

HMS CHALLENGER, NOVA SCOTIA, AND THE MARITIME WORLD

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The year 2023 marked one-hundred and fifty years since HMS *Challenger*'s visit to Nova Scotia during its landmark four-year circumnavigation and study of the deep ocean. The expedition's anniversary has been marked with commemorations, conferences and assessments of its work and legacies.¹ The passage of time offers new contexts in which to examine the expedition's experiences in Nova Scotia as well and, less obviously, how the province, its geography and history, helped prepare the British state to conduct scientific research on a global scale.

Challenger's first view of Nova Scotia on May 9th, 1873, was a strangely distorted one. Coming in off the deep ocean, Fata Morgana mirages warped and etherealized the coastal landscape. Granite barrens rose free of the water, resting suspended in air above themselves. Rocks and islands stretched vertically into tall, narrow towers. Ships' tracks across the sky inverted those in the sea below.²

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¹ In November 2023 Royal Museums Greenwich, in association with the *Challenger* Society for Marine Science, University College London, and the British Society for the History of Science, held its *Beyond the Ocean's Depths: Revisiting the Challenger Expedition (1872-1876) Interdisciplinary Conference*: <https://www.rmg.co.uk/whats-on/national-maritime-museum/beyond-oceans-depths-revisiting-challenger-expedition-1872-1876>; in 2022 London's Natural History Museum hosted the *Challenger 150* conference: https://www.challenger-society.org.uk/Challenger_conference_2022. Recent studies of the expedition include Erika Jones, *The Challenger Expedition: Exploring the Ocean's Depths* (London: Royal Museums Greenwich, 2022) and Doug Macdougall, *Endless Novelties of Extraordinary Interest: The Voyage of H.M.S. Challenger and the Birth of Modern Oceanography* (New Haven: Yale UP, 2019); reviewed by Eric Mills in *PNSIS* 53:1 (2023), 147-150.

² Several of *Challenger*'s staff and crew recalled strange optical effects in the Halifax approaches; most vividly, expedition artist J.J. Wild. See John James Wild, *At Anchor: A Narrative of Experiences Afloat and Ashore during the Voyage of H.M.S. Challenger from 1872 to 1876* (London: Marcus Ward, 1878), 28-30. One of *Challenger*'s officers, Herbert Swire, was particularly attentive to the ways in which Halifax formed a link in growing maritime technological networks: Herbert Swire, *The Voyage of the*

Passing Prospect, south of Halifax, one officer noted where the overturned hull of the White Star liner SS *Atlantic* lay wedged in granite, victims of its wreck a month earlier entombed within. They passed a cable ship, servicing new telegraph cables carrying coded information deep underwater offshore. *Challenger*'s crew acknowledged the salutes of shore batteries, whose overlapping arcs of fire made contemporary Halifax a formidable redoubt of British power. Finally, the ship came alongside at the Naval Yard on the harbour Narrows, close by the Mi'kmaw village of Turtle Grove on the opposite shore.³

Arriving in Nova Scotia expedition artist John James Wild noted "We were now in a land of granite and pine forests."⁴ As a naval station Halifax was familiar to many of *Challenger*'s crew. The civilian staff, however, were struck by contrasts between cozy (or dingy) provincial town and the barren or wooded landscapes surrounding it. The ship's cabins were soon perfumed with mayflowers (*Epi-gaea repens*) picked by welcoming townspeople. Officers dined with British regiments stationed at Wellington Barracks, north of the Naval Yard. *Challenger*'s naturalists presented specimens dredged from the deep ocean to Dr. David Honeyman of the Provincial Museum.

Footnote 2 cont'd

Challenger: A Personal Narrative of the Historic Circumnavigation of the Globe in the Years 1872-1876 (London: Golden Cockerell Press, 1938), 39-44.

³ While Mi'kmaw people remained very much present and visible in the Nova Scotian population in 1873, the preceding century saw rights protected by the 18th-century Peace and Friendship Treaties fall into abeyance. With the transfer of responsibility for relations with Indigenous nations to the Canadian federal government after Confederation, Mi'kmaw people became subject to the Indian Act (1876) and other prescriptive legislation, further constraining their rights and activities. In 1872, the Naval Yard's Imperial landscape and the adjacent Indigenous landscape at Turtle Grove were further linked to the continental interior, as the Intercolonial Railway (later part of the Canadian National system) established its eastern terminus at Richmond, on the Halifax Harbour Narrows. For an overview of Halifax's integration into maritime and continental networks of exchange, and for the spatial dispossession of Mi'kmaw communities in the region, see Judith Fingard, Janet Guildford and David Sutherland, *Halifax: The First 100 Years* (Halifax: Formac, 1999). See also Jacob Remes, "Mi'kmaq in the Halifax Explosion of 1917: Leadership, Transience, and the Struggle for Land Rights," *Ethnohistory* 61:3 (2014), 445-466; James D. Frost, "Halifax: The Wharf of the Dominion, 1867-1914," *Journal of the Royal Nova Scotia Historical Society* 8 (2005), 35-48; Jennifer Burke, "Turtle Grove: Dartmouth's Lost Mi'kmaq Community," in Alan Ruffman and Colin Howell eds., *Ground Zero: A Reassessment of the 1917 Explosion in Halifax Harbour* (Halifax: Gorsebrook Institute/Nimbus, 1994), 45-53.

⁴ John James Wild, *At Anchor: A Narrative of Experiences Afloat and Ashore during the Voyage of H.M.S. Challenger from 1872 to 1876* (London: Marcus Ward, 1878), 28.



Fig 1 HMS *Challenger* at St. Thomas, West Indies, March 1873. See Eileen V. Brunton, *The Challenger Expedition, 1872-1876: A Visual Index* (London: Natural History Museum, 1994), no. 90. Nova Scotia Museum, Marine History Collection, MP28.70.6 [cropped].

Shore excursions included pilgrimages to Prince's Lodge, the ruined estate of Edward, Duke of Kent, who was Queen Victoria's father and former Commander-in-Chief of British Forces in North America. Behind an unpromising façade Halifax hosted a lively social and intellectual life.⁵

The *Challenger* Expedition (Figs 1-3) emblemizes how a complex of marine technologies related to steamships, submarine cables, hydrographic surveying helped to extend British empire globally during the nineteenth century.⁶ Nova Scotia and Mi'kma'ki were pressed early into this empire: there were few places as robustly connected overseas, physically and culturally, as were Great Britain and Nova Scotia in 1873.

⁵ *Challenger* staff and crew's reflections on Halifax were shared in several published voyage accounts; these, alongside Haligonians' experiences of *Challenger*'s visit, are examined in Eric Mills, "H.M.S. *Challenger*, Halifax, and the Reverend Dr. Honeyman," *Dalhousie Review* 53:3 (1973), 529-545; Derek S. Davis, *Notes on a Collection of Specimens Made by the Challenger Expedition 1873* (Halifax: Nova Scotia Museum, 1973); Eric Mills ed., *One Hundred Years of Oceanography: Essays Commemorating the Visit of H.M.S. Challenger to Halifax, May 9-19, 1873* (Halifax: Dalhousie University/Nova Scotia Museum, 1975). The *Challenger* specimens are now in the collection of the Nova Scotia Museum, Halifax. For Prince's Lodge as a site of British imperial pilgrimage, see Sharon Ingalls and Wayne Ingalls, *Sweet Suburb: A History of Prince's Lodge, Birch Cove and Rockingham* (Tantallon, NS: Glen Margaret, 2010), chapter 9, "Prince's Lodge: Romantic Grounds".

⁶ These themes and connections are examined in detail in Erika Jones, *The Challenger Expedition: Exploring the Ocean's Depths* (London: Royal Museums Greenwich, 2022).

Challenger rested alongside in a Naval Yard that was commissioned in 1759, ten years after British military forces and settlers occupied a large tract on the shore of K'jipuktuk, in Mi'kma'ki, and established the town of Halifax. The town became a node in maritime networks—military, social, commercial, scientific—linking Europe, Africa, the Caribbean, the Americas, and ultimately the entire world, into closer relationships. Established and developed as a forward base for the projection of military power around the North Atlantic (Fig 4), Halifax has since maintained the social and physical infrastructure necessary to direct force across oceans in times of war. The harbour was important in the Seven Years War and essential during the American Revolution, as it was again during the twentieth century.⁷

Among those drawn to Halifax by these maritime networks were individuals who prepared the way for the *Challenger* expedition by yoking science and engineering to the service of Britain's overseas expansion. In Halifax during the winter of 1758/1759, for example, army engineer Samuel Holland taught sailing master James Cook techniques of trigonometrical survey, skills that Cook employed on his world-altering circumnavigations. The Nova Scotia-based cartographer J.F.W. Des Barres' 1777 *Atlantic Neptune* marine atlas drew on the surveys of Holland and others to create the most comprehensive representation of Western Atlantic to that date, including lines of soundings run to the edge of the continental shelf.⁸

⁷ To appreciate the shifts of British imperial and Mi'kmaw power in 18th- and 19th-century Mi'kma'ki/Nova Scotia see John Reid, "Empire, the Maritime Colonies, and the Supplanting of Mi'kma'ki/Wulstukwik, 1780-1820," *Acadiensis* 38:2 (2009), 78-97; John Reid and Emerson Baker, "Amerindian Power in the Early Modern Northeast: A Reappraisal," *William and Mary Quarterly* 3rd series, 61 (2004), 77-106. See also Jeffers Lennox, *Homelands and Empires: Indigenous Spaces, Imperial Fictions, and Competition for Territory in Northeastern North America, 1690-1763* (Toronto: University of Toronto Press, 2017), and Thomas Peace, *The Slow Rush of Colonization: Spaces of Power in the Maritime Peninsula, 1680-1790* (Vancouver: UBC Press, 2023). For an understanding of the navy and settler Halifax's role in this, see Julian Gwyn, *Ashore and Afloat: The British Navy and the Halifax Naval Yard before 1820* (Ottawa: University of Ottawa Press, 2004), and *Frigates and Foremasts: The North American Squadron in Nova Scotian Waters, 1745-1815* (Vancouver: UBC Press, 2003). Nova Scotia's position in 18th- and 19th-century networks of maritime military, economic and cultural exchange is the subject of a growing literature; see Jerry Bannister, "Atlantic Canada in an Atlantic World? Northeastern North America in the Long 18th Century," *Acadiensis* 43:2 (2014), 3-30.

⁸ The progress and significance of post-Seven Years' War surveys in Nova Scotia is analysed by Stephen J. Hornsby in *Surveyors of Empire: Samuel Holland, J.F.W. Des Barres, and the Making of the Atlantic Neptune* (Montreal: McGill-Queens UP, 2011).



Fig 2 Officers and civilian staff, HMS *Challenger*. At centre holding sennit hat is Captain George Nares; to Nares' right in white is the expedition's chief scientist, Charles Wyville Thomson. Also present are Rupert von Willemoes-Suhm, Herbert Swire, and John James Wild. See Eileen V. Brunton, *The Challenger Expedition, 1872-1876: A Visual Index* (London: Natural History Museum, 1994), no. 419. Nova Scotia Museum, Marine History Collection, MP28.70.19



Fig 3 HMS *Challenger*'s band. See Eileen V. Brunton, *The Challenger Expedition, 1872-1876: A Visual Index* (London: Natural History Museum, 1994), no. 421. Nova Scotia Museum, Marine History Collection, MP28.70.24

The British navy's embrace of science and engineering was formalized with the founding of the United Kingdom Hydrographic Office (UKHO) in 1795⁹. Over the next century, the UKHO's chart coverage grew in tandem with Britain's commercial and strategic interests.

⁹ Recent analyses of the United Kingdom Hydrographic Office and its support for 19th-century science include Michael S. Reidy and Helen M. Rozwadowski, "The Spaces In Between: Science, Ocean, Empire," *Isis* 105:2 (2014), 338-352; Adrian Webb, "The Expansion of the British Hydrographic Administration, 1808-1829,"

Royal Navy hydrographic officers were in the vanguard of contemporary colonial expansion, and many were closely connected to Nova Scotia. Halifax-born Edward Belcher, for example, was dispatched in 1841 to survey Hong Kong harbour during the first Anglo-Chinese War; a decade later he oversaw the search for Sir John Franklin's lost expedition. One of Belcher's officers in the north was *Challenger's* captain, George Nares.¹⁰

During the 19th century the United Kingdom Hydrographic Office became the most extensive scientific agency in the world, supporting research in hydrography and meteorology, tidal phenomena, geology, zoology and other disciplines. Under the direction of Edward Parry (who was well-connected in Nova Scotia) and Francis Beaufort, the UKHO developed wide-ranging natural-history competencies and relationships. One result was the Admiralty's 1849 *Manual of Scientific Enquiry*, with articles on tides by William Whewell, meteorology by John Herschel, botany by William Hooker, and geology by Charles Darwin.¹¹ This longstanding institutional commitment to inventory science—made mobile by the navy—was an important prerequisite to the *Challenger* voyage.

The geography and settlement history that vouchsafed Nova Scotia's role in transatlantic military activity likewise encouraged integration into growing commercial and scientific networks of the nineteenth-century maritime world. Samuel Cunard's interventions

Footnote 9 cont'd

(PhD thesis, University of Exeter, 2010); Helen M. Rozwadowski, *Fathoming the Ocean: The Discovery and Exploration of the Deep Sea* (Cambridge, MA: Harvard UP, 2008), 39-65; Randolph Cock, "Sir Francis Beaufort and the Co-ordination of British Scientific Activity, 1829-55," (Ph.D. thesis, University of Cambridge, 2003). See also Archibald Day, *The Admiralty Hydrographic Service 1795-1919* (London: HMSO, 1967).

¹⁰ Nares was Second Mate in HMS *Resolute* during Belcher's Franklin search expedition, 1852-1854. Trapped in ice, Belcher ordered that *Resolute* be abandoned. The crewless ship broke free and was recovered by American whalers; the United States government returned the ship to Great Britain. The White House 'Resolute Desk', carved from the ship's wood, commemorates this diplomatic exchange. See Trevor H. Levere, "Science in the Canadian Arctic, 1818-1876, from Sir John Ross to Sir George Strong Nares," *Arctic* 41:2 (1988), 127-137.

¹¹ Edited by John Herschel, the *Manual* prepared naval officers and others overseas to undertake systematic observations in a range of natural history disciplines; it remained in print for more than 50 years. The 1871 edition gives a good introduction to some of the many relations between the British navy and inventory science on the eve of the Challenger expedition. *A Manual of Scientific Enquiry: Prepared for Use by Officers in Her Majesty's Navy and Travellers in General* (London: HMSO, 1871).



Fig 4 Late-19th-century excursionists at Prince's Lodge, Halifax, with warships of the North America and West Indies Station at anchor in Bedford Basin. Nova Scotia Archives Photographic Collection. archives.novascotia.ca/photocollection/archives/?ID=7900

in transatlantic steamship operations joined locational advantage with entrepreneurial initiative resulting in wide-ranging consequences.¹² In 1841, just the second year of scheduled steamship service across the Atlantic, Cunard's *Acadia* brought geologist Charles Lyell to Halifax and to North America. On a short stopover he visited the Mechanics Institute, where he was shown "a large fossil tree filled with sandstone from strata containing coal in the interior". Lyell's growing interest in Nova Scotia in the Carboniferous Period contributed fundamentally to earth sciences in Canada, and to understanding of life in the late Paleozoic.¹³

Citizens of 19th-century Halifax were experts on the rituals of imperial power and turned out on May 19th, 1873, to cheer *Challenger* as the vessel resumed its circumnavigation (Fig 5). The band of HMS *Royal Alfred*, flagship of the North America and West Indies Station, played *Auld Lang Syne* as onlookers gathered along the harbourside.¹⁴

¹² Cunard envisioned transatlantic passenger service supported in part by subsidies for carrying the Royal Mail. Accomplishing this he was assisted by former Hydrographer of the Navy Edward Parry, whom he had known during the latter's service in Halifax; see John G. Langley, *Steam Lion: A Biography of Samuel Cunard* (Halifax: Nimbus, 2006), 85.

¹³ Charles Lyell, *Travels in North America: With Geological Observations on the United States, Canada, and Nova Scotia* Volume 1 (London: John Murray, 1845), 3.

¹⁴ Herbert Swire recorded this lively scene: as *Prince Alfred's* band played and *Challenger's* seamen aloft prepared to loosen sails, expedition scientist Rupert von Willemoes-Suhm sent a servant ashore to fetch a pair of boots, interrupting the staged departure. *Challenger* was unceremoniously fixed to a mooring buoy off the Naval Yard while boots and servant were retrieved: Herbert Swire, *The Voyage of the Challenger: A Personal Narrative of the Historic Circumnavigation of the Globe in the Years 1872-*



Fig 5 Benjamin Shephard, HMS *Challenger* (right) leaving the Naval Yard. HMS *Royal Alfred* fires a parting salute as seamen prepare to loosen *Challenger's* sails. Minutes later the expedition was halted briefly, as a scientific staff member sent ashore to fetch his boots from a Halifax cobbler. See Benjamin Shephard, *Challenger Sketchbook: B. Shephard's Sketchbook of the H.M.S. Challenger Expedition 1872-1874* (Philadelphia: Philadelphia Maritime Museum, 1972). Nova Scotia Museum, Marine History Collection, MP28.70.1

In the century-and-a-half since, the Halifax Harbour Narrows have changed beyond recognition. Still, today the Narrows is bounded on the south by the Canadian navy's Dockyard and on the north by the Bedford Institute of Oceanography; in between are a submarine-cable base, a shipyard building naval Arctic patrol vessels, and ancestral lands reclaimed by Millbrook First Nation in 2014. Rail and road networks skirt the maritime world here, linking ocean to continental interior. These persistent webs of scientific enquiry, military endeavour, of cultural and technological exchange—emblemized by *Challenger's* visit—remain fundamental to life and opportunity in Mi'kma'ki and in Nova Scotia today.

HMS *Challenger* remained in Halifax for ten days in 1873, from 9 to 19 May. During that time the expedition's crew explored Nova Scotia, while Nova Scotians interested in science visited the ship and saw the wonders its naturalists had hauled up from the ocean floor. A lively account of the expedition's visit, with detailed descriptions of the ship and its discoveries, was published soon after in the *Transactions of the Nova Scotian Institute of Science*.¹⁵ Through its 1872-1876

Footnote 14 cont'd

1876 (London: Golden Cockerell Press, 1938), 43. A promising young invertebrate zoologist, Willemoes-Suhm did not survive the expedition, dying at sea of erysipelas in September 1875.

circumnavigation, *Challenger* systematized investigation of the deep ocean, preparing the way for the modern discipline of oceanography. It shared novel marine specimens with scientific institutions worldwide, spurring research. Nova Scotia's continuing engagement with the deep ocean—via the navy, the Bedford Institute of Oceanography, the Nova Scotia Museum, the province's universities—follows in the wake of *Challenger*'s legacies.

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¹⁵ W. Gossip, "The Challenger Scientific Expedition Visit to Halifax," *Transactions of the Nova Scotian Institute of Science* 3 (1873), 335-337.

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