

CAPTAIN COOK
REDISCOVERED

Voyaging to the Icy Latitudes

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Contents

List of Illustrations / ix

Acknowledgments / xi

Introduction / 5

Part 1: Prequels

1 The North Sea and Canada / 15

2 The Republic of Letters / 36

3 The South Pacific / 56

Part 2: A Frozen World

4 Toward the South Pole / 75

5 The Limit of Ambition / 99

6 Temporizing in the Tropics / 114

7 Cook and Forster, on Ice / 127

Part 3: A Third Voyage

8 An Ancient Quest, a New Mission / 163

9 Southern Staging Grounds / 191

10 Terra Borealis / 214

11 Blink / 242

12 Northern Interlude / 271

13 Intimations of Mortality / 298

Part 4: Sequels

14 Springtime in Kamchatka / 325

15 Diminishing Returns / 340

16 Seeding the Fur Trade on the Voyage Home / 358

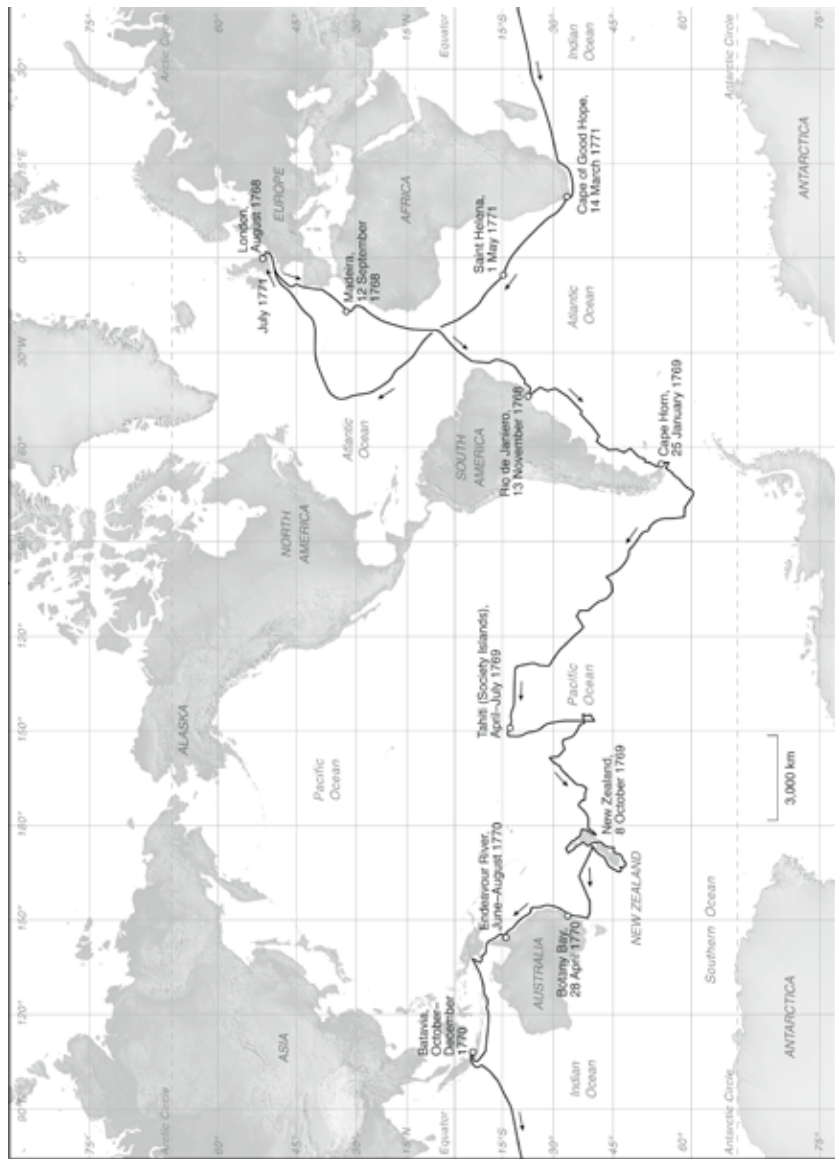
Conclusion / 372

Notes / 390

Bibliography / 412

Photo Credits / 417

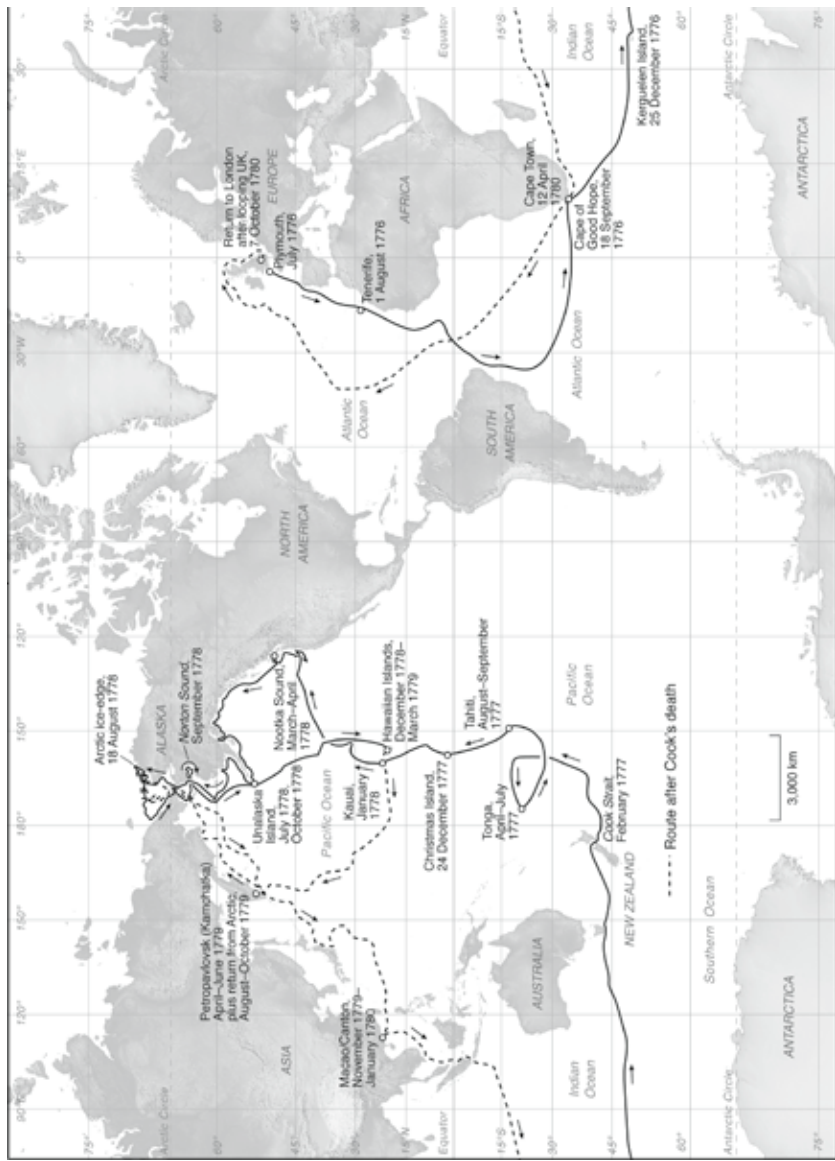
Index / 419



Cook's First Voyage, *Endeavour*, 1768–71. Map by Eric Leinberger



Cook's Second Voyage, *Resolution*, 1772-75. Map by Eric Leinberger



Cook's Third Voyage, *Resolution*, 1776-80. Route of exploration and return journey to England after Captain Cook's Death. Map by Eric Leimberger

Introduction

On January 30, 1774, in the mid-summer sun, James Cook's *Resolution* stretched southward at an unprecedented rate. Cook was on his second voyage, a quest for Terra Australis Incognita, the hypothetical southern continent that mirrored the Eurasian land mass. Cook had just crossed the Antarctic Circle (66° 33' S) for the third time, once in the Indian Ocean and earlier that same season in the Pacific. In the previous instances, after crossing the line, he had encountered the ice pack, which prevented him from sailing farther south. Before *Resolution* had taken to sea, Joseph Banks, a nobleman-naturalist and the most celebrated figure from Cook's first voyage, had joked about the prospect of cruising directly to the South Pole. In a fit of egotism, Banks talked himself out of accompanying Cook on the second voyage. But to all aboard *Resolution* in that day's long light and remarkably mild weather, heretofore unprecedented at that or any near latitude, it seemed Banks's quip was about to be realized.

Nature was only teasing, of course, because Cook soon detected the blink, the sun's reflection off the impenetrable ice pack guarding Antarctica's shore. Cook reached 71° 10' S, nearly four degrees of latitude closer to the pole than his previous high mark. At this juncture, southwest of Cape Horn, Cook inscribed in his journal the most famous line of text that he or any other explorer has ever committed to writing: "I whose ambition leads me not only farther than any other man has been before me, but as far as I think it possible for man to go, was not sorry at meeting with this interruption, as it in some measure relieved us from the dangers and hardships, inseparable with the Navigation of the Southern Polar regions."¹

Cook turned north at that point to winter in the tropics before resuming his search for Terra Australis in the South Atlantic the next year. But this passage was later immortalized. In the space age of the 1960s, Gene Roddenberry adapted it into the epigram for his *Star Trek* series. Stylistically, the passage also prefigured Neil Armstrong's famous "great

leap for man” exclamation, made when he first set foot on the moon, two hundred years to the month after Cook left Tahiti, his defining destination for the *Endeavour* voyage, in 1769. More recently, Tony Horwitz adapted Cook’s text for the subtitle of his popular book *Blue Latitudes: Boldly Going Where Captain Cook Has Gone Before* (2002).²

It is ironic that the forceful imagery and narrative expressiveness that Cook employed on reaching the farthest south became the emblematic expression for his career. It is virtually the only aspect of his voyages into the icy latitudes that students of his career are intimately familiar with. The only incident that comes close came during Cook’s third voyage in search of a Northwest Passage across the top of North America. In the summer of 1778, north of the Alaskan subcontinent that he would be the first to delineate cartographically, Cook and his men on *Resolution* saw another blink, presaging that the Arctic ice pack would stymie their progress to the northeast and Baffin Bay. This time, Cook turned west, hoping to flank the ice. He then sent some of the crew out in the ship’s small boats to hunt walrus to supplement the provisions stored on board. There was some grumbling about this unappetizing meat recorded in the journals of a few midshipmen. Historians later conflated these remarks into a larger narrative that Cook had, by this point, lost his touch as a commander, a mere six months before he would be killed in Hawaii. Yet this same community of historians has long recounted a similar story from the *Endeavour* voyage to favourably illustrate how Cook implemented dietary controls in his legendary battle against scurvy. During that voyage, the crew rebelled over having to eat sauerkraut until Cook cagily directed that the officers be seen eating it. Cook recorded: “Altho it be ever so much for their good yet it will not go down with them and you will hear nothing but murmurings gainest the man that first invented it; but the Moment they see their Superiors set a Value upon it, it becomes the finest stuff in the World and the inventer an honest fellow.”³

These vignettes underscore the two major revisions to the Cook story presented in this book. First, Horwitz’s travelogue falls comfortably within what I call the palm-tree paradigm. Notwithstanding that Horwitz subtitled his book after Cook’s legendary statement from the edge of the Antarctic ice pack, he focuses on the sun-drenched beaches of Hawaii, Tahiti, and other South Pacific islands – where Cook’s famous cross-cultural encounters occurred. But Horwitz largely ignores Cook’s travels to those parts of the world that are of ever-increasing significance in the twenty-first century: the icy latitudes of the Indian, Pacific, Atlantic, and Arctic oceans.

Horwitz dismissed reading about Cook's Antarctic probes as "the literary equivalent of chewing on ice cubes."⁴

Most historians, indeed Cook's contemporaries, seized on enchanting island venues as the essential setting for understanding his expeditions. The icy latitudes and their cold temperatures never generated comparable interest in the literature, in the eighteenth century or since. Simon Winchester argues that palm trees became "central to Pacific imagery" because they provide "a picture-perfect and theatrically green backdrop for every beach scene."⁵ That the polar zones are lightly inhabited and infrequently visited should not make them less relevant to the study of Cook. Given the current global climate crisis, the opposite could be true.

The anthropological perspective that dominates Cook discourse comes at the cost of understanding the full geographic scope of his endeavours, including their new climatological relevance.⁶ In most books about Cook, the story is largely confined to the following formula: no encounter, no voyage. But taken as environmental history, Cook's experience in frigid seas can be considered a compelling indicator of the pace of global warming. This perspective is particularly true of his final voyage in search of the Northwest Passage. If Cook had sailed through the Bering Strait in the conditions of August 2020 instead of August 1778, he might have passed eastward through the northern Canadian archipelago, emerged at Baffin Bay, and headed home to England. In that sense, Cook did not fail to discover the Northwest Passage: he was merely ahead of his time.

The Cook we think we know, the tropical Cook, is a narrative construct – he is largely the product of other writers, including the editors of his accounts. The modern literature analyzing his career, though voluminous, is remarkably orthodox. The double standard evident in the walrus meat and sauerkraut stories highlights the most constant assertion in contemporary Cook historiography and the second revisionist theme of this book: that Cook never should have conducted his fatal third voyage because he was exhausted after piloting the first two and fatally overextended himself by overseeing another. The most salient sub-elements of this view are 1) that Cook had become complacent, perhaps careless or cruel, in his relations with Indigenous peoples; 2) that he lacked his customary professional detachment, resulting in a more fractious relationship with his crew; and 3) that he was not as geographically curious on this voyage as he had been during his first two expeditions. It is routinely observed that these presumptive failings prefigure his inevitable demise at Kealakekua Bay in February 1779.

The interpretive homogeneity applied to Cook's third expedition is a function of the oversized influence of John Cawte Beaglehole, editor of *The Journals of Captain James Cook*. Few historians have had such sway over a subject. His summative biography of Cook, which grew out of his editorial work, created such an indelible image that it has become difficult to see Cook outside of Beaglehole's lens. Historians Robin Fisher and Hugh Johnston asserted a generation ago that Beaglehole "dominated the field of Cook studies in a way that no individual now can or, perhaps, ought to do." In the introduction to their 1979 edited volume, *Captain James Cook and His Times*, they maintained that the best scholarship emanated from the South Pacific and that no figure exemplified "antipodean domination" more than Beaglehole, a native New Zealander. Fisher and Johnston's goal was to bring geographic balance to the interpretation of Cook's career. One of the contributors to the volume, Michael Hoare, confidently claimed that "the pendulum of Cook scholarship is moving back to Europe, to the north Pacific, its islands and coasts."⁷

Yet this shift never happened. What Fisher and Johnston could not have anticipated was the academic dust-up between Marshall Sahlins, Gananath Obeyesekere, and scholarly book reviewers that raged in the 1990s. The Cook-Lono debate – on whether Hawaiians treated Cook as a deity and how related circumstances precipitated his death – solidly reinforced Cook studies within the palm-tree paradigm. Although this literary intensity has ebbed in the quarter century since, one consequence endures: Cook's story in the icy latitudes is still relatively unknown.

Cook's fastidiousness as a navigator is oft remarked on, but one facet of his style has been overlooked – his fidelity to mission. His strict adherence to the strategic purpose of the third voyage is a probative example. Historians of the Pacific Northwest commonly disparage Cook's competence by noting that he missed the outfall of the Columbia River and the Straits of Juan de Fuca when he sailed up the Pacific Coast in 1778. But, as stipulated by Admiralty instructions, he was not to look for the Northwest Passage until he reached "the Latitude of 65°, or farther, if you are not obstructed by Lands or Ice." This specification had been informed by Samuel Hearne's terrestrial exploration northwest of Hudson Bay earlier that decade. Cook was cautioned "not to lose any time in exploring Rivers or Inlets" until he got to 65° N. Only then was he to search for those openings "as may appear to be of a considerable extent and pointing towards Hudsons or Baffins Bay."⁸

Cook scrupulously adhered to this guidance. But because he was occasionally out of sight of land, he never recorded those mid-latitude

apertures, exposing himself to second-guessing by maritime fur traders who followed his track more minutely. Historians conventionally posit George Vancouver's expedition as a corrective to Cook's supposed inadequacies, but Vancouver's and Cook's missions differed. Vancouver was looking for a different version of the Northwest Passage – the one pelt merchants and hypothetical geographers had conjured in Cook's wake. Ironically, Cook's faithful adherence to the specifications of his third voyage – including avoidance of attractive nuisances such as rivers and inlets – caused his thoroughness to be called into question.

Stories of Cook's supposed nonfeasance along the Northwest Coast are a regional extension of Beaglehole's notion that the Cook of his first and second voyages would not have let slip the opportunities for exploration that the third afforded. Before reaching North America, Cook passed on chances to survey dozens of South Pacific islands. Many were mere reefs and sandy islets, but Beaglehole was shocked that even when it came to Samoa and Fiji, the great Cook was "content to enquire into them no further." Seeming to take Cook's alleged indifference to the southwest Pacific as a regional slight, Beaglehole then put forward his defining proposition: "Can there be any doubt that Cook on his second voyage, if he had heard of their existence ... would have been after them, fastened them down securely on his Pacific chart, even at the cost of minor disorganization to his time plan?" Beaglehole followed this suggestion with the most influential question ever asked about Cook's career and certainly about his execution of the third voyage: "Is it possible that, just as unsuspected strain on his mind was beginning to affect his attitude to the human situation, so, in relation to unexpected geographic possibilities, he was beginning to experience a certain tiredness?"⁹

In *Cook: The Extraordinary Voyages of Captain Cook*, Nicholas Thomas highlights that this single rhetorical question led to the conventional view that Cook should have quit after his first two expeditions. From its careful, tentative birth in Beaglehole's introduction to the journals of the third voyage, the notion that Cook was experiencing fatigue became the fundamental premise for understanding his last expedition. The idea was especially favoured and expanded on, Thomas argues, by postcolonial authors whose allegiance lay with the aggrieved Indigenous peoples whom Cook visited. In these historians' hands, Beaglehole's merely fatigued Cook becomes a violent and irrational man whose compromised judgment led to his death.¹⁰

Beaglehole contended that the third voyage differed from the others in the obvious sense of geographic scope but more critically, if elusively,

in feeling. Like most hypotheses, Beaglehole said his could be controverted, but no one has tried. Books published this century still habitually posit the axiomatic James Cook – that is, the diminished-third-voyage-explorer trope stipulating that his “behaviour had shifted significantly” or that he was acting “out of character.” Usually, such assertions have a teleological purpose; one author noted that Cook “had become a tired and sick man, and his condition may have contributed to his death.”¹¹

Most authors treating Cook’s career follow the narrative convention of disentangling his life in chronological order. This book is sequential, too, but it deviates from the norm in not privileging Cook’s first voyage (briefly treated in Part 1) or, more generally, the time he spent in the tropics during all three voyages. In these pages, the emphasis is on his second and third voyages, particularly in the icy latitudes. Though he has been cemented in the popular and scholarly imaginations within the tropics, Cook was a polar explorer of the first rank. Even less appreciated is that he was a pioneering ice scientist. In the Arctic, that honour is sometimes bestowed on William Scoresby – a whaler who studied the natural history of the region, including sea-ice formation – based on a paper he delivered at a scientific meeting in Scotland in 1815. Others credit the better-known Fridjof Nansen, whose ice-embedded voyage in the *Fram* (1893–96) gained worldwide attention. James Eights, the naturalist aboard Nathaniel Palmer’s 1829 sealing and exploratory voyage is often acclaimed as the first Antarctic scientist. Turning the palm-tree paradigm on its head, I argue that James Cook and Johann Forster, chief naturalist on the second voyage’s circumnavigation of Antarctica, were the true originators of polar climatology.

Any discussion of Cook in the icy latitudes must take into account the prevailing theory that deep saltwater did not freeze. Cook’s contemporaries believed that icebergs and packed ice were frozen masses that had emanated from rivers. This was an ancient idea, popularized in Cook’s time by Daines Barrington, a member of the Royal Society with connections to the British Admiralty (though the foremost contemporary theoretician was the Swiss bibliophile Samuel Engel). The now preposterous notion that seawater did not freeze fed a corollary proposition almost more incredible to modern sensibilities – that the North Pole was altogether free of ice because no land was thought to be proximate to it. As shown in Part 2, the great masses of ice that Cook and Forster encountered while criss-crossing the Southern Hemisphere’s empty high latitudes, juxtaposed with the shrinking size of any putative southern continent at or near the South Pole, informed their skepticism of reigning glaciological theory.

Cook then refined their scientific breakthroughs during his subsequent voyage to the Arctic. Our modern understanding of polar hydrology owes much to his observations.

Another common practice in Cook historiography since Beaglehole has been to view the alleged shortcomings of the third voyage through the gauzy lens that was turned on the first two – in other words, to emphasize supposed deviations from a previously exemplary pattern. I challenge that perspective by documenting the consistency of Cook's deportment across all three voyages. In doing so, I highlight activities on the earlier voyages that are typically unimpeached in the Cook literature but would not be if they had occurred during the third. Cook's last expedition is usually characterized as an anticlimactic quest for the Northwest Passage, as a mere prologue to his undoing in Hawaii. Here, I invert that model, for, if studied within the context of Cook's mission and not his death, the northern voyage was the most ambitious and consequential in terms of geographic comprehension.

In Part 3, I argue that Cook the navigator and geographic problem solver was as conscientious during the third voyage as he was during the first two. I present evidence that controverts the common supposition that Cook's abilities had been stretched too far by analyzing his time in the high northern latitudes on its own terms, not as an extension of the southern voyages nor as an interlude before his inevitable death in Hawaii. Cook was always conscious of the true mission of the final voyage, even if some of his shipboard contemporaries, and many modern authors, fault the way he executed it. After he completed the second expedition circumnavigating Antarctica, Cook considered himself "done" with the (south) Pacific.¹² Accordingly, as is documented in Chapter 8, prior to striking out for North America's Pacific Coast, Cook had no intention of making discoveries in Polynesia. The region was merely a staging area for the sail north.

Cook's Arctic campaign reached its crescendo in August 1778, when, off the Alaskan coast at 70° 44' N, he was stymied by a wall of ice twelve feet high. This was as far north as he would get, not quite matching the southern extremity reached on the second voyage. At his northern apex, twenty-five months after the expedition's launch, with cold and fatigue settling into the bodies and minds of his crew, Cook diligently probed westward along the ice edge for eleven more gruelling days. He exhausted every prospect for an opening through or around the ice pack and rarely had a clear view of his surroundings because of the Arctic fog. He relied on navigational guidance from the incessant barking of the walrus

abounding on the ice edge. Contrary to the tired-voyager hypothesis, it was the most vigorous sailing of his career, a mere six months before his death.

When Cook left Alaska in October 1778, the expedition, according to the original timeline, should have been coming to a close. But having come so far and unsatisfied with his first attempt, he announced a plan to extend the voyage into an unprecedented fourth year. Cook had so thoroughly inculcated a culture of diligent exploration and fidelity to mission that even after his death the expedition's demoralized crew, now commanded by Charles Clerke, returned to the Arctic in the summer of 1779. Most books treat Clerke's return and subsequent events in China as an afterthought; many ignore it completely. To an extent, this is to be expected; a biographical portrait can only extend to the duration of a subject's life. But this tendency need not apply to the history of an expedition, as opposed to a man. The interpretive pattern that presumes a supposedly lesser figure such as Clerke does not merit much attention has damaged our understanding of Cook's final voyage and its relationship to Arctic environmental history. In Part 4, we see an expedition still guided by Cook's logic model and ethos. Even after the second fruitless attempt in the Arctic, and Clerke's own death shortly thereafter, the surviving leadership team dedicated itself to making further contributions to Europe's understanding of East Asian geography. On its way home, Cook's expedition inadvertently seeded the maritime fur trade along the Northwest Coast, the one aspect of Cook's execution of the third voyage for which historians have given him more credit than he deserves. This mercantile development spurred a new vision for the Northwest Passage, one that culminated in the clarity that George Vancouver brought to regional geography.

Cook's final voyage was not a continuation of his earlier expeditions in the South Pacific, nor a fatal mistake, but a crowning navigational achievement. More largely put, by emphasizing Cook's work in the icy latitudes, where he spent more time under sail than in the tropical zones to which he is usually consigned (of necessity by anthropologists; for historians, by their choice), we can discover a new Captain Cook. In the twenty-first century, an age whose hallmark will be massive climate change, perhaps it is time to acknowledge that the environmental backdrop for a newly relevant Cook is not a warm sandy beach, nor even the ocean blue, but a cool summer along that Alaska coastline that leads to the Arctic ice pack.

PART ONE *Prequels*

ONE

The North Sea and Canada

Little in James Cook's humble beginnings suggested a momentous life was in store for him. Born the son of a day labourer in 1728, Cook was raised on Aireyholme Farm in the Yorkshire township of Great Ayton, where his yeoman father was overseer for Thomas Skottowe, lord of the manor. Young James probably helped on the farm by working in the fields or tending to animals. Though no one could have predicted a nautical application of these agrarian experiences, during the course of his voyages Cook occasionally supplemented his ships' provisions by procuring fresh grasses and other wild plants and berries to fend off scurvy. Animal husbandry was another important part of these expeditions, as goats and cattle were transported to the South Pacific as gifts from himself and the King.

Cook attended school in Great Ayton, where he learned the rudiments of letters and numbers, skills that facilitated his escape from the terrestrial clutches of rural existence. This separation commenced at age seventeen, when he was introduced to the worlds of commerce and maritime life in neighbouring Staithes, a fishing village that he moved to in 1745 to work as an assistant in William Sanderson's general store. A bigger step came a year later, when he started a three-year apprenticeship in the busy Yorkshire port city of Whitby under Captain John Walker, a ship owner and a major figure in marine affairs.

Whitby today, in the estimation of local historian Sophie Forgan, is "a charming town, rather off the beaten track, beloved of tourists ... but it is a town whose connection with the sea is largely that of leisure."¹ But in the mid-eighteenth century, Whitby was a prominent centre for ship-building, notably colliers, which were essential to the coastal coal-carrying trade from nearby Newcastle to London. Some four hundred ships made this run over the course of a year. They typically made ten voyages a season and in some years transported 30 percent of London's coal supply. Whitby's commercial fleet carried other cargoes and served other ports. For example, up to 50 percent of the timber imported from Norway passed over

Whitby's docks, and 20 percent of Britain's general trade from Baltic ports did likewise.

As a trainee, Cook started as Walker's servant, running errands and stocking ships with food and chandlery supplies. These duties were an extension of his work for Sanderson's store in Staithes, but the expectation inherent in his apprenticeship was that by its end he would become a sailor. Few internships have been more productive. Cook was exposed to shipboard responsibilities through and beyond his apprenticeship for a total of nine years employment aboard Walker's vessels. This service laid the foundation for his future greatness in pilotage and ship management. During the course of commercial voyages in the North and Baltic Seas, Cook learned key maritime skills, such as casting a lead line to measure depth and ascertain the composition of the sea bottom (to get a read on shifting sands, submerged rocks, or shoal water). He also mastered observation of shorelines and the movement of waves, currents, and tides.

Cook also learned how to read a ship's speed via a log line, a piece of wood tied to a rope of fixed length that floats behind the ship. Using a sandglass, he'd determine the time it took for the line to unwind from its spool, which would yield the rate. Of greater importance was being able to determine latitude by using a quadrant to measure the sun's height above the horizon. The most difficult navigational skill to master in this era was calculating longitude, an aptitude less important to Cook early in his career but a major theme during his Pacific voyages. Central to the high-latitude orientation of this book, Cook probably had his first experience sailing near sea ice as a master's mate conducting Baltic voyages to such harbours as Riga.

Walker had less tangible influences on Cook's life and professional outlook. The Society of Friends, or Quakers, were a major presence in Whitby, and Walker was one of their number. Cook boarded with Walker's family for the duration of his time with the company, and though he never became a Quaker, a case has been made that some of the central tenets of Quakerism – moderation in all things, self-discipline bordering on austerity, work as an end in itself, an aversion to violence, and the stewardship of interpersonal relationships through fair treatment and care for colleagues – are reflected in the broad pattern of Cook's career.² This line of thought extends even to Cook's path-breaking open-mindedness toward Indigenous peoples and their customs, though this temperament was influenced more by the Enlightenment's intellectual currents.

Cook was fortunate to have many mentors, but the near decade he spent under Walker's tutelage was formative and long-lasting. Cook wrote

Walker after returning from his first two circumnavigations, and he once visited him in Whitby. The letters were prosaic in some respects, describing his ships' state of repair and alluding to completed or projected itineraries. But beyond those technical facets, the correspondence is important because after Cook died his wife destroyed all their correspondence. In Forgan's phrasing, "Cook unbent just a little to Walker," and those missives provide the few interior glimpses we have of Cook's state of mind at pivotal junctures in his career.³

By 1755, Cook was in line for a promotion to sailing master, the senior petty officer responsible for (under a captain's oversight) the tactical guidance of a vessel's course and sail arrangement. Instead of taking this advancement, Cook forsook nine years seniority as a merchantman under Walker and enlisted as an able-bodied seaman, or AB, in the Royal Navy. An AB could become a petty officer, or reach higher noncommissioned ranks, as Cook's eventual ascension proved. Still, historians have puzzled over his decision to enlist. The most plausible explanations are a patriotic impulse (war broke out with France in 1754) or simple wanderlust. The first seems more convincing since Cook could have sought employment in any of the far-flung Crown-chartered trading enterprises, such as the East India Company. Cook's less than lateral move certainly does not appear to be pecuniary repositioning. Nor was Cook avoiding a press gang: as sailing master for a merchantman, he was exempt from induction into the navy.



War often catapults relatively unknown individuals to the forefront of history, and so it was with Cook. The preliminary skirmishes of the Seven Years' War between England and France occurred in 1754–55, though most of the combat occurred between 1756 and 1763, thus the name. A global conflict, in North American historiography the confrontation is commonly called the French and Indian War. Cook's involvement in the hostilities laid the foundation for his distinguished career in the Royal Navy. The Cook we know from history – the great navigator and cartographer – was formed there. In the words of writer and novelist Victor Suthren, "Canada and its waters were the crucible within which the materials of a promising but as yet undistinguished naval warrant officer were shaped into the form of the naval captain, surveyor, and cartographer that would amount to greatness."⁴ Cook saw action in the logistical support of naval warfare on which Britain's success depended. His best-known role was sounding the rapids – known as the Traverse – downriver

from Quebec, the site of the pivotal battle in 1759 for the control of North America. War accelerated Cook's professional growth, and by the conflict's end, his proficiency in surveying and cartography had come to the attention of senior Admiralty officials in London.

On enlistment, Cook joined *Eagle*, a sixty-gun warship. Within a month, he was promoted to master's mate, the rank he held when leaving Walker's merchant service. *Eagle* patrolled home waters looking for French marauders. When the ship took on a new captain, Hugh Palliser, another important figure came to assist Cook's maritime maturation. Palliser saw potential in Cook and made sure he received extra training in chart making. For the next two years, *Eagle's* squadron guarded the English Channel, seeing serious action twice. Among the battle casualties in May 1757 was *Eagle's* master. Palliser promoted Cook to the position, the highest rank possible for a noncommissioned officer, and it came with pay equal to a lieutenant's. Thus, two short years after turning down the promotion Walker offered, Cook achieved a comparable rating in the Royal Navy. He was now responsible for the ship's state of supply, including munitions, plus pilotage (setting courses and arranging sails and rigging), duties the master's position shared with commercial service. That summer, Cook was assigned to *Solebay*, a frigate patrolling for smugglers off the east coast of Scotland. In September 1757, he joined *Pembroke*, captained by John Simcoe, the next mentor in line. As the senior noncommissioned officer on *Pembroke*, Cook came to Canada, an experience that transformed his career.

British war planners in London and Halifax knew that victory in North America hinged on displacing the French from their two great fortresses: Louisbourg on Cape Breton Island, which protected the mouth of the St. Lawrence River, and Quebec, the colonial capital located high above a narrowing of the river and the key to the defence of the interior empire drained by the Great Lakes. Quebec sits on estuarial waters hundreds of miles inland, and the river below the city is so wide that to this day there are no bridges spanning its width. Ground forces would fight the battle, but the campaign's success hinged on the Royal Navy getting the army in the right place. *Pembroke's* squadron of eight ships sailed for North America in February 1758, part of a larger fleet numbering 157 that would attack New France. This was the first long voyage of Cook's career, and it was on this passage that he first witnessed the effects of scurvy. *Pembroke* lost twenty-six men during the crossing.

Louisbourg capitulated on July 26, 1758. The very next day, as the clearing of wreckage in the harbour commenced, the most significant

personal encounter in Cook's professional life occurred. At Kennington Cove, southwest of Louisbourg, Cook's curiosity was aroused when he saw Samuel Holland conducting a terrestrial survey of the conquered domain. Holland had charted Fort Ticonderoga in the Hudson River–Lake Champlain theatre the previous year and was now attached to the Atlantic invasion force of Major-General James Wolfe, the eventual hero of Quebec. After securing Simcoe's permission, Cook asked Holland to teach him the science of surveying and map-making. Cook had learned the fundamentals of seamanship in the North Sea coal trade, but the skill that would distinguish his career was the ability to conduct triangulated surveys, a specialized craft he learned from Holland. The Cook brand was born here. Watching Holland at work was a cognitive opening for him. Over a few days, including some after-hours tutorials aboard *Pembroke* at night, Cook acquired the expertise that would make him the paragon of scientific exploration. Years later, Holland told Simcoe's son, John Graves Simcoe, the future founder of York (Toronto) and Upper Canada (Ontario) altogether, that before departing England on his final voyage, Cook had confessed that the training aboard *Pembroke* "had been the sole foundation of the services he had been enabled to perform."⁵

Surveying – diagramming disparate topographic features with precision – was more commonly practised by army men such as Holland (or George Washington) than by navigators. The core of the practice as Cook learned it involved a plane table; a flat, square surface stabilized by a tripod. The table held a sheet of paper above which the surveyor observed distant stations through a rotating alidade, basically, a brass telescope mounted on a protractor that indicated the bearing of the viewed object, which was flagged using bright coloured cloth. With a straight edge, a line was drawn on the incipient chart in the direction of the flag. After a minimum of three points had been established and lines drawn to them from the point of observation, trigonometry was applied to the problem. By subtending, or turning, the angles of a triangle, it is possible to measure the distances on all three sides, provided the length of one side of the triangle, the baseline, is known. This was accomplished by moving the table (Cook used a more mobile theodolite for the balance of his career) a gauged distance, which was computed by using fixed-length rods or chains, early versions of modern tape measures. At the next station, a new apex, or set of bearings taken on flags planted at distant points, was established. Replicated many times over, a kind of geometrical network was created.

The key point about Holland's lessons was the mathematic exactitude triangulation could bring to chart making on scales both large and small.

If you could scientifically plot Kennington Cove, you could theoretically map the entire world with similar precision. By the time of his death, Cook had made a substantial contribution to that very project, single-handedly overseeing the production of charts for the Pacific basin and contributing one-third of the content that led to our normative understanding of the globe's geography. Holland's technique could be and was applied many times by Cook (or men under his direction) in the fashion he first saw demonstrated – by drafting the outline of a harbour and its coastline from a set of land-based vantages.

On water, though, establishing a baseline was procedurally problematic and literally impossible in a physical sense, so an adaptation needed to be made to approach cartographic precision. This method was called a running survey. Cook did not perfect this practice until his second voyage, when it became possible to calculate longitude with ease and accuracy through the use of chronometers that kept Greenwich Time. A baseline was established astronomically by fixing the ship's starting latitude and longitude then pulling up anchor and moving to a new station to discern the difference in latitude and longitude between the two points. Any variation measured by minutes of a degree could be translated into feet, yards, or miles. Best suited for long open shores (such as the Oregon Coast, surveyed during the third voyage), the running survey yielded generally reliable results but never the exactitude of terrestrial surveying because of the vagaries of fixing latitude or longitude at sea, including wave and tidal action on a ship's movement. Since Cook had the rare talent of being able to conduct both land and seaborne surveys, the range of his cartographic talent, from depictions of a harbour in a remote Pacific isle to the whole continental coastline of North America, was unusually wide.

Cook's career simply cannot be understood without an appreciation of his encounter with Holland. Productive outcomes were not long in coming. After Louisbourg, Cook charted the tip of Gaspé Peninsula when his squadron sailed into the Gulf of St. Lawrence in September 1758. Cook's chart, "Bay and Harbour of Gaspee in the Gulf of St. Lawrence," the first of many, would be published in 1759. When the gales of November arrived, *Pembroke's* unit beat it back to theatre headquarters at Halifax for overwintering in advance of the full fleet's assault on the Citadel at Quebec the next year. Cook had a significant role in these preparations. During the winter of 1758–59, he and Holland arranged provisional charts of the St. Lawrence River patched together from printed sources, a variety of materials captured at Louisbourg, and the feint into

the gulf, which scoped the mouth of the river. Their work paid dividends during the forthcoming campaign. Historian D. Peter MacLeod calls this chart “the single deadliest weapon deployed by the British-American forces in the course of the campaign” because “it allowed the invasion fleet to breach Canada’s outer defenses and ascend the St. Lawrence without delay and without loss.”⁶ Cook and Holland made alterations to their draft on the upriver passage to Quebec. Following victory over the French, the chart was finalized in Halifax in spring 1760 and printed later that year in London.

Simcoe encouraged Cook’s training in the navigational arts and provided tutelage during the long Halifax winter of 1758–59. For example, Cook prepared his first set of sailing directions for the conquered port of Louisbourg. This nautical form provided narrative guidance on course and distance into a harbour, depth soundings, the location of rocks and other hazards, tidal patterns, variation of compass for taking proper headings and, of course, latitude and longitude. Though Cook’s sailing guides were not as well publicized as his maps, he prepared dozens for distant Pacific harbours, and they were incorporated into the Admiralty’s accounts of his voyages. But Simcoe’s coaching ended when he died during the great fleet’s passage to Quebec and was buried at sea.

The definitive campaign up the St. Lawrence commenced on May 5, 1759. Led by Rear-Admiral Philip Durrell, the intended mission of the first squadron, which included *Pembroke* and Cook, as her master, was to arrive on the St. Lawrence early in the navigational season so as to forestall the French fleet’s ability to resupply and reinforce the colony. Characteristic of springtime in the North Atlantic, *Pembroke* was forced to manoeuvre through ice floes off the Nova Scotian coast, an encounter with a natural phenomenon that would later become routine in Cook’s career. Durrell’s squadron sailed into the river behind the last French convoy to make it to Quebec.

Presaging future events, this fleet was led by a rising star in France’s army and intellectual life, the twenty-nine-year-old Louis-Antoine de Bougainville. A Parisian of seminoble birth with connections to the Bourbon court, Bougainville had been versed in the classics and mathematics at the University of Paris. He was also conversant in English, which resulted in his being appointed secretary to the French ambassador in London in 1754. That year, he published a treatise on calculus that brought him such intellectual renown he was elected a fellow of the Royal Society of London, Britain’s premier learned organization. Bougainville rose through the echelons of the French army as quickly as Cook would

in the Royal Navy. In 1756, he was promoted to captain and assigned to New France as aide-de-camp to the marquis de Montcalm, the French general at Quebec. He later conveyed dispatches from Montcalm to Paris, where he was promoted to colonel in 1758. Bougainville, like Cook, would figure prominently in the denouement of the battle for Quebec. So far as we know, the two never met after the French surrender, but in a fashion their paths did cross in Canada, just as they would the following decade in the middle of the Pacific Ocean.

The arrival of Bougainville's convoy in Quebec on May 10 was the very thing Durrell was supposed to prevent, but the British faced a more immediate problem. The river's key feature was a passage beneath the Quebec basin that the fortress overlooked: the Traverse. Influenced by the redirection of currents around the Île d'Orléans, a twenty-one-mile-long island below the Citadel's bluffs, the river's channel here crosses from the north side of the waterway to the south, thus the name. Subject to tidal influence as well as strong river currents, it was a treacherous passage for sailing ships. As J.C. Beaglehole noted, the course of this channel was marked inadequately even in peacetime since "the French pilots knew their business."⁷ Those few navigation marks had now all been removed in anticipation of a British invasion. The French strategy was to mystify the river's features. They complacently thought that without proper soundings a British fleet could never gain access to the basin at the foot of their capital.

By June 8, Durrell's squadron had been joined by the entire British fleet. The events of the ensuing seventeen days, in which Cook played a vital role, dictated the future outcome of British victory and French capitulation. The key to British success was re-establishing a system of markers delineating the zigzagging channel. Cook led this effort and was joined by the masters and crewmembers of his own and three other ships. Using longboats, the depth sounding took two days, from June 9 to June 10. The process involved casting lead-weighted lines marked out in fathoms. Underwater rocks and ledges were recorded on charts, but the channel itself was marked with new buoys that replaced those the French had pulled up. On June 11, Durrell recorded that Cook had "returned satisfied with being acquainted with ye Channel."⁸

With the Traverse's course now re-established, *Pembroke* and other ships in Durrell's squadron worked their way upstream directly below Quebec, establishing the route for the rest of the fleet to follow. They did this by mooring their longboats (which flew colour-differentiated flags) to the buoys Cook's team had placed in the river. By June 27, the entire British

fleet – including ships of the line, frigates, and transports carrying General Wolfe’s troops and supplies – had passed through the channel, a parade concluded by *Neptune*, the flagship of fleet commander Vice-Admiral Charles Saunders. With the two squadrons combined, Saunders now commanded 49 warships plus 119 supply vessels – one-quarter of the entire Royal Navy – that carried twenty thousand sailors and marines, including servicemen from the American colonies. The stage was set for what would prove to be Wolfe’s decisive victory over Montcalm on the Plains of Abraham on the fortress’s western flank. Suthren states: “Wolfe had been provided the opportunity he sought for conquest, through a consummate demonstration of the mariner’s art.”⁹ This was the apex of Cook’s role in the Quebec campaign.

Pembroke joined other ships in ferrying cannons and troops across a relative narrowing of the river and ashore at Pointe Lévis on the south bank of the St. Lawrence opposite the French fortress. This was complicated work in the age of sail and on a river subject to fast tides and strong currents, especially in the season of the freshet, made more difficult by having to dodge musket balls and French cannon shot. The strategic objective was neutralizing the natural superiority of the French position by providing Saunders cover for his ships; they’d provide opposing cannon fire when the ships passed upstream to outflank the fort. The first of these movements took place on the night of July 18, but as the summer wore on, Wolfe deliberated over the prospect of attacking Quebec six miles downstream in the vicinity of Beauport, on the north shore of the St. Lawrence near the falls of the Montmorency River. On the basis of his successful leadership of the *Traverse*’s survey, Cook led a team of surveyors that sounded the Montmorency shore. Wolfe placed great confidence in Cook, telling an adjutant that “the Master of the *Pembroke* assures the Admiral [Saunders]” that flat-bottomed North Sea “cats” or colliers “can go within less than 100 yards” of the shore.¹⁰

The Montmorency operation commenced on July 31, but the landing was compromised because British attack vessels grounded farther out than the one hundred yards Cook had predicted, slowing Wolfe’s forces as they waded ashore. In the delay and confusion, abetted by the heat of the day and a thunderstorm, Montcalm amassed the French army around Beauport. Wolfe waved off the attack. An even greater disaster was averted when the incoming tide allowed British ships, including Cook’s *Pembroke*, to get closer to shore and to the grenadiers who needed rescuing. Assessing whether Cook deserved a share of the blame for this “debacle,” Suthren says an explanation for the botched landing might be found in

the unreliability of “sounding under attack” and the possibility that “tidal tables were ignored.”¹¹ Cook’s reputation survived this setback, which became lost in the haze of both Wolfe’s and his own subsequent success.

Wolfe concluded after Montmorency that his only chance to defeat Montcalm would be executing the original plan: landing above Quebec and attacking the fortress from the west. Over the course of August and early September, men and materiel were ferried upstream, proving again that Wolfe’s campaign was as much a nautical affair as an army operation. When the final British assault was launched, Cook was far removed from the main action. *Pembroke* was part of a diversionary effort in the Beauport sector, where, based on a combination of wishful thinking, overconfidence, and the earlier skirmish, Montcalm expected the main attack. Instead, the British effected a surprise amphibious night landing at Anseau-Foulon, a mile and a half upriver from Quebec, in the early morning of September 13, 1759. Samuel Holland, Cook’s tutor and Wolfe’s confidant, played a central role in this decisive battle, having been positioned across the river to keep an eye on French preparations in that sector.

With a superiority in arms and men and having obviated the fortress’s strategic advantage by scaling the bluffs to its rear, Wolfe quickly prevailed over Montcalm in a battle superseded in North American history only by the Union victory at Gettysburg. During the clash, both the British and French commanders received fatal wounds. Indeed, it was Holland who found the mortally injured Wolfe and carried him away from the skirmish line. Wolfe’s battlefield death was recorded for posterity in a famous painting by the American artist Benjamin West. Though not included in West’s depiction, Holland was among the few actually with Wolfe when he drew his last breath.

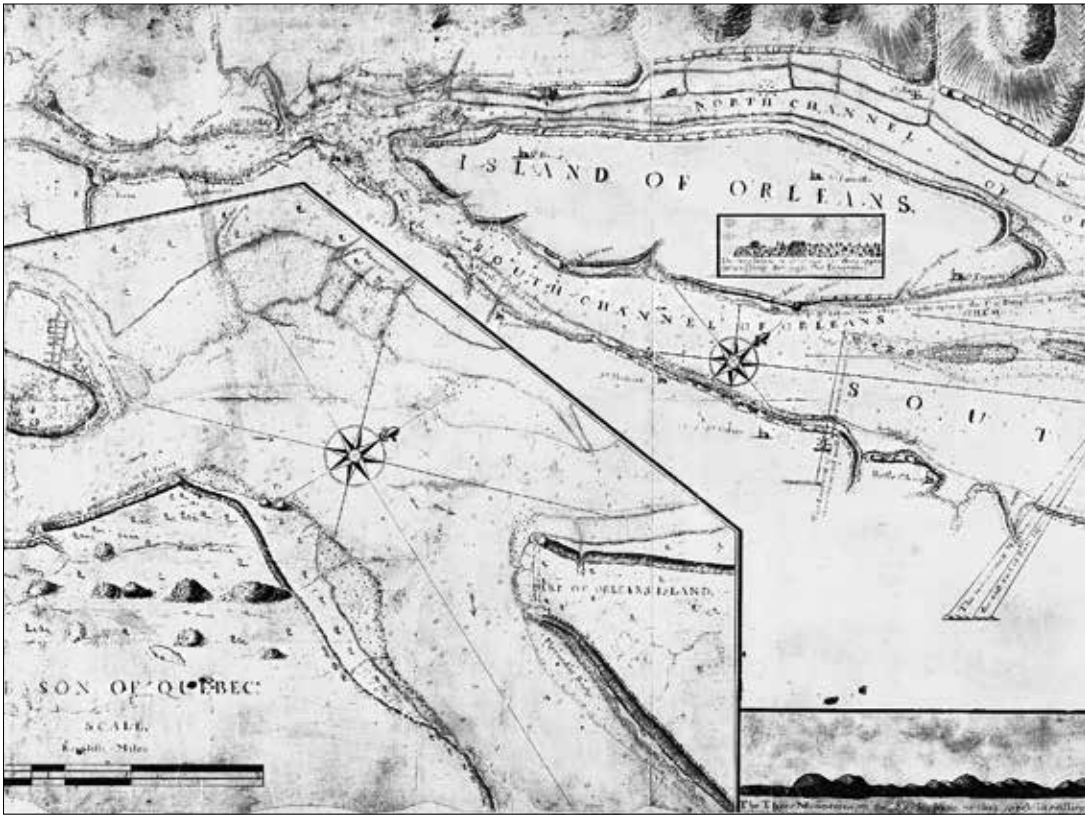
Cook might have been a distant observer of the battle, but Bougainville’s conduct was central to the disastrous turn of events for France. Montcalm had placed him in charge of a mobile regiment that would shadow British movements on the river above the city and oppose any landing west of Quebec’s walls. Bougainville met this objective for several weeks, ranging back and forth as far as ten miles upstream from the fortress to Cap Rouge, where the British lay at anchor. But it is easier to move an army on ships than it is on land. Exhausted by numerous British feints up and down the river over the first two weeks of September, Bougainville’s footsore army was, as Suthren phrased it, “nowhere to be found when the thing it had been meant to oppose took place.”¹²

The first in a series of French tactical errors, all of which rested on Bougainville, was the failure to notify guard posts along the river that

Bougainville had cancelled a flotilla of small boats with supplies from Montreal intended for the beleaguered French defenders in the fortress of Quebec. From their spies, the British knew that the French intended to replenish the Citadel, so the plan was to pass themselves off as French while riding the tide in their longboats. Thus, when the British landing craft fell down the river in the dark early morning of September 13, no alarms were set off. Tragically for the French, just a few days before Wolfe had settled on scaling the bluffs at Anse-au-Foulon, Bougainville had been stationed at that very spot. Historian C.P. Stacey observed, “100 alert and determined men at the Foulon could have brought Wolfe’s scheme to ruin,” and Bougainville would have been the saviour of New France. Bougainville compounded this catastrophe by remaining at Cap Rouge after noticing that the British squadron had sailed downstream. Even the noise from the battle on Abraham’s farm failed to set him in motion; Montcalm waited in vain. Bougainville arrived after the battle was over and withdrew quickly in the face of the victorious British forces. In Stacey’s estimation, Bougainville’s “military experience was scarcely equal to the high rank he held and the heavy responsibilities that rested upon him”; “his inefficiency had much to do with the French disaster.”¹³ Bougainville never publicly acknowledged his share of the blame for the defeat, but with experience he became an accomplished sailor, first by advancing the Enlightenment in the Pacific and then by gaining an element of revenge against the British navy in the Battle of the Cheseapeake, which foreshadowed Cornwallis’s fate at Yorktown.

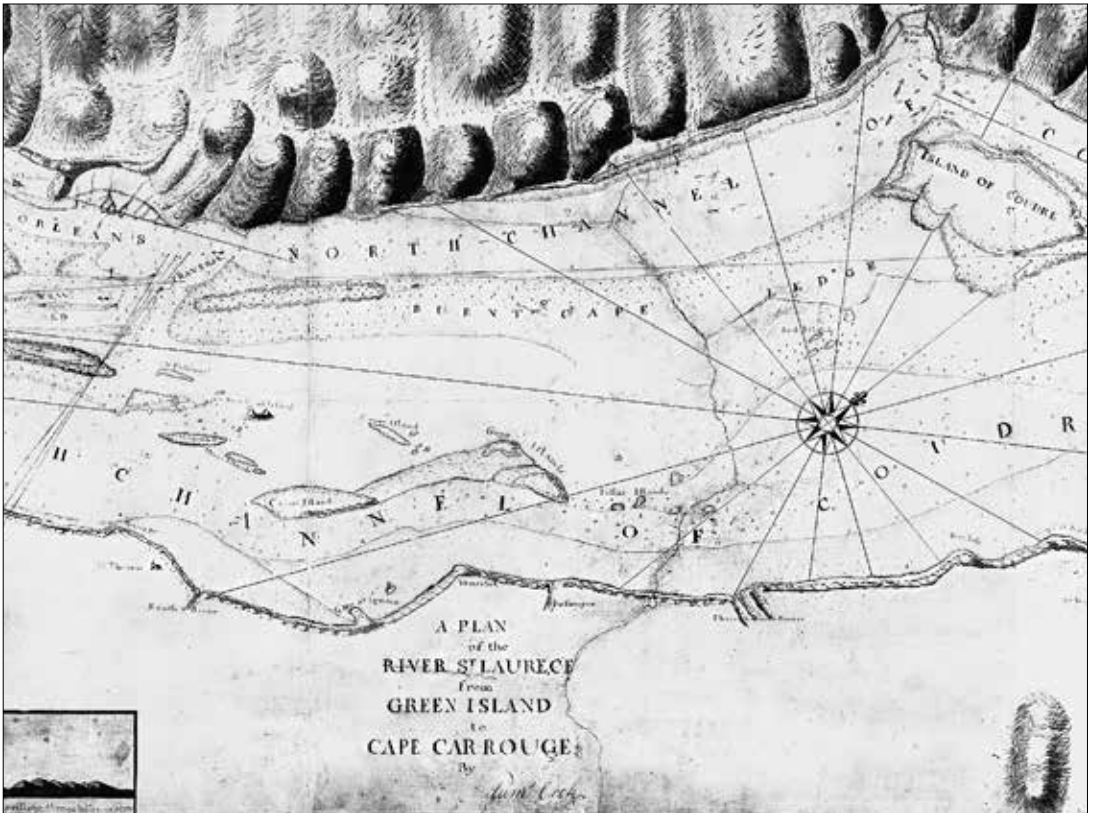
After the French surrender, Cook was transferred to *Northumberland*, part of a squadron that returned to Halifax, while Saunders and much of his command sailed to Great Britain victorious. Over the ensuing winter of 1759–60, Cook finished the definitive chart of the St. Lawrence River that he had begun with Holland. Measuring three by seven feet, in twelve sheets forming the composite view, this chart was printed in London the following summer and complemented the map of Gaspé harbour and the Gulf of St. Lawrence that had been published the previous year. The thirty-two-year-old Cook had risen from obscurity in the Yorkshire countryside and the coal trade to have two superior maps in public circulation. These charts formed a template, oft repeated in the years ahead, marrying “the landward observation methods of the military engineer with the sounding and coastal fixing of the seaman.”¹⁴

Another important but underappreciated aspect of Cook’s Canadian career is that we know for certain that it was here that he gained sustained exposure to the defining feature of high-latitude voyaging: sea ice. The



James Cook, *A Plan of the St. Lawrence from Green Island to Cape Carrouge*, 1759–61. This chart is the westernmost section of a segmented map that Cook and Samuel Holland prepared during the Quebec campaign. Note the volume of navigational detail depicting the strategic basin below the Citadel and Cook's soundings of the Traverse downstream from the Île d'Orléans.

North American squadron left Halifax on April 22, 1760, rushing back to Quebec to relieve a siege of the garrison by French reinforcements from Montreal. Leaving two weeks earlier than the year before, this time they met a vast amount of ice. Indeed, Cook reported that on the second night at sea, *Northumberland* was “fast in the ice.” In his report, the ship’s captain, Lord Alexander Colville, wrote of anchoring off Quebec “after a most tedious and troublesome passage, being almost continually impeded, by running amongst great Quantities of loose Ice, and confused by thick fogs.”¹⁵ This event perfectly anticipated Cook’s longer and more dangerous forays along the edges of the Antarctic and Arctic ice packs.



After relieving Quebec, the larger portion of the British fleet, but not including *Northumberland*, sailed upriver for the final mop-up action against the French in Montreal, effectively ending the war. Cook spent an uneventful summer anchored in the Quebec basin. When *Northumberland* sailed for Halifax in October 1760, Cook left the St. Lawrence for the last time. Halifax Harbour was his home for the next two years. He supervised the maintenance of the ship and continued to perfect his craft as a cartographer by working on his Nova Scotian charts. His diligence and fruitfulness was notable; indeed, he received a bonus payment of £50 at the direction of Lord Colville, who wrote that this sum was “in consideration of his indefatigable Industry in making himself Master of the Pilotage of the River Saint Lawrence.”¹⁶ “Indefatigable industry” proved to be Cook’s emblematic characteristic.

Of his home port, Cook wrote: “The harbor of Halifax is without doubt one of the best in America sufficiently large to hold all the Navy of England

with great safety. Both its in and outlet is very easy and open in the most severest frosts.”¹⁷ Cook’s exposure to North Atlantic climate proved to be good preparation for the balance of his career because routine exposure to seasonal cold and ice helped forge his later resolve when making probes at the ends of the world. Among other things, he learned the great value of proper cold-weather gear for seamen and that precautions needed to be taken against weaker crewmembers being strong-armed out of their coats or the weak-minded selling them for alcohol.

Cook’s quiet but productive phase in Halifax lasted until France concocted the last-ditch strategy of seizing the British port of St. John’s on Newfoundland. This had less to do with reversing fortunes on the mainland than securing a bargaining chip in the final settlement with Britain. The French wanted to strengthen their hand in negotiations over access to the rich fishing grounds off the coasts of Newfoundland, and they took lightly defended St. John’s in June 1762. Another future explorer, Jean-François de Galaup, comte de La Pérouse, who would follow Cook’s wake into the Pacific in the 1780s, was a part of this command. When news of the attack reached Halifax, Colville reassembled a squadron from various stations in Nova Scotia. The counterattacking flotilla, which included Cook as sailing master aboard the flagship *Northumberland*, circled the opening to St. John’s Harbour on September 12, 1762. The French ships were enclosed within it, and a British armed regiment was landed, but when a gale blew *Northumberland* and her sister ships out to sea, La Pérouse and his fellow officers sailed into the Atlantic, avoiding capture. The now doomed French garrison was quickly routed on September 18. With St. John’s reversion to British control, *Northumberland* sailed in the next day, giving Cook, in Suthren’s words, his first view of “the steep-sided, rocky harbour that he would come to know well over the next five years.”¹⁸

The St. John’s campaign served as Cook’s introduction to the place that would lead to his postwar breakthrough – the Newfoundland survey. His immediate task was development of a chart of St. John’s and adjoining harbours on the Avalon Peninsula, a task that customarily fell to masters of warships. These anchorages were deemed essential to potential defence needs should the French return. They were also considered central to the fishery. This work would be later incorporated into Cook’s master map of Newfoundland. Instead of returning to Halifax, the *Northumberland* sailed for England on October 7, arriving home the next month. Cook had been away for more than four and a half years. Given the great length of Cook’s Pacific voyages, his power of endurance was tested and proved early. His tour of duty to Canada during the Seven

Years' War was the longest of his career. Reaching England, Cook was paid, and he and the rest of *Northumberland's* crew were dispersed. Shortly thereafter he married Elizabeth Batts.



Peacetime limited the Royal Navy's need for sailors, but Cook's emergent skill matched up well with one immediate postwar necessity – incorporating the vast extent of territory acquired from France into British cognizance through cartography and resource inventories. Decades before the British Hydrographic Office was established in 1795, surveys of coastal areas and interior regions were commissioned by the British Board of Trade, the Admiralty, and the War Office. Within this encompassing need for geographic comprehension, one area needed special attention. In the peace treaty signed in February 1763, French diplomats retained the right to fish off the Newfoundland shore. This zone ran from Cape Bonavista to the northern tip of the island and then around it on the Gulf of St. Lawrence side as far as Pointe Riche. To shelter her fishermen, France reserved the islands of St. Pierre and Miquelon southeast of Newfoundland (and maintains sovereign control to this day). The British were agreeable provided the French kept strictly within these limits. The problem for British enforcement was that there were no reliable maps of the infamously complex Newfoundland coastline. Cook was the solution. His new assignment was rooted in a letter written on December 30, 1762, by Lord Colville, his former captain and now admiral of the North American squadron. Reminding the Admiralty of Cook's previous work on the St. Lawrence and Nova Scotia coast and citing his own experience with "Mr Cook's Genius and Capacity," Colville thought him "well qualified ... for greater Undertakings of the same kind."¹⁹

With that recommendation, Cook was commissioned in March 1763 to survey Newfoundland, the world's sixteenth largest island. Now under the command of the new military governor, Captain Thomas Graves, Cook sailed aboard *Antelope* for St. John's on May 15. Graves wanted St. Pierre and Miquelon charted before they were turned over to France. On June 13, Cook and several assistants were dispatched on *Tweed*, captained by Charles Douglas, to conduct this insular survey, which concluded on July 31. This was fast-paced work performed while anxious French officials awaited its completion. It was finished so quickly, said Douglas, because of "the unwearied assiduity of Mr. Cooke."²⁰

Tweed proceeded to St. John's, where Cook learned that Graves had secured an American-built schooner, renamed *Grenville* after the prime

minister, for his exclusive use as a survey vessel. This was a savvy move. Newfoundland's complex latticework of headlands and harbours had heretofore thwarted precise measurement even though it had been much visited for centuries by the seamen of many nations who sailed to its rocky shores in the wake of the Vikings. The island's intricate coastline thus became for Cook the perfect laboratory in which to perfect the trademark characteristics of his later career: perseverance and exactitude. Cook's eventual delineation of Newfoundland's outline would result in one of his greatest cartographic accomplishments. Within a week of her purchase, *Grenville* was under way, with Cook serving as sailing master and commanding officer, toward the northern tip of Newfoundland. With his twenty-man team of sailors and cartographic assistants, Cook started the survey of the island proper near the famous Viking settlement site of L'Anse aux Meadows. From there, he proceeded across the Strait of Belle Isle to York Harbour and Chateau Bay on the Labrador Coast. It was the only visit to that shore and, at 52° N, the northernmost point reached during his multiyear survey.

By early October, *Grenville* was back in St. John's, where over the course of the next five weeks Cook and his draftsmen started finalizing the charts and sailing directions for the northern harbours and the French islands. Graves was impressed with the work. He told the Admiralty that Cook's "pains and attention are beyond my description." Graves added that he was sending Cook home for the winter so that he would "have the more time to finish the Surveys already taken." He was confident the Admiralty's board would readily perceive "how extremely erroneous" the previous maps were, adding "I have no doubt in a Year or two more of seeing a perfect good chart of Newfoundland, and an exact survey of most ye good harbours in which there is not perhaps a part of the World that more abounds."²¹

In 1764, Graves was replaced as governor by Hugh Palliser, Cook's former captain aboard *Eagle* early in the Seven Years' War. In May, Cook carried back to Newfoundland and resumed command of *Grenville*. After drafting men from several other ships in St. John's for another surveying season, he stood out to sea on July 4. At the northern tip of Newfoundland, he started where he had left off the year before. The ship's log for July 14 is representative of Cook's laconic writing style and the systematic approach to surveying he had learned from Holland: "PM went into the Bay sacre, measured a Base Line and fix'd some Flaggs on Different Islands."²² Cook was preparing to round the island to chart the long, straight coastline that faces the Strait of Belle Isle and leads to the Gulf

of St. Lawrence when a powder horn blew up in his right hand. The injury that he suffered on August 6, 1764, was serious enough that *Grenville* hailed a French ship to find a surgeon capable of stitching the wound. In the short term, this accident limited Cook's ability to sketch and write, so the survey was temporarily suspended. The enduring significance of this incident is that it left Cook with a pronounced scar running between the thumb and forefinger to his wrist, a disfigurement that fifteen years later would be used to identify his remains.

Grenville anchored at Noddy Harbor until August 25 while Cook recuperated. Repairs were made, and spruce beer was brewed. Similar decoctions would often be prepared by Cook for his crews in the Pacific basin using the formula he learned here (just as Jacques Cartier had learned from Indigenous peoples during the winter of 1535–36). When the survey resumed, *Grenville* made it as far as St. Margaret Bay, a tenth of the way down the west coast of the island, by the end of September. With winter coming on, Cook closed down operations for that year, heading to St. John's and then on to England.

Grenville returned the following spring, but instead of resuming the survey where he had left off, Cook proceeded to Cape Race at the tip of the Avalon Peninsula to concentrate on the southern coast. The rationale was Palliser's concern about incursions by French fisherman into those waters from St. Pierre and Miquelon. Cook's effort during the summer of 1765 was prodigious, as Newfoundland's southeastern shoreline is the island's most intricate. Returning to St. John's, *Grenville* sailed with the fleet back to England in early November 1765.

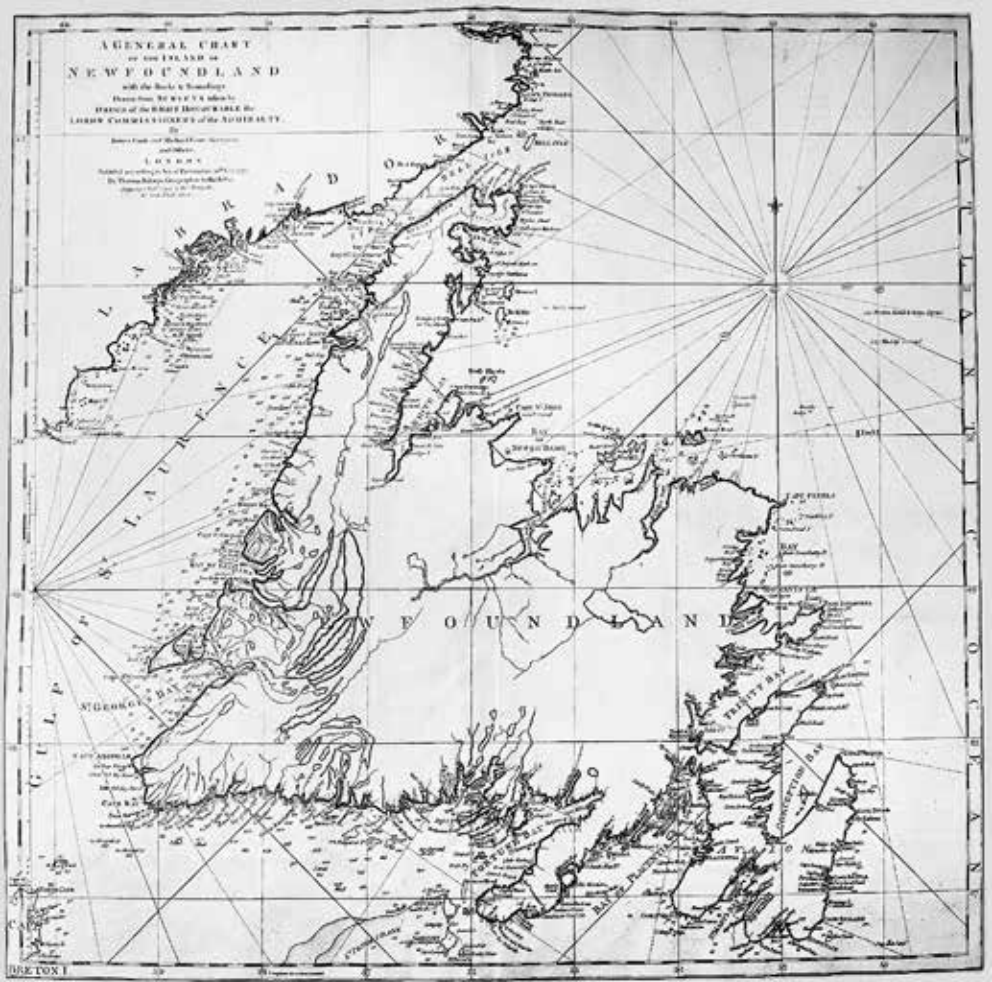
Sailing for North America with his crew of seventeen on April 20, 1766, Cook directed *Grenville* toward Cape Race, which she rounded amidst "many Islds of ice," the then common term for icebergs.²³ During the course of his multiyear survey of Newfoundland, Cook learned the importance of knowing the local ice cycle. The fishing grounds off Newfoundland cleared of ice in April and May and started to refreeze in early October. Leaving the survey too late at the commencement of fall risked getting trapped in the ice, and a too early arrival after the spring sail from England could force a delay. Picking up at Bay d'Espoir, where he had left off the previous summer, Cook and his surveyors worked west on the southern coast.

During this season, Cook expanded his scope of endeavour, seeking, in Suthren's words, "unofficial membership in the scientific fraternity of the day" by observing an eclipse of the sun. Astronomy and botany were the most fashionable disciplines in Enlightenment science, and though

Cook would become strongly associated with both during the balance of his career, the former was integral to his daily life as a navigator. Cook's report on the eclipse was later read into the record of the Royal Society. Cook, though not present at the time, was described to members as "a good mathematician, and very expert in his business, having been appointed by the Lords Commissioners of the Admiralty to survey the sea coast of Newfoundland."²⁴

Cook's 1766 survey ended at Cape Anguille, the headland that forms Newfoundland's southwestern tip. The vexatious southern coast had been mapped in exhaustive detail over the course of two summers. *Grenville* sailed for England on November 4 and was snug in berth at Deptford on the Thames by the last day of the month. At this point, only the long line of the western coast remained unmapped. Cook, perhaps overly eager to resume the Newfoundland project, left England on April 10, 1767, ten days earlier than the previous year (and the earliest of any trip). Accordingly, he encountered a great number of icebergs emerging from Davis Strait between Greenland and Labrador during the first week of May. He was in place off Cape Anguille by May 15, ready to close the gap. The most difficult challenges were the eponymous Bay of Islands and Bonne Bay and the saltwater access to Gros Morne, the grand canyon of Atlantic Canada. Cook's work, doggedly pursued for four years, was finished on September 24. By November 15, *Grenville* was back at Deptford.

Coincidentally, Joseph Banks, the soon-to-be-famous naturalist and Cook co-voyager, was in the waters of Newfoundland and Labrador that same year aboard *Niger*. Cook and the wealthy young botanist (and later patron of exploration as president of the Royal Society) would soon have their fates intertwined in a formidable fashion, but they indirectly crossed tracks, this time by accident, literally. Banks had left a birchbark canoe in St. John's to be transported back to England as deck cargo, which turned out to be on Cook's ship. However, *Grenville* struck a shoal off the coast of England, and though her planking had not stove, the topsail, yards, and crossarms crashed to the deck, ruining Banks's canoe. As the only significant navigational accident during the *Grenville's* multiyear survey of Newfoundland, this incident was soon forgotten. Cook returned home to his burgeoning family. He finalized his charts and the next set of sailing directions, fully expecting to return to Newfoundland one last time to polish his previous work and close some minor gaps on Newfoundland's east coast. But when the April 1768 sailing season arrived, the Admiralty lords had other plans for him. *Grenville* departed with Michael Lane as sailing master instead, and it was he who would formally conclude the



James Cook and Michael Lane, *A General Chart of the Island of Newfoundland with the Rocks and Soundings*, 1775. Cook surveyed the Newfoundland coast during summer from 1762 to 1767. This composite map of that effort, drawn from a series of harbour and coastline charts, was a stunning cartographic achievement that presaged Cook's ability to project an accurate image of the entire Pacific basin.

survey. With permission of the Admiralty, Cook's four charts of Newfoundland, one for each of his seasons, were published by year's end, and his sailing directions, meant as narrative accompaniment, were issued in 1769. He had perfected the techniques that Holland had taught, Simcoe had encouraged, and Colville and Graves had admired. A composite map showing a comprehensive view of the island was published in 1775, and

it is this image that Vanessa Collingridge popularized in her 2007 television documentary series.²⁵

The Newfoundland survey was a remarkable body of work for a man with agrarian roots, and it seeded the most extraordinary career in maritime history. Cook's requests for more sophisticated equipment and logistical support, which in turn produced greater exactitude, combined with his self-directed experiment monitoring a solar eclipse, show that he was becoming aware of his gifts and the privileged perspective they yielded. Having been introduced by Holland to the higher mathematical principles of the scientific survey, Cook began to grasp the potential of the Enlightenment's dyadic doctrines of specificity and universality. Once the grid of latitude and longitude had been established on a plane and the coordinates of any and all discernible places inscribed, a unitary vision of the world, geometrical and verifiable, was possible. This insight enabled Cook to become not merely the best explorer of his or perhaps any age but, borrowing an expression from Felipe Fernández-Armesto, an explorer of European exploration into distant seas.²⁶ Over the course of the next, and last, decade of his life, Cook's journals, and the published accounts that grew out of them, catalogued, and in some measure popularized, the voyages of Magellan, Tasman, and Bering, which preceded him into the Pacific.

This was crystalized for Cook in 1755 at Cape Town, near the end of his second voyage, where he had a coincidental meeting with fellow explorer Julien Marie Crozet. After comparing notes with him, Cook reflected: "Probably more authentick accounts may be got here after, but it will hardly be necessary to resume the Subject unless all the discoveries, both Ancient and Modern, are laid down in a Chart and then an explanatory Memoir will be necessary and such a Chart I intend to construct when I have time and the necessary materials."²⁷

Indeed, after travelling more extensively over broad swaths of the Southern Hemisphere than any other explorer, who was better positioned to do this than Cook? This ambition also sheds light on Cook's motivation for taking on the quest for the Northwest Passage, a voyage that, if nothing else, would provide him with insight into hidden aspects of northern geography that matched what he had discerned in the south. In the end, when the Admiralty posthumously published the master chart of Cook's three circumnavigations, the result was the first modern map of the world. Such were the results of a chance encounter at Kennington Cove on the Nova Scotia coast. Cook was ordained by Holland into the priesthood of empirical rationality; his coordinates and the charts drawn from them

created a way to record, share, replicate, and therefore verify the truthfulness of his travels. Cook became the chief priest of this new way of knowing, and a distinguished set of disciples – Vancouver, La Pérouse, Malaspina, Bellinghausen, and Wilkes – followed his tracks and attempted to emulate his style.

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