Caspar Wild, *Fairmount Water Works with People Strolling*, c. 1834, gouache on paper, American Philosophical Society

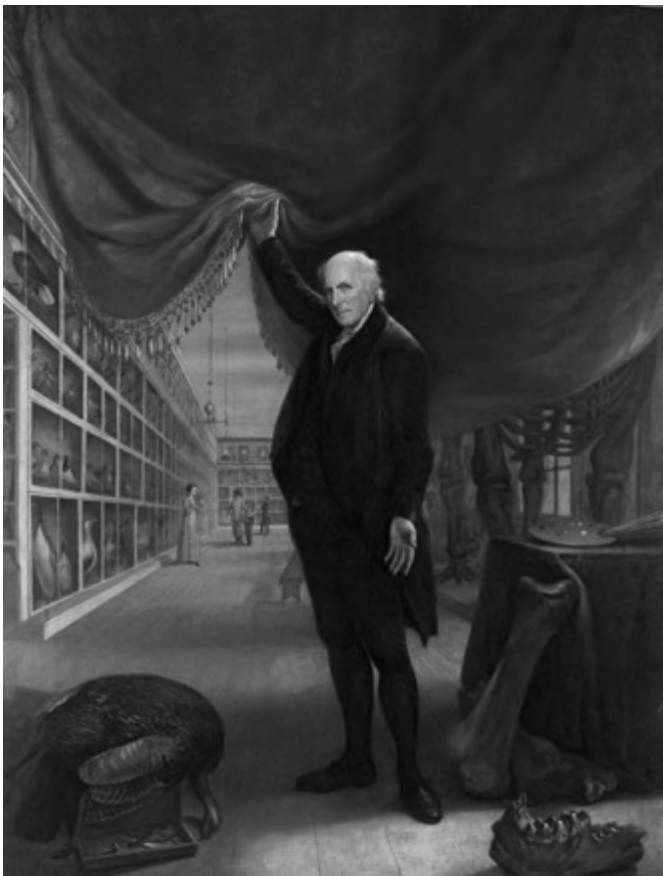


Fig. 4.36 Charles Willson Peale, *The Artist in His Museum*, 1822, oil on canvas, 103 $\frac{3}{4}$ x 79 $\frac{7}{8}$ in., The Pennsylvania Academy of the Fine Arts



Fig. 5.1 George Lehman, *The Great Elm Tree of Shackamaxon (now Kensington)*, under which William Penn Concluded his Treaty with the Indians in 1682 it fell during a storm in 1810, after 1827, engraving



Fig. 5.2 Detail of above



Fig. 5.3 Elm Treaty Chair, elm wood, c. 1810, 36 1/2 x 21 x 19 in., The State Museum of Pennsylvania, Harrisburg



Fig. 5.4 George Magraph, Urn (front and reverse), c. 1813, elm and brass, 12 7/8 x 6 3/4 in., The Winterthur Museum



Fig. 5.5 Bust of William Penn and pedestal reportedly made from the wood of the Treaty Elm, the chair Penn sat in when the Treaty was made, and a piece of wood and nail from the Letitia House. n.d. Independence National Historic Park, Philadelphia



Fig. 5.6 Portrait Bust of William Penn, made from Treaty Elm wood, painted white, n.d., Philadelphia History Museum



Fig. 5.7 “The remnant of the Great Tree as it now appears at Stoke Park...” from *General Address of the Outinian Lectures*, engraving (London: W. Nicol, 1822), 30



Fig. 5.8 Relic Box containing wampum bead on ribbon, owned by Deborah Logan, n.d., Stenton, Germantown, Pennsylvania



Fig. 5.9 Snuff Box presented to Deborah Norris Logan by John Fanning Watson, 1824, walnut, gum, elm, and oak, Stenton, Germantown, Pennsylvania



Fig. 5.10 Snuff Box presented to Ruben Haines by John Fanning Watson, c. 1825, walnut, gum, elm, and oak, Wyck, Germantown, Pennsylvania



Fig. 5.11 Underside of above



Fig. 5.12 Snuff Box, c. 1825, walnut, gum, elm, and oak, Germantown Historical Society



Fig. 5.13 Underside of above



Fig. 5.14 Comparison of Ruben Haines's Snuff Box (left) and Germantown Historical Society Snuff Box (right), top view



Fig. 5.15 Comparison of Ruben Haines's Snuff Box (left) and Germantown Historical Society Snuff Box (right), side view



Fig. 5.16 Comparison of Ruben Haines's Snuff Box (left) and Germantown Historical Society Snuff Box (right), interiors



Fig. 5.17 Snuff box (closed), elm, c. 1810-36, John Connors Collection, Philadelphia



Fig. 5.18 Snuff box (open), elm, c. 1810-36, John Connors Collection, Philadelphia

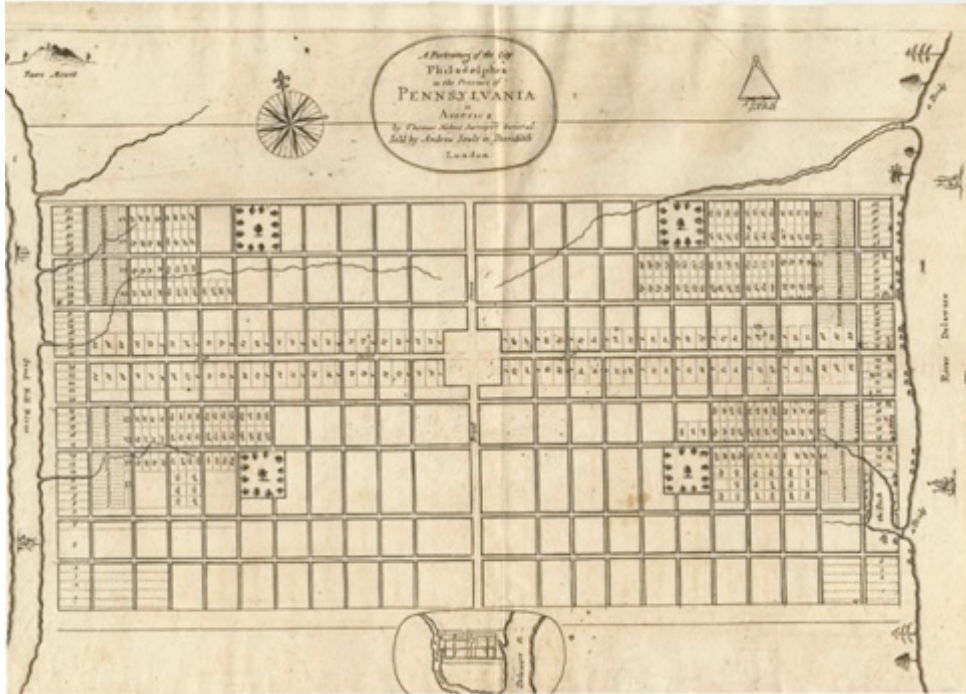


Fig. 5.19 Thomas Holme, *A Portraiture of the City of Philadelphia*, 1683 Historical Society of Pennsylvania, Philadelphia

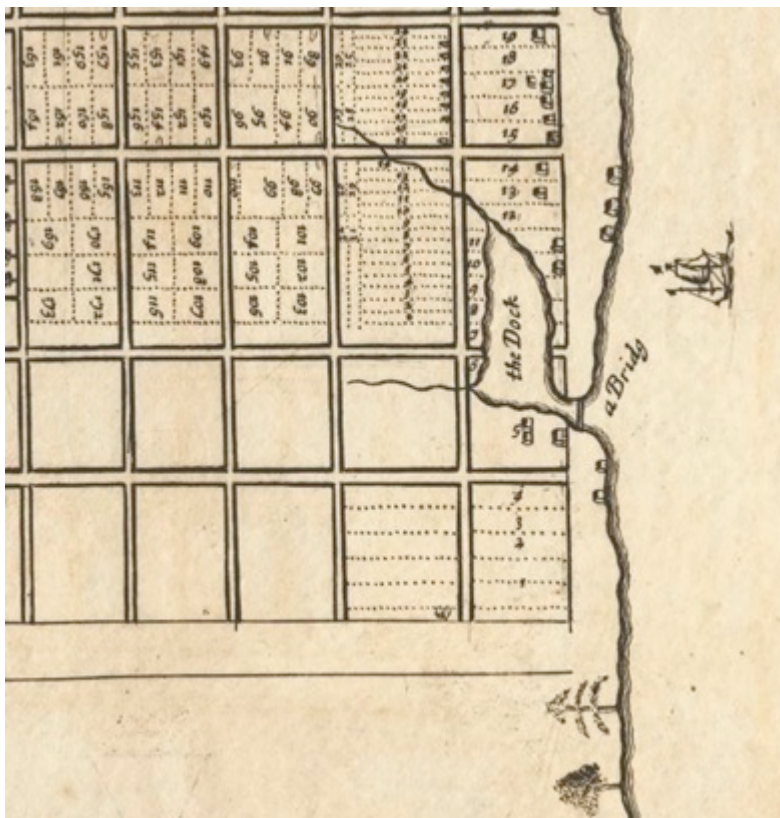


Fig. 5.22 Detail of above, showing “a Bridge” over Dock Creek



Fig. 5.23 John Fanning Watson's relic box, 1810-1823, 7 $\frac{7}{10}$ x 10 $\frac{3}{4}$ x 8 $\frac{1}{2}$ in., The Winterthur Museum



Fig. 5.24 Detail of above



Fig. 5.25 William L. Breton, "Treaty Ground of William Penn and the Indian Natives, 1682, at Shakamaxon, now Kensington," watercolor, 1828-29, The Library Company of Philadelphia



Fig. 5.26 George Gilbert, after William L. Breton, "Monument on the scite of the elm tree, near Philadelphia," from *The Casket*, January 1829, wood engraving