Home Ports and Fast Sailing Ships: Maritime Settlement and Seaborne Mobility in Forming the Comparative Wests

William M. Taylor

ABSTRACT: The contribution of the sea and seafaring to the construction of modernity has recently been reappraised. Opposing narratives of the geographical (particularly terrestrial) and temporal coordinates of modernity's progress, the fluidity of "ocean-space," and "maritime criticism" have been proposed to challenge conventional readings of established archives and question consensual understandings of the fundamental territoriality, geographic enlargement, and progressive development of nation-states. This essay questions how this reappraisal of the sea may be relevant to the study of the "comparative Wests." Specifically, it considers how aesthetic and ethical possibilities for maritime criticism may reveal gaps or omissions in the historiography of the neo-European settlement and nineteenth-century territorial expansion of the United States and Australia.

My primary focus is Lewis Mumford's writing on American culture, architecture, and design. I question how Mumford's appropriation of nineteenth-century aesthetic criticism, particularly writing extolling the virtues of colonial American ships and seafaring, may be indicative of tensions at work between opposing organic and globalized, geographically closed and unbounded, moral and economic perspectives on a nation's progress, development, and growth—between a critical emphasis on "roots" of culture and "routes" of seaborne exchange. If it is true, as Philip Fisher asserts, that the story of American society is largely a history of the nation's transport, then what stories do the systems and technology of seaborne mobility tell us?

SAILING SHIPS (ALONG WITH SEAFARING AND NAVIGATIONAL PRACTICES) were one principal means whereby neo-European settlement was established in the multiple "Wests" imagined and occupied by colonialists and, as such, were engaged in the negotiation of difference. Sailing ships were also, in many instances, concerned with the partial or entire erasure of differences: geographical, temporal, and cultural. However, in early maritime histories detailing the transoceanic expansion and seaborne commerce of nineteenth-century settler societies, the foremost medium for these transactions, the sea, is either downplayed or commonly represented as little

William M. Taylor is Professor of Architecture at the University of Western Australia, where he teaches architectural design and history and theory of the built environment. Recent publications include *The Vital Landscape: Nature and the Built Environment in Nineteenth Century Britain* (2004); a coedited collection of essays, *An Everyday Transience: The Urban Imaginary of Goldfields Photographer John Joseph Dwyer* (2010); and a coauthored book, *Prospects for an Ethics of Architecture* (2011). The author gratefully acknowledges the advice and assistance provided by Oenone Rooksby and Joely Kym-Sobott while preparing this article as well as the generous comments of anonymous reviewers. Research on this essay was supported in part by a grant from the Australian Research Council.

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more than a stage for nationalist enterprise and the performance of naval technology. It is made subservient to such universalized and self-justifying quests as "the irresistible maritime search for ever-greater speed."[1] Though physically challenging and existentially provocative at times and routinely dramatized in literature with seafaring exploits, the marine environment is conceived as a backdrop or foil for Western powers, technical acumen, and civilizing impulses. In short, the Atlantic, the Pacific, and Indian Oceans are largely construed as tabula rasa awaiting the maritime chart, the newly established trade route, or regular packet-boat service to make them fully part of the modern world. By these means historical archives are made to distinguish—and so draw together—one ocean and another, multiple coasts, home and foreign ports, into a series of discrete but contiguous settings for human enterprise and terrestrial (i.e., land-based) achievements. Consider one pair of historical accounts of sailing ships that demonstrates this tendency.

Arthur Hamilton Clark (1841–1922) was a ship's captain with personal experience of American sailing ships during what is commonly viewed by scholars and maritime enthusiasts to be their heyday in the middle decades of the nineteenth century. Clark helped popularize this view, publishing in 1910 the first authoritative study of the subject: *The Clipper Ship Era*. He wrote of the period from 1843 to 1869: "These memorable years form one of the most important and interesting periods of maritime history. They stand between the centuries during which man navigated the sea with sail and oar—a slave to unknown winds and currents, helpless alike in calm and in storm—and the successful introduction of steam navigation, by which man has obtained mastery upon the ocean."[2]

Twenty years later, Carl C. Cutler, author of *Greyhounds of the Sea* (1930), acknowledged Clark's influence on a generation of maritime specialists, though he described the captain's task "to recall, rather than to inform; to reminisce, rather than to explore."[3] Clark may be forgiven a sailor's reminiscences, though Cutler, one of three founders in 1929 of the (US) Marine Historical Association (the forerunner of Mystic Seaport maritime museum), was no more immune to a partial and conceivably nostalgic view of the past. Of clipper ships he wrote:

> They were more than things of wood and hemp—those old ships. They were at once the flower and symbol of all that was true and great and fine in a passing civilization. In them the varied threads of more than three centuries of the pioneer activities and hopes and aspirations of a world were woven into a pattern of surpassing beauty—an exquisite miniature, shadowing forth the soul of a civilization that was presently to disappear from the scene.[4]

In view of broad claims such as these, Clark and Cutler composed a familiar, but questionable, script whereby seafaring evolves by means of the gradual, but inevitable, triumph of knowledge, technology, and skill over tempest, winds, and currents. There follows an image of a world brought under control by human perseverance and the navigational arts, resulting in the demise of the unfathomable and "victory" over nature and geographical expansiveness. Both of the preceding passages are moralizing, though the Cutler excerpt introduces aesthetic and nationalistic elements into the formula whereby the "surpassing beauty" of a ship manifests the moral fiber of

[1] Benjamin W. Labaree, William M. Fowler Jr., John B. Hattendorf, Jeffrey J. Safford, Edward W. Sloan, and Andrew W. German, *America and the Sea: A Maritime History* (Mystic, CT: Mystic Seaport Museum, 1998), 306. See also Howard Irving Chapelle, *The Search for Speed under Sail, 1700–1855* (New York: W. W. Norton, 1967).

[2] Arthur Hamilton Clark, *The Clipper Ship Era* (New York: Knickerbocker Press, 1910), v.

[3] Carl C. Cutler, *Greyhounds of the Sea* (Annapolis, MD: US Naval Institute, 1930), preface to the 1st ed. (unpaginated).

[4] Ibid.

a pioneering society in its final days. Though both authors composed chapters of maritime history in their respective accounts, the "real" story (of environmental mastery and civilizing impulses) transpires on land, given evidence for the control of seaborne mobility. The "land" construed in this manner in each case is broad in its existential dimensions and, more specifically, clearly "American" in terms of its cultural significance.

In recent writing across a range of academic disciplines (including cultural studies, human geography, and literary theory, to name a few), one finds arguments to reject these and other "progressivist" maritime histories. One finds reason to reject the overweening *geographical* impulse that overwrites the complexity of seafaring experiences with expectations for the fundamental territoriality and progressive development of nation-states and the purposeful movements of their citizenry. Allowing more of a critical openness toward the kinds of differences outlined above, rather than consisting in a rigorous methodology per se, these arguments, taken on the whole, may provide a fresh perspective on the comparative Wests and thus inspire this essay.

Adopting a broadly anthropological view, for instance, John Mack seeks an account of seafaring cultures that is an alternative to the prevailing Western view that sees the sea as "a quintessential wilderness, a void without community other than that temporarily established on boats crewed by those with the shared experience of being tossed about on its surface, and a space without ruins or other witness to the events which may have taken place on its surface."[5] Philip Steinberg argues for the social construction of the sea, describing "ocean-space" as a heterogeneous medium of human relations. This entails the dynamic interplay of social actors (e.g., shipbuilders, shipowners, passengers, and other agents), each realizing, however partially or imperfectly, distinctive patterns of perception, knowledge, and self-interest directed toward the marine environment. According to Steinberg, the complex aesthetics of ocean-space arises within the ambit of industrial capitalism so that the early-modern

> rationalist idealization of the ocean as empty and featureless was complemented by romantics who praised the ocean for its wild nature that resisted taming by the forces of modernity. Despite its contrast with the rationalist attitude toward ocean-space, this romantic representation also had its origins in the industrial era's construction of the sea as a space beyond society. Romantics, like rationalists, identified the sea as a wild "other," but they honored it as a space to be treasured and nurtured, rather than vilified and annihilated.[6]

Cesare Casarino argues that nineteenth-century sea narratives (including fiction by Herman Melville and Joseph Conrad) contributed to a theory of modernity as marked by permanent crisis. The literary theorist enlarges on Michel Foucault's claim that the ship has been the exemplary "heterotopia" of Western civilization since the Renaissance—a space of otherness that functions socially in nonhegemonic ways, which are neither here nor there but simultaneously physical and mental.[7] Casarino proposes that the sea narrative fixed the "wooden world" of the

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[5] John Mack, *The Sea: A Cultural History* (London: Reaktion Books, 2011), 17.

[6] Philip Steinberg, *The Social Construction of the Sea* (Cambridge: Cambridge University Press, 2001), 118.

[7] Michael Foucault, "Of Other Spaces," *Diacritics* 16 (Spring 1986): 22–27, translated from a lecture given in 1967.

sailing ship just before its demise, thereby "capturing at once its apogee and its end, and producing the ship as the matrix of modernity."[8]

In addition to these arguments, authors shaping trends in maritime criticism have published a range of culturally nuanced histories of specific seas and ocean basins, some inspired by Fernand Braudel's famous study *The Mediterranean and the Mediterranean World in the Age of Philip II* (1949). Though varied in intellectual ambition and aims, these texts largely share an emphasis on the determining influence of discrete maritime environs on world history.[9] This category of writing includes scholarly books on such subjects as the medieval sea, the Pacific and Indian Oceans, and histories intended for more popular audiences such as Simon Winchester's *Atlantic*, whose subtitle promises readers "Great Sea Battles, Heroic Discoveries, Titanic Storms, and a Vast Ocean of a Million Stories."[10]

Mindful of these arguments and writing, I will explore the aesthetic, philosophical, and ethical possibilities promised by the new maritime criticism. I seek to restore a measure of dynamism and historical specificity to the maritime environment by teasing out some of the omissions and philosophical underpinnings in such accounts as Clark's and Cutler's histories of the American clipper ship and the seas on which it sailed. These are largely omissions overlooking the context of randomness and chance that make the history of sail less than orderly, rational, and progressive. These are ideological underpinnings mostly tying the consequences of sail technology to discourse on national identity. Before undertaking these tasks and to understand further the scholarly interests served by the clipper ship, particularly during its heyday, I will begin on a slightly different tack, taking as my initial focus Lewis Mumford's aesthetic writing on American culture, architecture, and design.

In *Roots of Contemporary American Architecture* (1952) Mumford assembles selected writings by nineteenth- and twentieth-century art critics and architects to identify, to explain, and to promote certain tendencies in American design. His interests lie clearly with modernist architecture, particularly (but not exclusively) the functionalist and organic character of architectural projects by Louis Sullivan and Frank Lloyd Wright (whose writings appear among the essays in the book). Not content with an analysis of buildings, however, Mumford garners support from two of his nineteenth-century contributors, Horatio Greenough (1805–52) and James Jackson Jarves (1818–88), to write approvingly of a number of ostensibly practical objects, including clipper ships, that provide evidence of a uniquely American design aesthetic.

During the mid-nineteenth century, clipper ships were held in awe, as one might admire sporting heroes or fast cars today, a response anticipated by shipbuilders, who gave the ships names evocative of exotic destinations, beauty, grace, or unearthly powers for speed, such as the *Celestial* (launched 1850) and the *Nightingale* and *Flying Cloud* (1851). Public reactions were cultivated by period newspapers that sensationalized port arrivals of record-breaking ships and by the encouragement given by shipping agents to the public to board and inspect individual vessels at quaysides. Clipper ships distinguished by fast voyages and unfailing service like the

[8] Cesare Casarino, *Modernity at Sea: Melville, Marx* (Minneapolis: University of Minnesota Press, 2002), back cover. For the ship as "world," see Edward Ward, *The Wooden World* (Greenwich, UK: Society for Nautical Research, 1929); and N. A. M. Rodger, *The Wooden World: An Anatomy of the Georgian Navy* (New York: W. W. Norton, 1986).

[9] See also Rainer Buschmann, *Oceans in World History* (New York: McGraw-Hill, 2006).

[10] Susan Rose, *The Medieval Sea* (London: Continuum, 2007); Matt K. Matsuda, *Pacific Worlds: A History of Seas, Peoples, and Cultures* (Cambridge: Cambridge University Press, 2011); Milo Kearney, *The Indian Ocean in World History* (London: Routledge, 2001); Simon Winchester, *Atlantic: Great Sea Battles, Heroic Discoveries, Titanic Storms, and a Vast Ocean of a Million Stories* (New York: Harper, 2010).

Cutty Sark (1869) were further popularized long after the age of sail disappeared, their images used to promote a range of modern commercial products and services, including scotch whisky and aircraft, along with insurance and financial advice. It remains to be questioned how such craft were seen by twentieth-century maritime historians like Clark and Cutler and by Mumford, the philosopher and art and social critic.

On the whole, in this essay I am concerned with aesthetic writing that renders a manufactured artifact and tool of nationalist, imperialist, and economic expansion into an object of beauty. It is discourse that makes the clipper ship a part of nature—an object of timeless desires and universal aesthetic sensibilities—all the while *denaturing* the ship: reducing its complex engagement with the marine environment *and society* into a matter of human contrivance and nationalistic impulses as well as configurations of line, form, and function. By this means "the sea" is likewise reduced, decanted by means of its enclosure by "words and things" into an aesthetic domain, rendered static and so more easily amendable to rational and historical analysis. At stake for study of the comparative Wests is that such writing allows for no "Wests" at all—at the least not settings that draw much of their specific place-identity from maritime environments of which they are an integral part. Rather, what is left are conceptual entities akin to lines drawn in the sand, lines that separate the "quintessential wilderness" of the world's oceans from human society on land.

ARCHITECTURAL CRITICISM AND SEAFARING COMMUNITIES

Before there were specialist historians of the sea and theoretical moves creating such concepts as "ocean-space" and "maritime criticism,"[11] aesthetic commentary provided a medium for elaborating patterns of settlement, culture, and values relative to Western maritime history and industry. Art and architectural historians and critics, in particular, have idealized ships as artistic objects to promote critical agendas, citing the circumstances of shipbuilding and seafaring to characterize the opportunities and challenges confronting their disciplines. This is particularly true for scholars reflecting on the period of industrialization, mass travel, and global trade characterizing modernity and where scholarship, formerly of the classical canons of art and architecture, has been broadened to include manufactured objects other than buildings and creative contexts distinguished by geography.

For key figures writing in the first decades of the twentieth century, including Le Corbusier and Lewis Mumford, interpretations of the origins, forms, and purposes of different kinds of oceangoing vessels served to elaborate expectations for "real" (i.e., terrestrial) architecture, authentic building and dwelling with regard for the historical moment. From steam-driven passenger liners and sailing ships were drawn abstract lessons on the form and function of buildings that were relevant to a modernist design aesthetic. The exchange between Europe and the United States in such thinking about ships and society was international in scope, but it could also be chauvinistic, emphasizing the roots of contemporary architecture in European and national building cultures. Like other conventional historical narratives, the exchange contributed to discourse whereby the sea was rendered static for the most part, a medium transparent to nationalistic and expansionist imperatives and the technologies that serviced them.

Among the lessons garnered from ships and shipbuilding were existential ones prefiguring Siegfried Giedion's claim that the main task facing architects is "the interpretation of a way of life

[11] Iain Chambers, "Maritime Criticism and Lessons from the Sea," *Insights* 3, no. 9 (2010): 2–11.

valid for our time."[12] Ships are largely overlooked in Giedion's book *Mechanization Takes Command*. However, among the many innovations he cites "to describe the impact of a mechanized world on the human organism and human feelings," developments in transport, mass accommodation, and climate control contributed to the evolution of ever larger vessels and furthered their association with reason, progress, and the spectacle of modernity.[13] If an ocean liner had been included in Giedion's "anonymous history," it would have been well placed among the range of artifacts resulting from industrialization, the standardization and mass production of objects, and the application of rationalist or mechanical principles to the objects themselves.

A similar perspective is developed in Le Corbusier's *Vers une architecture* (1923), perhaps the most commonly cited text in which analogies between ship and terrestrial architecture demonstrate what a rationalist aesthetic might look like. Although Mumford, rather than Le Corbusier, is mainly of interest here, the French modernist's ideas in this book are worth highlighting. Not only does his focus on steamships and ocean liners contrast with Mumford's interests in sailing ships, but also Le Corbusier's internationalism with respect to modern design contrasts with Mumford's brand of American provincialism. In three pivotal chapters inspired by different modes of modern transport and dramatized by black-and-white photographic illustrations intended for "EYES WHICH DO NOT SEE" (the book section's title), Le Corbusier proposes a "revolution" in architecture in which he, as Jeffrey Schnapp observes,

> invites built structures to cast themselves in the mold of the airplane, the motor car, the transatlantic liner, and the turbine; to transcend the system of styles in the name of a contemporary style that is no style at all: an architecture of engineers founded upon ceaseless experimentation with new materials, the industrialization of construction, and ensuring comfort, usability, and mobility for those who live, work, and play in today's built environments.[14]

To this end, the cover image for *Towards a New Architecture* (the book's English title) shows a deck-side corridor of the *Aquitania*, a steamship launched in 1913 and commonly celebrated as the largest, fastest, and grandest ocean liner in its day.[15] The illustration's single-point perspective counterpoises the sea to the left with a row of cabin windows on the right; overall, a demonstration, as Le Corbusier explained in the caption, "of the value of a 'long gallery' or promenade—satisfying and interesting volume; unity in materials; a fine grouping of the constructional elements, sanely exhibited and rationally assembled."[16]

Objective differences between the two chief categories of "vessels" depicted by the image—first, the ocean liner understood as a buoyant structure capable of controlled movement and, second, the cabins as habitable compartments (which happen to be floating, at sea)—are sublimated by the interpretation of both as exemplifying a functionalist aesthetic presupposing a harmonious relationship between building form and function. It was a necessary relationship—practically, philosophically, and morally—that Le Corbusier and his contemporaries (including

[12] Siegfried Giedion, *Space, Time and Architecture*, 5th ed. (Cambridge, MA: Harvard University Press, 1974), 33.

[13] Siegfried Giedion, *Mechanization Takes Command* (New York: Oxford University Press, 1948).

[14] Jeffrey T. Schnapp, "The Monument without Style (On the Hundredth Anniversary of Giuseppe Terragni's Birth)," *Grey Room* 18 (2004): 8.

[15] Schnapp (ibid.) believes that the selection of image was meant to convey "the antithesis of a tomb, a crypt, or a funerary stele" or, more broadly, the opposite of a kind of static monumental architecture that exudes the "gray temporality of ruins and resists the flickering electricities of the future."

[16] Le Corbusier, *Towards a New Architecture*, trans. Frederick Etchells (London: Architectural Press, 1946), 92 (image caption). (Originally published as *Vers une architecture*, 1923.)

Americans like Mumford, Louis Sullivan, Frank Lloyd Wright, and others) thought was missing given the then-prevailing fashion for architectural eclecticism based on historical styles.[17]

Other illustrations for Le Corbusier's chapter on ocean liners impress the viewer with monumental yet dynamic forms. The collaged image showing the *Aquitania*'s silhouette positioned behind thumbnail views of similarly scaled Parisian monuments (including the cathedral of Notre Dame, the Arc de Triomphe, and Garnier's Opera House) emphasizes the wondrous size of the vessel, while a caption highlights its modernity, explaining how, unlike these other historical buildings, the liner could house 3,600 people. The content and technological "boosterism" of such an image makes it worth comparing to a promotional postcard of the *Titanic* issued by the White Star Line in 1912, the year the vessel set out on its maiden voyage and then sank.[18] On the commemorative postcard the doomed ship is positioned upright, on end, flanked by several New York City skyscrapers and monuments on the left, and a silhouetted pyramid, the Cologne Cathedral, and St. Peter's Basilica on the right. Bernhard Rieger describes how the illustration encouraged multiple readings:

> First, it stressed the boat's monumental nature by placing it next to various large buildings. Second, it invested *Titanic* with cultural prestige by ranking it among several world-famous landmarks. Third, it introduced a historical and geographical narrative: the ship's central position between architectural examples from the "old" and the "new" worlds suggested not only that liners physically maintained ties between America and the locations where "western civilization" had originated; the card also placed the vessel prominently among revered artefacts of both the past *and* the "modern" present. The drawing, therefore, located the passenger ship in a long line of monumental artefacts that stretched from the distant past to the immediate present, thus grounding the ship in a history.[19]

David Gartman's study of the development of the design and styling of the American automobile suggests that such images and supporting symbolist rhetoric are part of a larger phenomenon of "reification." They obscure awareness of such "social forces of history" as capitalism, industrialization, mechanization, and consumerism behind a "natural facade" of "rational" assemblies, as Le Corbusier described them.[20] Gartman explains:

> Instead of seeking to hide the vices of machine production, they [the purists, functionalists, futurists, constructivists, and other modernist schools] made aesthetic virtues of them, celebrating the severe rectilinearity, sparse and sterile designs, fragmentation and separation. Art and architecture consciously aped the designs of mass-produced automobiles, electric

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[17] Le Corbusier (*Towards a new architecture*, 96) writes: "May our eyes be opened: this harmony already exists, the result of work governed by *economy* [emphasis in original] and conditioned by physical necessities. This harmony has its causes; it is not in any way the effect of caprice, but is of a logical construction and congruous with the world around it. In the daring transposition of human labour that has taken place, nature has still been present and with the greater rigour as the problem was difficult. The creations of mechanical technique are organisms tending to a pure functioning, and obey the same evolutionary laws as those objects in nature which excite our admiration. There is harmony in the performances which come from the workshop or the factory. It is not Art; it is not the Sistine Chapel nor the Erechtheum; [rather] these are the everyday jobs of a whole world working with perception, intelligence and precision, with imagination, daring and severity."

[18] The postcard is reproduced in Bernhard Rieger's article "'Modern Wonders': Technological Innovation and Public Ambivalence in Britain and Germany, 1890s to 1933," *History Workshop Journal* 55 (Spring 2003): 152.

[19] Ibid., 167.

[20] David Gartman, "Reification of Consumer Products: A General History Illustrated by the Case of the American Automobile," *Sociological Theory* 4, no. 2 (1986): 182.

> dynamos, and ocean liners. The cold, dehumanizing social imperatives of the capitalist workshop that dictated these designs were said to be the universal, natural laws of economy and function.[21]

On the whole, Mumford shared Le Corbusier's view that the age of machines could, by encouraging thoughtful design and social planning (the two were synonymous in his view), inspire a new social order of "harmony, simple beauty and good form," though Mumford may have disagreed with the French architect over *which* form that order should take.[22] Both were acolytes of John Ruskin and William Morris and bemoaned the destruction by industrialization of communal village-based life and time-honored traditions of handcraft. Both Mumford and Le Corbusier, however, refused the nostalgic tendency to long for premodern ways and, instead, embraced the dynamism of industrialized society as catalyst for social improvement. As a historian and critic with interests in the wellsprings of American design, Mumford's progressivism acquires a particular and, arguably, problematic character.

Shortly after Giedion wrote *Mechanization Takes Command*, Mumford compiled and published a collection of writings by various authors, all contributing to what he described in the title to this edition as the *Roots of Contemporary American Architecture* (1952). The significance of sailing ships for this history is variously argued by some of the contributors. Greenough, for instance, whose "esthetic doctrines built the ideological foundations of functionalism,"[23] argued (1852) that the progressive evolution of shipbuilding provided far-reaching lessons:

> If you will trace the ship through its various stages of improvement, from the dugout canoe and the old galley to the latest type of the sloop-of-war, you will remark that every advance in performance has been an advance in expression, in grace, in beauty, or grandeur, according to the functions of the craft. This artistic gain, effected by pure science in some respects, in others by mere empirical watching of functions where elements of the structure were put to severe tests, calls loudly upon the artist to watch keenly traditional dogmas and to see how far analogous rules may guide his own operations. You will remark, also, that after mechanical power had triumphed over the earlier obstacles, embellishment began to encumber and hamper ships, and that their actual approximation to beauty has been effected, first, by strict adaptation of forms to functions, second, by the gradual elimination of all that is irrelevant and impertinent.[24]

Greenough was an American sculptor and aesthetician, enamored with ancient Greek civilization and suspicious of Victorian era tastes for the Gothic style. He anticipated Ruskin's thoughts on the morality of architecture, notwithstanding their divergent views on the history of art.[25] His ideas on functionalism bear striking resemblance to subsequent writing by American architects Louis Sullivan and Frank Lloyd Wright.[26] Like aspects of Ruskin's thinking, Greenough's views

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[21] Ibid., 179.

[22] Donald Miller, *Lewis Mumford, a Life* (New York: First Grove Press, 1989), 180–81.

[23] Lewis Mumford, *Roots of Contemporary American Architecture: A Series of Thirty-Seven Essays Dating from the Mid-nineteenth Century to the Present*, new ed. (New York: Dover Publications, 1972), 425. (Unabridged republication of the second [1959] edition; first edition published in 1952.)

[24] Cited in ibid., 53. See also Horatio Greenough, *Form and Function: Remarks on Art, Design, and Architecture*, ed. Harold A. Small, with an introduction by Erle Loran (Berkeley and Los Angeles: University of California Press, 1966).

[25] Ralph Waldo Emerson, "Horatio Greenough," *New Path* 2, no. 8 (1865): 136.

[26] William R. Taylor, review of *Form and Function: Remarks on Art*, by Horatio Greenough, ed. Harold A. Small, *New England Quarterly* 22, no. 2 (1949): 265.

on the necessary relationship of form and function as requisite to architectural beauty draw lessons from a range of objects, not only sculptures, paintings, and monuments. It may appear, on one's first reading of the following passage from his essay "Form and Function," that the sea comes across as a fairly dynamic domain. However, the author's treatment (by generalization and omission of detail) of shipbuilding as a perennial and fundamentally practical undertaking says little specific about the marine environment except where it provides a backdrop for appreciating the majesty of seafaring craft:

> Observe the ship at sea! Mark the majestic form of her hull as she rushes through the water, observe the graceful bend of her body, the gentle transition from round to flat, the grasp of her keel, the leap of her bows, the symmetry and rich tracery of her spars and rigging, and those grand wind muscles, her sails. Behold an organization second only to that of an animal, obedient as the horse, swift as the stag, and bearing the burden of a thousand camels from pole to pole! What academy of design, what research of connoisseurship, what imitation of the Greeks produced this marvel of construction? Here is the result of the study of man upon the great deep, where Nature spake [*sic*] of the laws of building, not in the feather and in the flower, but in the winds and waves, and he bent all his mind to hear and to obey. Could we carry into our civil architecture the responsibilities that weigh upon our shipbuilding, we should ere long have edifices as superior to the Parthenon, for the purposes that we require, as the *Constitution* or the *Pennsylvania* is to the galley of the Argonauts. Could our blunders on terra firma be put to the same dread test that those of shipbuilders are, little would be now left to say on this subject.[27]

Another contributor to Mumford's collection, the American newspaper editor, art collector, and critic James Jackson Jarves, argued in an 1864 essay that ships exhibited a unique combination of love of work and inventiveness marking out the potential for genius in American design. These qualities were not evident in the fashion-conscious architecture of his day, qualities that he believed were an "incongruous medley as a whole, developing no system or harmonious principle of adaptation, but chaotic, incomplete, and arbitrary, declaring plagiarism and superficiality." To the contrary, Jarves argued: "If the mechanical features of our civilization were left to tell the story, our ocean-clippers, river-steamers, and industrial machines would show a different aspect. They bespeak an enterprise, invention and development of the practical arts that proclaim the Americans to be a remarkable people."[28]

Mumford aligns these views with his own moralizing perspective on colonial era sources for contemporary American design. He was sympathetic with Jarves and wrote approvingly that the clipper ship, along with early American clocks and axes, revealed a distinctive American way of making things—one that aimed for practical functionality and simple elegance. These outwardly unself-conscious objects "made the sensitive see that the new was not necessarily the ugly, nor were the products of the machine less beautiful in their own fashion than the more intricate forms of handicraft. Here the new style, shapely, naked, clean, was actually in process of formation."[29] Mumford fails to elaborate on the exact variety of clipper ship he admires, writing more obliquely: "From the eighteen-forties to the eighteen-eighties, the new practices that were

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[27] Horatio Greenough, "Form and Function" (1852), reproduced in Mumford, *Roots of Contemporary American Architecture*, 36–37.

[28] James Jackson Jarves, "Love of the Work," reproduced in Mumford, *Roots of Contemporary American Architecture*, 69–70.

[29] Mumford, *Roots of Contemporary American Architecture*, 9.

to invigorate American architecture were confined mainly to the shipyards and the factory."[30] It is likely that Mumford was thinking of two types of clipper ship. The first was the type of fast sailing ships built in the 1840s and commonly known as "Baltimore" clippers. These were modeled on earlier vessels first built at Chesapeake Bay and subsequently launched from shipyards along the entire US eastern seaboard. Baltimore clippers were known for their practicality, speed, and maneuverability; they distinguished themselves while working the China tea and opium routes, along with providing other, equally profitable and sometimes dubious services.[31] The second craft Mumford may have had in mind was the larger, faster, and narrower vessels commonly called "extreme clippers" by maritime historians. These were first launched to convey passengers and goods in the Californian (1849) and Australian (Victoria, 1851) gold rushes and famously reduced sailing times to these and other destinations.

Though he may have described them as distinctively American, Mumford's views on the practical and aesthetic value of sailing ships, clocks, and axes were nonetheless grounded in a broader, universalist, and progressivist perspective on material culture—hence the mixed and arguably contradictory aspects of his criticism. This comes across clearly in *Technics and Civilization* (1934), where Mumford identifies three eras defined by the succession of sociotechnological complexes: eotechnic (wood and water), paleotechnic (coal and iron), and neotechnic (electricity and alloys). Part of his philosophical scheme for describing the progress of civilization, Mumford's analysis sets technology apart from mainstream history, so that, as Ed Kranakis observes, "what linked clipper ships and medieval water mills together [diachronically, in the eotechnic phase] was more important than what linked them [synchronically] to the societies in which they were created and used."[32] This former connection was more important than the material circumstances that defined or complicated any straightforward notion of the objects' style, function, or performance. In short, Mumford distinguishes between the aesthetic value of a manufactured object—be it clipper ship or village farmhouse—and its historical contribution to a specific time and socioeconomic system.

Mumford's praise for the design and craftsmanship of American clipper ships in 1952 must be seen alongside his earlier observations of the negative consequences of seafaring commerce for American society and culture. This is the view that comes across in his equally polemical but more thoroughly moralizing book *Sticks and Stones: A Study of American Architecture and Civilization* (1924). Reminiscent in some ways of August Pugin's *Contrasts* (1836), in which Pugin compares the architectural styles and social mores of medieval and neoclassical societies, *Sticks and Stones* provides readers with a "just-so" story about the demise of American communitarian society since earliest colonial times. This move purportedly occurred at the end of the seventeenth century, when "the economic basis of provincial life shifted from the farm to the sea [and] broke up the internal unity of village life by giving separate individuals the opportunity[,] by what was literally a 'lucky haul,' to achieve a position of financial superiority."[33]

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[30] Ibid.

[31] Baltimore's sleek schooners were popular with US privateers during the War of 1812, leading the port to put to sea more than any other port in America. In the years after the war, Baltimore retained its reputation for building fast ships, many of which were enlisted in privateering and the illegal slave trade during the Latin American revolutions. See Labaree et al., *America and the Sea*, 223–24.

[32] Ed Kranakis, "Surveying Technology and History: Essential Tensions and Postmodern Possibilities," *Technology and Culture* 46, no. 4 (2005): 808–9.

[33] Lewis Mumford, *Sticks and Stones: A Study of American Architecture and Civilization* (New York: Norton, 1934), 36.

With symbolic and figurative language, Mumford describes the ideal qualities of this earlier life: its seeming permanence and "placefulness," the preservation of common lands (at a time when they were being enclosed in England), functional requisites governing the short distances between home, garden plots, and meeting hall, and straightforward construction methods of buildings.[34] Mumford counterpoises the ideal qualities of the seventeenth-century New England villages (he sees them as resembling the society of Thomas More's *Utopia* and refers to them, positively, as "medieval") with the instabilities of the sea and the transience of seafaring lives. According to this reasoning, a ship may be well made, but if the vessel's purpose is to deliver more goods and more people, faster and more cheaply—and not provide for social cohesion and moral edification—then its beauty is only illusory.[35]

A similar perspective governs Mumford's analysis of port cities, which he includes in his major work on urban history and planning, *The Culture of Cities* (1938). There, he characterizes patterns of urban growth, economic complexity, and social heterogeneity in terms of evolving modes of transport. For instance, he describes how the dirt roads and the horse- and the sail-power that controlled movement in the "eotechnic transportation system" favored the dispersal of populations, allowing for "many points of equal advantage" to coexist in a region.[36] By contrast, given their energy requirements and the relative weakness of steam locomotives, which could not easily ascend gradients rising more than two feet for every one hundred, the new industrial centers of the "paleotechnic" era were concentrated along coal beds and connecting valleys such as the Allegheny–Great Lakes and eastern coastal plain regions of the United States. With the industrialization of shipping, port cities, owing to their overseas connections, played an important role in this new assemblage. They became the junction towns or termini of the main railway lines and likewise served, by this fact, to focus more narrowly the routes of ocean travel and commerce. Consequently, a few great ports like London, Liverpool, and New York (and later, to a lesser degree of magnitude, San Francisco, Sydney, and Melbourne) became more densely concentrated sites of traffic, population, and commerce as well as foci for the problems associated with urban growth. With the increase in size and draft of ships, particularly (but not exclusively) during the period of iron construction and steam propulsion, this disparity between regional and metropolitan centers grew as smaller port towns lost trade to bigger ones with deeper river and sea channels and greater reserves of industrial land and labor. Mumford writes:

> In short: numbers begot numbers; and concentration, once well started, tended to pile up in ever-increasing ratios, claiming increase by inertia where it could no longer promise more effective economic performance. Industry prospered in the big metropolises into which raw

[34] Mumford (ibid., 18) writes: "A friend of mine has called this system 'Yankee communism,' and I cheerfully bring the institution to the attention of those who do not realize upon what subversive principles Americanism, historically, rests." Similar rhetoric has been used to extol the purposefulness and timelessness of communal life—praise for the village architecture and furniture of America's Shaker communities comes to mind, and in fact, Mumford praises the Shaker community at Mount Lebanon, New York (ibid., 19). It is a common tendency to overlook the ideological and spatial effects of power that are no less prevalent in village communities than in highly urbanized ones. On this subject, see Julia Nicoletta, "The Architecture of Control: Shaker Dwelling Houses and the Reform Movement in Early-Nineteenth-Century America," *Journal of the Society of Architectural Historians* 62, no. 3 (2003): 352–87.

[35] For a discussion of this contrast, see Mark Ladner, "Mumford's Metaphors: Sticks and Stones versus Ships and the Sea," *Journal of Architectural Education* 46, no. 2 (1992): 95–103.

[36] Lewis Mumford, *The Culture of Cities* (London: Martin Secker and Warburg, 1938), 159.

> materials, unemployed workers, and unemployed capital were automatically drifting: both technics and capitalism during the nineteenth century promoted urban congestion.[37]

Aesthetics can be broadly described as the study of the conditions of sensory perception. Bringing Greenough and Jarves on board, Mumford (as editor and author) clearly aestheticized clipper ships to serve the purposes of making art and social criticism. A condition of purposeful adaptation—of an object's form to its function, and of transport vessels, instruments, and tools to changing circumstance—is conveyed in *Roots of Contemporary American Architecture*. Working to establish the meaning of such terms as "function," "the functional," and "functionalism" as a design process, the book served demonstrative and polemical roles. Its narrative and examples revealed for the "sensitive" (and, by implication, those who lacked true aesthetic discernment) something of the material conditions underlying their perceptions of the novelty, dynamism, and beauty of constructed forms. In philosophical terms, the book contributed to an observational language and an "empiricist conception of knowledge."[38] These worked to establish as fact a fundamental opposition between form and function, between an audience's perceptions of an artifact and the circumstances that give it purpose or make it work a certain way.

What is missing from the preceding accounts of clipper ships—understandably, in part, given that Greenough, Jarves, and Mumford were not maritime historians per se but, rather, concerned with the ethics of building—is a fuller account of the working life of the vessels relative to a particular time and seafaring culture. In their eagerness to establish exemplars of functional design, limited or partial references to works of naval architecture fail to acknowledge instances where vessels failed to perform as expected, to speed along as designed, to deliver passengers or cargoes as anticipated, and to return a profit as maritime economies demanded. There is no hint in these essays of idiosyncratic and often highly technical language, now largely lost to modern usage, revealing what an intriguing but complex functioning object—particularly when conceived as a "machine" or a "factory"—a sailing ship must have been in former times. Consider how the *Boston Atlas* (May 25, 1851) describes the *Telegraph*, a recently launched clipper ship:

> The design of this beautiful vessel may be said to embrace the most advantageous points contained in the ships *Surprise* and *Game Cock*. Here ends are sharper than those of the *Surprise*, and she has about the same fore rake or inclination of the stem, but more buoyancy of floor. Her dead rise is 27 inches, and her floor, owing to the uprightness of her stem, for she has only 5 feet fore rake, is carried well forward and aft, and is, therefore, available for speed and buoyancy almost the whole length of her keel.
>
> She has 24 inches sheer, and broadside on has somewhat the appearance of our fast vessels of war, but aft the outline of her stern is lighter, and is fashioned to carry along the line of the monkey rail, and below, to form a complete arch like the stern of the *Game Cock*. Her sides swell about four inches, but their fore and aft sweep is bold and easy. She has rounded lines and ends of great beauty.[39]

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[37] Ibid., 159–60.

[38] Barry Hindess, "The Concept of Class in Marxist Theory and Marxist Politics," in *Class, Hegemony and Party*, ed. J. Bloomfield (London: Lawrence Wisehart, 1977), 133.

[39] Reproduced in Clark, *Clipper Ship Era*, 209.

Published at about the same time as *Roots of Contemporary American Architecture* and the second edition of *Sticks and Stones*, Clark's *The Clipper Ship Era* reproduces the preceding passage in its entirety by way of reminding its readers of the archaic language and "keen sense of discrimination" figuring in the aesthetics of clipper ships during the 1850s. Readers today would be forgiven were they to find much of this vocabulary alien and fail to appreciate the multiple performative, technical, and commercial contexts in which many of its terms acquired meaning.

THE CLIPPER SHIP ERA

The essayists in Mumford's *Roots of Contemporary American Architecture* shared an enlarged worldview. It was made possible, in part, by greater and increasingly regular ocean travel, by faster ships and expansive maritime networks, and by political orders and patterns of settlement connecting coasts and seaports into new geopolitical and economic entities. Greenough would have witnessed many of these changes firsthand, having grown up in Boston, in the heart of the nineteenth-century New England maritime economy.[40] He also lived for much of his life as an expatriate American artist and intellectual in Europe, in the company of society for which, by the end of his days, transatlantic crossings were nearly something other than once-in-a-lifetime and life-threatening events. Rather, by 1852 (the year of Greenough's death), increasingly regular, relatively safe, and more widely affordable travel by sail, then steamship, was becoming a matter of choice and ingredient in cosmopolitan lifestyles formed over the course of the Victorian era.[41]

Similarly, Jarves traveled widely in Europe and in North and Central America and lived for a while in the Hawaiian Islands, where he founded the islands' first newspaper (1840–48).[42] Like other members of his country's educated and professional elite, he also would have had firsthand experience of American sailing ships, relying on well-established routes connecting the nation's coasts to each other and beyond. Increased opportunities and motives for travel promoted the spread not only of the American variant of Anglophone society[43] but also of a material culture in which objects of American manufacture like clipper ships could be readily compared with others from abroad and evaluated for their design and performance. These objects could also take on "the power to focus and identify American culture to itself,"[44] though, arguably, with mixed results. The objects could also be enlisted to position the United States on the world stage in novel ways, as period literature and subsequent historical and critical commentary suggest.

Both Greenough and Jarves lived through some part of the heyday, or "golden age," of the clipper ship, an era commonly attributed by maritime historians to the boom in the China tea trade in the early 1840s and the discovery of gold, first in California in 1849, then in Victoria, Australia, in 1851. The period's demise is less regularly agreed upon and is made to coincide with one or more of various events, including the economic recession in the late 1850s and col-

[40] Mumford, *Roots of Contemporary American Architecture*, 424–25 ("Biographical Sketches"). See also Nathalia Wright, *Horatio Greenough: The First American Sculptor* (Philadelphia: University of Pennsylvania Press, 1963).

[41] A sample of literature on travel, self-representation, and cosmopolitanism includes James Duncan and Derek Gregory, *Writes of Passage: Reading Travel Writing* (London: Routledge, 1998); Marjorie Morgan, *National Identities and Travel in Victorian Britain* (New York: Palgrave, 2001); and Deckle Edge, *The Greater Journey: Americans in Paris* (New York: Simon and Schuster, 2011).

[42] Mumford, *Roots of Contemporary American Architecture*, 426 ("Biographical Sketches"). See also Francis Steegmuller, *The Two Lives of James Jackson Jarves* (New Haven, CT: Yale University Press, 1951).

[43] James Belich, *Replenishing the Earth: The Settler Revolution and the Rise of the Anglo-world, 1783–1939* (Oxford: Oxford University Press, 2009).

[44] Fisher, "Democratic Social Space," 87.

lapse in demand for the larger, faster ships launched during the preceding years; the eventual domination of much ocean transport by steamships; and developments affecting patterns of global navigation, transport, and trade. Clark asserts, confidently and precisely, that the clipper ship era "began in 1843 as a result of the growing demand for a more rapid delivery of tea from China, continued under the stimulating influence of the discovery of gold in California and Australia in 1849 and 1851, and ended with the opening of the Suez Canal in 1869."[45]

The Suez Canal, the Panama Railway (which was completed in 1855 and allowed the transfer of passengers and cargo from the Atlantic to the Pacific, thereby avoiding the arduous voyage around Cape Horn), and then the opening of the Panama Canal (1914) not only reduced world sailing times. Each of these monumental earthworks also altered the geopolitical playing field for maritime transport—changing the rules of a changing game. However, in Clark's view, circumstances of global maritime trade contributing to the demise of the clipper ship era were compounded by America's failing political will and reduced capacity for forward-looking seafaring and shipbuilding invention, so that the nation,

> which had been sea-minded for two centuries, was nautically decadent in 1855. By 1860 the process could go little farther. There was an utter lack of anything resembling public interest in matters pertaining to shipbuilding or in the exploits of the ships themselves. New records escaped notice entirely or obtained a scant paragraph in almost unreadable marine columns instead of bold faced editorials on the news page.[46]

Clipper ships became a favored topic of American maritime historians in the early decades of the twentieth century, a trend noted with bewilderment by at least one period book reviewer.[47] Clark's *The Clipper Ship Era* (1910) was followed by several authoritative accounts published between the world wars, including an exhaustive two-volume work by Octavius Howe and Frederick Mathews, *American Clipper Ships, 1833–1858* (1926), and Cutler's *Greyhounds of the Sea* (1930). To the list of books one can add histories and autobiographical reminiscences by British authors, including titles that specifically deal with the vessels of the British and colonial merchant marine.[48] Issues of nomenclature and the precise classification of this type of naval architecture, along with questions about historical periodization (the dates and duration of the clipper ship's heyday), sparked debate among maritime historians.[49] Arguably, uncertainty was

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[45] Clark, *Clipper Ship Era*, v.

[46] Ibid., 370.

[47] Noting the appearance in 1930 of no fewer than four histories of clipper ships, including Cutler's *Greyhounds of the Sea*, one reviewer wryly observed: "The output of books on the American clipper ships and their predecessors and their successors shows no signs of abating, nor is it likely to slow up for some time to come. Twenty years ago there was only a limited demand for maritime histories, and Captain Clark's now classic *Clipper Ship Era* had some difficulty in finding a publisher. Now it is sufficient to clap together a few yarns and ship pictures with an attractive binding, and you have something to buy for a Christmas present. George F. Babitt [Sinclair Lewis's quintessential middle-class character], having acquired a ship model for his mantelpiece and a set of Currier and Ives prints for his walls, wants a shippy-looking book on the living-room table." S. E. Morison, book reviews, *New England Quarterly* 4, no. 1 (1931): 179.

[48] E.g., see Basil Lubbock, *Last of the Windjammers* (London: James Brown and Son, 1927); Basil Lubbock, *The Down Easters: American Deep-Water Sailing Ships, 1868–1919* (Boston: C. E. Lauriat, 1929); and Basil Lubbock, *Sail, the Romance of the Clipper Ships* (New York: Grosset and Dunlap, 1932). See also Andrew Shewan, *The Great Days of Sail: Some Reminiscences of a Tea Clipper Captain* (London: Heath Cranton, 1927).

[49] Labaree et al., *America and the Sea*, 306. Howard Chapelle, onetime curator of maritime history at the Smithsonian and author of *The Search for Speed under Sail*, purportedly declared that the vessel did not exist as a distinctive type. Chapelle's views appear in an account given by Peter Stanford, president of the National Maritime Historical Society, in his foreword to the 1984 edition of Cutler's *Greyhounds of the Sea*.

fostered during the "clipper ship era" itself—notably during gold rush years when booked passage aboard a fast ship commanded a high price—because it was common for shipbuilders, owners, and shipping agencies to add the adjective "clipper" to all kinds of vessels for the notoriety, prestige, and commercial advantage the label was likely to bestow.[50]

The Baltimore clippers of the 1830s and 1840s required speed to manage the strong tides and currents along the China coast and outmaneuver monsoons in the China Sea.[51] They could also deliver cargoes quickly, adding to profits on certain shipments. For instance, it was likely that consignments of tea garnered higher prices if they were the first to arrive from Asian ports. This established a pattern for the larger clippers of the late 1840s and 1850s, whose owners and investors sought a quick and substantial return on costs associated with building, outfitting, and running the vessels by seeking high-value and low- or moderate-volume cargoes. Tea and opium were initially the obvious choices. Additionally, the gold rushes produced a sharp spike in passenger rates, and with increasing wealth in Californian and Victorian mining communities, shipments of gold dust and bullion and luxury goods followed. These potentially lucrative cargoes fueled speculative investments directed toward building larger and faster ships.[52]

From 1843 to the early 1850s, American clipper ships not only became larger and faster but acquired the pronounced (or "sharper") bows and backward-leaning (or "raked") masts that came to most clearly characterize the style. Larger size meant greater length relative to width; cargo capacity was sacrificed to facilitate speed, thus obliging a generation of shipowners and shipping agents to play one desirable attribute (and corresponding purpose, or "function") off another. Velocity resulted from several factors, including a more buoyant craft with, typically, a shallower draft and tapered bows intended to reduce forward resistance in the water; multiple and taller masts accommodating vast areas of canvas, typically square-rigged; and larger crew sizes able to manipulate sails more quickly in response to rising winds and other factors affecting navigation.

Standing out among the many details that Clark, Howe and Mathews, and Cutler provide to fill out the catalog of historic clipper ships and voyages (including details of ports of departure and destinations, cargoes, passenger tallies, and profits) are figures for vessel speeds and record-breaking sailing times—as though these facts were proof enough of the vessels' historical efficacy. As a basis for comparison, consider that on August 14, 1834, Richard Henry Dana, author of the highly popular narrative of his life at sea *Two Years before the Mast* (1840), set out on his celebrated voyage from Boston to South America and around Cape Horn to San Francisco.[53] After multiple stops at ports along the way, his ship (its type described as "fully-rigged" in the narrative) arrived at the mouth of San Francisco Bay on December 4, 1835, a journey of 478 days. Dana's voyage was far from "nonstop" in terms routinely applied to commercial air travel today. Rather, it was interrupted, mostly purposefully to conduct trade and on other occasions owing to unforeseen circumstances.

Clark recounts that just before the advent of the California gold rush, from April 1, 1847, to the same date the following year, 11 ships (1 barque, 1 brig, and 9 American whalers) were recorded to have arrived in San Francisco from Atlantic ports. By comparison, in 1849, 775 vessels

[50] Octavius T. Howe and Frederick C. Mathews, *American Clipper Ships, 1833–1858* (Salem, MA: Marine Research Society, 1926), vi.

[51] Clark, *Clipper Ship Era*, 58–59.

[52] Cutler, *Greyhounds of the Sea*, 205.

[53] Richard Henry Dana, *Two Years before the Mast* (New York: Harper and Brothers, 1840).

arrived, including 12 steamships, and they all carried passengers.[54] That year, 91,405 passengers were reported to have disembarked at San Francisco from vessels sailing from ports worldwide. For various reasons, including lack of return cargoes, lack of captains and crew (many sailors ran away to the goldfields), and insufficient profit motive for return voyages, "many of these vessels never left the harbor; over one hundred were turned into store ships, while others were converted into hotels, hospitals, and prisons, or gradually perished by decay."[55] Clark tells how the ship *South Carolina*, outward bound from New York, was the first vessel of this 1849 fleet to arrive in California and one of the few to leave, sailing to Boston, via Valparaiso, with a cargo of copper—a journey of 393 days. Among the 173 American clipper ships built from 1850 to 1857 specifically for the California trade, many earned such high profits on the outward voyage that shipowners were justified in quickly returning them to home ports empty in order to obtain another cargo at equally exorbitant shipping rates. Others would cross the Pacific in ballast and load tea for London or New York. Many ships undertaking such round-the-world voyages cleared their original costs for building and fitting out, after deducting all expenses, in less than one year.[56] Voyage times recorded for this period for the New York to San Francisco passage range from 110 to 89 days (achieved by *The Flying Cloud*, twice). For purposes of comparison, consider that the record for eastbound passage from New York to Melbourne (around the Cape of Good Hope) during this same period (1850–57) was 69 days, 14 hours.[57]

It was mindfulness of such figures that led Clark to delight in how humankind "obtained mastery upon the ocean," while Cutler gleaned equally abstract and moralizing lessons from the statistics that his research uncovered. Putting aside for the moment their authors' more existentially oriented claims, these historical accounts provided details that both supported and undermined a functionalist reading of the clipper ship's status as an object of material culture—that is, an interpretation that would idealize and then relate the ship's form to an equally narrow range of purposes (e.g., to perform swiftly and reliably). Likewise, though similarly "progressivist" as Mumford in their respective accounts of seafaring technology, the maritime historians nonetheless provide sufficient detail to question an aesthete's narrow reading of the vessel's form and function. In other words, by means of these historians' efforts to contextualize the clipper ship's speed relative to a number of factors (including technological, economic, and cultural ones), the phenomenon of "speed" acquired a dualistic and problematical role. It was both reason for and evidence of the vessel's "success." Speed assumed an ahistorical status, while distance was more or less imagined as a "tyranny" to be overthrown.[58]

Overlapping commercial and cultural contexts encouraged intense competition between American shipyards and shipowners in the 1840s and 1850s to build faster ships for established and newly opened trade routes. These contexts were enlarged to include additional shipbuilders and customers for shipping following the 1849 repeal of navigation laws in the United Kingdom

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[54] Clark (*Clipper Ship Era*, 100–101) adds: "New York sent 214 vessels, Boston 151, New Bedford 42, Baltimore 38, New Orleans 32, Philadelphia 31, Salem 23, Bath 19, Bangor 13, New London 17, Providence 11, Eastport 10, and Nantucket 8."

[55] Ibid., 101.

[56] Ibid., 100–105; see also his appendix I.

[57] Cutler, *Greyhounds of the Sea*, appendix I, 478.

[58] Geoffrey Blainey, *The Tyranny of Distance: How Distance Shaped Australia's History* (Melbourne: Macmillan; New York: St. Martin's Press, 1968).

restricting British and colonial commerce to conveyance by the British merchant marine.[59] Clark records that the first American ship to carry a cargo of tea from China to England after the repeal of the legislation was the *Oriental*, a 1,003-ton clipper that delivered 1,600 tons of tea to London on December 3, 1850, after a voyage from Hong Kong of ninety-seven days. It was a passage "never before equaled in point of speed, especially against the southwest monsoon, and rarely surpassed since."[60] Chartered to load tea at £6 per ton in forty cubic feet of stowage volume, the *Oriental* outshone slower vessels waiting in Hong Kong harbor for cargoes, their captains willing to convey goods to Britain for much less (£3:10 per ton in fifty cubic feet). As another example of the legendary profits associated with (but not always realized by) fast ships, Clark notes that upon its arrival in London the *Oriental*'s owners realized income of £9,600, equivalent to $48,000 ($1,371,840 in 2011 currency), which compares favorably to the $70,000 ($2,000,600) required to first build and ready the vessel for sea. The historian adds:

> No ship like the *Oriental* had even been seen in England, and the ship-owners of London were constrained to admit that they had nothing to compare with her in speed, beauty of model, rig, or construction. . . . The Admiralty obtained permission to take off [record] her lines in dry dock; the *Illustrated London News* published her portrait, not a very good one by the way; and the *Times* honored her arrival by a leader, which ended with these brave wise words:
>
> > The rapid increase of population in the United States, augmented by an annual immigration of nearly three hundred thousand from these isles, is a fact that forces itself on the notice and interest of the most unobservant and uncurious. All these promise to develop the resources of the United States to such an extent as to compel us to a competition as difficult as it is unavoidable. We must run a race with our gigantic and unshackled rival. We must set out long-practiced skill, our steady industry, and our dogged determination, against his youth, ingenuity, and ardor. It is a father who runs a race with his son. A fell necessity constrains us and we must not be beat. Let our ship-builders and employers take warning in time. There will always be an abundant supply of vessels, good enough and fast enough for short voyages. The coal-trade can take care of itself, for it will always be a refuge for the destitute. But we want fast vessels for the long voyages, which otherwise will fall into American hands.[61]

Period commentary such as this, appearing in national and colonial presses, served to cultivate global interest in clipper ships, extolling the vessel's potential for speed and highlighting a sociopolitical context underlining its importance for the United States, Britain, and its colonies.[62] The business rivalry between American and British builders of clipper ships and shipping companies became well established early in the 1850s and was watched with interest around the world. A challenge issued in the *London Times* by a shipbuilder at Greenock, near Glasgow, was reported in the Melbourne *Argus* (May 14, 1851) and promised "to build a ship to beat the American clipper ship *Oriental* out and home in all weathers and every tack. [Consequently,] Grinnell and

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[59] Clark, *Clipper Ship Era*, 88–96.

[60] Ibid., 97.

[61] Ibid., 99.

[62] Cutler (*Greyhounds of the Sea*, 163) writes of interest generated in the early 1850s: "The press devoted more and more space to the subject. Editorial comment and lengthy descriptions of the latest masterpieces were the order of the day. On every hand the statements were made and repeated that here, there or elsewhere, the largest, sharpest, speediest, or most advanced type of clipper was being constructed or projected."

Minturn [the Massachusetts owners of *The Flying Cloud*] propose in return to build a ship which they will sail against any English ship on any voyage, ship for ship, the beaten ship to belong to the owners of the other."

As an indicator of changing times and symbols, the 1,060-ton *Nightingale* (named *Sarah Cowles* at the start of construction but acquiring this more evocative name just before completion), launched from Portsmouth, New Hampshire, on June 16, 1851, was not intended for the East Asia tea trade. Nor was it commissioned to carry passengers and supplies for the California gold rush like the record thirty-one clippers built along the Atlantic seaboard that year. Rather, the *Nightingale* was planned to carry American passengers to the Great Exhibition of 1851 in London and was equipped with luxurious interior fittings and large saloons and staterooms for their comfort. Howe and Mathews cite a notice appearing in the *Boston Journal* during its construction, which advertised a "rare opportunity for a cheap and delightful trip to London" and promoted the vessel's stewardship by Captain Miller, billed as "a noble navigator and gentleman." Rates of passage to London and back were advertised as $125 ($3,623 in 2011 currency) for "first cabin staterooms" and "Ladies' cabin" berths; $110 for Saloon staterooms and $100 ($2,921) for Saloon berths.[63] It was intended, upon arrival, to be exhibited in the Thames as a model American clipper ship. It was reported that "no expense or skill was spared to make her a worthy representative."[64]

The forty-two-year long and varied career of the *Nightingale* demonstrates, perhaps as clearly as any other single vessel could, something of the vagaries of seafaring during the clipper ship era in which speed factored into multiple economies. Speed was problematic and no guarantee of a vessel's success. The history of obtaining it by means of a sail reveals the very narrow lens a critic following Mumford's lead would need to see a working vessel's form bear a transparent or unmediated relationship to any one conceivable function or design intention. Popularized as one of the most beautiful clipper ships to sail into port, the *Nightingale* failed, owing to the bankruptcy of its owners, to convey passengers to London to attend the Great Exhibition of 1851 and view Joseph Paxton's celebrated Crystal Palace. The ship was sold at auction shortly after its completion and put on a course for Sydney as prospects for the Australian trade were just about to boom.[65]

The *Nightingale*'s arrival in New South Wales was noted by the local press on January 24, 1852, and inspired reports of its impressive size and speed and details likely to interest Sydney merchants with goods to export or prospective passengers for the return voyage:

> This Boston clipper-built ship, now on her first voyage came into port yesterday, after a splendid passage of 94 days; after sailing from Boston she met with adverse winds, until making the parallel of the Cape of Good Hope; from this position to Sydney the distance was run in 28 days. She is the largest United States trader that has ever visited these shores; her length overall is 218 feet, 177 feet 10 inches on the keel; 36 feet beam, depth of hold 18 feet, present draught of water 19 feet 6 inches. The cabin fittings are of the most superb description, and will be better appreciated by a personal inspection of the vessel.[66]

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[63] Howe and Mathews, *American Clipper Ships*, 428.

[64] Clark, *Clipper Ship Era*, 164–65.

[65] Howe and Mathews, *American Clipper Ships*, 426–38.

[66] Anonymous, "Shipping Intelligence," *Maitland Mercury and Hunter River General Advertiser*, January 24, 1852, 2, col. 6.

The Australian colonial papers credit the vessel with being the first ship from the North Atlantic to deliver its cargo in consequence of the recent gold discoveries in Victoria (though the papers give no indication of arriving-passenger numbers). They describe the large cargo of flour (2,500 barrels) and tobacco (80 tons) and other items on board, including a store of wooden buckets imported for the miners.[67] It was predicted, given the large quantity of tobacco in the shipment and, presumably, insufficient demand at the time, that the merchandise would be difficult to sell in the short term. Advertisements in the *Sydney Morning Herald* (March 12, 1852) reported that the *Nightingale* was set to sail for Hong Kong on March 17, 1852, with publicity promising shippers and passengers "unparalleled accommodation."[68] The competition for passengers and return cargo for clipper ships during this period shows that speed and swift arrivals in port were only two of many concerns troubling shipowners and shipping agents. These and additional factors feature in the repeated adaptation and reuse of the *Nightingale* as a vessel competing for business in the English tea and North Atlantic timber trades, as a slaver, and as a warship, among other uses, until it was abandoned at sea in 1893.

CONCLUSION

For Cutler, the pioneering work required of clipper ship owners and their designer-builders was over when "the Golden Year" of the clippers, 1852, ended. Before this date vessels were objects created by craftsmen with "altruistic natures" who shared "a highly developed inventive faculty." Inventiveness was directed—if the nature and weight of historical detail in Cutler's narrative is taken on board—toward meeting the fundamental challenges of seafaring, such as fully controlling buoyancy and realizing speed. After 1852, though vessels might have increased in size and swiftness, they demonstrated "only refinement or a more efficient combination of lines and principles already embodied in living ships." The previous period was "forward looking, the other exploitative."[69]

Both Clark and Cutler aestheticize the clipper ship, though this stems from different modes of historical analysis than the approach adopted by Mumford in *Roots of Contemporary American Architecture*. Clark relies on his experience and knowledge as a seaman and Cutler on analysis of an exhaustive compilation of a historical record from thousands of logbooks, shipping news, and other sources.[70] Mumford, by comparison, relies on the weight of evidence provided by his essayists. Just as devices like covered wagons and railroads can come across in some histories of nineteenth-century America and Australia as pioneering—as original and innovative means whereby "the West" was made ready for neo-European settlement[71]—the clipper ship in its heyday is idealized with comparable rhetoric. It is portrayed as an original solution to the challenges

[67] Anonymous, "Commercial Record, Weekly Trade Report," *Empire* (Sydney, NSW), January 24, 1852, 2, col. 5; *New York Daily Times*, June 1, 1852, 3.

[68] One can gain a sense of the scale of seaborne transportation at the time by noting that other vessels preparing to leave Sydney Harbour vied for customers to international ports, including Auckland, Wellington, San Francisco (three, including one via Tahiti), Manila, and London (two, including one continuing to Antwerp and Bruges). By comparison, shipping news in the Melbourne *Argus* that same week listed ships bound for Madras (one) and London (nineteen), many of the latter described as particularly suited for conveying shipments of gold and passengers.

[69] Cutler, *Greyhounds of the Sea*, 205.

[70] Ibid., preface (unpaginated).

[71] See, e.g., Nicholas Eggenhofer, *Wagons, Mules, and Men: How the Frontier Moved West* (New York: Hastings House, 1961); and George Shumway, Edward Durell, and Howard C. Frey, *Conestoga Wagon, 1750–1850: Freight Carrier for One Hundred Years of America's Westward Expansion* (York, PA: Early American Industries Association, 1964).

of speed and distance—as these are construed as obstacles to the inevitable expansion of Anglophone settlement. With the benefit of hindsight and a measure of direct experience of the *post*–clipper ship era, Mumford, Clark, and Cutler wrote sea narratives for their own times and respective concerns. These narratives also, like their nineteenth-century precursors, captured at once the clipper ship's "apogee and its end, . . . producing the ship as the matrix of modernity."[72]

What is required is an understanding of these objects as features of technological systems that not only exhibit material aspects relating to traditional crafts and to applied and industrial sciences but also manifest significant philosophical, social, and political forces. In philosophical terms, the "empiricist conception of knowledge" based on functionalist thinking about an object's social purpose or aesthetic value is related to another notion. This is what Barry Hindess dubbed "the rationalist conception of action"[73] whereby inventive achievement—including the series of decision-based actions leading to the dynamic forms of clipper ships—is assumed to be governed by rational calculation rather than, for example, by reactions to accidents of time and place and the resistance of "the sea" to complete control.[74]

What Steinberg calls the "annihilation" of ocean-space[75] could be attributed to industrial capitalism's subordination of the seas to systematic scientific study, in concert with nineteenth-century efforts to fully exploit it by effectively governing aspects of marine navigation, transport, and commerce. At the same time, the preservation of the sea in the social imaginary as wild "other," as free to some degree from human dominance, was assumed partly by international agreements enshrining the "freedom of the high seas" as a universal right of nations and seafaring peoples. These ostensibly opposing responses to the marine environment provide grounds to question Mumford's aestheticization of naval architecture *and* to begin to explain his rejection of American seafaring commerce. On the one hand, there are grounds to hold suspect Mumford's idealization of the clipper ship as resulting, according to Greenough, from "the study of man upon the great deep, where Nature spake [*sic*] of the laws of building, not in the feather and in the flower, but in the winds and waves."[76] Rather than any simple aesthetic formula equating the vessel's streamlined "form" and its "function" to plow through the waves, the performance of the ships was governed by a space of social relations that mediated between the two terms. On the other hand, it was this domain that Mumford recognized and feared had become as equally plagued by social alienation and inequality as America's industrialized countryside. His idealization of American colonial society was clearly reactionary—and conceivably nostalgic, though his wistfulness is guided by a particular view of the history of his own "settler" society, the United States. In *Sticks and Stones* he warns:

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[72] Casarino, *Modernity at Sea*, back cover.

[73] Barry Hindess, *Philosophy and Methodology in the Social Sciences* (Brighton: Harvester, 1977), 7–10.

[74] The rationalist's conception lies behind (and renders problematical) Cutler's attempt to explain both the creative contribution of individual American clipper ship builder-designers to the vessel's heyday *and* their mutual indebtedness for creative inspiration. Cutler (*Greyhounds of the Sea*, 165) concludes: "if there is one thing which appears to stand out in this connection, clear and incontrovertible, it is that the clipper ship was a composite creation—the product of literally scores of the keenest minds in America, afloat and ashore, none of whom considered himself too great to learn and each of whom would have scorned to apply that learning without attempting to add something of himself. There is the greatest secret and glory of the clipper era—that it was the achievement of normal, self-reliant, forward looking men."

[75] Steinberg, *Social Construction of the Sea*, 118.

[76] Greenough, "Form and Function," 36–37.

> There are two or three things that stand in the way of our seeing the life of a New England village; and one of them is the myth of the pioneer, the conception of the first settlers as a free band of "Americans" throwing off the bedraggled garments of Europe and starting life afresh in the wilderness. So far from giving birth to a new life, the settlement of the northern American seaboard prolonged for a little while the social habits and economic institutions which were fast crumbling away in Europe, particularly in England.[77]

Returning to Clark's broad claim that introduced this essay, it would have been accurate to add a modern caveat that "mastery" of the oceans during the clipper ship era (like mastery of the skies during the age of flight)[78] was not the measure of humanity in an existential sense—the seas being a seemingly infinite foil for human ambitions. Rather, mastery during Clark's clipper ship era coincided with enhanced capacities for action resulting from the measurement and rationalization of the marine environment for transport and other purposes.

Historically, attempts at controlling the marine environment included empirico-calculative regimes aimed partly at governing commerce by more fully understanding how ships sailed and how the oceans, winds, and currents conveyed them. Mastery was sought across continents and globally, between once-distant shores. For example, Boston and New York supplied ships and crew, migrants, goods, and capital for passages to San Francisco and the California goldfields. These movements often, though not always, connected "the West" to ports along the way and places farther away.

As Steinberg explains, between 1850 and 1890 repeated calls were made for international conferences to codify rules for regulating maritime traffic, culminating in the International Maritime Conference convened in Washington, DC, in 1889. The shipping industry and maritime powers perceived the need to adopt some kind of universal regulatory mechanism, though there was strong resistance to the idea that territorial sovereignty over the seas be ceded to an international organization. These actors, along with ship manufacturers and the insurance industry—all of whose interests were served by ensuring that ships, their passengers, and their cargoes arrived at destinations safely—sought a middle way by establishing the Comité maritime international, which held its first meeting in Brussels in 1897.[79]

Science served the interests of nineteenth-century authorities tasked to preserve the freedom of the seas and regulate marine navigation. Developments in navigational science in the 1840s and 1850s, in the guise of hydrography (a branch of oceanography) and the measurement of the sea depths, tides, and currents, had a direct bearing on the performance of ships by transforming the ocean—by means of systematic measurement, calculation, and representation—into a universal "friction-free transportation surface."[80] Both Clark and Cutler praise the achievements of Mathew Fontaine Maury in this regard, to whom "navigators of all nationalities are deeply indebted . . . for it was his mind that first conceived the idea of exploring the winds

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[77] Mumford, *Sticks and Stones,* 13–14.

[78] Didier Maleuvre, *The Horizon: A History of Our Infinite Longing* (Berkeley and Los Angeles: University of California Press, 2011), 275.

[79] Steinberg, *Social Construction of the Sea,* 125–27. Essentially an organization composed of national maritime-law associations, the Comité maritime international acted as mediator between these stakeholders and governments to facilitate legislation on issues such as "marine shipowner's liability, duty to tender assistance, salvage rights, mortgages and liens on ships, safety of navigation, immunity of state-owned ships, treatment of stowaways, status of ships in foreign ports, and registry rules" (127).

[80] Ibid., 125.

and currents of the ocean."[81] In 1842 Maury was appointed superintendent of the Depot of Charts and Instruments in Washington, DC, and published *The Physical Geography of the Sea* in 1855 following a coordinated, global effort involving the participation of captains and vessels from seafaring nations to compile data. By one period account, Maury's efforts shortened passages to California by thirty days and to Australia by twenty days.[82]

Mastery entailed several forms of control—but also multiple risks—in which fast ships and diminished sailing times were both contributing factors and routinely celebrated outcomes. These included trading networks for the movement of people and goods in which speed and certain arrivals were connected to strategic investment practices, commercial advantage, and liabilities. Details gleaned from Clark's and Cutler's maritime histories, for instance, confirm that the clipper ship was more than merely a technical device for conveying people and goods; it was also a commodity, capable of attracting large amounts of capital long after "consumer demand" subsided. The accumulation of clipper ships along established routes, at certain times, between New England ports and San Francisco or Melbourne, for example, demonstrate an industry capable of distorting markets, of flooding them with products and driving down prices and reducing the high shipping rates that had prompted shipowners to build the ships in the first place.[83] The value of ships, as features of overlapping technological and commercial *systems*, depended on these and other factors. Clipper ships enjoyed an extended life in the trade routes to Australia, long after steam power took over from sail on most other world passages. This is largely because clipper ships did not require coaling stations, which were either nonexistent or costly to maintain at regular intervals along the most direct routes to the antipodes: across the Pacific along the fortieth parallel of latitude (the "roaring forties"), where strong winds quickly conveyed sailing ships to Australian and New Zealand ports.[84]

This positive economy, however, could be easily undermined or become socially inequitable. Historical illustrations of clipper ships, first evident in watercolor or oil paintings commissioned by shipbuilders and owners and subsequently appearing in cheaply reproduced images by printmaking firms like Currier and Ives, commonly depict the vessels voyaging at high speed, waves frothing before their bows and full sails straining under the wind.[85] What is not evident in these scenes is the high probability of shredded sails and shattered masts on clipper ships, whose captains were urged to voyage at breakneck speeds. Nor is there an indication of the considerable labor force required to work the sails—and labor costs could render a voyage unprofitable. The Suez Canal, combined with European railways linking the English Channel to Mediterranean ports, from which ships traveled to Egypt, reduced mail service times and passenger voyages to Australia by days. Sail power, alone or in combination with steam, was still required owing to unfavorable winds in the tropical latitudes. Heavy subsidies by the British imperial government

[81] Clark, *Clipper Ship Era*, 146.

[82] H. C. Rawlinson, "Address to the Royal Geographical Society," *Journal of the Royal Geographical Society of London* 43 (1873): clvii. It is unclear from the account, a tribute to Maury following his death, whether departures were from the US East Coast or from British ports or an average of the two.

[83] Cutler, *Greyhounds of the Sea*, 246–47, 275–76.

[84] Also, at times, particularly during the early years of steam, coal was difficult to store in quantity onboard ship, crowding out valuable cargo space, and it was expensive to burn.

[85] Bryan Le Beau, "'Colored Engravings for the People': The World according to Currier and Ives," *American Studies* 35, no. 1 (1994): 138.

were also required to make the service to Australia profitable for shipping company shareholders; it was "simply a route for aristocrats."[86]

There is thus a largely unreported but equally dynamic world behind Mumford's, Clark's, and Cutler's sea narratives that accounts for the "reification" of the clipper ship by means of recorded memories, histories, and essays extolling the vessel's virtues. It is a world of multiple and newly emerging discourses and economies governing the industrialization of the seas, along with new forms of sea transport and communication. It is also a world of shifting and overlapping geographical boundaries and social perspectives, the latter including the privileged views of maritime historians and critics, which contrast with the everyday experiences of laborers and travelers, who took to the sea in ever larger numbers during the modern era. A

[86] See Blainey, *Tyranny of Distance*, 216–17.