



Jason W. Smith. *To Master the Boundless Sea: The U.S. Navy, the Marine Environment, and the Cartography of Empire.* Flows, Migrations, and Exchanges Series. Chapel Hill: University of North Carolina Press, 2018. 280 pp. \$35.00, cloth, ISBN 978-1-4696-4044-0.

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Published on H-Environment (June, 2021)

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Jason W. Smith's *To Master the Boundless Sea* examines the transformational nature of nineteenth-century American hydrographers' work as they charted the ocean's depths. By exploring connections between American scientific investigation and the marine environment, Smith seeks to create a "new interpretation" of "the expansion of empire and the growth of American military power" (p. 4). Much of this work of understanding the world's oceans depended on hydrography, a "study of ocean depths, winds, currents, tides, and meteorology, to claim, recast, and control the marine environment" (p. 2). Hydrography, Smith contends, enabled the United States to "build its oceanic empire" based on overlapping commercial and scientific goals (p. 6). Gathering empirical knowledge of the world's oceans served an American desire to exert national power overseas through the US Navy. An ambitious global study, this book contributes to a variety of historical fields, including military and maritime history, the history of science and cartography, environmental history, cultural history, and the history of technology. Political theorists, oceanographers, and geographers will also find something of interest.

To Master the Boundless Sea explores the US Navy's move from a "folkloric" appreciation of the world's "blue wilderness" (oceans) to a more em-

pirical understanding. The first half of the book explores antebellum America. It begins with the US Navy's establishment and institutionalization of the Depot of Charts and Instruments in 1830 and its launch of world-navigating US Exploring Expedition (1833-42). The Ex. Ex., as it came to be known, surveyed the Pacific Ocean, seeking new sources for high-in-demand commodities, such as sandalwood, sea otter furs, seal skins, and sea cucumbers. Shortly after this expedition's conclusion, Matthew Fontaine Maury (the so-called father of oceanography) took charge of the depot's extensive library and began to organize its archive of logbooks. After failing to convince most merchant captains to share their own observations at sea, Maury called on the navy's library to create more comprehensive and accurate maps of the South Atlantic. By crafting his "Fair Way to Rio," Maury commissioned the fastest navigation between Baltimore and Rio de Janeiro, which shaved off seventeen days' travel time for one American merchant ship (p. 83). By mid-century, Maury pursued even larger ambitions, creating an exhaustive series of wind and current charts of the world's oceans. As one of the first international scientists to employ intellectual "crowdsourcing," Maury helped to establish a universal shorthand for scientists and mariners to record their maritime observations.

Though Maury's charts featured inaccuracies, his work helped to forge the new scientific field of oceanography, which became a study of increasing importance during the nineteenth century.

The second half of the book explores the post-US Civil War era, when American oceanography evolved from a scientific pursuit traditionally designed to serve commercial interests to one more focused on servicing strategic military concerns. During the postbellum period, the US Navy used hydrography to determine ports of strategic value that would facilitate the expansion of the United States. In the 1890s, the world-famous American naval strategist Alfred Thayer Mahan advocated for a national greatness that was inextricably linked to what he referred to as "sea power" (p. 142). Mahan, a central figure in Smith's narrative, "militarized the sea" by highlighting the ocean's "military and strategic value" and establishing a "new lexicon of dominance, control, and power" for the US Navy (p. 143). When the Spanish-American-Philippine War erupted in 1898, Smith argues, it "proved a watershed moment" for American hydrography. Naval squadrons discovered the devastating consequences of their "inaccurate" and "incomplete" hydrographic charts around Cuba, Puerto Rico, and the Philippines (p. 163). In late 1899, the US Navy faced its most substantial "material loss" of the conflict when a US warship crashed into "unchartered rock" off the coast of the Philippines (p. 160). Unfortunately for US naval officers, many of the harbors and ports they deemed most strategically useful often proved to be hazardous marine spaces, a problem that only reinforced the navy's desire for accurate maps.

To Master the Boundless Sea makes particularly salient contributions to the field of environmental history by frequently emphasizing the interdependence of human actions and the natural world. At a time when the US Navy had "only a tenuous command of the sea environment," Smith demonstrates, the expansion of US commercial and military power at sea depended on American

ans' understanding of the marine environment (p. 143). In the book's epilogue, the author applies his research to present-day environmental concerns, reminding readers how oceanography continues to play a critical role in shaping our understanding of climate change. As American leaders struggle with humanity's longstanding "ability (or inability) to control a marine environment that threatens not just American national security but our coastal cities and a larger natural world," Smith contends, the sea remains a space of central concern. A habitable world in the future will require Americans to work toward preserving the world's marine environment as floods, fires, and drought appear in "increasingly erratic and exaggerated ways" (p. 209).

To Master the Boundless Sea places US scientific knowledge of the sea into a broader cultural context of nineteenth-century Western empire and colonialism. It also underscores how American scientists and the US naval officers helped to transform the "blue wilderness" that covers more than 70 percent of the world's surface into a more measured and predictable space. This well-researched and cogently written monograph is a must read for students of American maritime history, the US Navy, the history of science, and oceanography.

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Citation: Graeme Mack. Review of Smith, Jason W. *To Master the Boundless Sea: The U.S. Navy, the Marine Environment, and the Cartography of Empire*. H-Environment, H-Net Reviews. June, 2021.

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