Silting at the Dock of the Bay: Mud, Mudslinging, and the Fight for the San Francisco Waterfront, 1853–63

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Between 1853 and 1863, no issue divided San Franciscans as much as the Bulkhead Bill (or Parsons Plan) that called for a seawall to wrap around the entire waterfront. The bill's most controversial feature would have allowed a few businessmen to monopolize all waterfront transactions for 50 years as compensation for building the expensive bulkhead. By contrast, opponents characterized it as a scheme to fleece the city of revenue. On the surface, the bulkhead fight appears to be an urban question. But under the surface, it was at the core about sedimentation and the changing nature of San Francisco Bay.

Entre 1853 et 1863, aucun sujet n'a autant divisé les résidents de San Francisco que le projet de loi relatif au brise-mer (ou le plan Parsons), qui prévoyait la construction d'un brise-mer qui allait encercler l'ensemble du secteur riverain. La disposition la plus controversée de ce projet de loi aurait permis à quelques hommes d'affaires de monopoliser toutes les transactions du secteur riverain pendant 50 ans à titre de compensation pour avoir construit cet ouvrage coûteux. En revanche, ses opposants le dénonçaient comme une manœuvre visant à escroquer la ville de ses recettes fiscales. À première vue, la lutte pour le brise-mer semblait être une question d'urbanisme. Mais au fond, c'était essentiellement au sujet de la sédimentation et de l'évolution de la baie de San Francisco.

The Northern Mariner / Le marin du nord **35, no. 3-4 (Autumn-Winter 2025): 291-312**

On the afternoon of 15 April 1859, Captain T.D. Johns assembled the First California Guard, ordered barrels raised, and orchestrated a 100-gun salute from a San Francisco plaza. The public display commemorated neither the passing of a brave soldier nor notable statesman but the death of the so-called "Bulkhead Bill" or "Parsons Plan" in the state legislature. Described by a local newspaper as a "requiem," the salute was not meant to be taken solemnly but facetiously. The joke would have been clear to San Franciscans who largely abhorred the bill, which called for the monopolization of their waterfront. In their view, the bill's architect and beneficiary, Levi Parsons of the San Francisco Wharf and Dock Company, was a mischievous swindler who wished to rob the

View of San Francisco, formerly Yerba Buena, in 1846-7. Before the discovery of gold, 1884. (Library of Congress, https://lccn.loc.gov/2003680619)

city of its chief source of revenue – wharfage fees – with a vaguely worded and outrageous plan to privatize the entire public waterfront for 50 years with no promises of compensation to the public. A newspaper editorial summed up how many felt about the Bulkhead Bill, calling it an "iniquitous scheme" that Parsons and his followers "have devised for the oppression of our commerce."

Remarkably, despite its widespread unpopularity, bills like it appeared before the San Francisco Common Council and California State Legislature nearly every year between 1853 and 1863. In 1860, the state almost lost its most cherished public space before an eleventh-hour governor's veto. All this is peculiar. On the surface, it is hard to fathom how support was mustered year after year for such a thinly veiled attempt to wrest control of San Francisco's most treasured public property. Therefore, we must look below the surface of the harbor for answers.[1]

Viewed from a terrestrial perspective, the bulkhead debate is difficult to explain. But from a wider geographic framework – one that straddles the waterfront and incorporates both urban political economy and the underwater landscapes of San Francisco Bay – the dispute, which produced intense mudslinging and a few taunting gun salutes, becomes less murky. The fight for control of the waterfront was a fight about mud. During the 1850s, San Francisco's harbor appeared to be in a state of crisis. The harbor seemed to be filling with mud – runoff we now know originated in the Sierra Nevada Mountains. But during the 1850s, the source of the mud perplexed Bay Area residents. Efforts to monopolize the waterfront played on the mud's enigmatic origins. Parsons explained how monopolizing the waterfront would save the harbor from filling. The mud had "oozed" out from underneath the city because of the weight of waterfront wharves and buildings, he argued. Monopolization would allow capitalists to clear the way for the construction of a massive seawall – also known as a bulkhead – to hold back the mud from entering the harbor. Others, particularly the merchants of the San Francisco Chamber of Commerce, did not buy the "oozing" theory and were thus wary of endowing Parsons with a lucrative half-century waterfront monopoly. But without an adequate explanation to counter the "oozing" theory, the waterfront was constantly under threat of being removed from public control. From a framework that includes the city *and* bay of San Francisco, it is evident how seemingly urban questions were tied to the ecology, bathymetry, and hydrology of the bay.[2]

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1 "The Anti-Bulkhead Salute," *Daily Evening Bulletin* (San Francisco; hereafter *DEB*), 15 April 1859, 3; "The Bulkhead Requiem," *DEB*, 14 April 1859, 2; Resolution of the San Francisco Chamber of Commerce, reprinted as "The Chamber of Commerce: Views in Relation to the Proposed Sea Wall or Bulkhead," *Alta California* (San Francisco; hereafter *AC*), 21 April 1856, 4. The chamber reiterated this critique of the Parsons Plan in the 1850s and 1860s; "Are We, indeed, Sold again!," *DEB*, 17 March 1860, 2; "An Honest Man's the Noblest Work of God," *DEB*, 17 April 1860, 2.

2 Matthew Morse Booker, "Oyster Growers and Oyster Pirates in San Francisco Bay," *Pacific Historical Review* 75, no. 1 (February 2006): 71; "The True Theory Relative to the Shoaling

Coastal histories like the dramatic near monopolization of the San Francisco waterfront are not often told. Because they sit at the edges of several historiographical currents (including environmental history, urban history, marine environmental history, and more), they are often lost in the scholarly shuffle. The shoreline's ecotonal dynamics have mystified scholars who are perhaps reluctant to leave the comfort of wholly dry or wholly wet environments to investigate these middle grounds, or, as historian Christopher Pastore dubs them, "muddy grounds." The good news is that we may be reaching a "tipping point," as coastal scholars Joana Gaspar de Freitas, Robert James, and Isaac Land put it, with new scholarship and a new journal dedicated to the coast drawing more attention to liminal environments. More than ever, scholars are straddling the coastline – often through interdisciplinary terraqueous lenses – to connect land and sea. Things once considered peripheral to human history, such as coastal sedimentation, may in fact be pivotal to canonical events, like the resettling of California during the Gold Rush.[3]

While historians may have overlooked the importance of mud, San Franciscans certainly did not take sedimentation of their precious harbor lightly. To commercial shippers in the 1850s, the bay seemed a welcome anomaly to an otherwise unfriendly 840-mile-long California coastline. After crossing the threshold of the Golden Gate, there *seemed* to be no shortage of inlets, harbors, and bays for ships to moor safely. San Francisco Bay proper, the biggest arm of the bay, is supplemented by two smaller bays to the north and northeast: San Pablo and Suisun Bays, respectively. Various tributaries creep down from the mountains into the bay, of which the biggest are the Sacramento and Feather Rivers to the north, and San Joaquin River to the east.[4]

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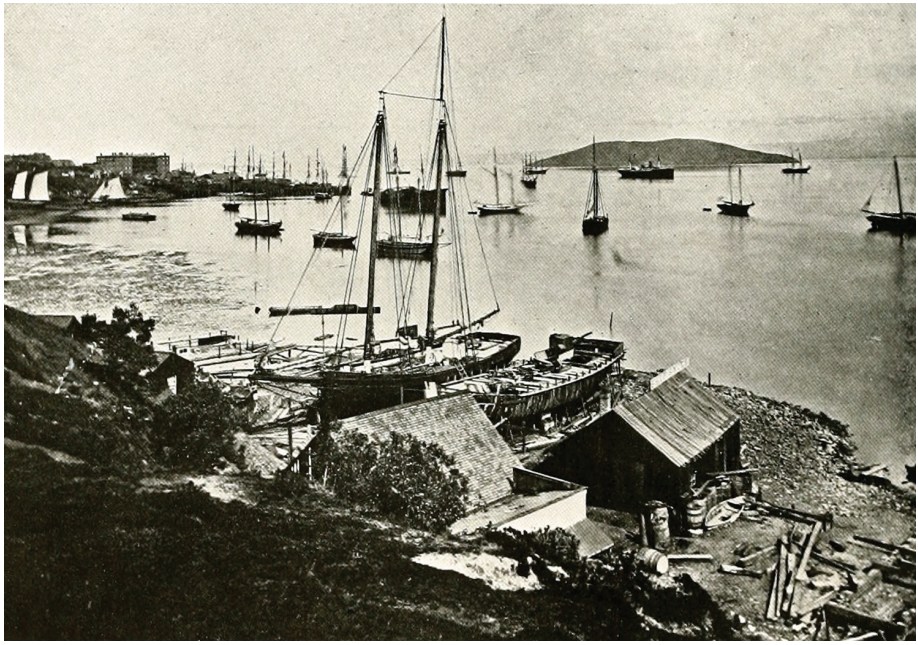
of the Harbor," *DEB*, 10 March 1860, 3; "Plan of a Bulkhead to be Constructed for and by the City," *DEB*, 6 April 1857, 2; "More of the Bulkhead," *DEB*, 28 February 1857, 3; "The Chamber of Commerce: Views in Relation to the Proposed Sea Wall or Bulkhead," *AC*, 21 April 1856, 4; "Bulkheaders in the Mud," *DEB*, 7 March 1859, 2.

3 Christopher L. Pastore, *Between Land and Sea: The Atlantic Coast and the Transformation of New England* (Harvard University Press, 2014), 4. For an overview of new coastal history, see John Gillis, *The Human Shore: Seacoasts in History* (University of Chicago Press, 2012); Joana Gaspar de Freitas, Robert James, and Isaac Land, "Coast Studies and Society: The Tipping Point," *Coastal Studies & Society* 1, no. 1 (March 2022): 3–9; David Worthington, ed., *The New Coastal History: Cultural and Environmental Perspectives from Scotland and Beyond* (Palgrave Macmillan, 2018); and Stephen Mosley, "Coastal Cities and Environmental Change," *Environment and History* 20, no. 4 (November 2014): 517–33. For a comparative example of the importance of sedimentation to history, see, Michael Rawson, *Eden on the Charles: The Making of Boston* (Harvard University Press, 2010); and Michael Rawson," What Lies Beneath: Science, Nature, and the Making of Boston Harbor," *Journal of Urban History* 35, no. 5 (July 2009): 675–97.

4 Joel W. Hedgpeth, "San Francisco Bay: An Unsuspected Estuary," in *San Francisco Bay:*



San Francisco Bay, c. 1853, with Goat Island in the background. Hill and Kofoid, *Marine Borers and Their Relation to Marine Construction on the Pacific Coast*, 14.

Yet the bay gave seamen only the *illusion* of an expansive waterway. Before improvements in dredging technology, the bay restricted vessels of considerable draft to a 100-square-mile area east of the Golden Gate – a comparatively small slice of a bay estimated to be as large as 1,600 square miles. Consequently, American migrants settled just southeast of the Golden Gate cut on the mainland across from Yerba Buena Island where depths greatly exceeded the bay's 18-foot mean low tide.[5]

While the city of San Francisco was fortunate to abut one of the few places on the west coast where large ships could anchor safely, this benefit came at a cost. The city was a nightmare for urban planning owing to its hilly terrain.

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the Urbanized Estuary, ed. T. John Conomos (Pacific Division of the American Association for the Advancement of Science, 1979), 9–29. Besides recapping the chronology of European exploratory encounters with San Francisco Bay, Hedgpeth reviews the scientific literature of Bay studies over the preceding century and concludes that comparatively little was known about the ecology of San Francisco Bay before the 1930s; most of what scientists know is from research conducted after roughly 1960.

[5] Doris Sloan, *Geology of the San Francisco Bay Region* (University of California Press, 2006), 135; John L. Chin, Florence L. Wong, and Paul R. Carlson, *Shifting Sands and Shattered Rocks: How Man Has Transformed the Floor of West-Central San Francisco Bay*, U.S. Geological Survey Circular 1259 (Reston, 2004), 1.

But San Franciscans of the mid-nineteenth century bore this burden in the name of commerce. The *Daily Evening Bulletin* (hereafter *Bulletin*) reminded its readers that while the urban landscape was the "least attractive" plot in the entire Bay Area because its climate was "harsher and more unpleasant" and its topography was "almost intractable … a decision was reached in favor of San Francisco." The reason, the editors explained, was that "of all the points contiguous to the Golden Gate it was surrounded by deep water and good anchorage." Even so, the city of San Francisco owes its ascendency as much to the 1849 Gold Rush as to the depth of its harbor. After James W. Marshall famously discovered gold at Sutter's Mill, migrants flooded San Francisco. Almost overnight, schools, churches, and saloons appeared in the city to service the rapidly growing population. Thousands flocked to the urban center made possible by the deep underwater landscape of San Francisco's harbor. Between 1848 and 1856 the population of San Francisco jumped from 1,000 to 50,000.[6]

The Gold Rush also changed the underwater landscape of the harbor, though not as quickly as it altered urban landscapes and demographics. For all the gold that miners found, they excavated a much greater amount of rock and soil. Between 1850 and 1880, they removed eight times the amount of material excavated during the construction of the Panama Canal. Without any environmental regulatory agency in place there was no one to tell miners how and where to dispose of all this waste material. Thus, mining waste found its way first into the streams and rivers near the mines, which then flowed downstream into tidelands and estuaries, where it finally came to rest in the depths of inlets and harbors. Over the course of thirty years, an underwater glacier-like mass of muddy mining waste worked its way down through the tributaries and into San Francisco Bay, supplementing natural sedimentation. The remnants can still be found in the harbor.[7]

The way mud settles on the floor of San Francisco Bay is a complex and variable process that begins with water composition. The surface water that 1850s San Franciscans witnessed, either from the decks of ships or peering out from the shoreline, involved warmer, mud-laden freshwater currents that discharged from streams and rivers originating high up in the mountains. Underneath that layer of freshwater lay a cold mass of salty ocean water

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6 "San Francisco and the Railroad," *DEB*, 1 May 1873, 2; H.W. Brands, *The Age of Gold: The California Gold Rush and the New American Dream* (Anchor Books, 2002); Andrew C. Isenberg, *Mining California: An Ecological History* (Hill and Wang, 2005), 7.

7 Bay Institute of San Francisco, *From the Sierra to the Sea: The Ecological History of the San Francisco Bay-Delta Watershed* (Bay Institute of San Francisco, 1998), 3–23.

pushing upstream in the *opposite* direction. The ratio of fresh to salt water varies depending on the location. The water surrounding Golden Gate and San Francisco probably consisted of a thin layer of freshwater blanketing a much greater volume of saltwater. This ratio inverted farther up in the estuary, where the saltwater bottom met a wall of freshwater that combined to form a mixture of fresh and salt (or brackish) water before the saltwater was halted by a barrier of entirely freshwater. As a point of reference, the water composition presently shifts in San Pablo Bay, though the exact point varies with the tides, seasons, droughts, and the amount of freshwater diverted for agricultural use. But owing to the greater volume of freshwater flowing into San Francisco Bay in the 1850s, the water composition probably changed much nearer to San Francisco. Most of the sediment coating the bay floor was carried down by the influx of freshwater. As freshwater collided with saltwater, the suspended sediments reacted with saltwater, or flocculated, resulting in particles clumping together and sinking. This explains why the bay was (and is) shallower further up from the Golden Gate cut. But the mud's journey did not end there; in the summer and spring, winds created waves that kicked up resting mud, carrying it further downstream in an endless process of flocculation and resuspension.[8]

During the 1850s, San Franciscans could not fathom how sedimentation worked. The people who lived and worked along the Sacramento River knew full well that the stream connecting the bay to upriver communities had clogged from mining waste, but further away, Bay Area residents could not conceive that the debris from the mountains – whether it be natural sedimentation, mining waste, or some combination of both – was impacting them too. Confused, they frantically sought to understand why their waterways seemed to be shallowing and how to stop it. Amid this uncertainty, different diagnoses – which called for radically different prescriptions – brought San Franciscans into bitter conflict over how the waterfront should be protected. But there was more at play in the harbor quarrels of the 1850s than mud. Even as the inexorable muddy blob slowly inched its way along the bay floor ever closer to the urban centers of the south bay, San Francisco residents wrapped themselves up in harbor disputes of their own making.[9]

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[8] Sloan, *Geology of the San Francisco Bay Region*, 134–45; R.B. Krone, "Sedimentation in the San Francisco Bay Waters," in Conomos, *San Francisco Bay*, 85–96; J.F. Arthur and M.D. Ball, "Factors Influencing the Entrapment of Suspended Material in the San Francisco Bay-Delta Estuary," in Conomos, *San Francisco Bay*, 143–74.

[9] "Navigation of Our Rivers," *AC*, 21 April 1856, 2; US Congress, House of Representatives, *Engineer's Report of Certain Rivers and Harbors. Letter from the Secretary of War, Transmitting Reports of the Chief Engineer Upon the Improvement of Certain Rivers and Harbors*, 41st Cong., 3d sess., 1871, H. Exec. Doc. 60, 22; Robert Kelley, *Battling the Inland Sea: Floods, Public*

Who should own the waterfront? This question, more than any other, dominated attention during the 1850s. After the Gold Rush upped the value of this already prime stretch of public property, local capitalists eyed the waterfront hungrily. Whoever could seize ownership of the public waterfront from the city would enjoy handsome profits from a monopoly on trade-related revenues like wharfage fees. On one day alone, the California Legislature deliberated four different monopoly bills.[10]

The "extension scheme" of the early 1850s was the first attempt to monopolize the waterfront. Governor John Bilger proposed the idea in a January 1853 speech. The plan was simple: extend the boundary of the city out 600 feet into the bay and put the tidelands up for sale. The pretext for the extension was that the state needed revenue to fill Sacramento's empty coffers. But waterfront tenants saw something more devious and published an editorial condemning the scheme as an attempt to leapfrog existing tenants and block their access to the harbor.[11]

The scheme caused a stir, but it was destined to fail, largely because extensionists could not demonstrate that the scheme offered any public good. Instead, the California State Committee on Commerce criticized the scheme because of the negative effects that it would have on the city, by arguing that the hydrology and ecology of the bay would undermine the proposed extension. Two specific complaints surface regularly in the newspaper discourse: water and worms.[12]

The currents flowing through the harbor, in part, eroded support for the extension. San Francisco Bay, like most waterways, was (and is) a dynamic feature of nature. The speed of the water in front of the shoreline changed constantly. According to 1853 observations, the current increased from seven and a half knots to eight and a half knots between flood and ebb tides. Freshets increased the current's strength to as many as 11 knots and there was no telling how strong currents could become during gales. The Committee on Commerce reported that if the city extended the waterfront out into deeper waters, the currents there would make the proposed wharves "sway to and fro with every gale like a ricketty [*sic*] table." Moreover, the proposed 600-foot

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Policy, and the Sacramento Valley (University of California Press, 1998).

10 "Letter from Sacramento," *DEB*, 22 January 1858, 2.

11 "Mayors' Message," *Weekly Alta California* (hereafter *WAC*), 29 January 1853, 4; "Report on the City Extension," *WAC*, 19 March 1853, 3; "First Fruits of the Extension Scheme," *AC*, 16 April 1853, 6; Gerald D. Nash, *State Government and Economic Development: A History of Administrative Policies in California, 1849–1933* (University of California Press, 1964).

12 "Effect of the Extension upon Shipping in the Harbor," *AC*, 16 April 1853, 2.

extension would likely increase the speeds of currents. Experts testified that narrowing the channel would increase currents by as many as two knots. The *Alta California* sketched out the implications when it wrote that "it is evident to every sailor that such a current of itself will require extra heavy ground tackle to hold a ship securely in the stream." Moreover, such an increase would likely "wash out the anchors from the mud, as the surges of the sea strike the vessel, and cause her to strain at her chains and kedge away her anchors." Given what San Franciscans knew about the estuary's currents, the extension of the waterfront seemed impractical.[13]

Another aspect of the bay environment undermined the proposed extension scheme: shipworms. The extension would have required an enormous number of piles to hold up the new wharves. But extensionists either ignored or were unaware of wood-boring bivalve mollusks, known variously as "worms," "shipworms," or, more commonly in California, "teredo." Different species of teredinids ravaged the American coastline during the nineteenth century, such as *Teredo navalis* and *Lyrodus pedicellatus*, not to mention lice-like limnoriids such as *Limnoria lignorum*. San Francisco Bay was home to a native borer: *Bankia setacea*. As juveniles, the minuscule *B. setacea* larvae sought out wooden hosts for food and shelter, growing up to two or three feet in length. By the time they were discovered, an infested pile or plank could contain hundreds of worms. Dockworkers and deckhands typically had no idea the wood under their feet had become brittle until wharves and ships suddenly fell to pieces. By 1853, new piles were rendered unusable in less than two years. The associated maintenance costs were another reason the Committee on Commerce deemed the extension impractical.[14]

Given these troubling predictions, it is no wonder that many San Franciscans considered the extension scheme an ill-conceived improvement hatched by greedy speculators who did not have the long-term interests of the community in mind. In a petition to the Common Council, San Franciscans voiced their opprobrium, calling on the aldermen to reject the proposal, arguing that the schemers were "vampyres, who know or appreciate nothing beyond

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13 "Report on the City Extension," *WAC*, 19 March 1853, 3; "Effect of the Extension upon Shipping in the Harbor," *AC*, 16 April 1853, 2.

14 "Steamer Alta California," *AC*, 1 April 1853, 4; "Effect of the Extension upon Shipping in the Harbor," *AC*, 16 April 1853, 2; "Marine Borers in Our Harbor," *DEB*, 5 May 1856, 1; "Report on the City Extension," *WAC*, 19 March 1853, 3; Derek Lee Nelson, "The Ravages of Teredo: The Rise and Fall of Shipworm in US History, 1860–1940," *Environmental History* 21, no. 1 (January 2016): 100–24; Derek Lee Nelson, "Shipworms and the Making of the American Coastline," PhD diss. (University of New Hampshire, 2018).

Bankia setacea, colloquially known as "teredo" or "shipworm." Hill and Kofoid, *Marine Borers and Their Relation to Marine Construction on the Pacific Coast*, 203.

Douglas fir pile destroyed by marine borers. Hill and Kofoid, *Marine Borers and Their Relation to Marine Construction on the Pacific Coast*, 87.

the boundaries of their own pockets."[15]

What is striking about this attempt at monopolizing the waterfront is how the environment shaped the debate. At this juncture, San Franciscans had some idea about how the bay functioned hydrologically and ecologically and weighed the extension scheme with this knowledge in mind. Factors like tides and worms should be credited for halting the scheme, but the 1853 extension debate is also noteworthy for what did *not* make it into the discussion: mud. Sedimentation was not yet a problem. In the coming years, speculators capitalized on the paradigmatic uncertainty of the mud as they made another push for monopolization.

This push began in early 1856. Levi Parsons, a local businessman, attorney, and one-time judge, pressured the Common Council to cede control of the waterfront to the San Francisco Wharf and Dock Company – a joint stock company that Parsons owned along with a half dozen other local businessmen. Parsons was a very influential California resident, but not always in the good way. He began his career as an attorney and, in 1850, at the age of 28, was

15 "Memorial in Relation to Speculation on the City Front," *WAC*, 27 February 1853, 2.

appointed a district court judge. His tenure was short and provocative. In 1851, Parsons made enemies after he accused the San Francisco press of slander and libel, calling on the grand jury to intervene and fine newsmen. For this, he was nearly impeached. What little is known about his personal life does not redeem his character. Parsons abandoned his wife in 1858, leaving her to subsist on the sympathy of friends. In the meantime, he took up with another woman and transferred much of his property into her name to shield his wealth from his wife.[16]

Levi Parsons was most infamous for his role in trying to monopolize the San Francisco waterfront. His "Bulkhead Bill," or "Parsons Plan," as the newspapers variously dubbed it, called for a very long seawall to wrap around the waterfront, replacing the wharves jutting out from the shoreline. Parsons and his followers were the first to argue that mud had accumulated on the harbor floor and that a seawall was necessary to prevent commercial decay. Thus, Parsons argued that monopolization of the waterfront served the public good because it responded to environmental changes that threatened shipping.[17]

Talk of mud went viral in Bay Area newspapers after pro-bulkhead editorials flooded the *Alta California* and *Bulletin*. Contributors using pseudonyms like "Tripod," "Cadmus," and "Citizen" argued that the bay was shoaling very quickly and if nothing was done commercial vessels would soon be unable to dock. "Citizen" predicted that the "total destruction of the port" would occur "at no distant day." Pro-bulkhead editorialists demanded that the Common Council act "liberally" (read as "private monopoly") to save the harbor. The fastest way to confront the new problem of mud, according to the bulkheaders, was for the aldermen of the council to step aside and cede control of the waterfront to the private sector so that the latter could construct a lasting harbor improvement.[18]

The near apocalyptic picture that Parsons and his supporters painted failed to convince others in the community of the need for haste. Concerned citizens

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16 "An Application for Divorce from Levi Parsons," *DEB*, 12 May 1877, 3; "The Late Levi Parsons: The Courts and the Press in Early Days – Reminiscences of the Bulkhead," *DEB*, 10 November 1887, 4; For more of Parsons's biography and post-bulkhead railroad endeavors, see V.V. Masterson, *The Katy Railroad and the Last Frontier* (University of Missouri Press, 1988), 21.

17 "The Proposed Bulkhead," *DEB*, 11 January 1856, 3; "The Chamber of Commerce – Views in relation to the Proposed Sea Wall or Bulkhead," *AC*, 21 April 1856, 5.

18 Citizen, "The Bulkhead No. 3," *DEB*, 7 May 1856, 1; "A Bulkhead Must Be Built," *DEB*, 19 April 1856, 1; "The Bulkhead – No. 2," *DEB*, 7 May 1856, 1.

as well as the Chamber of Commerce (a guild of local businesses promoting economic growth) recommended deliberation rather than quick authorization of the Bulkhead Bill. And for good reason. In the first place, the bulkhead scheme contained legal loopholes. Had the Common Council approved the plan, existing wharf tenants could have sued the city for infringing on their rights as lessees. Indeed, the whole goal of the scheme, as some surmised, might have been to profit deviously from tort claims. Secondly, the scheme contained no provision requiring the San Francisco Wharf and Dock Company to build the seawall. Parsons and his colleagues could fill their pockets with the city's most lucrative source of revenue for 50 years without constructing anything. The chamber's assessment of the plan, though extremely tactful in its wording, implicitly screamed of speculation and a potential blow to the public interest. Editors at the *Alta California* said what the chamber would not, calling the scheme a "gigantic attempt to enrich a number of irresponsible parties at the expense of the city."[19]

After its independent review, the Chamber of Commerce published a resolution recommending that the Common Council dismiss the proposal, which happened shortly thereafter. However, the aldermen probably were not acting as enlightened civil servants. Rather, community pressure in the form of the *ad hoc* San Francisco Committee of Vigilance spotlighted city corruption and put pressure on local officials. Additionally, a report of a pro-bulkhead bribe made to Assistant Alderman Dow ensured that few politicians would openly associate themselves with the scheme. By July 1856, yet another scheme to monopolize the waterfront slipped from public view but this time temporarily.[20]

The corrupt political atmosphere that enveloped the Parsons Plan, particularly the bribe, made it easy for opponents to dismiss the scheme. But the best lies usually contain a grain of truth. The underlying justification for the scheme – sedimentation – slowly drew concern even from non-bulkheaders after a freelance engineer named C.F. Sinot published an editorial in the

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19 "The Bulkhead," *DEB*, 19 April 1856, 2; "The Chamber of Commerce – Views in relation to the Proposed Sea Wall or Bulkhead," *AC*, 21 April 1856, 5; "The Sea Wall Project," *AC*, 21 April 1856.

20 "The Chamber of Commerce – Views in relation to the Proposed Sea Wall or Bulkhead," *AC*, 21 April 1856, 5; "The Bulkhead Outrage," *DEB*, 13 June 1856, 3; "Our City and County Officials must Resign," *DEB*, 7 July 1856, 2; "Spirit of the Morning," *DEB*, 23 April 1856, 2. For a history of the wider efforts of the Vigilance Committee, see Nancy J. Taniguchi, *Dirty Deeds: Land, Violence, and the 1856 San Francisco Vigilance Committee* (University of Oklahoma Press, 2016).

Bulletin arguing that the waterfront was in fact shallowing. Sinot was quick to distance himself from the bulkheaders, but his soundings corroborated their claims about shoaling. By 1857, Sinot helped make mud newsworthy once again. This time, no one rejected the need for a bulkhead outright – even the Chamber of Commerce left room for the possibility that it might be necessary eventually. The revived bulkhead debate centered on new questions such as the rate of sedimentation and how long before something had to be done. Calls for urgent action came from monopolists like "Cadmus," who claimed that shoaling was rapid, while the chamber urged patience, making it clear that if a bulkhead were necessary it could wait for a proper survey.[21]

The debate over the rate of sedimentation, however, was overshadowed by questions about the mysterious source of all the mud. Like the mythical phoenix, the bulkheaders rose from the ashes of their 1856 defeat and took control over the debate by promulgating the first explanation for sedimentation. Parsons's followers insisted on a theory of sedimentation that went under various appellations, ranging from "sliding out" and "gravitation" to the evocative "oozing" theory. The "oozing" theory attributed harbor shoaling to urban, not estuarine, processes. According to the bulkheaders, mud was "sliding out" from under the city. The weight of freshly filled lots, so the argument went, displaced, or "squeezed out," the stratum of soft mud far below the city, forcing it to "ooze" into the harbor. The density of the fill was primarily to blame for shoaling. Sand and rock, which waterfront landowners used to bolster the foundations for their buildings, was supposedly denser than the earth below, which many assumed to be more liquid than solid. Without a strong base on which to place fill, new structures forced underlying mud out into the bay with every shovel full of dense sand and rock placed on the waterfront. Moreover, without a strong seawall to hold back the liquefied earth, shoaling would never cease.[22]

On its face, the "oozing" theory sounds farfetched. But before 1859 there was little marine science in existence to counter the monopolists' claims. Indeed, "even those who opposed the bulkhead on other grounds," according

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21 "Protection to the City Front – The Bulkhead," *DEB*, 10 December 1856, 2; "The Bulkhead: A Letter to the Chamber of Commerce," *DEB*, 21 February 1857, 3; "More on the Bulkhead," *DEB*, 24 February 1857, 3.

22 The renewed bulkhead plan based on oozing first emerged in a public letter by J.H. Purkitt, *A Letter on the Water Front Improvement, Addressed the Hon. James Van Ness, Mayor of San Francisco* (San Francisco, 1856); "The True Theory Relative to the Shoaling of the Harbor," *DEB*, 10 March 1860, 3; "Plan of a Bulkhead to be Constructed for and by the City," *DEB*, 6 April 1857, 2; "More of the Bulkhead," *DEB*, 28 February 1857, 3; "Bulkheaders in the Mud," *DEB*, 7 March 1859, 2.

to one report, "have admitted the shoaling to be produced by the filling in of the water-lots." Now armed with a scientific theory, Parsons and the bulkheaders sought to build renewed support for their monopolization scheme.[23]

In 1857 and again in 1858, the bulkheaders advertised the "oozing" theory to a new audience: state legislators. The monopolization debacle of 1856 ended any future opportunity of fast-tracking the scheme through the Common Council. A new and less corruptible city government had taken power because of widespread anger towards the schemers. So, William Dennis, a close associate of Parsons, steamed up the bay to the state capital at Sacramento, where he lobbied state legislators intensely. A legislative reporter observed Dennis's high-pressure tactics, writing that the bulkheader "hovers round the members as pertinaciously as a mosquito," such that "a sea wall seems to surround the Legislature on all hands." While reports of Dennis's lobbying accurately captured the tenacity with which the bulkheaders opened their new front, they overestimated his effectiveness. At best the bulkheaders planted a seed of interest. They also inspired several other capitalists to fashion and submit bulkhead bills of their own. By the end of both legislative sessions, all the bulkheaders walked away emptyhanded. Instead of voting for or against the respective bulkhead bills, state senators acted cautiously and authorized the governor to request that the US Navy conduct a survey of the harbor.[24]

By 1859, though, pro-bulkhead lobbyists had nurtured enough legislative support to make a real push for privatization. The crux of their argument still hinged on the threat that they perceived from human-induced "oozing," but support in the legislature also came from corruption and logrolling (a term common in the US referring to the exchanging of political favors), both common features of California politics during this period. For instance, state senator John Conness explained that he voted repeatedly for the Bulkhead Bill not because he was swayed by pro-bulkhead arguments but because he was able to trade votes and secure funding for a school his constituents desired.[25]

Sensing that Parsons had made inroads in Sacramento, anti-monopolists from San Francisco lobbied state legislators in February 1859. The Chamber of Commerce acted first. After reviewing the newest iteration of the Parsons Plan, the chambermen concluded that it was exactly like the unfavorable bill

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23 "Bulkheaders in the Mud," *DEB*, 7 March 1859, 2.

24 "The Bulkhead Scheme and Schemers," *DEB*, 23 March 1857, 2; "Letter from Sacramento," *DEB*, 21 March 1857, 3; "Still Another Bulkhead Project," *DEB*, 9 April 1857, 2; "California Legislature – Eighth Session," *DEB*, 8 April 1857, 4.

25 "The True Theory Relative to the Shoaling of the Harbor," *DEB*, 5 March 1859, 2; "Who Was To Pay That 5 Per Cent," *DEB*, 24 July 1861, 2.

City of San Francisco and its Vicinity, 1853. The chart was based on hydrography led by James Alden, a lieutenant (USN) in command of USCS *Active*. (National Oceanic and Atmospheric Administration, Historical Map & Chart collection, CP278C)

that the Common Council turned down in 1856, so they sent a resolution to Sacramento beseeching legislators to oppose the bill. Additionally, 6,000 San Francisco residents signed a petition opposing the Parsons Plan. These petitions provide a sense of who constituted the opposition. According to the editors of the *Bulletin*, most of the petitioners were "merchants and working-men." By contrast, the monopolists were lawyers, bankers, a doctor, and two "wire-working speculators" – in other words, men with little experience with waterfront operations and certainly no expertise to oversee the construction of a massive seawall.[26]

The petition war reveals that neither side had experts to corroborate or deny the necessity of a bulkhead. By March 1859, this had changed. During the 1850s, military officials involved with works on the Pacific Coast sailed too close to San Francisco Bay and became embroiled in the bulkhead debate. Captains James Alden and J. Gilmer became household names after their testimonies before the Legislative Bulkhead Investigating Committee of 1859 and the Special Committee of the Bulkhead of 1860 circulated throughout Bay Area newspapers. These testimonies reveal how changing ideas in estuary science came to shape the nature of the bulkhead debate.

A revolution in marine and estuary sciences occurred in the mid-nineteenth century. While San Franciscans debated mud, eminent American scientist Matthew Fontaine Maury sought to understand how the world's oceans functioned. Tides, winds, depths, and currents, just to name a few, occupied his attention. Much the same thing was happening in British scientific circles. Likewise, estuary scientists developed distinct paradigms of their own. Their biggest innovation during these years was the "tidal scour" theory. Historian Michael Rawson has explained the importance of this idea to harbor managers in Boston. According to the theory, the scouring action of the tides maintained depths. The greater the volume of water, regardless of its velocity, the better the scour. Activities that reduced the volume of the scour, like landfilling, supposedly caused sedimentation. For the better part of a century, waterfront interests in Boston clashed with navigation interests over the relative merits of landfilling, until scientists determined that the scour theory was false in the early twentieth century, when better measurements revealed that harbor depths had never actually changed.[27]

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[26] "The Bulkhead in the Chamber of Commerce," *DEB*, 17 February 1859, 3; "Anti-Bulkhead Memorials," *DEB*, 26 February 1859, 2; "San Francisco Fees and Salaries," *DEB*, 28 February 1859, 2; "Character of the Bulkheaders – Plan Suggested to Construct the Bulkhead by State Convicts," *DEB*, 26 February 1859, 2.

[27] M.F. Maury, *The Physical Geography of the Sea* (New York, 1857); Frances Leigh Williams, *Matthew Fontaine Maury: Scientist of the Sea* (Rutgers University Press, 1963); Michael S.

These developments in estuary science slowly began to make their way from the east coast to the west during the 1850s and influenced the fight over the San Francisco waterfront. In the thirty-year period after the Gold Rush, government engineers gradually drew on the scour theory to explain sedimentation. Captain Alden testified before the Legislative Bulkhead Investigating Committee, arguing that the accumulation of mud resulted from the tides, not gravitation. In his expert opinion, mud collected in the harbor because piles, which the various wharves rested upon, were set too closely together – without a free channel, the harbor would continue to shoal regardless of whether the city constructed a bulkhead. This, as well as other parts of his testimony, suggests the scour theory had attained some currency in the Pacific Coast Survey. For instance, Alden explained that because "the bay is big enough and deep enough," it should naturally "carry away all deposits." The following year, in his testimony before the 1860 Special Committee of the Bulkhead, Alden revealed that he had participated in the Boston Harbor surveys of the 1830s, so he may have been the vector spreading the scour theory to San Francisco Bay. Years later, subsequent government engineers built on Alden's interpretation of sedimentation and drew explicitly on the scour theory to explain accumulating mud. When asked to explain the shoaling of the bay in 1880, Army Corps engineer G.H. Mendell blamed Bay Area residents for filling in tidelands all over the bay, which reduced the area available for a proper "tidal scour." Thanks to Captain Alden, the anti-bulkheaders had the most cutting-edge estuarine science on their side to counter the "oozing" theory. But more importantly, they had their first *bona fide* expert in the bulkhead debate. San Franciscans were elated. A newspaper report proudly asserted that "the bottom has been knocked out of the bulkhead."[28]

Unfortunately, this advantage proved short lived. The following week, members of the Legislative Bulkhead Investigating Committee grilled Captain J. Gilmer, a military engineer with the US Army Corps of Engineers who arrived in San Francisco in February 1859. The aggressive line of questioning cleverly forced the officer into admitting that the "oozing" theory was plausible. Gilmer was asked if the filling in of tidelands with dense sand *could*

Reidy, *Tides of History: Ocean Science and Her Majesty's Navy* (University of Chicago Press, 2008); Rawson, "What Lies Beneath," 679–82, 692.

[28] "The Bulkhead Investigation," *DEB*, 7 March 1859, 3; testimony of Captain James Alden, "Minority Report of the Special Committee of the Bulkhead," *Appendix to the Journals of the Senate of the Eleventh Session of the Legislature of the State of California* (Sacramento, 1860), 36; US Congress, House of Representatives, *Tidal Area of San Francisco Bay. Letter from the Secretary of War, Transmitting a Report Upon the Tidal Area of San Francisco Bay*, 46th Cong., 3d sess., 1881, Ex. Doc. No. 93, 1–12; "Bulkheaders in the Mud," *DEB*, 7 March 1859, 2.

displace mud below, so long as it was liquified – which he agreed was possible. Subsequently, Gilmer was asked if it was possible for a typical wharf to clog with 18 feet of sediment within a four-year period as it allegedly had along parts of the San Francisco waterfront. Gilmer had observed only one instance of such a rapid accumulation of mud elsewhere, which occurred under peculiar circumstances. San Francisco Bay, according to his casual observations, did not strike him as a particularly abnormal estuary; thus, Gilmer was cornered into testifying that "if no operation except that of filling and improving thereon was entered on during the same time, and the natural motion of the waters was not controlled or affected by anything else, I should be forced to the conclusion that the shoaling was caused by the upheaving of matter already deposited in consequence of these supposed operations." Gilmer tried at points to downplay his own testimony because he had not had the chance to observe the bay firsthand, arguing that, without a formal survey, other factors that might be influencing the rate of sedimentation would go undiagnosed. He tried so again the following year to add nuance when asked to testify to the Special Committee of the Bulkhead, but under the probing questioning of Parsons, he was once again cornered into testifying "that it is probable that it is partly due to the filling in" of the waterfront, at least in "abstract principle." In endeavoring to frame the effects of landfilling as hypothetical, he left open the possibility for "oozing" and unwittingly provided expertise in support of the bulkhead.[29]

As the bulkhead debate turned into a debacle of conflicting testimonies, the Legislative Bulkhead Investigating Committee appeared to have a tough choice. The outcome depended on lobbying as much as science. The anti-monopolists were not at all surprised when the investigating committee called for the immediate construction of the bulkhead; the former accused the committee of being in Parsons's pocket all along. Parsons's Bulkhead Bill moved on to an equally pro-Parsons senate but died amid outcry in the Legislative Assembly in April 1859.[30]

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[29] Testimony of Captain Gilmer before the 1859 Legislative Bulkhead Committee, printed in "Further Bulkhead Evidence," *DEB*, 14 March 1859; testimony of Captain Gilmer, "Minority Report of the Special Committee of the Bulkhead," 12–25. Although he is referred to as "J.L. Gilmer" in newspaper and government accounts of his testimony, the officer was likely Captain Jeremy Francis Gilmer, who supervised construction of defensive works at the entrance to San Francisco Bay; Max R. Williams, "Gilmer, Jeremy Francis," NCpedia, 1986, rev. July 2023, https://www.ncpedia.org/biography/gilmer-jeremy-francis.

[30] Opposition to the 1859 Bulkhead Bill crested in the pamphlet titled, *Tax-Payer's Review and Objections to the Parsons Bulkhead Bill (Senate Bill No. 40), by a Committee of Tax-Payers* (San Francisco, 1859); "The Investigating Committee's Report," *DEB*, 18 March 1859, 2; "Bulkheaders in the Mud," *DEB*, 7 March 1859, 2.

An Early Wharf, c. 1860, with Telegraph Hill in the background. C.L. Hill and C.A. Kofoid, eds., *Marine Borers and Their Relation to Marine Construction on the Pacific Coast: Being the Final Report of the San Francisco Bay Marine Piling Committee* (Published by the Committee, 1927), 17.

Sickened by the corruption that kept alive a bill with so little public support, bulkhead opponents sought to purge the capital of its more dishonest politicians before the next legislative session, when many suspected that the bill would be reintroduced. In the fall of 1859, anti-monopolists interrogated several prospective political candidates' positions. One editorialist warned that candidates might hide behind issues in the east, such as the "'Border Ruffians' in Kansas, or the 'abolitionists' in Massachusetts," and these eastern political concerns might sway the electorate even though they were not germane to California politics. Anti-monopolists had to keep the bulkhead issue at the center of the general elections for state and federal roles.[31]

This was not difficult. Over the preceding years the waterfront debate became not just a regional topic but a statewide concern. Californians who lived far from the waterfront in the mining and agricultural sectors began to view a monopoly as against their interests. According to a report in the Sonoma County *Journal*, residents feared that a monopoly might raise the price on commodities coming in and out of San Francisco. By 1860, the bulkhead debate had become one of the most important issues in California

31 "Who Shall Be Elected State Senator? – An Opportunity to Checkmate the Bulkheaders," *DEB*, 7 November 1859, 2.

politics. A headline from a November 1860 Democratic Party campaign ad, which reads "Anti-Bulkhead and Anti-Coolie," suggests that anti-monopoly sentiments were at least as strong as another defining aspect of nineteenth-century California politics: race.[32]

As everyone expected, the bulkheaders gave speeches, lobbied intensely, and once again found a senator willing to introduce the unpopular Bulkhead Bill in the 1860 legislative session. This time around, bulkhead supporters fought anti-monopoly petitioners with their own set of pamphlets and petitions. Senator Timothy Phelps, an anti-bulkhead legislator, found it quite peculiar that all the pro-bulkhead petitioners had remarkably similar handwriting. A reporter also picked up on this peculiarity and instructed the senate sarcastically to "inspect and admire the beautiful chirography of our bulkhead lovers." He continued: "let them see if in the mines, or in the cow counties, they could produce anything like it – the tops of the looped letters all presenting so uniform a height, the tail of the *g*'s and the *y*'s so exactly resembling each other." If this were not enough, the likes of George Washington, John Quincy Adams, Andrew Jackson, and James Buchanan had all "signed" the petition. Read aloud on the senate floor, the petition laid bare the extent of corruption at the capital. Yet news of the scandalous petition could not stop the bill from passing the senate, to which Phelps responded by openly accusing senators of taking bribes.[33]

The story of the Bulkhead Bill nearly ended in farce and tragedy after the assembly passed the bill amidst growing outrage and dubious scientific justifications. The bill landed on the governor's desk, putting the monopolists but one signature away from striking gold. Weeks earlier, Governor Milton Latham had come out against the bulkhead but famously resigned six days after taking his oath of office to fill an open US Senate seat. The resignation elevated wild card John Gately Downey to the governor's office. Unlike Latham, Downey was tightlipped on the issue. In his inaugural address, Downey stood

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[32] "Evils to the Farmers and Miners of a Bulkhead," *Sonoma County Journal* (Petaluma), 16 March 1860, reprinted in *DEB*, 16 March 1860, 3; "Anti-Bulkhead and Anti-Coolie," *DEB*, 3 November 1860, 1.

[33] Pro-bulkhead speeches are compiled in *The Bulkhead Question Completely Reviewed* (Sacramento, 1860). Anti-bulkhead lobbying takes the form of *The Great Monopoly. Objections to the Parsons' Bulkhead Bill; (Senate Bill No. 167.) By Those Who Will Suffer By It* (San Francisco, 1860); "Anti-Bulkhead Memorial," in *The Antidote for the Poison: Abstract of Speeches and Documents Against the Parsons Bulkhead Bill, Published by the Citizen's Anti-Bulkhead Committee of San Francisco, for General Circulation among the Masses of the People of California* (San Francisco, 1860), 62–65; "An 'Impending Crisis,'" *DEB*, 1 March 1860, 2; "To-day's Legislative Proceedings," *DEB*, 26 March 1860, 3; "Improved Chirography," *DEB*, 9 March 1860, 3; and "Corruption Openly Charged," *DEB*, 30 March 1860, 2.

firmly against the use of the gubernatorial veto, except for urgent reasons. To the relief of anti-monopolists, the seawall counted as an exception.[34]

San Francisco went wild after news of the veto spread. Within half an hour of the first telegraph report, which came at noon, "bands of music paraded the streets, playing cheerful airs" and a "crowd rushed up to the plaza … to hurrah for Downey." By three o'clock a 148-gun salute was fired: 101 for the governor and 47 for the legislators who voted against the bill in the Assembly. Over the next two weeks, the excitement hardly dissipated. When Downey visited the city on 1 May, San Franciscans outdid their previous gun salute. The *Bulletin* described the preparations for the elaborate gubernatorial welcoming: "[the governor's] steamer will be provided with a liberal supply of rockets to signalize her approach to San Francisco. At the sight of them, tar-barrels will be burned on Telegraph, Russian, and Rincon Hills, to notify the military and call out the salute of *cannons*. At the same time *rockets* will be set off from the wharf." Celebration was not limited to San Francisco. The people of Stockton gave their own salute of 58 guns: "one for each Senator and Assemblyman who voted against the bill, and eleven for the Governor."[35]

Over the next three years the bulkheaders made several feeble efforts to acquire the waterfront but never got further than introducing the bill. The biggest setback for bulkheaders came after the Chamber of Commerce sent a memorial to President Buchanan urging him to authorize a survey of the harbor by federal engineers to determine a bulkhead's necessity. Captain Alden supported the chamber's resolution and personally traveled to Washington, DC to lobby for an impartially conducted federal survey. The president assented to the harbor survey in early 1861. The door on the Parsons Plan was finally shut in 1863, when California legislators passed a bill ceding waterfront decision-making to the newly created California Board of State Harbor Commissioners, bringing an end to a decade-long drama for control of the waterfront.[36]

The fight for San Francisco's waterfront was a significant episode in California's history; that it has been ignored by historians for so long is quite surprising. But the struggle for control over the waterfront transcends its regional significance and sheds light on the relationship between land and

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[34] Latham's inaugural address and Downey's veto in *Journal of the Senate of the State of California at the Eleventh Session of the Legislature* (Sacramento, 1860), 108–10, 668–72.

[35] "Cheers for Governor Downey," *DEB*, 17 April 1860, 3; "Honor to Gov. Downey and the Veto," *DEB*, 27, April 1860, 3. Emphasis added; "Rejoicings at Stockton on the Bulkhead Veto," *DEB*, 19 April 1860, 2.

[36] "For the Supervisors and Chamber of Commerce," *DEB*, 23 January 1861, 2; "Letter from Washington," *DEB*, 13 February 1861, 2; "The First Year's Workings of the New Wharf System," *DEB*, 12 November 1864, 2.

sea in the nineteenth century. The underwater landscape of the bay factored enormously in the waterfront fight. Sedimentation did not start the dispute but certainly intensified the conflict. Science was also central to the bulkhead debate, perhaps more so than the mud that settled on the harbor floor. Those who could wield science most effectively held the upper hand. This was no easy task given that estuarine science was changing while the San Francisco waterfront debate was taking place. The bulkhead debate shows that the histories of coastal cities do not stop at the shoreline. Treating cities and seas discretely is like drawing arbitrary lines in the sand … or mud.

Derek Lee Nelson is an environmental historian interested in coastal landscapes and maritime ecology. He completed his dissertation at the University of New Hampshire, where he explored the histories of coastal infrastructure, invasive aquatic species, and cultural attitudes about the sea. He currently lives, researches, and teaches in the Pacific Northwest. This article won the Clark G. Reynolds Student Paper Award in 2014.