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The Force of Nature: The Impact of Weather on Armies during the American War of Independence, 1775-1781

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THE FLORIDA STATE UNIVERSITY
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THE FORCE OF NATURE:
THE IMPACT OF WEATHER ON ARMIES DURING THE AMERICAN WAR OF
INDEPENDENCE, 1775-1781

By

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This thesis is dedicated to the glory of God, who made the world and all things in it, and whose word calms storms.

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ABSTRACT

This thesis examines the impact that weather had on armies during the American War of Independence. It argues that weather affected the operations of both American and British armies in three areas: strategy, influencing the planning of campaigns; tactics, affecting the course of battles; and administration, adding to the daily work of maintaining armies in the field and keeping them functional. Year after year, in all four seasons, generals and soldiers had to cope with phenomena such as rain, snow, heat, and fog. Weather was capricious, sometimes helping one army and harming the other, and sometimes hindering both armies. Generals often tried to use the weather to gain an advantage and to mitigate the damage weather might do to their armies. The first chapter addresses weather's activity in early years of the war, up to the end of 1777. The second chapter focuses on the war in the north from 1778 to the end of major fighting in 1781, and the final chapter covers the impact of weather in that same period in the southern theater, concluding with the Franco-American victory at Yorktown. No previous study has concentrated on weather's role in the war as a whole. While weather was not the sole force that guided the armies' actions or decided the outcomes of battles or the war, this thesis demonstrates how the weather helped shape the Revolutionary War alongside other better-recognized factors such as political, economic, or logistical issues, and warrants recognition as such.

INTRODUCTION

As young children, many learn that it is unwise to run around outside in a thunderstorm. It is especially unwise to do so while waving long metal objects. Nonetheless, for centuries, soldiers have ignored this childhood precept, instead waging war – with all its deadly metal tools – in the rain, and in many other varieties of weather. The weather affects everyone, all the time, and takes no breaks for battles. Just as floods, heat, fog, or even hurricanes can affect the daily activities of ordinary people in their peacetime routines, so also the weather influences the actions of armies and the outcomes of those actions. Among the more infamous instances of this phenomenon are Napoleon Bonaparte’s and Adolf Hitler’s ill-fated attempts to conquer Russia. Each found the Russian winter a lethal adversary. Though not always with such dramatic impact or historical fanfare, meteorological forces have similarly meddled in many other military operations.

While weather can still be problematic, modern technology offers many ways for twenty-first century combatants to overcome the difficulties climate can pose. Soldiers in the eighteenth century were not so fortunate. They had no jeeps or armored cars; they could only march, whether through heat or snow. They had no advanced satellites or computer forecasting to help anticipate what the environment would throw at them, and even if they had, they lacked communications technology to relay such information to commanders in the field. They could even be effectively disarmed by the weather, as precipitation ruined gunpowder and left soldiers scrambling for bayonets. The combatants of the American War of Independence, or Revolutionary War, endured all these environmental challenges and more.

Weather has received comparatively limited attention among historians. Histories of meteorology such as H. Howard Frisinger’s *The History of Meteorology: To 1800* only chronicle the evolution of the science, not the role of weather itself in historical events. Even historical coverage of meteorology is “generally neglected... really meagre... usually marginalized,” and offers “numerous opportunities for future historical investigations,” according to the

encyclopedic *Sciences of the Earth: An Encyclopedia of Events, People, and Phenomena*.¹ The Annales School of historians during the early and mid-twentieth century stands out for granting attention, of a sort, to weather's place in history. However, the Annalistes concentrated on the climate's long-term, civilization-shaping trends, not individual episodes and specific actions. Fernand Braudel, for example, in *The Mediterranean and the Mediterranean World in the Age of Philip II*, gave attention to climate and the seasons, and even touched briefly on how they affected customary military activities (rough winter weather usually led to cessation of naval operations). Braudel presented geography as a major factor that shaped the long-term development of civilizations and cultures, with climate as one aspect of geography, and weather in turn as a part of climate. In discussing the initial formation of the United States in *A History of Civilizations*, Braudel has nothing to say about so specific and narrow of an event as the War of Independence. This thesis, however, is concerned not with climate but with the weather at particular times, narrating not sweeping trends in civilization over decades, but rather army operations during a narrow period of conflict.²

Military historians have perhaps recognized the weather's significance more than some other fields, but their work still leaves much room for additional exploration. Meteorologist Richard Bentley's study "Weather in War-time," represents an especially early example; this 1907 article catalogued 362 interactions of weather and military operations with terse summaries. A thesis such as Gary D. Atkinson's "Impact of Weather on Military Operations: Past, Present, Future," and larger studies – including *Military Geography* by Louis C. Peltier and G. Etzel Percy, *Battling the Elements: Weather and Terrain in the Conduct of War* by Harold A. Winters, and *America's Weather Warriors, 1814-1985* by Charles C. Bates and John F. Fuller – all affirm the role weather plays in war. These studies shed light on weather's influence in general terms and in some specific incidents. However, when it comes to the Revolutionary War in particular, the forecast is less sunny.³

¹ Stefano Casati and Marco Ciardi, "Meteorology: Disciplinary History," in *Sciences of the Earth: An Encyclopedia of Events, People, and Phenomena*, edited by Gregory A. Good, 2 vols. (New York: Garland, 1998), 2: 571.

² H. Howard Frisinger, *The History of Meteorology: To 1800* (New York: Science History Publications and the American Meteorological Society, 1977); Fernand Braudel, *A History of Civilizations*, trans. Richard Mayne (New York: Allan Lane The Penguin Press, 1994), 462-464, 466-468; Braudel, *The Mediterranean and the Mediterranean World in the Age of Philip II*, trans. Sian Reynolds, 2 vols. (New York: Harper Colophon Books, 1973), 1: 251-255, 257.

³ Richard Bentley, "Weather in War-time," *Quarterly Journal of the Royal Meteorological Society* 23 (April 1907): 81-138; Gary D. Atkinson, "Impact of Weather on Military Operations: Past, Present, Future," (thesis, U.S. Army War College, 1973); Louis C. Peltier and G. Etzel Percy, *Military Geography* (Princeton, NJ: D. Van Nostrand Co.,

The many histories of the Revolutionary War tend to acknowledge the weather only in brief or limited ways. Broad surveys of the Revolutionary War, like Piers Mackesy's *The War For America, 1775-1783*, Robert Middlekauff's *The Glorious Cause: The American Revolution, 1763-1789*, or John Ferling's *Almost A Miracle: The American Victory in the War of Independence*, include occasional references to the weather, but often only as a background detail, not a force that shaped military conduct. Even when the weather is mentioned, naval operations receive more focus than those of the armies (understandable given the wind-dependent nature of ships, but still notable). Sometimes studies of individual events – such as Washington's wintery crossing of the Delaware for Christmas 1776 – do address the impact of the weather, but these few and limited studies leave much room for broadening understanding of the weather's place in the war. David Hackett Fischer takes special note of the weather in his works on *Paul Revere's Ride* and *Washington's Crossing*. Wayne Bodle's *The Valley Forge Winter: Civilians and Soldiers in War* is a notable example of studies of the Continental Army's legendary wintery sufferings. David Ludlum argues for the decisive impact of fog – enabling the trapped American army to escape Long Island – in his article “The Weather of American Independence, 3: The Battle of Long Island.” These single-event studies are instructive, but they also point toward the lack of any dedicated exploration of the weather's impact on army operations during the entire Revolutionary War.⁴

The weather exerted a pervasive but sometimes subtle influence on the activities of the armies in the war. The term “weather” in this context is used the way laymen normally use the term, to refer to atmospheric phenomena such as wind, clouds, temperature, and precipitation, as observed and experienced at ground-level. Scientific measures and meteorological data have value in forming a complete understanding of such matters, but the non-scientific writings of army commanders, soldiers, and other participants supply much more concrete insight into how

1966), 64-66; Harold A. Winters, et al., *Battling the Elements: Weather and Terrain in the Conduct of War* (Baltimore: Johns Hopkins University Press, 1998); Charles C. Bates and John F. Fuller, *America's Weather Warriors, 1814-1985* (College Station, TX: Texas A&M University Press, 1986).

⁴ Piers Mackesy, *The War For America, 1775-1783* (Cambridge: Harvard University Press, 1964); Robert Middlekauff, *The Glorious Cause: The American Revolution, 1763-1789*, 2nd ed. (Oxford: Oxford University Press, 2005); John Ferling, *Almost A Miracle: The American Victory in the War of Independence* (Oxford: Oxford University Press, 2007); David Hackett Fischer, *Paul Revere's Ride* (New York: Oxford University Press, 1994); David Hackett Fischer, *Washington's Crossing* (Oxford: Oxford University Press, 2004); Wayne Bodle, *The Valley Forge Winter: Civilians and Soldiers in War* (University Park, PA: The Pennsylvania State University Press, 2002); David Ludlum, “The Weather of American Independence, 3: The Battle of Long Island,” *Weatherwise* (June 1975), 118-121, 147.

the weather shaped the story of the war. Civilians, soldiers, and generals all saw and experienced the weather, and left records of it. However, the observations of civilians, common soldiers, and low-ranking officers often reflect a more individual sense of the weather, how it affected them personally. It was cold when one stood guard duty; it was hot when another marched. Occasionally this conveys a vivid picture of how environmental forces influenced a battle. Frequently, these accounts do not display a sense of what broader impact the weather might have had on their army or the war. Neither, naturally, do they show awareness of how the army's plans or actions were contingent upon the weather. The writings of generals and other high-level officers, however, tend to depict a stronger consciousness of the weather as a force that shaped the actions and fates of their armies. Observers of the time did not typically represent the weather as single-handedly determining the result of military actions (though on occasion they did), but they frequently wrote of it as an important factor.⁵

The weather influenced when, where, and how the Revolutionary War was fought, and sometimes affected the outcome of battles or campaigns. It is easy to assent to the general proposition that the weather affected the conduct of the armies in this war, but more difficult to have any concrete sense of when and how these environmental forces intervened. Weather was not merely a background detail, but a causal force. It ruined gunpowder supplies, stymied pursuit of the enemy, guided generals' campaign plans, and even directly decided the outcome of a battle or two. Weather's influence became most obvious when it hindered or prevented some activity; in a sense, it was always a more serious problem for the army seeking to execute the more vigorous action. This narrative considers instances of the weather affecting the armies from the early part of the war through 1777, then explores the weather's role in the developments in the northern theater from 1778 to 1781, and finally examines the weather's effects on the southern theater of the war from 1778 to 1781. Alongside the many political, economic, ideological, cultural, logistical, and other facets that influenced the conduct of the war, the weather affected the American War of Independence, influenced the day-to-day conduct of armies, guided generals' strategic planning, and intervened at a tactical level in specific situations.

⁵ Atkinson, "Impact of Weather on Military Operations," 2.

CHAPTER 1

THE WAR, 1775-1777

For decades, tensions grew between Great Britain and her North American colonies. Following the end of the Seven Years' War in 1763, conflict escalated even more quickly, often over imperial taxation policy. When the unruly Bostonians' "tea party" destroyed shiploads of tea as a protest, Parliament closed the port and the British army took control of the city. Meanwhile, the colonies, led by the Continental Congress, increasingly coordinated and cooperated in their dealings against the mutual danger they felt Britain posed. In this anxious time, British General Thomas Gage, commander of the forces in Boston, determined to arrest a pair of rabble-rousers, John Hancock and Samuel Adams, and confiscate a store of weapons and gunpowder the colonists had collected at Concord, Massachusetts. As British soldiers passed through Lexington on the way to Concord on 19 April 1775, someone fired, initiating open war between Britain and the thirteen colonies. While Gage and the British held onto Boston, growing swarms of American soldiers gathered around the city. In June, the Continental Congress voted for George Washington to assume command of the newly established Continental Army. Throughout the first years of struggle between Britain and the colonies, weather guided leaders' plans, sometimes contributed decisively to the outcome of particular operations, and incessantly influenced the routine functioning and administration of the armies.

Washington assumed command of the American forces besieging Boston near the beginning of July 1775, and from the beginning, weather affected his activities and decisions. Simple but necessary business such as reconnoitering enemy positions depended on clear weather. The weather could damage the army's earthen defensive works. As summer moved into fall, Washington worried that a burst of especially rainy or cold weather might cause his troops to disperse. Rainy, unpleasant weather did more than tempt men to leave the army: it ruined the army's precious, limited stocks of gunpowder, without which it could not fight. Through a long wet period, Washington struggled to protect his army's gunpowder, its very ability to fight, or, failing that, to obtain more powder to replace it. He also faced a shortage of the firewood necessary for maintaining the army in the field through the chilly winter. Even before he fought a

major battle, simply running the Continental Army forced Washington to face many challenges from the weather.⁶

Cold temperatures ushered in new tactical and logistical problems for the armies at Boston. On 17 November 1775, Washington alerted his subordinate General Artemas Ward that the water around Boston might freeze soon. This would grant the British new avenues for mounting attacks from the city, beyond the narrow and more easily defended Boston Neck. He ordered Ward to prepare additional defenses against such a British foray. Washington also seized other nearby positions, knowing that winter would make it more difficult to rapidly shift the army. However, winter might also bring opportunities. In mid-December, after receiving intelligence that the British army was low on supplies, Washington tried to hinder British foraging efforts. He hoped to discomfit the British until severe weather made it impossible for them to find any supplies. Indeed, British General Sir Henry Clinton recorded the sufferings of his men in the cold, until late December when sufficient winter quarters could be constructed. Winter troubled the American army, but sometimes winter could be impartially cruel.⁷

Daily assaults of cool weather similarly weakened the colonists' contemporaneous offensive into Canada. Back in June 1775, while New Englanders surrounded Boston and Washington prepared to take command, the Continental Congress also ordered an invasion of Canada. They hoped to persuade Canada to join the other thirteen colonies in resisting Britain. The invasion began in September. Two American forces, one under Richard Montgomery and the other under Benedict Arnold, advanced into the hoped-to-be fourteenth colony. When he detached Arnold's force for the mission, Washington reported to Congress that he had investigated "the Danger of the Season being too far advanced, but found nothing...to deter me from proceeding, more especially, as it met with very General Approbation from all whom I

⁶ George Washington, "Letter to the President of Congress," 10 July 1775, in George Washington, *The Writings of George Washington from the Original Manuscript Sources, 1745-1799*, ed. John C. Fitzpatrick, 39 vols. (Washington: U.S. Govt. Printing Office, 1931-1944), vol. 3, at George Washington Resources, University of Virginia, <http://etext.virginia.edu/washington/fitzpatrick/>, hereafter cited as *The Writings of George Washington*; Washington, "General Orders," 23 July 1775, in *The Writings of George Washington*, vol. 3; Washington, "Letter to Massachusetts Legislature," 2 November 1775, in *The Writings of George Washington*, vol. 4; Washington, "Letter to the President of Congress," 11 November 1775, in *The Writings of George Washington*, vol. 4.

⁷ Washington, "Letter to Major General Artemas Ward," 17 November 1775, in *The Writings of George Washington*, vol. 4; Washington, "Letter to the President of Congress," 28 November 1775, in *The Writings of George Washington*, vol. 4; Washington, "Letter to the Joseph Reed," 15 December 1775, in *The Writings of George Washington*, vol. 4; Washington, "Letter to the Governor Nicholas Cooke," 17 December 1775, in *The Writings of George Washington*, vol. 4; Henry Clinton, *The American Rebellion: Sir Henry Clinton's Narrative of His Campaigns, 1775-1782, with an Appendix of Original Documents*, edited by William B. Willcox (New Haven: Yale University Press, 1954), 23.

consulted upon it.”⁸ Whoever Washington consulted proved unduly optimistic. Montgomery’s force captured Montreal in November, and eventually combined with Arnold’s men at Quebec. However, the weather worked against this ambitious project. Launching a northward invasion in the fall left the Americans suffering through the cooling weather all the way to Quebec, where in a final battle the weather that they hoped to use to their advantage instead aided the British defenders.

With such a late start for campaigning in the north, the weather dogged both expeditions almost from the beginning. Accompanying the expedition under Montgomery, chaplain Benjamin Trumbull recorded a frigid trek through a mixture of ice, snow, and rain. Sometimes all three chilled the troops in a single day, wearing them out. A private in Arnold’s army had similar experiences. Even late in September, not long after the invasion began, many soldiers started suffering from a lack of shelter in the cool nights. Dr. Isaac Senter, another member of Arnold’s force, recalled six inches of snow deluging them in a single night in late October. The weather alone had seriously beaten down the invasion forces by the time they rendezvoused near Quebec in early December.⁹

Winter’s chill had already sapped their strength, but it followed up this attrition by a snowstorm that contributed to the Canadian expedition’s total defeat in battle. Montgomery and Arnold seemed uncertain about how to take Quebec. They made slight efforts to build siege works, but Montgomery also wrote to his superior, General Philip Schuyler, on 5 December that the approaching frigid weather inclined him to assault Quebec, rather than besiege the city. The sort of weather desired for the attack finally appeared on the last day of the year. The Americans struck under the cover of a severe snowstorm. While the American commanders may have hoped their advance would be screened by the billowing snow, it proved more of a hindrance. Some “enormous and rugged masses of ice,” interfered with Montgomery’s advance.¹⁰ Meanwhile Pennsylvania Private John Henry recalled that a harsh wind blew the snow directly into the faces of Arnold’s men as they began their march. Men struggled to use their coats to shelter the locks

⁸ Washington, “Letter to the President of Congress,” 21 September 1775, in *The Writings of George Washington*, vol. 3.

⁹ Benjamin Trumbull, “Journal of Benjamin Trumbull, chaplain with the First Connecticut Regiment,” in *The Spirit of ‘Seventy-Six: The Story of the American Revolution as Told by Participants*, eds. Henry Steele Commager and Richard B. Morris, 2 vols. (Indianapolis: Bobbs-Merrill Company, 1958), 1: 190-191; Abner Stocking, “Journal of Abner Stocking,” in Commager and Morris, eds., *The Spirit of ‘Seventy-Six*, 1: 195; Isaac Senter, “Journal of Dr. Isaac Senter,” in Commager and Morris, eds., *The Spirit of ‘Seventy-Six*, 1: 196.

¹⁰ Stocking, “Journal of Abner Stocking,” in Commager and Morris, eds., *The Spirit of ‘Seventy-Six*, 1: 204.

of their guns from the snow. The tracks of their leaders vanished as the snow kept falling. When the British began to fire upon them from the city, the Americans soldiers could not see their enemies through the snow. Despite their best efforts, Henry and many of his comrades found their guns rendered useless. The snow landing on them was melted from their own body heat, and ruined their moisture-sensitive weapons. The American attempt to use the weather to aid their attack seemed to backfire, while the conquest of Canada sputtered and died in the whirling snow.¹¹

The winter was not entirely hostile to the American war efforts, for while it disrupted the Canadian offensive, to the south Colonel Henry Knox made practical use of the snow to solve a logistical dilemma. Just after war began, in May 1775, Ethan Allan and his men had captured Fort Ticonderoga, near Lake Champlain in New York. Washington dispatched Knox to collect the many artillery pieces held there, to bring for the siege of Boston. Knox reached the fort in early December, and concluded that moving the guns “will depend entirely on the sledding...without sledding, the roads are so much gullied, that it will be impossible to move a step.”¹² He quickly began hauling the guns to Boston. Thanks to heavy snow, Knox could use a collection of forty-two oxen-pulled sleds to shift his valuable cargo. While excessive snow occasionally slowed him down, overall Knox credited the snow as key to his advance. Almost two weeks later, he reiterated in a report to Washington “There will scarcely be any possibility of conveying them hence...but on sleds.”¹³ He eventually wished for even more snow to ease the transport of heavy guns. Solidly frozen rivers also facilitated Knox’s mission. With winter’s aid, the vital weapons reached Boston toward the end of January 1776.¹⁴

Aside from the American forces who guided oxen and sleds through the snow, the winter of 1775-1776 was not otherwise conducive to American military operations. Cold weather and snow prevented American troops from constructing new fortifications at Lechmere’s Point, a

¹¹ Richard Montgomery, “Letter to General Philip Schuyler,” 5 December 1775, in Commager and Morris, eds., *The Spirit of ‘Seventy-Six*, 1: 203; Stocking, “Journal of Abner Stocking,” in Commager and Morris, eds., *The Spirit of ‘Seventy-Six*, 1: 203; John Henry “Account of John Henry,” in Commager and Morris, eds., *The Spirit of ‘Seventy-Six*, 1: 206-208.

¹² Henry Knox, “Letter to George Washington,” 5 December 1775, in Jared Sparks, ed., *Correspondence of the American Revolution to George Washington from the Time of His Taking Command of the Army to the End of His Presidency*, 4 vols. (Boston: Little, Brown, and Company, 1853), 1: 87.

¹³ Knox, “Letter to George Washington,” 17 December 1775, in Sparks, ed., *Correspondence of the American Revolution to George Washington*, 1: 94-95.

¹⁴ Henry Knox, “Knox’s Diary During His Ticonderoga Expedition,” *The New-England Historical and Genealogical Register* 30 (1876): 321-326.

small spur of land on the northwest edge of Boston Harbor, throughout December 1775 to February 1776. Frozen ground made digging exceptionally laborious even when men could work. Washington also sent General Charles Lee on a recruiting mission to Connecticut, and then on to prepare defenses for New York City, doing as much as the weather would allow. Over a week after these orders, Lee wrote from New Haven, Connecticut, “We have been so baffled by the weather, that we only arrived here last night.”¹⁵ The weather so greatly hampered military activity that when Washington acquired intelligence that the British were outfitting an expedition in Boston Harbor, he was confident, based on the season, that it could only have been intended for the south.¹⁶

Washington very much wished to attack the British that winter, plotting attacks across a frozen Boston Harbor, but his officers demurred and the weather confirmed their view. Near the end of January, Washington identified to Congress two factors that left him unable to drive the British out of Boston: a lack of powder for bombarding the city, and a lack of ice on which to cross the bay to the city. His powder, beyond natural attrition through use, was “unavoidably damaged by severe and heavy rains.”¹⁷ Around the middle of February, a harsh freeze created sturdy ice across Boston Harbor, tantalizing Washington with offensive possibilities. He knew the ice would not last, and wished to seize the opportunity. At a council of war, he proposed an attack across the ice. His clear disappointment appears as he reported to Joseph Reed “...but, behold! though we had been waiting all the year for this favourable event, the enterprise was thought too dangerous! Perhaps it was, perhaps the irksomeness of my situation led me to undertake more than could be warranted by prudence.”¹⁸ Though stymied at this time, as February waned Washington looked forward to warmer weather, alerting the army that the

¹⁵ Charles Lee, “Letter to George Washington,” 16 January 1776, in Sparks, ed., *Correspondence of the American Revolution to George Washington*, 1:124.

¹⁶ Washington, “Letter to Joseph Reed,” 25 December 1775, in *The Writings of George Washington*, vol. 4; Washington, “Letter to the President of Congress,” 25 December 1775, in *The Writings of George Washington*, vol. 4; Washington, “Instructions to Major General Charles Lee,” 8 January 1776, in *The Writings of George Washington*, vol. 4; Washington, “Letter to Joseph Reed,” 23 January 1776, in *The Writings of George Washington*, vol. 4; Washington, “Letter to Joseph Reed,” 10 February 1776, in *The Writings of George Washington*, vol. 4.

¹⁷ Washington, “Letter to the President of Congress,” 30 January 1776, in *The Writings of George Washington*, vol. 4.

¹⁸ Washington, “Letter to Joseph Reed,” 26 February 1776, in *The Writings of George Washington*, vol. 4.

season for campaigning drew near. He began planning a move to seize a promontory known as Dorchester Heights.¹⁹

The weather had enabled Knox to lug artillery all the way from Ticonderoga to Boston, and now it conveniently enabled Washington to put those guns to use. On the night of 4 March, after heavily bombarding the British the three previous nights to distract them, Washington occupied Dorchester Heights. These hills overlooking Boston from the south offered a fine place to site artillery on the city and harbor. The ground was still frozen, which made digging fortifications difficult, but the Americans prepared many portable wooden obstacles and brought them up to the heights. A strong wind helped carry away the noise of the working Americans, and a haze below the heights further obscured the operation from British sentries. One witness reported, “The night was remarkably mild, a finer for working could not have been taken out of the whole 365.”²⁰ Thus far the weather helped Washington, but his ultimate goal with this maneuver was to force the British to attack him on his terms, and now the ever-capricious weather undermined him. General Sir William Howe, commanding the British army occupying Boston, promptly prepared to attack the heights. However, a powerful storm of wind and rain appeared in the afternoon, and lasted until the next day, making it impossible to move from Boston across the harbor to Dorchester and curtailing the British attack. The Americans used the time to continue strengthening their defenses. At that point Howe decided it was better to evacuate and give up the city than risk a frontal assault on so strong a position. Washington could “scarce forbear lamenting the disappointment,” at the battle the storm prevented.²¹ The winds blew away the decisive battle he sought, yet the weather’s compliance had still contributed to a major victory.²²

¹⁹ Washington, “Letter to the President of Congress,” 24 January 1776, in *The Writings of George Washington*, vol. 4; Washington, “Letter to the President of Congress,” 18 February 1776, in *The Writings of George Washington*, vol. 4; Washington, “Letter to the Governor Jonathan Trumbull,” 19 February 1776, in *The Writings of George Washington*, vol. 4.

²⁰ William Gordon, “Letter to Samuel Wilson,” 6 April 1776, in Commager and Morris, eds., *The Spirit of ‘Seventy-Six*, 1: 178.

²¹ Washington, “Letter to Landon Carter,” 25 March 1776, in *The Writings of George Washington*, vol. 4.

²² William Gordon, “Letter to Samuel Wilson,” 6 April 1776, in Commager and Morris, eds., *The Spirit of ‘Seventy-Six*, 1: 179; Washington, “Letter to Joseph Reed,” 7 March 1776, in *The Writings of George Washington*, vol. 4; Washington, “Letter to Governor Jonathan Trumbull,” 9 March 1776, in *The Writings of George Washington*, vol. 4; Washington, “Letter to John Tayloe,” 12 March 1776, in *The Writings of George Washington*, vol. 37; Washington, “Letter to Major General Charles Lee,” 14 March 1776, in *The Writings of George Washington*, vol. 4; Washington, “Letter to Major General Philip Schuyler,” 19 March 1776, in *The Writings of George Washington*, vol. 4; Washington, “Letter to John Augustine Washington,” 31 March 1776, in *The Writings of George Washington*, vol. 4; William Howe, “Letter to the Earl of Dartmouth,” 21 March 1776, in *Documents of the American Revolution*,

Heat, rain, and other weather in the southern colonies challenged all efforts to assemble substantial fighting forces there, and helped ensure the war's strategic center of gravity would remain in the north. At the beginning of the war, all attention focused on Boston, where the conflict began, and the weather helped maintain that trend. Only limited fighting occurred through 1775-1776 far to the south in the Carolinas and Georgia. Patriot and loyalist groups scrambled to marshal resources and assert control. However, the summer of 1775 seems to have been exceptionally rainy, which hindered those efforts. A South Carolina militia force assembled near the courthouse of Ninety-six, South Carolina, through the summer and fall, despite a lack of shelter from the heavy rains. Even though warmer than Boston, when winter set in, campaigning in the south likewise remained difficult. Late in the year, South Carolina sent its troops, led by Colonel Richard Richardson, to disperse a Tory force gathering in the mountains. They disbanded the Tories relatively easily, shortly before a thirty-hour snowstorm hit. Richardson reported that on Christmas Day 1775 his men struggled in snow fifteen inches deep. After marching through this for eight days, a thaw set in, along with sleet and rain, melting the snow and creating chilling floods in nearby creeks. Many in the expedition suffered frostbite before this so-called "Snow Campaign" ended.²³

The following year, the south received slightly more serious military attention, but the weather proved no more hospitable to military operations than it did in 1775. Early in 1776, Howe dispatched Clinton to the south, where he made a feeble attempt to capture Charleston, South Carolina. Rather than head for the city, Clinton landed on nearby Long Island and made ineffective efforts to capture the American Fort Sullivan (afterward dubbed Fort Moultrie). When all the troops he expected did not arrive, Clinton worried about awaiting the reinforcements, conscious that he "had the mortification to see the sultry, unhealthy season approaching us with hasty strides, when all thoughts of military operation in the Carolinas must be given up."²⁴ Nonetheless, Clinton's army spent weeks doing nothing, in what one soldier

1770-1783 (*Colonial Office Series*), edited by Kenneth Gordon Davies, 21 vols. (Dublin: Irish University Press, 1972-1981), 12: 81-82.

²³ William Tennent, "Fragments of a Journal," in Robert Wilson Gibbes, ed., *Documentary History of the American Revolution*, 3 vols. (1853-1857; New York: New York Times & Arno Press, 1971), 1: 226-239; John Drayton, *Memoirs of the American Revolution as Relating to the State of South Carolina*, 2 vols. (1821; New York: New York Times and Arno Press, 1969), 1: 406; Drayton, *Memoirs of the American Revolution*, 2: 132-135; Richard Richardson, "Letter to Henry Laurens," 2 January 1776, in Gibbes, ed., *Documentary History*, 1: 247.

²⁴ Clinton, *The American Rebellion*, 26.

called a “miserable situation,” unprotected from the heat and rain.²⁵ Twice storms disrupted plans to attack the fort, and when the navy finally bombarded the fort on a hot, humid 28 June, poor coordination meant the army did nothing. South Carolina General William Moultrie, commanding the fort, recalled the severe heat and the intense thirst the defenders felt, but they still managed to resist the British bombardment, even damaging some of the British warships. The entire mission became a disappointing failure for Clinton, made more unpleasant for all involved by the summer weather.²⁶

An American attempt to launch an offensive against Florida highlighted the damage that could come from ignoring general climatic conditions when an army planned a campaign. Armies could not forecast the daily weather, but they could at least try to anticipate seasonal norms and prepare accordingly. After the British abandoned their assault on Charleston, the Americans under General Charles Lee attempted to invade Florida. In the middle of August, what one local called “the most unhealthy season of the year,” in terrible heat and humidity, Lee led his Virginia and North Carolina Continental troops, along with militia from South Carolina.²⁷ The harsh weather, likely through heatstroke, cost the expedition lives, and eventually they gave up. Even when not campaigning, the weather took its toll on the army. In October, Continental General Robert Howe reported to the governor a lack of barracks to shelter the troops, warning of the harm the weather did to soldiers in the summer, and how much worse matters would get when winter arrived. At the start of the War of Independence, the natural center of gravity was the north, and the southern climate, daily sapping an army’s health and morale, helped ensure that little of great military significance occurred there.²⁸

While patriots and Tories struggled ineffectually in the southern rain and heat, to the north the weather hindered the plans of both Howe and Washington as the British and American armies each had to regroup after the fall of Boston. After ignominiously sailing from Boston in March, Howe removed his army to Halifax, Nova Scotia, where he regrouped until resuming the

²⁵ William Falconer, “Letter to Anthony Falconer,” 13 July 1776, in Drayton, *Memoirs of the American Revolution*, 2: 330.

²⁶ Drayton, *Memoirs of the American Revolution*, 2: 293, 299; “Account of the attack on Fort Moultrie,” from *The South Carolina and American General Gazette*, 2 August, 1776, in Gibbes, ed., *Documentary History*, 2: 15; William Moultrie, *Memoirs of the American Revolution*, 2 vols. (1802; New York: The New York Times & Arno Press, 1968), 1: 178-179.

²⁷ Drayton, *Memoirs of the American Revolution*, 2: 335.

²⁸ Drayton, *Memoirs of the American Revolution*, 2: 336; Robert Howe, “Letter to Governor Rutledge,” 6 October 1776, in Gibbes, ed., *Documentary History*, 2: 40.

offensive in late August 1776. Howe later justified his summer of inactivity by asserting, “from the violent heat of the weather, little active service could have been done, and...such service would probably have been attended with much sickness to the troops.”²⁹ Meanwhile, with Boston no longer needing a large army to surround it, Washington began to reallocate his forces. Spring rains, and their omnipresent companion, mud, especially bogged down artillery. The Continental Congress also ordered Washington to send reinforcements to Canada. The general cautioned that the northern lakes were icy enough to make boat traffic dangerous, but no longer sufficiently frozen to permit crossing atop the ice, thus delaying both means of movement. Washington had already suspected New York City would be a British target, as evidenced by his previously sending Charles Lee to fortify the place. The Continental Army moved to New York for the summer.³⁰

The British left Washington alone for those months, but the weather remained a persistent threat to his plans and the army’s basic ability to fight. Even with no enemy to shoot, the rain constantly attacked and depleted the army’s powder supply, leading Washington to repeatedly exhort both officers and men to take great care to keep their guns and ammunition dry. After the British landed on Staten Island around the beginning of July, Washington added the warning that “An enterprising enemy depending upon neglect in this article, often makes an attack, and too frequently with success.”³¹ In July, Washington also redeployed some of his troops north to Albany, to address concerns the British would invade overland from Canada. He determined the best way to move these men was by water, up the Hudson River, because they would arrive in much better condition than if they marched through the exhausting heat. Looking back later at the army’s time in New York, Washington concluded the heat contributed significantly to illness and weakness among the soldiers. As the armies waited, one on Long Island, the other on Staten Island, rain kept pelting both impartially. Washington credited these rains with preventing a British attack on 16 August. The night of 21 August, there was an intense thunderstorm; one

²⁹ William Howe, *The narrative of Lieut. Gen. Sir William Howe, in a committee of the House of Commons, on the 29th of April, 1779, relative to his conduct, during his late command of the King's troops in North America: To which are added, Some Observations upon a Pamphlet, entitled, Letters to a Nobleman*, (London: H. Baldwin, 1780; Gale Eighteenth Century Collections Online, <http://galenet.galegroup.com.proxy.lib.fsu.edu/servlet/ECCO>), 4.

³⁰ Washington, “Letter to the President of Congress,” 13 March 1776, in *The Writings of George Washington*, vol. 4; Washington, “General Orders,” 16 March 1776, in *The Writings of George Washington*, vol. 4; Washington, “Letter to Richard Henry Lee,” 4 April 1776, in *The Writings of George Washington*, vol. 4; Washington, “General Orders,” 4 May 1776, in *The Writings of George Washington*, vol. 5.

³¹ Washington, “General Orders,” 14 July 1776, in *The Writings of George Washington*, vol. 5.

American colonel reported lightning killed several men. The next day shined bright and clear: the British army landed on Long Island.³²

The weather may have prevented the American defeat that followed from becoming a complete disaster. At first, rain on 24 and 25 August kept dowsing the army's weapons, but the following day Washington urged his soldiers to keep their weapons ready. On 27 August, the British trounced the Continental Army in the first major engagement of the war since the colonies declared themselves independent. The following two days rain resumed. Now the overcast weather that hampered fighting helped Washington extricate his army before the British could crush it on Long Island. The evacuation began during the night of 29 August; bit by bit the American army stole away through the darkness and across the river. As dawn neared, with many troops yet to escape, an exceedingly dense fog replaced the darkness as a cloak for the American movement. What one patriot officer dubbed a "pillar of cloud to our enemies and favorable to us,"³³ held out through the morning until the entire army had evacuated. Thanks to the fog's support, Washington and his army survived a defeat to continue fighting.³⁴

In spite of Washington's poor choices in positioning his army on an island, the Continental Army eventually escaped being trapped in New York, thanks in part to the weather, and the war continued indecisively as fall drew on. Howe seemed to focus on peace negotiations, and did not exploit some of the offensive opportunities Washington inadvertently offered. Near

³² Washington, "General Orders," 2 July 1776, in *The Writings of George Washington*, vol. 5; Washington, "General Orders," 11 August 1776, in *The Writings of George Washington*, vol. 5; Washington, "Letter to Major General Artemas Ward," 11 July 1776, in *The Writings of George Washington*, vol. 5; Washington, "Letter to Major General Philip Schuyler," 11 July 1776, in *The Writings of George Washington*, vol. 5; Washington, "Letter to the President of Congress," 19 July 1776, in *The Writings of George Washington*, vol. 5; Washington, "General Orders," 16 August 1776, in *The Writings of George Washington*, vol. 5; Tench Tilghman, "Letter," 15 August 1776, in *Memoir of Lieut. Col. Tench Tilghman* (1876; New York: The New York Times & Arno Press, 1971), 132; Philip Vickers, "Journal of Philip Vickers Fithian," in Commager and Morris, eds., *The Spirit of 'Seventy-Six*, 1: 428; Ambrose Serle, "Journal of Ambrose Serle," in Commager and Morris, eds., *The Spirit of 'Seventy-Six*, 1: 430; William Douglas, "Letter to Mrs. Douglas," 23 August 1776, in Commager and Morris, eds., *The Spirit of 'Seventy-Six*, 1: 431; Washington, "Letter to Doctor John Morgan," 6 January 1779, in *The Writings of George Washington*, vol. 13.

³³ Enoch Anderson, *Personal Recollections of Captain Enoch Anderson*, edited by Henry Hobart Bellas (1896; New York: The New York Times & Arno Press, 1971), 22.

³⁴ Jabez Fitch, *The New York Diary of Lieutenant Jabez Fitch*, edited by W. H. W. Sabine (New York: Colburn and Tegg, 1954), 28, 35; Washington, "General Orders," 26 August 1776, in *The Writings of George Washington*, vol. 5; Samuel DeForest, "Pension Application Deposition," in *The Revolution Remembered: Eyewitness Accounts of the War of Independence*, ed. John C. Dann (Chicago: University of Chicago Press, 1980), 43-44; Michael Graham, "Pension Application Deposition," in Dann, ed., *The Revolution Remembered*, 50; Washington, "Letter to the President of Congress," 29 August 1776, at half past four A.M., in *The Writings of George Washington*, vol. 5; Washington, "Letter to the President of Congress," 31 August 1776, in *The Writings of George Washington*, vol. 5; Benjamin Tallmadge, "Account by Benjamin Tallmadge," in Commager and Morris, eds., *The Spirit of 'Seventy-Six*, 1: 445-446.

the end of October, the armies clashed at White Plains, but achieved little. Through September and October, the foe known as “bad Weather” often threatened to raid Washington’s powder supplies; he fought this enemy with injunctions to his army to protect their weapons and ammunition from the rains.³⁵ As the year drew to an end and the temperatures grew colder, Washington began to hope for respite from the campaign. In late October, he recommended that General Schuyler simply strive to endure in Fort Ticonderoga, if attacked, until winter would drive the British back. By early November, confident that the cold would halt Howe, Washington began ordering his own army to make preparations for winter, including building quarters and entrenchments before the ground froze solid.³⁶

For a time, the cooling weather appeared to end military operations on both sides for 1776. In November, Howe dispatched Clinton on an expedition to capture Rhode Island, something Clinton condemned as completely unsuited to the climate and time of year. He still managed to capture the actual island of Rhode Island in early December, but declined to campaign further, fearing “at that time of year in so rigorous a climate...a violent snowstorm or frost, catching me suddenly in the midst of a move, might have put it out of my power either to advance or fall back.”³⁷ By 14 December, Howe deemed the weather too cold for his troops to remain in the field any longer, and took up winter quarters. Washington recognized winter’s hand in Howe’s decision, declaring that it “has been more owing to the badness of the weather, that the Enemy’s progress has been checked, than any resistance we could make.”³⁸ He hoped the inclement conditions would persist. Major Johann Ewald, commanding a force of jaegers (elite Hessian riflemen), recorded his realization that any further advance for the British would depend on the weather; snow even hindered his movements when he led a patrol on 24 December. By 20 December, Washington also believed Howe was only waiting for the Delaware River to freeze so

³⁵ Washington, “General Orders,” 29 September 1776, in *The Writings of George Washington*, vol. 6.

³⁶ Washington, “General Orders,” 10 October 1776, in *The Writings of George Washington*, vol. 6; Washington, “Letter to Major General Philip Schuyler,” 22 October 1776, in *The Writings of George Washington*, vol. 6; Washington, “Letter to Major General Charles Lee,” 10 November 1776, in *The Writings of George Washington*, vol. 6; Washington, “Letter to Major General William Heath,” 12 November 1776, in *The Writings of George Washington*, vol. 6.

³⁷ Clinton, *The American Rebellion*, 58.

³⁸ Washington, “Letter to Major General Charles Lee,” 27 November 1776, in *The Writings of George Washington*, vol. 6.

he could cross to attack him. As late as Christmas Day, Washington suspected the British army awaited a frozen Delaware to resume the offensive – but that night, he crossed it first.³⁹

Despite thoroughly inhospitable winter weather, Washington led his chilly army across the Delaware at night on Christmas Day 1776. Ice in the river sometimes slowed the crossing, and in one case prevented a unit from getting across the river at all. Many witnesses recalled marching through a mix of rain, snow, and hail. One soldier even recalled with fascination seeing Washington's horse slip and nearly tumble on the icy ground. The army's torches "sparkled and blazed in the storm all night," as they trudged through the snow.⁴⁰ As the troops approached Trenton, New Jersey, the storm was at their backs, blowing into the faces of their enemy, Hessian troops working for Britain. The American assault caught the Hessians in Trenton off guard, and Washington gained an invaluable victory. Because of the absence of the troops who had been unable to get across the river due to the weather, and the continuing inclement conditions, Washington could not mount as vigorous a pursuit as he wished. Re-crossing the Delaware after the victory proved similarly perilous. The same weather, however, delayed or hampered British reactions to Washington's raid. After returning to Pennsylvania, Washington crossed the Delaware yet again to strike Princeton. This icy campaign left the British disconcerted, while revitalizing American morale as the Continental Army encamped for winter at Morristown, New Jersey.⁴¹

³⁹ Clinton, *The American Rebellion*, 54; William Howe, "Letter to Lord George Germain," 20 December 1776, in Charles Cornwallis, *Correspondence of Charles, First Marquis Cornwallis*, ed. Charles Ross, 3 vols. (London: John Murray, 1859), 1: 25; Washington, "Letter to Governor William Livingston," 21 November 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to the President of Congress," 27 November 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to the President of Congress," 4 December 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to Governor Jonathan Trumbull," 14 December 1776, in *The Writings of George Washington*, vol. 6; Johann Ewald, *Diary of the American War, A Hessian Journal*, translated and edited by Joseph P. Tustin (New Haven, CT: Yale University Press, 1979), 27, 30, 34-35, 39; Washington, "Letter to the President of Congress," 20 December 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to Governor Nicholas Cooke," 21 December 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to Robert Morris," 22 December 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to Major General Joseph Spencer," 22 December 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to the President of Congress," 24 December 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to Robert Morris," 25 December 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to Major General Israel Putnam," 25 December 1776, in *The Writings of George Washington*, vol. 6.

⁴⁰ Elisha Bostwick, "Memoirs of Elisha Bostwick," in Commager and Morris, eds., *The Spirit of 'Seventy-Six*, 1: 512.

⁴¹ Washington, "Letter to the President of Congress," 27 December 1776, in *The Writings of George Washington*, vol. 6; Thomas Rodney, "Letter to Caesar Rodney," 30 December 1776, in Commager and Morris, eds., *The Spirit of 'Seventy-Six*, 1: 514; Henry Knox, "Letter to Mrs. Knox," 28 December 1776, in Commager and Morris, eds., *The Spirit of 'Seventy-Six*, 1: 513; Bostwick, "Memoirs of Elisha Bostwick," in Commager and Morris, eds., *The Spirit*

After undergoing tiring and treacherous river crossings, the Continental Army settled down to endure the uncomfortable winter, a time the British found equally unpleasant. From Morristown, Washington reported that growing numbers of his men were leaving on a daily basis due to the cold. By mid-January, he worried that the British would use the now-frozen Delaware to work mischief; he later similarly feared the British would attack Fort Ticonderoga across the ice. However, winter chilled Howe's soldiers just as keenly as it did the Americans, and Howe felt he could do little. For a time, an American militia force approached one of Howe's redoubts and encamped near it, but he was unconcerned, confident they could not remain in the field for long. Major Ewald observed that many in the British army lacked adequate shoes and clothing. Through the end of March, the snowdrifts grew while the army did little but stand in them. Over time, the British did provide good food and clothing for their soldiers. Howe reported to Lord Germain that he planned to do more that winter, but the deep snows immobilized him. Washington's plans went no better, as he tried to seize Fort Independence, but between poor leadership and abundant snow and rain that ruined the expedition's guns and powder, the detachment accomplished nothing. March found Washington preparing for a new campaign, trying to acquire more tents so that his soldiers would suffer from the weather less in the coming summer than they did in the previous campaign.⁴² The "Season favourable for Military operations" was approaching, Washington declared, and he felt certain Howe would surely try to use it.⁴³

of 'Seventy-Six, 1: 511-512; Washington, "Letter to Robert Morris," 27 December 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to Colonel John Cadwallader," 27 December 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to Brigadier General Alexander McDougall," 28 December 1776, in *The Writings of George Washington*, vol. 6; Washington, "Letter to the President Congress," 29 December 1776, in *The Writings of George Washington*, vol. 6; Ewald, *Diary of the American War*, 43.

⁴² Washington, "Letter to the President of Congress," 1 January 1777, *The Writings of George Washington*, vol. 6; Washington, "Letter to the President of Congress," 5 January 1777, *The Writings of George Washington*, vol. 6; Washington, "Letter to the President of Congress," 7 January 1777, *The Writings of George Washington*, vol. 6; Washington, "Letter to the President of Congress," 19 January 1777, *The Writings of George Washington*, vol. 6; Washington, "Letter to the President of Congress," 14 February 1777, *The Writings of George Washington*, vol. 7; William Howe, "Letter to Lord George Germain," 20 January 1777, in Davies, ed., *Documents of the American Revolution*, 14: 33; Ewald, *Diary of the American War*, 48, 51, 55; Timothy Pickering, "Journal of Colonel Timothy Pickering," in Commager and Morris, eds., *The Spirit of 'Seventy-Six*, 1: 530; Washington, "Letter to Major General Thomas Mifflin," 11 March 1777, *The Writings of George Washington*, vol. 7; Washington, "Letter to Major General Joseph," 11 March 1777, *The Writings of George Washington*, vol. 7; William Howe, "Letter to Lord George Germain (No. 47, Secret)," 2 April 1777, in Davies, ed., *Documents of the American Revolution*, vol. 14, 65.

⁴³ Washington, "Letter to Lieutenant Colonel John Brooks," 11 March 1777, *The Writings of George Washington*, vol. 7.

Weather partially determined Howe's strategy when the snow melted in April. The armies resumed operations, but Howe did not entirely fulfill Washington's expectations. Howe had already begun preparing to attack Pennsylvania via naval transport, so his focus was not on New Jersey. Still, through June he made feeble efforts to bring Washington to battle. To justify why he did not attack Washington's army camped at Middle Brook, New Jersey, Howe explained he felt outflanking the post would have wasted too much time marching through the summer heat. However, since he accomplished nothing, it would seem that time was still wasted. Washington, for his part, reported toward the end of June that rains had hindered his own movements. The heat grew severe enough that Ewald, with the British army, heard it killed twenty men on the march. Howe skirmished with American forces on 26 June, but the Americans retreated. The British made little effort to pursue, "the day proving so intensely hot that the soldiers could with difficulty continue their march."⁴⁴ The Americans used the opportunity to escape. Howe's own opportunities to engage Washington in spring and early summer passed, but he had a new goal: Philadelphia.⁴⁵

Sometimes even when a commander attempted to include the weather in his plans, the forces of nature still conspired toward his defeat. In the summer of 1777, while General Howe aimed for the de facto American capital at Philadelphia, in Canada another British army, under General John Burgoyne, plunged into the forested depths of New York. Had Burgoyne succeeded, he might have cut off New England from the middle and southern colonies. The British commanders failed to coordinate their plans, however, so while Burgoyne expected a supporting army to drive north from New York City, instead he was largely on his own. He made a number of questionable choices that ended with his surrendering his army at Saratoga, granting the Americans a major strategic victory. The environment during the Saratoga campaign did nothing to compensate for the poor decisions of British leaders. The weather frequently delayed Burgoyne's movements, mired supplies, and wore down his army.

Burgoyne tried to account for the variety of difficulties of a wilderness campaign, including the weather. In a plan he drew up for an expedition launched from Canada, Burgoyne

⁴⁴ William Howe, "Letter to Lord George Germain (No. 60)," 5 July 1777, in Davies, ed., *Documents of the American Revolution*, 14: 129.

⁴⁵ Ewald, *Diary of the American War*, 55, 69; Howe, *The narrative of Lieut. Gen. Sir William Howe*, 15-16; Washington, "Letter to Major General John Sullivan," 23 June 1777, *The Writings of George Washington*, vol. 8; Washington, "Letter to the President of Congress," 25 June 1777, *The Writings of George Washington*, vol. 8; William Howe, "Letter to Lord George Germain (No. 60)," 5 July 1777, in Davies, ed., *Documents of the American Revolution*, 14: 128.

proposed that the earliest it should begin was the latter part of May, because melting snow would disrupt roads and flood rivers prior to that. However, the spring weather would otherwise be good enough to enable preparations for the invasion. At first, events bore this out. At mid-May, Burgoyne wrote optimistically about the progress of the campaign, describing unusually mild winter weather that had assisted his preparations. Canadians also confirmed that the winter of 1776-1777 was especially mild. Unfortunately for Burgoyne, only days later, he wrote to Lord Germain that the “only delay is occasioned by the impracticability of the roads, owing to late extraordinary heavy rains,” and that he was waiting for the weather to clear.⁴⁶ Testifying to Parliament later, Burgoyne had to explain that severe summer rains effectively shut down the roads to his staging areas, seriously delaying the start of his offensive.⁴⁷

In the latter part of June, the army finally started moving, but the weather offered no reprieve. It seems to have hindered Burgoyne throughout the campaign. At the end of June, General Friederich Riedesel wrote home that the weather had halted his unit. Burgoyne’s deputy quartermaster general later testified that weather regularly interfered with keeping the army supplied. Burgoyne recorded on 8 July that a rainstorm prevented a troop movement all day. Colonel Johann Specht declared that there were daily thunderstorms, along with sometimes-severe heat and heavy morning fogs. Justifying the slow pace of his army to his superior, Burgoyne listed the heavy rains as a factor multiple times. On 12 September, the rain again brought the army to a halt. Even troops left behind to guard supply lines suffered from the weather; British soldier Thomas Hughes recorded that his entire unit was surrounded by the Americans and forced to surrender, thanks to the cloak of a thick fog. Burgoyne’s expedition straggled ever closer to the American army, while growing ever shorter on men and supplies. When the armies clashed, events did not go well for the British. In a sharp fight on 19 September, they drove the Americans back, but took much heavier losses.⁴⁸

⁴⁶ John Burgoyne, “Copy of a Letter from Lieutenant-General Burgoyne to Lord George Germain,” 19 May 1777, in *A State of the Expedition from Canada* (1780; New York: The New York Times & Arno Press, 1969), Appendix xx.

⁴⁷ Burgoyne, “Thoughts for conducting the War from the Side of Canada,” in *A State of the Expedition from Canada*, Appendix v; Burgoyne, “Copy of a Letter from Lieutenant-General Burgoyne to Lord George Germain,” 14 May 1777, in *A State of the Expedition from Canada*, Appendix xvii-xviii; Thomas Hughes, *A Journal by Thos: Hughes: For his Amusement, & Designed only for his Perusal by the time he attains the Age of 50 if he lives so long (1778-1789)* (Cambridge: Cambridge University Press, 1947), 7; Burgoyne, *A State of the Expedition from Canada*, 10.

⁴⁸ Friederich Riedesel, “Letter to Duke Ferdinand of Brunswick,” 28 June 1777, in Max von Eelking, *Memoirs, Letters, and Journals of Major General Riedesel*, translated by William L. Stone, 2 vols. (1868; New York: The New York Times and Arno Press, 1969), 1: 238; “Testimony of Captain Money, deputy quartermaster general, to

Doggedly, Burgoyne plowed forward, as his army grew weaker from both the daily weather and from skirmishes with the Americans. By the beginning of October, Specht complained that nightly frost combined with intense daily heat were wearing down the troops. Fog still bedeviled the army's morning movements. One of Burgoyne's officers reported to Parliament that "torrents and bad weather," destroyed a bridge over the Hudson River, temporarily splitting the army.⁴⁹ Burgoyne clashed with the American army under Horatio Gates again on 7 October, but was repelled. On the night of 8 October, the army tried to retreat toward Saratoga, but heavy rains prevented this. After delaying Burgoyne's advance repeatedly, the weather now hampered his withdrawal. On the day and night of 9 October, constant rain mired the roads and impeded the fallback to Saratoga. The wet, muddy march exhausted the troops; they could go no further. The Americans prepared to stage a surprise assault in the morning fog on 11 October, but aborted it. It was unnecessary. The Americans had surrounded Burgoyne, the still-hot days and increasingly frigid nights tormented the shelter-less troops, and supplies ran low. When Burgoyne at a council of war considered having the army disperse and flee individually, General William Phillips dissuaded him from that course, warning that, besides lacking supplies, the weather "could put insurmountable obstacles in the way, making uncleared paths terrible, swelling the water of the brooks to be crossed," and only leading to an even more complete ruin of the army.⁵⁰ Burgoyne conceded that he was trapped, and a few days later endured the embarrassment of surrendering his cold, wet army to the Americans, granting them one of their greatest and most strategically important victories of the war.⁵¹

While Burgoyne trekked through the northern forests to his doom, Howe's strategy sacrificed time in exchange for protection from the summer heat. He tried to ameliorate the warmth by moving his army over water. He spent most of July and August 1777 moving, or

Parliament," in Burgoyne, *A State of the Expedition from Canada*, 56; Burgoyne, *A State of the Expedition from Canada*, Appendix xxxiv; Johann Friedrich Specht, *The Specht Journal: A Military Journal of the Burgoyne Campaign*, trans. Helga Doblin, ed. Mary C. Lynn (Westport, CT: Greenwood Press, 1995), 65; Burgoyne, "Letter to Lord George Germain," 20 August 1777, in Burgoyne, *A State of the Expedition from Canada*, Appendix xl, xlii, xliii; Specht, *The Specht Journal*, 75; Hughes, *A Journal by Thos: Hughes*, 12.

⁴⁹ "Testimony of Earl of Balcarras to Parliament," in Burgoyne, *A State of the Expedition from Canada*, 40.

⁵⁰ Specht, *The Specht Journal*, 97.

⁵¹ Specht, *The Specht Journal*, 85, 87; Burgoyne, "Extract of Letter from Lieutenant-General Burgoyne to Lord George Germain," 20 October 1777, in *A State of the Expedition from Canada*, Appendix xci; "Testimony of Earl of Balcarras to Parliament," in Burgoyne, *A State of the Expedition from Canada*, 43; Specht, *The Specht Journal*, 93; "Testimony of Earl of Harrington, to Parliament," in Burgoyne, *A State of the Expedition from Canada*, 73, 79; "Testimony of one Lieutenant Colonel Kingston, adjutant general to the army, to Parliament," in Burgoyne, *A State of the Expedition from Canada*, 108; Specht, *The Specht Journal*, 96.

trying to move, and getting no help from the weather. Though he tried to sail near the beginning of July, uncooperative winds impounded the army's transports at New York until late in the month. To reach Philadelphia, Howe opted to sail up the Chesapeake Bay, the longer of the routes available to him (the shorter alternative running up the Delaware River). He preferred to move as far as possible by water to spare his troops from what a subordinate later explained was "such uncommon hot weather, that, if the troops had been on shore at that time, they must have suffered exceedingly."⁵² As nice as that sounded, trying to spare his army from the heat cost Howe an additional three weeks of the campaigning season at sea, after having already achieved nothing through the spring and early summer. When the army at last landed in Maryland around 25 August, they finally had to face the summer heat that Howe had feared. In addition to the discomfort of marching in wet clothing soaked from repeated thunderstorms, Ewald complained that the heat "increased to such a degree that we believed we would suffocate in the fiery air."⁵³ Another jaeger officer reported the heat made him sick and that one of his comrades "dropped dead" from it.⁵⁴ A couple days after landing, the weather cleared and the roads dried out; at last the weather permitted the British army to advance on Philadelphia.⁵⁵

The weather in the summer of 1777 proved similarly troublesome for Washington's plans as he tried to redeploy his army to meet Howe – wherever it was that Howe was going. Washington needed to be in a position to respond when Howe attacked, and consequently spent much of July and August marching to and fro, trying to figure out where to be to counter Howe. He tried to march the army at times of day that would avoid the worst heat. The rain, as well as the heat, repeatedly hindered his plans, and many of his orders to march were contingent on clear weather. From muddy roads, to ruined ammunition, to wet tents that required time to dry, the rain constantly meddled in the army's activities. Fog, too, could force the cancellation of the army's regular drilling. By early August, Washington decided "The fatigue...and Injury, which Men must Sustain by long Marches in such extreme heat as we have felt for the last five days,

⁵² Howe, *The narrative of Lieut. Gen. Sir William Howe*, 91.

⁵³ Ewald, *Diary of the American War*, 75.

⁵⁴ Heinrich Carl Philipp von Feilitzsch, *Diary (1777-1780)*, in Heinrich Carl Philipp von Feilitzsch and Christian Friedrich Bartholomai, *Diaries of two Ansbach Jaegers*, translated and edited by Bruce E. Burgoyne (Bowie, MD: Heritage Books, 1997), 16.

⁵⁵ Ewald, *Diary of the American War*, 72-73; von Feilitzsch, *Diary (1777-1780)*, in von Feilitzsch and Bartholomai, *Diaries of two Ansbach Jaegers*, 11-15; Howe, *The narrative of Lieut. Gen. Sir William Howe*, 71, 91; John Montresor, "Journal of Captain John Montresor of the Royal Engineers," in Commager and Morris, eds., *The Spirit of 'Seventy-Six*, 1: 609-610.

must keep us quiet till we hear something of the destination of the Enemy.”⁵⁶ At first, he doubted Howe would go to the south, partly because of heat at that time of year. As August dragged on, Washington reconsidered, fearing Howe might strike at Charleston; if that happened, Washington worried the climate and distance would make it impossible for him do anything helpful. Whether the army was marching or resting, the weather made Washington’s job difficult even when the enemy was completely absent.⁵⁷

September saw a remarkable meteorological intervention, decisively preventing a battle both sides desired. Once Howe’s army landed and started moving, Washington tried to make a stand along Brandywine Creek. The British outflanked and defeated Washington in the Battle of Brandywine on 11 September; one Quaker observer at the battle noted that many of the American soldiers were exhausted by all the hot marching they had done. After the battle, both armies maneuvered for a rematch. On Tuesday, 16 September, they closed for action, and just as they prepared to fight, according to Hessian Major Ewald “...an extraordinary thunderstorm occurred, combined with the heaviest downpour in this world.”⁵⁸ Nature halted the armies. Guns on both sides ceased to function, and the rain “caused the roads to become so bottomless that not one wagon, much less a gun, could get through.”⁵⁹ The rain continued through the night and the following day, during which time the Americans retreated; the storm devastated their ammunition supplies, estimated at 400,000 rounds. To Washington’s frustration, it took days before the Continental Army regained the ability to fight. Howe was likewise frustrated at the way the weather prevented him from pursuing Washington. Responding to a later pamphlet

⁵⁶ Washington, “Letter to John Augustine Washington,” 5 August 1777, in *The Writings of George Washington*, vol. 9.

⁵⁷ Washington, “Letter to Major General John Sullivan,” 6 July 1777, in *The Writings of George Washington*, vol. 8; Washington, “Letter to the President of Congress,” 12 July 1777, in *The Writings of George Washington*, vol. 8; Washington, “Letter to Major General Philip Schuyler,” 13 July 1777, in *The Writings of George Washington*, vol. 8; Washington, “General Orders,” 11 July 1777, in *The Writings of George Washington*, vol. 8; Washington, “Letter to Major General William Heath,” 13 July 1777, in *The Writings of George Washington*, vol. 8; Washington, “Letter to the President of Congress,” 14 July 1777, in *The Writings of George Washington*, vol. 8; Washington, “General Orders,” 25 July 1777, in *The Writings of George Washington*, vol. 8; Washington, “Letter to John Tayloe,” 5 August 1777, in *The Writings of George Washington*, vol. 9; Washington, “Letter to Major General Israel Putnam,” 7 August 1777, in *The Writings of George Washington*, vol. 9; Washington, “Letter to Major General William Heath,” 10 August 1777, in *The Writings of George Washington*, vol. 9; Washington, “General Orders,” 8 August 1777, in *The Writings of George Washington*, vol. 9; Washington, “Letter to the President of Congress,” 21 August 1777, in *The Writings of George Washington*, vol. 9; Washington, “Notes from a Council of War,” 21 August 1777, in *The Writings of George Washington*, vol. 9; Washington, “Letter to the President of Congress,” 27 August 1777, in *The Writings of George Washington*, vol. 9.

⁵⁸ Ewald, *Diary of the American War*, 89.

⁵⁹ Ewald, *Diary of the American War*, 89.

critical of him, the British commander complained how ignorant it was that the pamphlet's author "thinks it ridiculous that a fall of rain should prevent the operations of an army."⁶⁰ Many senior officers testified to Parliament that the weather rendered the desired attack impossible.⁶¹

The armies achieved little else in September, and their commanders already began planning how to endure the winter. After being defeated at Brandywine and then being unable to effect another battle on good terms, Washington could not stop Howe from capturing the erstwhile American capital of Philadelphia. While distressing, the loss of the city was not a crippling blow to the American war effort. The weather still weighed heavily on Washington's mind, and as early as mid-September, he started trying to prepare for winter, remarking how a lack of protection from the cold would leave his men unfit for service. Near the end of the month, he decided to dismiss many militiamen from service because they could not be protected from the coming cold. Back in New York, the weather concerned General Clinton, who in September led small raids into New Jersey before falling back to New York due to the threat of bad weather. Though some were already looking at wintering, the weather had not finished shaping the campaign of 1777.⁶²

Washington faced many defeats through the war, but in an unparalleled event, in October 1777 Washington attributed a decisive loss to the weather. He attempted a multi-pronged surprise assault on the British forces at Germantown, north of Philadelphia. The army had ammunition again, and Washington acquired intelligence that Howe had detached part of his forces elsewhere, creating an opportunity to strike against the remaining British forces. One wing of the Continental Army attacked at dawn on 4 October; the other wing joined the battle a little later. The British seemed off guard, and the Americans initially experienced great success. One

⁶⁰ Howe, *The narrative of Lieut. Gen. Sir William Howe*, 103.

⁶¹ Joseph Townsend, *The Battle of Brandywine* (1846; New York: The New York Times & Arno Press, 1969), 20; von Feilitzsch, *Diary (1777-1780)*, in *Diaries of two Ansbach Jaegers*, 19; Washington, "Letter to Brigadier General William Maxwell," 17 September 1777, in *The Writings of George Washington*, vol. 9; Henry Knox, "Letter to Mrs. Knox," 24 September 1777, in Commager and Morris, eds., *The Spirit of 'Seventy-Six*, 1: 619; Washington, "Letter to Brigadier General Thomas Nelson," 27 September 1777, in *The Writings of George Washington*, vol. 9; Washington, "Council of War," 23 September 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to the President of Congress," 23 September 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to the President of Congress," 18 September 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to the President of Congress," 19 September 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to the President of Congress," 17 September 1777, in *The Writings of George Washington*, vol. 9; Howe, *The narrative of Lieut. Gen. Sir William Howe*, 26, 95-96, 101, 103.

⁶² Washington, "Letter to the President of Congress," 15 September 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to Lord Stirling," 25 September 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to Brigadier General Thomas Nelson, Jr.," 27 September 1777, in *The Writings of George Washington*, vol. 9; Clinton, *The American Rebellion*, 71.

British defensive position offered stubborn resistance, but the overall attack was going well – and then the weather intervened. The morning of 4 October was extremely foggy. The normal smoke of battle furthered reduced visibility. Unable to discern how the battle fared, the Americans could not see or fully exploit their success. The fog-born uncertainty led Washington to be more cautious than he would otherwise have been, which gave the British time to regroup. The fog similarly prevented the different American units from coordinating. Washington reported that in some instances they even mistook each other for the British, “which, I believe, more than any thing else, contributed to the misfortune which ensued. In the midst of the most promising appearances, when every thing gave the most flattering hopes of victory, the Troops began suddenly to retreat. . . .”⁶³ Fearing they were outflanked or surrounded, American troops fled from near-victory, after a couple hours of success. Washington definitively blamed the consequent American defeat on the deceitful fog. Howe, in his own official report on the action at Germantown, made no mention of the weather or facing desperate straits, but a variety of American witnesses concurred on the role the fog played.⁶⁴

After Germantown, as Burgoyne faced the prospect of surrender in the north, the weather in Pennsylvania encouraged the curtailment of military operations for the year. Through October, Howe besieged an American post at Mud Island (also called Fort Mifflin), southwest of Philadelphia, an ultimately victorious endeavor prolonged by severe rains that damaged British siege works. The rain and cold brought great discomfort to British troops in the meantime. Washington made the most of the waning months of the year, training and drilling his men whenever weather permitted. Considering the importance of keeping ammunition dry, he made

⁶³ Washington, “Letter to the President of Congress,” 5 October 1777, in *The Writings of George Washington*, vol. 9.

⁶⁴ John Armstrong, “Letter to General Horatio Gates,” 9 October 1777, in Commager and Morris, eds., *The Spirit of ‘Seventy-Six*, 1: 628; T. Will Heth, “Letter to Colonel John Lamb,” 12 October 1777, in Commager and Morris, eds., *The Spirit of ‘Seventy-Six*, 1: 629-630; Anderson, *Personal Recollection*, 45; Washington, “Letter to Governor Jonathan Trumbull,” 8 October 1777, in *The Writings of George Washington*, vol. 9; Washington, “General Orders,” 5 October 1777, in *The Writings of George Washington*, vol. 9; Washington, “Letter to Governor William Livingston,” 6 October 1777, in *The Writings of George Washington*, vol. 9; Washington, “Letter to Lieutenant Colonel Samuel Smith,” 7 October 1777, in *The Writings of George Washington*, vol. 9; Washington, “Letter to the President of Congress,” 7 October 1777, in *The Writings of George Washington*, vol. 9; Washington, “Letter to Thomas McKean,” 10 October 1777, in *The Writings of George Washington*, vol. 9; Washington, “Letter to John Page,” 11 October 1777, in *The Writings of George Washington*, vol. 9; Washington, “Letter to John Augustine Washington,” 18 October 1777, in *The Writings of George Washington*, vol. 9; Timothy Pickering, “Journal of Colonel Timothy Pickering” in Commager and Morris, eds., *The Spirit of ‘Seventy-Six*, 1: 627-628; Tench Tilghman, “Letter to Father,” 6 October 1777, in *Memoir of Lieut. Col. Tench Tilghman*, 160-161; Howe, “Letter from General Sir William Howe to Lord George Germain (No. 68),” 10 October 1777, in Davies, ed., *Documents of the American Revolution*, 14: 207-208.

repeated special requests to procure cartridge boxes for the army, describing in great detail the materials and design best suited for protecting soldiers' ammunition from rain. He wanted no repeats of 16 September. Warily, he took precautions to guard Fort Mifflin against a British sneak attack in the fog. By the end of October, inclement weather began hindering troop movements, when Washington wanted to shift reinforcements to several outposts. He hoped, however, that the storms might similarly discomfit the enemy's efforts. By November, Washington declared his expectation that the cold would soon prevent the British from further operations, though in early December he also feared that a thaw would allow the British to resume campaigning. The weather was never reliable as either an ally or enemy.⁶⁵

Finally, winter brought the campaigning season to a close. The Marquis de Lafayette advised Washington against any more attacks on the British in Philadelphia for the year; among his chief concerns was the unreliability of the weather. To outflank British defenses, the Americans would need to cross a solidly frozen Schuylkill River. Even if they could guarantee suitable weather, Lafayette expected the British would be careful enough to systematically break up the ice that would otherwise leave their position vulnerable. The cold itself would also make it difficult to keep an attacking force in the field waiting for an opportunity to strike. American Colonel John Laurens had similar doubts about winter campaigning, declaring "Winter campaigns...are ominous to the best appointed and best disciplined armies," and the campaigns themselves were capable of damaging armies.⁶⁶ Both British and American soldiers suffered in the cold, though the privations of Americans at Valley Forge were worse and subsequently more famous. In the first weeks of December, Howe launched a foray toward the American camp, tempting them to give battle, but soon gave up, not wishing to keep his men in the field in the cold any longer. He considered the American defenses at Valley Forge too strong to attack in wintry conditions. Washington, too, settled down at Valley Forge, his focus shifting to the great

⁶⁵ Howe, *The narrative of Lieut. Gen. Sir William Howe*, 29, 105; von Feilitzsch, *Diary (1777-1780)*, in *Diaries of two Ansbach Jaegers*, 23-26; Washington, "General Orders," 12 October 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to the President of Congress," 13 October 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to the Board of War," 22 October 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to Commodore John Hazelwood," 19 October 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to Brigadier General David Forman," 28 October 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to Lieutenant Colonel Samuel Smith," 28 October 1777, in *The Writings of George Washington*, vol. 9; Washington, "Letter to Brigadier General James Mitchell Varnum," 11 November 1777, in *The Writings of George Washington*, vol. 10; Washington, "Letter to Governor George Clinton," 3 December 1777, in *The Writings of George Washington*, vol. 10.

⁶⁶ John Laurens, "Letter to Henry Laurens, President of Congress," 3 December 1777, in Commager and Morris, eds., *The Spirit of 'Seventy-Six*, 1: 639.

challenges of getting supplies transported to his men. Winter made many roads impassable. He continued watching for chances to use frozen rivers to attack the British, or exploit the ways the wintry weather would prevent the enemy from acting, but took little action. From near the war's beginning through the end of the turning-point year 1777, the weather had loomed over commanders' planning, intervened decisively in specific operations like the seizure of Dorchester Heights or the attack on Germantown, and on an often daily basis made the lives of soldiers and generals more difficult. Such unpredictable environmental forces continued shaping the conduct of the Revolutionary War's later years.⁶⁷

⁶⁷ Marie-Joseph-Paul-Yves-Roch-Gilbert du Mortier, Marquis de Lafayette, "Letter to George Washington," 3 December 1777, in *The Letters of Lafayette to Washington, 1777-1799*, edited by Louis Gottschalk (Philadelphia: American Philosophical Society, 1976), 10-12; Washington, "Letter to the President of Congress," 23 December 1777, in *The Writings of George Washington*, vol. 10; von Feilitzsch, *Diary (1777-1780)*, in *Diaries of two Ansbach Jaegers*, 31-32; Howe, "Letter from General Sir William Howe to Lord George Germain (No. 76)," 13 December 1777, in Davies, ed., *Documents of the American Revolution*, 14: 273; Howe, *The narrative of Lieut. Gen. Sir William Howe*, 30; Washington, "Letter to William Buchanan," 28 December 1777, in *The Writings of George Washington*, vol. 10; Washington, "Letter to Brigadier General William Smallwood," 29 December 1777, in *The Writings of George Washington*, vol. 10; Washington, "Letter to Governor William Livingston," 31 December 1777, in *The Writings of George Washington*, vol. 10.

CHAPTER 2

THE WAR IN THE NORTH, 1778-1781

Many of the most important battles were already over, yet the American War of Independence dragged on feebly in the north for nearly four years after 1777. The previous campaign closed with the British capture of the American capital of Philadelphia, a largely empty victory, and the far more strategically significant American capture of “Gentleman Johnny” Burgoyne’s entire army in the northern forests of New York. In the following years, the war’s strategic center of gravity shifted southward. However, regardless of the armies’ diminished activity in the north, the weather remained active in all seasons, year after year. It inflicted endless difficulties on armies in the field, but also tantalized both armies with offensive possibilities that never quite came to fruition. After famously suffering at Valley Forge, the Continental Army pursued the British from Philadelphia back to New York. Along the way, heat stifled the last major meeting of the two armies. Thenceforth, the war in the north focused on maneuvering and planning. The opposing forces parried and feinted in and around New York and Rhode Island, but achieved little of substance until George Washington marched away to the south toward Virginia. In the northern theater from 1778 to the end of the war, weather posed constant leadership challenges to Generals Washington and Henry Clinton, and held a significant position in both armies’ planning, but only occasionally shaped actual tactical outcomes.

The weather posed many challenges to Washington’s command as the army wintered at Valley Forge. The Continental Army frequently suffered from inadequate logistical support, but the winter weather exacerbated the problem by shutting down roads, which led to painful shortages of food and clothing. The men first labored in the cold merely to construct meager huts for themselves. In early January 1778, Washington declared “The want of Clothing added to the rigor of the Season has occasioned them to Suffer such hardships as will not be credited but by those who have been spectators.”⁶⁸ Continental soldiers later lacked sufficient warm clothing even to safely leave their quarters in the winter. At Valley Forge, wrote Washington, “By death

⁶⁸ Washington, “Letter to Major General Robert Howe,” 13 January 1778, in *The Writings of George Washington*, vol. 10.

and desertion, we have lost a good many Men... and have encountered every species of hardship, that cold, wet, and hunger, and want of Cloathes were capable of produc[ing].”⁶⁹ He praised the patience and obedience of soldiers “without Cloathes to cover their nakedness, without Blankets to lay on, without shoes, by which their Marches might be traced by the Blood from their feet, and almost as often without Provisions as with; Marching through frost and Snow.”⁷⁰ One historian estimated over 2500 men died that winter, along with hundreds of the army’s horses; further, perhaps as many as five percent of the healthy soldiers deserted during this time. More than once Washington feared the army’s sufferings would lead men to mutiny, thus he diligently worked to care for his men and avert a breakdown of the army. Winter threatened the army’s integrity, but ultimately it endured, and even found ways to use the cold season.⁷¹

Winter and early spring provided the Americans opportunity as well as hardship: it was a chance to strengthen the army for the next round of the war. Washington considered it a general maxim that winter ought to be “spent in endeavouring to make preparation for the ensuing Campaign.”⁷² He initiated disciplinary action against officers who took unauthorized leaves of absence rather than train their units. Winter immobilized the British. They occasionally conducted small raids, but the cold weather caused them great discomfort and fatigue when they dared to do so. For Washington, this rendered winter “the only time that we have to make preparations for the reception of the Enemy.”⁷³ He ordered fortifications at various locations strengthened, and dispatched requests for various supplies he would need in the campaigning season; containers to protect ammunition from the rain remained a special priority. Sometimes by freezing the roads solid the cold weather even eased transport of supplies. Occasionally storms prevented training and inspections, but overall Washington “ardently...laboured” to use

⁶⁹ Washington, “Letter to Brigadier General John Cadwalader,” 20 March 1778, in *The Writings of George Washington*, vol. 11.

⁷⁰ Washington, “Letter to John Banister,” 21 April 1778, in *The Writings of George Washington*, vol. 11.

⁷¹ Washington, “Letter to Brigadier General William Smallwood,” 12 January 1778, in *The Writings of George Washington*, vol. 10; Washington, “General Orders,” 18 January 1778, in *The Writings of George Washington*, vol. 10; Washington, “Letter to President Thomas Wharton Junior,” 12 February 1778, in *The Writings of George Washington*, vol. 10; Washington, “Letter to Governor George Clinton,” 16 February 1778, in *The Writings of George Washington*, vol. 10; Washington, “Letter to Brigadier General John Cadwalader,” 20 March 1778, in *The Writings of George Washington*, vol. 11; Washington, “Letter to John Augustine Washington,” 10 June 1778, in *The Writings of George Washington*, vol. 12; Washington, “Letter to John Banister,” 21 April 1778, in *The Writings of George Washington*, vol. 11; Ferling, *Almost A Miracle*, 280, 338.

⁷² Washington, “Letter to Colonel Stephen Moylan,” 11 April 1778, in *The Writings of George Washington*, vol. 11.

⁷³ Washington, “Letter to Colonel Lewis La Radiere,” 25 January 1778, in *The Writings of George Washington*, vol. 10.

the season to train his army and improve its organization.⁷⁴ By May, the warming temperatures prompted Washington to move up the army's daily exercises an hour earlier, to avoid the heat. The Valley Forge winter was nearly over; a new campaign was imminent.⁷⁵

Heat and rain repeatedly hindered both the British and American armies as they resumed campaigning, forecasting greater troubles as the summer deepened. The heat began early. By 5 May, jaeger (elite Hessian rifleman) Heinrich Carl Philipp von Feilitzsch noted that heat made several soldiers on patrol out of Philadelphia so sick that they had to be sent back. As Washington began to deploy his troops, he ordered General Charles Lee, "Begin your Marches at four o'clock in the Morning at latest that they may be over before the heat of the day...."⁷⁶ The warmth continued into June, when rain joined it in hindering military operations. Once again, Washington urged his troops to protect their weapons from disabling rains. Around mid-June, the British army set out from Philadelphia in the summer heat and the Continentals moved to pursue.⁷⁷

Clinton's decision to march overland from Philadelphia back to New York in midsummer (rather than go by sea) gave the sun ample opportunity to weaken both armies. The British departed Philadelphia on 17 June, the heat already intense. The next day they skirmished constantly with the American army as they marched. Hessian Major Johann Ewald observed, "Many men fell and lost their lives miserably because of the intense heat, and due to the sandy ground which we crossed through a pathless brushwood where no water was to be found on the entire march."⁷⁸ Many soldiers recorded the stifling warmth as they trudged through Pennsylvania and into New Jersey. One might expect rain to cool and refresh, but instead it hindered the march and added to their discomfort. American forces destroyed bridges on the

⁷⁴ Washington, "Letter to Major General Charles Lee," 15 June 1778, in *The Writings of George Washington*, vol. 12.

⁷⁵ Washington, "Letter to Colonel Stephen Moylan," 11 April 1778, in *The Writings of George Washington*, vol. 11; John Graves Simcoe, *A Journal of the Operations of the Queen's Rangers* (1844; New York: The New York Times & Arno Press, 1968), 43, 53; Washington, "Letter to the Board of War," 1 May 1778, in *The Writings of George Washington*, vol. 11; Washington, "Letter to Brigadier General Henry Knox," 21 January 1778, in *The Writings of George Washington*, vol. 10; Washington, "General Order," 29 March 1778, in *The Writings of George Washington*, vol. 11; Washington, "General Orders," 16 May 1778, in *The Writings of George Washington*, vol. 11.

⁷⁶ Washington, "Instructions to Major General Charles Lee," 30 May 1778, in *The Writings of George Washington*, vol. 11.

⁷⁷ Von Feilitzsch, *Diary*, in *Diaries of two Ansbach Jaegers*, 37-39; Washington, "General Orders," 13 June 1778, in *The Writings of George Washington*, vol. 12; Thomas Jones, *History of New York During the Revolutionary War*, edited by Edward Floyd de Lancey, 2 vols. (1879; New York: The New York Times and Arno Press, 1968), 1: 263-264.

⁷⁸ Ewald, *Diary of the American War*, 132-133.

British route, so that Clinton reported "...the excessive heat of the season rendered the labour of repairing the bridges severely felt."⁷⁹ Washington found the weather equally hostile. Rain slowed or halted his marches, and the succeeding heat made movement over miry roads miserable for his men. Even when the army could move, detachments had to stay behind to wait for the tents and baggage to dry out before they could be packed. Washington did his best to preserve his army; he warned the Marquis de Lafayette, "The Weather is extremely warm and by a too great exertion in pushing the Troops, many of them will fall sick and be rendered entirely unfit for Service."⁸⁰ Frustrating though the weather was, Washington recognized that the rain and heat "may have been equally disadvantageous" to the British.⁸¹ This was so. Hessian Lieutenant Jakob Piel recorded on 25 June that the march was so fatiguing that "Almost half our troops fell along the way due to the heat."⁸² By 26 June, as the British army neared Monmouth Courthouse, New Jersey, some soldiers were ill from heat, and Ewald estimated at least twenty men fell dead from it; some accounts raised the number even higher. The army halted the next day, requiring rest before it could continue.⁸³

Extreme temperatures during the Battle of Monmouth weakened both armies, killed many men with heatstroke, and contributed to the indecisive outcome of the last major encounter of armies in the northern theater of the war. A cavalry skirmish early on 28 June expanded into a major, albeit muddled, infantry engagement. While part of the British army continued its march, a rearguard covered the movement from a position near Monmouth Courthouse. The battle

⁷⁹ Clinton, "Letter from General Sir Henry Clinton to Lord George Germain (No. 5)," 5 July 1778, in Davies, ed. *Documents of the American Revolution*, 15: 160.

⁸⁰ Washington, "Letter to Marquis De Lafayette," 26 June 1778, in *The Writings of George Washington*, vol. 12.

⁸¹ Washington, "Letter to Major General Horatio Gates," 27 June 1778, in *The Writings of George Washington*, vol. 12.

⁸² Jakob Piel, "Diary of the Hessian Lieutenant Jakob Piel of the Hesse-Cassel von Lossberg Regiment From 1776-1783," in Piel and Andreas Wiederhold, *Defeat, Disaster, and Dedication: The Diaries of the Hessian Officers Jakob Piel and Andreas Wiederhold*, trans. Bruce E. Buroyne (Bowie, MD: Heritage Books, Inc., 1997), 31.

⁸³ John Charles Philip von Krafft, *Journal of Lieutenant John Charles Philip von Krafft*, trans. Thomas H. Edsall (1882; New York: The New York Times and Arno Press, 1968), 41, 45-46; Ewald, *Diary of the American War*, 134-135; Jones, *History of New York During the Revolutionary War*, 263-264; von Feilitzsch, *Diary*, in *Diaries of two Ansbach Jaegers*, 37-38, 40-41; Washington, "Letter to the President of Congress," 20 June 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to Major General Philemon Dickinson," 21 June 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to Governor William Livingston," 21 June 1778, in *The Writings of George Washington*, vol. 12; Washington, "General Orders," 22 June 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to the President of Congress," 22 June 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to the President of Congress," 22 June 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to Major General Benedict Arnold," 21 June 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to the President of Congress," 28 June 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to the President of Congress," 1 July 1778, in *The Writings of George Washington*, vol. 12.

swayed wildly before ending with nightfall. The remaining British forces evacuated during the night. By all accounts, intense heat killed or weakened many soldiers on both sides. Numerous soldiers and officers wrote of the severity of the heat. They described seeing men drop dead, unwounded, solely from the heat; Hessians Piel and von Feilitzsch both believed at least as many men in the British army died from the heat as from the combat. Shortly after the battle, Clinton reported to Lord George Germain that the “disadvantages of heat and fatigue,” were so severe “that a great part of those we lost fell dead as they advanced without a wound.”⁸⁴ Later he estimated the heat killed at least fifty-nine of his men, and suspected it wreaked similar havoc among the Americans. No army could fight effectively in such conditions. Clinton found it stifled his ability to attack and blamed it for forcing him to end his offensive. He asserted that his subsequent nocturnal retreat was calculated to take “advantage of the coolness of the night to escape the fatal effects of another day’s sun.”⁸⁵ On the other side, American private Joseph Martin declared “. . .the mouth of a heated oven seemed to me to be but a trifle hotter than this ploughed field; it was almost impossible to breath.”⁸⁶ Both armies came away exhausted and unable to continue the battle. General Nathanael Greene noted, “Many Men fell dead by the Violence of the Exercise and the intense Heat.”⁸⁷ Washington explained to Congress “The extreme heat of the Weather, the fatigue of the Men from their march thro' a deep, sandy Country almost entirely destitute of Water. . .made a pursuit impracticable and fruitless. It would have answered no valuable purpose, and would have been fatal to numbers of our Men, several of whom died the preceding day with Heat.”⁸⁸ The impartial, deadly weather had materially contributed to the indecisive nature of the last major battle in the north.⁸⁹

⁸⁴ Clinton, “Letter from General Sir Henry Clinton to Lord George Germain (No. 5),” 5 July 1778, in Davies, ed., *Documents of the American Revolution*, 15: 162.

⁸⁵ Clinton, *The American Rebellion*, 98.

⁸⁶ Joseph Plumb Martin, *A Narrative of Some of the Adventures, Dangers and Sufferings of a Revolutionary Soldier*, edited by George F. Scheer (New York: The New York Times & Arno Press, 1962), 127.

⁸⁷ Nathanael Greene, “Letter to Jacob Greene,” 2 July 1778, in *The Papers of General Nathanael Greene*, edited by Dennis M. Conrad, et al., 13 vols. (Chapel Hill, NC: University of North Carolina Press, 1976-2002), 2: 451.

⁸⁸ Washington, “Letter to the President of Congress,” 1 July 1778, in *The Writings of George Washington*, vol. 12.

⁸⁹ Simcoe, *A Journal*, 71; William Read, “Reminiscences of Dr. William Read, Arranged from His Notes and Papers,” in Gibbes, ed., *Documentary History*, 2: 256; William Lloyd, “Pension Application Deposition,” in Dann, ed., *The Revolution Remembered*, 125; von Krafft, *Journal of Lieutenant John Charles Philip von Krafft*, 47-48; Chevalier de Pontgibaud, *A French Volunteer of the War of Independence*, translated and edited by Robert B. Douglas (New York: D. Appleton, 1898), 78-79; Piel, “Diary of the Hessian Lieutenant Jakob Piel of the Hesse-Cassel von Lossberg Regiment From 1776-1783,” in *Defeat, Disaster, and Dedication*, 31; von Feilitzsch, *Diary, in Diaries of two Ansbach Jaegers*, 42; Martin, *A Narrative*, 131; Clinton, *The American Rebellion*, 94, 96-97; Clinton, “Letter from General Sir Henry Clinton to Lord George Germain (No. 5),” 5 July 1778, in Davies, ed. *Documents of the American Revolution*, vol. 15, 161; Greene, “Letter to Jacob Greene,” 2 July 1778, in Conrad, et al., eds., *The*

Heat's malign influence, sapping the armies' strength even in the course of ordinary work and movements, remained prominent throughout the remainder of the 1778 campaign season. After escaping the American pursuit on 29 June, the British continued their return to New York through the early July heat. Major Ewald believed several factors rendered the retreat from Philadelphia truly epic: "First: We had to fight in the greatest heat. Second: We had to cross impassable country in which we often did not find a drop of water over many miles to allay our thirst."⁹⁰ Further down, sixth on his list of the campaign's epic qualities, was that the army lacked tents to shelter the soldiers from the sun. The heat likewise crippled Washington. He could not grant a request for reinforcements to repel Indian raids because "...from the loss of Men in the late Action near Monmouth and the numbers that have fallen down thro' fatigue in the excessive heat, I could not, but in a case of the greatest emergency, spare any more."⁹¹ Rain joined the heat in continuing to oppress both armies as they camped, one around New York City, the other opposite in New Jersey. The severe heat induced Washington to "move very leisurely and spare the troops as much as possible."⁹² He did his best to permit his men to rest after hot, fatiguing marches, and to avoid protracted, exhausting movements until the season cooled. As the weather started to cool in September, Hessian General Friederich Riedesel feared the extremes of still-hot days and increasingly chilly nights would harm his soldiers' health. Even when the main armies were relatively sedentary, the environment imposed trials on them.⁹³

While the majority of British and American forces faced each other around New York in the summer of 1778, other weather – primarily storms – brought a range of entirely different tactical problems, and also did much to curtail the one notable American offensive of 1778. A clash between British and American patrols on 1 August came to naught thanks to heavy fog – the British forces simply could not see their quarry. During a thunderstorm on 4 August, a bolt

Papers of General Nathanael Greene, 2: 450-451; Washington, "Letter to Major General Horatio Gates," 29 June 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to John Augustine Washington," 4 July 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to Major General Horatio Gates," 3 July 1778, in *The Writings of George Washington*, vol. 12.

⁹⁰ Ewald, *Diary of the American War*, 138.

⁹¹ Washington, "Letter to John Cleves Symmes," 10 July 1778, in *The Writings of George Washington*, vol. 12.

⁹² Washington, "Letter to Major General Benedict Arnold," 11 July 1778, in *The Writings of George Washington*, vol. 12.

⁹³ Ewald, *Diary of the American War*, 139; von Krafft, *Journal*, 49-50, 55, 60, 66; Washington, "Letter to Major General Horatio Gates," 11 July 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to the President of Congress," 12 July 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to President Jeremiah Powell," 2 August 1778, in *The Writings of George Washington*, vol. 12; von Feilitzsch, *Diary*, in *Diaries of two Ansbach Jaegers*, 43-44; Riedesel, "Letter to Duke Charles of Brunswick," 12 September 1778, in *Memoirs, Letters, and Journals of Major General Riedesel*, 2: 185.

from the heavens struck a British supply ship full of precious gunpowder, and blew it up. Another storm delayed General Greene's movements later in August. However, the most serious storm damage to a campaign occurred in Rhode Island. A French fleet under Admiral Charles Hector, comte d'Estaing, had arrived in America in July, and joined with American troops under General John Sullivan in a campaign to retake Rhode Island from the British. A violent hurricane in early August smashed the French and British fleets, and spread disarray on land. The gale prevented d'Estaing from engaging the Royal Navy under Admiral Richard Howe; as the navies readied for battle, the storm dispersed both fleets and damaged many ships. Hessian General Riedesel in New York claimed it was a storm "the like of which has never been known by the oldest inhabitant," of the region.⁹⁴ The loss of naval support hindered American efforts, but the storm did much damage on land as well. Sullivan had planned to attack on 11 August, but the hurricane began its assault first; that day and the next it "blew down, tore and almost ruined all the tents I had. The arms of course were rendered useless, and almost the whole of our ammunition ruined."⁹⁵ The fierce winds prevented any significant troop movements from the mainland to Rhode Island, killed several soldiers, and left the rest "mostly lying under the fences half covered with water, without ammunition, and arms rendered useless."⁹⁶ If the British attacked, Sullivan had nothing left but bayonets with which to fight. Through the rest of the year, in less violent fashion, the weather continued to hamper the Rhode Island project; fog, wind, and rain combined their powers to prevent planned attacks and stymie troop movements. After all the hurt the storms inflicted, they also managed to provide useful excuse: to minimize the morale damage he feared would result when the French fleet departed Rhode Island, Washington suggested they blame it on the hurricane. He also recognized that the hurricane season would hinder any major British oceanic troop transfers. While not the only problem the Franco-American mission faced, the weather did no favors to their effort to recapture Rhode Island in 1778.⁹⁷

⁹⁴ Riedesel, "Letter to Duke Charles of Brunswick," 12 September 1778, in *Memoirs, Letters, and Journals of Major General Riedesel*, 2: 187.

⁹⁵ John Sullivan, "Letter from General John Sullivan to George Washington," 13 August 1778, in Commager and Morris, eds., *Spirit of 'Seventy-Six*, 2: 718.

⁹⁶ Sullivan, "Letter from General John Sullivan to George Washington," 13 August 1778, in Commager and Morris, eds., *Spirit of 'Seventy-Six*, 2: 718.

⁹⁷ Von Feilitzsch, *Diary*, in *Diaries of two Ansbach Jaegers*, 44; Ewald, *Diary of the American War*, 141; von Krafft, *Journal*, 58; Washington, "Letter to Major General Nathanael Greene," 21 August 1778, in *The Writings of George Washington*, vol. 12; Washington, "Letter to Governor Jonathan Trumbull," 6 September 1778, in *The Writings of George Washington*, vol. 12; Jones, *History of New York During the Revolutionary War*, 1: 276;

American leaders never gave up their hope of conquering Canada, but as they pondered another northern invasion, thoughts of the wintry perils helped dissuade them. To launch another Canadian expedition, American leaders knew they must be far better prepared than Richard Montgomery and Benedict Arnold had been. Washington described to Congress the warm clothes, snowshoes, and other specialized materiel required for a winter campaign, in a letter he wrote in September. Later that month, Washington informed Lafayette that the countless logistical and transportation difficulties of campaigning in winter, to say nothing of actual combat, made it highly unlikely Congress would take such a move. The idea persisted, and in late November Washington again outlined the impracticability of a winter expedition to Canada. “In general,” Washington declared, “Winter Campaigns are destructive to Troops; and nothing but pressing necessity, and the best state of preparation can justify them.”⁹⁸ The conditions of men, officers, and supplies all spoke against an attack on Canada. Grand strategic visions and hopes of conquest had to bow to winter’s implacable might.⁹⁹

As usual, keeping armies functional in winter involved many labors and much discomfort for the officers and men around New York. By late October and early November, Washington urged haste to collect warm clothes and other supplies; the season would soon make it “next to impossible” to transport supplies on the roads.¹⁰⁰ Perhaps recalling Henry Knox’s success with sledding cannons to Boston, Washington recommended General Horatio Gates take advantage of snow as the easiest method to shift heavy artillery. Washington also used every opening the weather granted for drilling his men. He often grappled with how to transport supplies over the poor roads and icy rivers, and hoped that once frost hardened the roads movement might become easier. Winter was no friend to the British army either: New York City official William Smith

Hughes, *A Journal*, 36-38; Washington, “Letter to John Augustine Washington,” 23 September 1778, in *The Writings of George Washington*, vol. 12; Sullivan, “Letter from General John Sullivan to George Washington,” 13 August 1778, in Commager and Morris, eds., *Spirit of ‘Seventy-Six*, 2: 718; Israel Angell, *Diary of Colonel Israel Angell*, edited by Edward Field (1899; New York: New York Times and Arno Press, 1971), 3, 21-22; Robert Pigot, “Letter from Major General Sir Robert Pigot to General Sir Henry Clinton,” 31 August 1778, in Davies, ed., *Documents of the American Revolution*, vol. 15, 190; Washington, “Letter to Major General William Heath,” 28 August 1778, in *The Writings of George Washington*, vol. 12; Washington, “Letter to the President of Congress,” 4 September 1778, in *The Writings of George Washington*, vol. 12.

⁹⁸ Washington, “Letter to Major General Philip Schuyler,” 20-21 November 1778, in *The Writings of George Washington*, vol. 13.

⁹⁹ Washington, “Letter to the President of Congress,” 12 September 1778, in *The Writings of George Washington*, vol. 12; Washington, “Letter to Marquis de Lafayette,” 25 September 1778, in *The Writings of George Washington*, vol. 12; Washington, “Letter to Major General Philip Schuyler,” 20-21 November 1778, in *The Writings of George Washington*, vol. 13.

¹⁰⁰ Washington, “Letter to Royal Flint,” 20 October 1778, in *The Writings of George Washington*, vol. 13.

observed on 28 November, “The present Sky wears treacherous Smiles.”¹⁰¹ Riedesel, with the British forces, worried about protecting his men from coming cold weather, and many in the British army subsequently noted the frosty weather through November and December. In mid-November a storm destroyed the huts of many British soldiers. Clinton took advantage of what he deemed a patch of relatively mild weather to venture a strike at Washington’s army while it was escorting the Convention Army (prisoners from Saratoga) southward. Clinton’s raid failed to catch the Americans, so he tried to use the good weather’s opportunity to raid near Stony Point, New York, but again the American forces evaded him. Later Clinton again hoped to use a spate of milder weather to surprise wintering American troops, but the plan miscarried. One British excursion, up the North River, achieved little on its own, but distracted Washington for a time. He declared the “only bad consequence we have felt from it and as the weather has turned out not a trifling one, is that it has delayed the...Troops four days in hurting and has occasion'd them to march through Snow and bad roads to come at their ground instead of Sunshine and good ones.”¹⁰² In late December, Long Island Sound froze over, forcing the British to take extra security precautions in case the Americans crossed the ice to attack.¹⁰³

The winter and spring of 1779 furnished time for Washington to plot campaigns for the next season, but the cold weather also required regular attention from army commanders. At the beginning of the new year, Washington and his subordinates contemplated crossing the ice from New Jersey to Staten Island to attack, but circumstances never favored their plan to take advantage of the cold-created path. Chilly weather and frozen rivers threatened both the comfort and security of British forces throughout the winter and into the spring. Indian raids had escalated to the point that they required a Continental response, and in preparation for an expedition Washington investigated how weather would affect logistical and transportation

¹⁰¹ William Smith, *Historical Memoirs of William Smith, 1778-1783*, edited by W. H. W. Sabine (New York: The New York Times and Arno Press, 1971), 51.

¹⁰² Washington, “Letter to President Joseph Reed,” 12 December 1778, in *The Writings of George Washington*, vol. 13.

¹⁰³ Washington, “Letter to George Measam,” 28 October 1778, in *The Writings of George Washington*, vol. 13; Washington, “Letter to John Mitchell,” 11 November 1778, in *The Writings of George Washington*, vol. 13; Washington, “Letter to Major General Horatio Gates,” 24 November 1778, in *The Writings of George Washington*, vol. 13; Washington, “Letter to Major General Alexander McDougall,” 24 November 1778, in *The Writings of George Washington*, vol. 13; Washington, “Letter to the President of Congress,” 27 November 1778, in *The Writings of George Washington*, vol. 13; Washington, “Letter to Count Pulaski,” 7 December 1778, in *The Writings of George Washington*, vol. 13; Riedesel, “Letter to Duke Charles of Brunswick,” 12 September 1778, in *Memoirs, Letters, and Journals of Major General Riedesel*, 2: 186; Simcoe, *A Journal*, 93; von Feilitzsch, *Diary*, in *Diaries of two Ansbach Jaegers*, 47-50; von Krafft, *Journal*, 70-76; Hughes, *A Journal*, 57; Clinton, *The American Rebellion*, 114-115, 117.

issues. “At what season is the Water in its best state for Batteauing?” he queried, “And how Soon in the Spring will the Grass afford sufficient support for the Pack horses and Cattle designed for Provisions?”¹⁰⁴ Poor weather throughout March delayed preparations for the expedition.

Washington also considered a campaign further west, against Detroit, but against that target he argued winter would be an ally: “The Frozen season...is the only one, in which any capital stroke can be given, as the enemy can derive no benefit from their Shipping, which must either be destroyed or fall into our hands.”¹⁰⁵ Though hardly the sole factor on his mind, weather consistently concerned Washington as he looked for opportunities in the new campaign season.¹⁰⁶

Storms and rain recurred as tactical impediments to minor operations during the summer of 1779. Hessian Lieutenant John Charles Philip von Krafft found May rains hindered his work. When giving General Sullivan instructions for an expedition against Indians, at the end of May, Washington also urged “More than common care will be necessary of your arms and ammunition.... They should be particularly inspected after a rain or the passage of any deep water.”¹⁰⁷ After exchanging control of Stony Point, New York, with the British, the Continental Army planned a sneak attack on the now-British held post. Perhaps because rain normally curtailed military operations, Washington hoped a rainy night would enhance the plan’s chance of success – the British would not expect it. A similar surprise operation against Verplanck’s Point, New York, had to be called off partly because powerful winds delayed the attack after the British defenders became aware of it; this gave them time to concentrate reinforcements. The major American and British armies on the continent spent the summer raiding and jockeying for strategic outposts, but achieving little.¹⁰⁸

¹⁰⁴ Washington, “Queries Concerning The Indian Country,” March 1779, in *The Writings of George Washington*, vol. 14.

¹⁰⁵ Washington, “Letter to Colonel Daniel Brodhead,” 21 April 1779, in *The Writings of George Washington*, vol. 14.

¹⁰⁶ Washington, “Letter to Lord Stirling,” 1 January 1779, in *The Writings of George Washington*, vol. 13; Hughes, *A Journal*, 60-61, 63; Riedesel, “Letter to Duke Charles of Brunswick,” 22 March 1779, in *Memoirs, Letters, and Journals of Major General Riedesel*, 2: 189; Simcoe, *A Journal*, 99; Washington, “Letter to President Joseph Reed,” 8-9 April 1779, in *The Writings of George Washington*, vol. 14.

¹⁰⁷ Washington, “Instructions to Major General John Sullivan,” 31 May 1779, in *The Writings of George Washington*, vol. 15.

¹⁰⁸ Washington, “Letter to Brigadier General Anthony Wayne,” 10 July 1779, in *The Writings of George Washington*, vol. 15; Washington, “Letter to the Reverend William Gordon,” 2 August 1779, in *The Writings of George Washington*, vol. 16; von Krafft, *Journal of Lieutenant John Charles Philip von Krafft*, 85.

As campaign season approached its weather-enforced conclusion, Clinton and Washington both looked to the weather as they contemplated the future of British strategy. The year 1779 saw the beginnings of a major shift to the south in Britain's North American strategy. By August, Clinton declared to Germain that though he could do nothing more at the time in the north, "The weather will admit of our acting in Carolina in the beginning of October, and many motives call our attention to that point."¹⁰⁹ Ultimately Clinton did not begin his southern operation until the end of the year, but his plans were set in motion. Trying to gauge Clinton's strategic intentions, Washington sought clues to British plans in how they prepared to deal with weather, such as how much wood they cut for the winter. He declared, "Much may be deduced from the preparations which the Enemy are making in the Article of Cloathing. If light it designates a southern or West India expedition; if on the contrary warm and heavy it indicates a Winter Campaign or that they mean to remain in their Quarters."¹¹⁰ By mid-September, the "season proper for military operations" drew toward its close, and Washington began his own preparations for the winter.¹¹¹ The season of good weather passed, with little done, but weather had joined the strategic considerations that were in the process of changing of the main theater of the war.

Climate-driven logistical and strategic challenges weighed heavily on Washington as he prepared for winter in 1779. Sometimes the effects of weather rippled far from the source before reaching the army. In early November, Washington urged that militia not gather to join the army, because he could not feed them. He explained that he was seriously short of flour. Although substantial quantities of raw grain remained piled at New York mills, it was never ground to flour because a prolonged drought earlier in the year disabled the water-driven mills. The drought's blow against mills made it difficult to feed even his regular troops, and he hoped autumnal rains toward the end of November might energize the mills and end the critical food shortage. Rain would help the mills but demolish the roads needed to transport the flour, so before the fall and winter rains struck, Washington issued orders to repair key supply routes as much as possible. Problematic though it was for Washington's army, he hoped winter weather would grant an opportunity far to the west. Detroit remained a promising target, and Washington

¹⁰⁹ Clinton, "Extract of Clinton to Germain," 21 August 1779, in Clinton, *The American Rebellion*, 418.

¹¹⁰ Washington, "Letter to Major Benjamin Tallmadge," 7 September 1779, in *The Writings of George Washington*, vol. 16.

¹¹¹ Washington, "Substance of a Conference Between the Chevalier De La Luzerne and General Washington," 16 September 1779, in *The Writings of George Washington*, vol. 16.

urged western commander Colonel Daniel Broadhead that "...This Winter when the lake is frozen...appears to me to be the only season when an effectual blow can be struck..."¹¹²

Washington also had to react to the British army's southern movements. The obvious way to adapt to the new British strategy would be to send reinforcements, but Washington feared the inclement season would help decimate any reinforcements sent overland, and argued strenuously against such a move to Congress. Thus he urged Congress to investigate the possibility of sending troops to the Carolinas by sea; though he recognized that weather could prevent sea-travel too, it had fewer other disadvantages.¹¹³

The typical, rough, end-of-year weather hindered British movements, too. In October, Clinton finally evacuated Rhode Island as he consolidated forces in New York and the south. Rough seas upset American boats as the troops moved to take possession of Newport, and stormy winds later delayed additional redeployments from Rhode Island. By early December, American Colonel Israel Angell reported his regiment had to trek mile after mile through ankle-deep snow on their way to winter quarters. Sometimes the storms halted the march, other times they plowed through deep mud and frigid standing water before they reached winter quarters at Morristown, New Jersey. The snow and winter storms began in early November and persisted through the end of the year. In New York, jaeger von Feilitzsch noted a rumor that some German soldiers were deserting because of how poor – and cold – the British-provided winter quarters were. Snow reportedly accumulated to a depth of four feet in some areas, and the waters around New York all froze, to the extreme consternation of the British. They feared an American army would simply march across the ice to New York. However, they also contemplated crossing the ice themselves on a raid to kidnap Washington. Some among the British also hoped the snows would prevent Washington from sending reinforcements to the south. Though both belligerents

¹¹² Washington, "Letter to Colonel Daniel Brodhead," 18 October 1779, in *The Writings of George Washington*, vol. 16.

¹¹³ Washington, "Letter to Governor Jonathan Trumbull," 12 November 1779, in *The Writings of George Washington*, vol. 17; Washington, "Letter to the President of Congress," 14 November 1779, in *The Writings of George Washington*, vol. 17; Washington, "Letter to Major General William Heath," 18 November 1779, in *The Writings of George Washington*, vol. 17; Washington, "Letter to the President of Congress," 24 November 1779, in *The Writings of George Washington*, vol. 17; Washington, "Letter to Colonel Jacobus Swartwout," 21 October 1779, in *The Writings of George Washington*, vol. 17; Washington, "Letter to the President of Congress," 29 November 1779, in *The Writings of George Washington*, vol. 17; Angell, *Diary of Colonel Israel Angell*, 74, 86-87, 89-90, 99-101.

struggled to compensate for the weather in their plans and in daily life, the year 1779 ended without either party finding a way to put weather to good use.¹¹⁴

The possibility of crossing on ice between New York and New Jersey was a prominent feature in Washington's plans, both offensively and defensively, in the early months of 1780. When the ice set in, New York ceased to be an island; the British Navy could do nothing to stop men from simply walking to the city. Washington began planning an attack on Staten Island in early January. First he sought to ascertain through Brigadier General William Irvine whether the ice formed a sufficiently solid bridge to support an attack, then by 10 January he began planning a raid for later that week. Irvine continued to check the strength of the ice at key points, ensuring it had not thawed. The weather delayed some troop movements, but planning moved forward. Washington offered command of the mission to General William Alexander, the self-proclaimed "Lord Stirling." Washington explained that the difficulties of attacking Staten Island would be "in a great measure removed by the renewal of the frost," and that even if the raid went poorly, it was "not very likely to be attended with bad consequences, provided the state of the Ice affords a ready and safe passage and return, (which is to be the Basis of the Expedition)."¹¹⁵ Washington hoped the severe cold would persist, and urged Stirling to make haste "because, in my opinion, our success depends in a great measure upon the Weather, which, in its present state, would alone bring men to terms in a short time."¹¹⁶ Despite the painstaking efforts to cultivate the weather's cooperation, the raid failed thanks to vigilant British defenders that cost the mission the element of surprise. Though the Staten Island expedition came to naught, the icy bridge remained, and Washington continued to monitor its condition as a possible avenue of attack. American Major General Arthur St. Clair hoped to stage an attack in late February, but the ice weakened at the wrong moment, preventing the offensive. Greene fumed that "Nature has given us a fine bridge of communication with the enemy, but we are too weak to take advantage of it."¹¹⁷ The ice was a two-way road, however, and Washington knew the British could cross it to attack him as easily as he might cross to strike them. He once asked Stirling to change the location of his quarters because of the danger that the British could cross the ice to make attacks

¹¹⁴ Jones, *History of New York During the Revolutionary War*, 1: 318, 320-321; von Krafft, *Journal of Lieutenant John Charles Philip von Krafft*, 100; Smith, *Historical Memoirs of William Smith*, 188, 191, 194, 200-201, 203; Hughes, *A Journal*, 77-78; von Feilitzsch, *Diary*, in *Diaries of two Ansbach Jaegers*, 68-70.

¹¹⁵ Washington, "Letter to Lord Stirling," 2 January 1780, in *The Writings of George Washington*, vol. 17.

¹¹⁶ Washington, "Letter to Lord Stirling," 13 January 1780, in *The Writings of George Washington*, vol. 17.

¹¹⁷ Greene, "Letter to Governor William Greene of Rhode Island," 10 February 1780, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 5: 365.

against isolated officers. Once the ice broke, Washington assured Stirling, he could return to his original location. Washington repeatedly warned various subordinates to take precautions against British raids across the ice, until the spring thaw would make their positions more secure. Nothing ever came of the ice path to New York.¹¹⁸

Winter exerted strategic and logistical influence well beyond the ways Washington dealt with Clinton's army in New York. Depending on conditions, winter weather alternately helped and hindered the transport of supplies. Severe snowstorms prohibited almost all forms of movement and obstructed efforts to bring supplies to camp. Packed snowdrifts piled up higher than fences and blocked access to supply depots. Greene, then quartermaster for the army, directed subordinates to work at keeping paths cleared so that vital supplies could reach camp. At one point Greene believed the supply shortage brought the army close to disbanding. Though less famous than the Valley Forge winter, the Continental Army's suffering at Morristown in early 1780 was likewise dire; one historian argues the early months of 1780 were overwhelmingly worse than winter at Valley Forge had been.¹¹⁹ Still, when the sky did not send blizzards, snow could transform sleds into a comparatively cheap and easy mode of transport. Frost could also solidify otherwise muddy roads, aiding the passage of supplies. Further afield, Washington continued to urge the advantages of a winter campaign against Detroit, and regretted that American forces had neither the men nor supplies to effect such an expedition. He knew quite well the logistical problems winter weather caused, but the chance of gaining an advantage led him to argue for this winter campaign anyway. At times both armies contemplated or assayed actions in harsh seasons, tempted by the hope of some prize. He argued that winter ice would

¹¹⁸ Washington, "Letter to Brigadier General William Irvine," 9 January 1780, in *The Writings of George Washington*, vol. 17; Washington, "Letter to Brigadier General William Irvine," 10 January 1780, in *The Writings of George Washington*, vol. 17; Washington, "Lieutenant Colonel Tench Tilghman," 10 January 1780, in *The Writings of George Washington*, vol. 17; Washington, "Lieutenant Colonel Tench Tilghman," 11 January 1780, in *The Writings of George Washington*, vol. 17; Washington, "Letter to Brigadier General William Irvine," 12 January 1780, in *The Writings of George Washington*, vol. 17; Washington, "Letter to the President of Congress," 18 January 1780, in *The Writings of George Washington*, vol. 17; Washington, "Letter to Major General Arthur St. Clair," 27 January 1780, in *The Writings of George Washington*, vol. 17; Washington, "Letter to Major General Arthur St. Clair," 23 February 1780, in *The Writings of George Washington*, vol. 18; Washington, "Letter to Major General Arthur St. Clair," 24 February 1780, in *The Writings of George Washington*, vol. 18; Washington, "Letter to Lord Stirling," 29 January 1780, in *The Writings of George Washington*, vol. 17; Washington, "Letter to Major General William Heath," 2 February 1780, in *The Writings of George Washington*, vol. 17; Washington, "Letter to Major General Arthur St. Clair," 12 February 1780, in *The Writings of George Washington*, vol. 18; Washington, "Letter to Major General William Heath," 16 February 1780, in *The Writings of George Washington*, vol. 18.

¹¹⁹ Ray Raphael, "America's Worst Winter Ever," *American History* 45 (2010): 52-55.
<http://search.ebscohost.com/>.

trap British lake-borne naval forces in harbor, prevent the garrison from escaping and allow the Americans to capture the naval forces along with city. Washington similarly hoped the winter weather would prevent the British from reinforcing their position in New York. Aware that Clinton had sailed with a significant part of his army to the south, Washington dispatched reinforcements there, “but the extreme cold, the deep Snows, and other impediments have retarded the progress of their march very considerably.”¹²⁰ As spring arrived and the country began to thaw, he declared to Lafayette “The oldest people now living in this Country do not remember so hard a Winter as the one we are now emerging from. In a word, the severity of the frost exceeded anything of the kind that had ever been experienced in this climate before.”¹²¹ Greene recalled that, “Almost all the wild beasts of the field, and the birds of the Air, have perished with the cold.”¹²² Although it appeared to grant occasional opportunities, overall winter harmed the American war effort more than it helped.¹²³

Winter posed similar challenges to the British that it did to Washington. Many among the British forces in New York recorded the extreme cold in the winter months of 1780. Even before Clinton sailed south, he had to consider how large a garrison to leave behind to guard New York, in light of “the usual extreme severity of the winters, which not infrequently renders their insular situation useless at the season toward their defense.”¹²⁴ Hessian Lieutenant von Krafft claimed New York locals informed him the weather in January 1780 was colder than any winter in the previous twenty years. The exceptional cold and ice shut down the port of New York within days of Clinton’s departure and blocked all communication by water for a time. The North and East Rivers froze solidly enough to allow “the heaviest cannon...large detachments of cavalry, and

¹²⁰ Washington, “Letter to Marquis De Lafayette,” 18 March 1780, in *The Writings of George Washington*, vol. 18.

¹²¹ Washington, “Letter to Marquis De Lafayette,” 18 March 1780, in *The Writings of George Washington*, vol. 18.

¹²² Greene, “Letter to Governor William Greene of Rhode Island,” 10 February 1780, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 5: 365.

¹²³ Washington, “Letter to the President of Congress,” 5 January 1780, in *The Writings of George Washington*, vol. 17; Washington, “Letter to the Magistrates of New Jersey,” 8 January 1780, in *The Writings of George Washington*, vol. 17; Greene, “Letter to Colonel Benoni Hathaway,” 6 January 1780, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 5: 243; Greene, “Letter to an Unidentified Person,” 11 January 1780, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 5: 253; Greene, “Letter to Christopher Greene,” 10 February 1780, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 5: 363; Washington, “Letter to the Board of War,” February 1780, in *The Writings of George Washington*, vol. 17; Washington, “Letter to Major General William Heath,” 1 February 1780, in *The Writings of George Washington*; Washington, “Letter to Colonel Daniel Brodhead,” 4 January 1780, in *The Writings of George Washington*, vol. 17; Washington, “Letter to Governor Thomas Jefferson,” 5 March 1780, in *The Writings of George Washington*, vol. 18; Washington, “Letter to the President of Congress,” 18 January 1780, in *The Writings of George Washington*, vol. 17.

¹²⁴ Clinton, *The American Rebellion*, 152.

loads of provisions...in sleighs,” to cross easily.¹²⁵ British General James Pattison reported to Lord Germain that “...provisions were transported upon sleighs and detachments of cavalry marched from New York to Staten Island (11 miles) upon the ice.”¹²⁶ The replacement of watery barriers with solid ice left all the British posts vulnerable to attack, but aside from Lord Stirling’s failed attempt, the Americans launched no major attacks. Clinton declared the Americans “were kept in perpetual alarm by several successful incursions from our lines,” across the ice.¹²⁷ Still, the British commanders in New York made great exertions to secure their positions in the event of an American attack. They theorized how Washington could exploit the winter weather to attack them, trying to anticipate danger. The British also concealed spikes under the snow, issued a proclamation for all males in New York from seventeen to sixty to form a militia, and brought the crews of icebound naval vessels to land to join the defensive effort. One unusual side effect of the extreme cold was this warm display of loyalty and solidarity that inadvertently bolstered the morale of American loyalists. The cold weather often troubled British soldiers; after driving back Lord Stirling’s raid, the severe temperatures prevented the British commander on the scene, a General Thomas Stirling, from mounting an effective pursuit. Other times the snow and cold completely prevented them from sending out patrols. One abortive encounter with the Americans led to many of British Colonel John Graves Simcoe’s men suffering frostbite, costing some their limbs and others their lives. The British also suffered serious shortages of firewood. For all the trouble it caused, the winter gave the British even fewer opportunities for action than it gave the Americans. Loyalist William Smith hoped the cost, suffering, and strain imposed by the cold temperatures would weaken the rebel army. Simcoe plotted a lightning-fast raid across the ice to kidnap Washington, but other winter weather negated the opportunity the ice gave. Sharp ice troubled his cavalry horses, and deep snow forced the would-be kidnapers to stay on the roads, where they encountered American troops and lost the chance to surprise Washington. Ultimately, all were happy when warmer weather arrived.¹²⁸

¹²⁵ Clinton, *The American Rebellion*, 189.

¹²⁶ James Pattison, “Letter from Major General James Pattison to Lord George Germain,” 22 February 1780, in Davies, ed., *Documents of the American Revolution*, 18: 50.

¹²⁷ Clinton, *The American Rebellion*, 190.

¹²⁸ Von Krafft, *Journal of Lieutenant John Charles Philip von Krafft*, 103; Smith, *Historical Memoirs of William Smith*, 211-212, 214-216; Riedesel, “Letter to Duke Charles of Brunswick,” 24 February 1780, in *Memoirs, Letters, and Journals of Major General Riedesel*, 2: 190; Simcoe, *A Journal*, 120-122, 124-126, 128, 130-133; Clinton, *The American Rebellion*, 189-190; Thomas Stirling, “Letter from Brigadier General Thomas Stirling to Lieutenant General Wilhelm Knyphausen,” 15 January 1780, in Davies, ed., *Documents of the American Revolution*, 18: 35;

The uneventful campaign season of 1780 witnessed irksome rains and fatiguing heat, dangled some hopes that the weather would bestow some strategic advantage, but involved little action. “The Winter is gone,” William Smith declared on 1 March.¹²⁹ Though snow persisted through the end of March, the armies did ready themselves for what proved to be a rather anticlimactic summer in the north. Washington hoped winter’s storms would facilitate summer success. Word had drifted back that Clinton’s wintery voyage to the southern theater had encountered rough weather. Details were sketchy, but “...certain it is, the fleet has been much dispersed and their operations considerably delayed, if not deranged, by the tempestuous weather they had to encounter during the whole month of January.”¹³⁰ Intelligence suggested storms might have cost Clinton all his horses. It was “of the greatest importance” that Clinton “met with the disasters which attended his voyage,” Washington informed General Benjamin Lincoln (Continental commander in South Carolina), because it delayed Clinton’s attack and gave Lincoln much more time to prepare his defenses.¹³¹ If Clinton were delayed too long by the storms and the subsequent wait for reinforcements, he “will be thrown into the hot season; a circumstance not a little unfavourable to his success.”¹³² Ultimately Charleston fell anyway, as the weather failed to cripple the British to the extent Washington hoped. Meanwhile, up north, in April Washington deemed that the season had come to begin maneuvering. The army shifted positions and drilled, but fought little. Stormy weather might have harried them as frequently as it had the British; it canceled troop inspections, concealed British raiding parties as they fled from American pursuit, and damaged weapons and ammunition. Haze could conceal British troop movements. When it did not rain, it was hot. American Colonel Israel Angell recorded August heat so severe it killed tobacco crops. British Colonel Simcoe’s regiment likewise conducted exhausting marches in “the uncommonly hot weather...as close and sultry in the night as in the day time.”¹³³ Sometimes the thunderstorms cooled off the temperatures for a subsequent day’s march. By August, the armies had held together in the heat and rain, and little else, yet

Pattison, “Letter from Major General James Pattison to Lord George Germain,” 22 February 1780, in Davies, ed., *Documents of the American Revolution*, 18: 51-53.

¹²⁹ Smith, *Historical Memoirs of William Smith*, 237.

¹³⁰ Washington, “Letter to Marquis De Lafayette,” 18 March 1780, in *The Writings of George Washington*, vol. 18.

¹³¹ Washington, “Letter to Major General Benjamin Lincoln,” 15 April 1780, in *The Writings of George Washington*, vol. 18.

¹³² Washington, “Letter to Major General Benjamin Lincoln,” 15 April 1780, in *The Writings of George Washington*, vol. 18.

¹³³ Simcoe, *A Journal*, 149-150.

Washington already started issuing orders to collect supplies before winter weather disrupted the roads. The Americans apparently recognized the transportation problems previous winters had caused, and consequently moved up the timing of their preparations for winter.¹³⁴

Storms and cool temperatures returned to trouble the warring armies in fall 1780. By early October, the cold already started to cause discomfort for marching soldiers. Ludwig von Closen, an aide-de-camp to the French commander General Jean Baptiste Donatien de Vimeur, comte de Rochambeau, reported that on 9 October rain and hail struck in what he called a “terrifying hurricane, which overturned almost all the camp tents.”¹³⁵ Near the end of October, Lafayette planned a raid on the British that would use thick fog for cover, but a quartermaster failed to deliver the boats he needed. Lafayette quickly advocated another attack on New York or one of the nearby British posts, before the weather turned bad. Indeed, winter weather quickly began to tear up the roads, interrupting the flow of supplies to the army. Cold rains ruined arms and powder just as much as summer rains, and required the same special inspections and maintenance to keep them in working condition. Winter weather made it especially onerous to convey supplies to the key post at West Point; the roads became useless and the river was icy enough to stop boats but not frozen enough to support movement over it. Washington hoped for a dark, rainy night to cloak a strike against New York, but little came of his plans. “It is happy for us, that the season will probably compel both Armies to continue in a state of inactivity...” he wrote to Thomas Jefferson on 9 December. When he received a proposal for a winter campaign from Gouverneur Morris, Washington answered that the proposition showed how little people understood the army’s circumstances. His numbers were reduced by the cold weather, as hundreds of men lacked the warm clothing necessary to stay in the field. Any major action in winter would require a plethora of provisions, clothing, and other preparations, Washington emphasized. Considering how difficult Washington found it to maintain his army in a relatively

¹³⁴ Washington, “Council of War,” 27 March 1780, in *The Writings of George Washington*, vol. 18; Washington, “General Orders,” 4 April 1780, in *The Writings of George Washington*, vol. 18; Washington, “General Orders,” 1 May 1780, in *The Writings of George Washington*, vol. 18; Washington, “Letter to the President of Congress,” 25 June 1780, in *The Writings of George Washington*, vol. 19; Washington, “General Orders,” 7 August 1780, in *The Writings of George Washington*, vol. 19; Smith, *Historical Memoirs of William Smith*, 247, 268, 308, 324; Angell, *Diary of Colonel Israel Angell*, 103-110, 111, 123; Washington, “Letter to Comte de Rochambeau,” 3 September 1780, in *The Writings of George Washington*, vol. 19; Washington, “Letter to Colonel Ephraim Blaine,” 12 August 1780, in *The Writings of George Washington*, vol. 19; Washington, “Circular to the States,” 27 August 1780, in *The Writings of George Washington*, vol. 19.

¹³⁵ Ludwig von Closen, *The Revolutionary Journal of Baron Ludwig von Closen, 1780-1783*, translated and edited by Evelyn M. Acomb (Chapel Hill, NC: University of North Carolina Press, 1958), 43.

stationary posture through five previous winters, it is no surprise that Washington firmly opposed heavy winter activity at this point. British General James Robertson, royal governor of New York, planned a raid up the Delaware River on Philadelphia, but a winter storm helped convince him to call it off. Washington ordered a raiding party to “attempt to surprise and bring off, Gen[era]l Knyphausen from Morris's House on York Island, or Sir Henry Clinton from Kennedy's House in the City,” if the weather and other factors permitted.¹³⁶ This last plan achieved no more than did the many other small raids that had been planned (this one foiled in part by uncooperative winds), and 1780 passed away quietly.¹³⁷

Through winter and spring 1781, the generals and soldiers encamped around New York still had to cope with much stormy weather, despite the absence of major combat actions. Winter weather suspended major military actions until summer. As in past years, the snows worked their double-edged influence on logistics, sometimes facilitating the transport of supplies to the army, other times obstructing it. The year began with two mutinies among Continental troops; Washington later thanked other soldiers for slogging through deep snow to help with “suppressing” the mutineers of the New Jersey Line.¹³⁸ The winter of 1781 seems to have been less cold than in 1780, with the rivers around New York remaining unfrozen, which meant neither side had to contend with the possibility of raids across the ice. In this more moderate

¹³⁶ Washington, “Letter to Lieutenant Colonel David Humphreys,” 23 December 1780, in *The Writings of George Washington*, vol. 21.

¹³⁷ Washington, “Letter to the President of Congress,” 7 October 1780, in *The Writings of George Washington*, vol. 20; Lafayette, “Letter to George Washington,” 27 October 1780, in Gottschalk, ed., *The Letters of Lafayette to Washington*, 114; Lafayette, “Letter to George Washington,” 30 October 1780, in Gottschalk, ed., *The Letters of Lafayette to Washington*, 118-120; Washington, “Letter to the President of Congress,” 7 November 1780, in *The Writings of George Washington*, vol. 20; Washington, “General Orders,” 23 November 1780, in *The Writings of George Washington*, vol. 20; Washington, “Plan for Attack on New York,” November 1780, in *The Writings of George Washington*, vol. 20; Washington, “Letter to Comte de Rochambeau,” 10 December 1780, in *The Writings of George Washington*, vol. 20; Washington, “Letter to Governor Thomas Jefferson,” 9 December 1780, in *The Writings of George Washington*, vol. 20; Smith, *Historical Memoirs of William Smith*, 351, 358; Washington, “Letter to the President of Congress,” 22 December 1780, in *The Writings of George Washington*, vol. 21; Washington, “Letter to Gouverneur Morris,” 10 December 1780, in *The Writings of George Washington*, vol. 20; James Robertson, “Letter to Lord Amherst from James Robertson,” 19 December 1780, in *The Twilight of British Rule in Revolutionary America: The New York Letter Book of General James Robertson, 1780-1783*, edited by Milton M. Klein and Ronald W. Howard (Cooperstown, NY: New York State Historical Association, 1983), 166; von Krafft, *Journal of Lieutenant John Charles Philip von Krafft*, 129.

¹³⁸ Washington, “General Orders,” 30 January 1781, in *The Writings of George Washington*, vol. 21.

Troops of the Pennsylvania Line, unpaid for months while new recruits received bonuses, living in poor conditions, and kept in service beyond what they believed their contracts required, rebelled against their officers, killing one and wounding a few others. They seized weapons and threatened to march on Congress, demanding better treatment; they also refused to defect to the British (despite envoys from Clinton visiting them). After negotiations, the government and troops reached a settlement. A second mutiny, of the New Jersey Line, followed, but was quashed by force; Washington marched in loyal troops, who disarmed the mutineers, and executed two of the ringleaders (Ferling, *Almost a Miracle*, 466, 469).

winter, rain was problematic: American troops raided the British position at West Chester in late January, and the mission would have been more successful had not a deluge the night before impeded the marching troops and delayed their attack. After gales at sea damaged British naval forces, Washington and the French both hoped to exploit their temporary weakness; around this time Washington learned that far to the south, a hurricane had derailed a Spanish effort to capture Pensacola. Washington deemed some naval operations as “A circumstance in which the Winds and Weather had more influence than valour or skill,” but at this stage in the war naval operations were nonetheless crucial to his land-based plans.¹³⁹ Terrible rains and the accompanying poor roads hindered Washington’s troop movements throughout winter and spring. May showers ruined much of the ammunition stocks at West Point, and “...now the Water has found its way in, every little Rain will be hurtful.”¹⁴⁰ Another severe rainstorm seriously damaged the defenses of Fort Schuyler, contributing to a series of problems that led to the fort’s abandonment. Generals had to devote frequent attention to keeping their armies functioning through the storms and cold, but especially with the onset of spring and summer they began to formulate strategy.¹⁴¹

Concerns about heat, especially to the south, strongly shaped British and Franco-American strategy in the north in the summer of 1781. Washington and the French exchanged thoughts several times regarding what their course of action should be, and Washington invariably preferred to attack New York rather than go south. He consistently cited the seasonal warmth to the south as one of his chief concerns. Experience, he argued, had proven the heat

¹³⁹ Washington, “Letter to Chevalier Destouches,” 31 March 1781, in *The Writings of George Washington*, vol. 21.

¹⁴⁰ Washington, “Letter to Colonel Timothy Pickering,” 10 May 1781, in *The Writings of George Washington*, vol. 22.

¹⁴¹ Riedesel, “Letter to Duke Ferdinand of Brunswick,” 19 February 1781, in von Eelking, ed., *Memoirs, Letters, and Journals of Major General Riedesel*, 2: 209; Clinton, *The American Rebellion*, 249; Washington, “Letter to Comte De Rochambeau,” 29 January 1781, in *The Writings of George Washington*, vol. 21; von Closen, *The Revolutionary Journal of Baron Ludwig von Closen*, 56-57; Washington, “Letter to Colonel Timothy Pickering,” 25 January 1781, in *The Writings of George Washington*, vol. 21; Washington, “Letter to Nathanael Greene,” 2 February 1781, in *The Writings of George Washington*, vol. 21; Washington, “Letter to the Board of War,” 21 June 1781, in *The Writings of George Washington*, vol. 22; Washington, “General Orders,” 30 January 1781, in *The Writings of George Washington*, vol. 21; Washington, “Letter to Comte de Rochambeau,” 3 January 1781, in *The Writings of George Washington*, vol. 21; Washington, “Letter to Major General Nathanael Greene,” 27 February 1781, in *The Writings of George Washington*, vol. 21; Washington, “Letter to Baron Steuben,” 6 February 1781, in *The Writings of George Washington*, vol. 21; Lafayette, “Letter to George Washington,” 23 February 1781, in Gottschalk, ed., *The Letters of Lafayette to Washington*, 144; Lafayette, “Letter to George Washington,” 24 February 1781, in Gottschalk, ed., *The Letters of Lafayette to Washington*, 147; Lafayette, “Letter to George Washington,” 12 April 1781, in Gottschalk, ed., *The Letters of Lafayette to Washington*, 176; Washington, “Letter to the President of Congress,” 27 May 1781, in *The Writings of George Washington*, vol. 22; Smith, *Historical Memoirs of William Smith*, 378, 380.

would inevitably exhaust their men. He vehemently sought to avoid plunging into “the extremity of the heat of summer,” and thus causing “the *great* waste of Men which we have ever experienced in so long a march at the healthiest season.”¹⁴² By the beginning of June, Washington seemed to win his point, and the combined American and French forces continued to maneuver in New York (though eventually events in the south persuaded Washington to change his mind). Even in New York, Washington remained concerned for the summer heat’s effect on the army, urging Rochambeau not to overexert his men. He also advanced his preparations for the following winter, sending a request regarding supply collection for winter to the Board of War in late June.¹⁴³

Clinton’s army did little in the summer of 1781, although they contemplated the weather’s effects if they tried to act. Clinton expected his subordinate in the south, Charles Cornwallis, to cease campaigning “before the time when the heats make action in the field fatal to the troops...and so have spared the gross of his troops to have acted in a more healthy region.”¹⁴⁴ He kept waiting for reinforcements Cornwallis never sent. Clinton similarly redirected newly arrived units to land in New York rather than Virginia, hoping “to save them from the effects so hot a climate would have on troops just arrived from Europe.”¹⁴⁵ Hessian General Riedesel composed a grand two-pronged campaign plan for Clinton, proposing a southward invasion from Canada and a second attack on the Chesapeake using troops in New York. He noted several seasonal considerations. The season of rough weather at sea would reduce fear of a French seaborne invasion, allowing the British to spare troops that would otherwise be needed to man defenses; other seasonal considerations included when the Indians could be gathered to fight, and what times of year the St. Lawrence River could support supply traffic. Riedesel’s proposal languished unused, however. By late summer 1781, events to the south overtook all the northern strategizing, and the center of conflict shifted to the Chesapeake

¹⁴² Washington, “Letter to the President of Congress,” 27 May 1781, in *The Writings of George Washington*, vol. 22.

¹⁴³ Washington, “Letter to Chevalier de la Luzerne,” 23 May 1781, in *The Writings of George Washington*, vol. 22; Washington, “Notes of Conference with Comte de Rochambeau,” 23 May 1781, in *The Writings of George Washington*, vol. 22; Washington, “Letter to Major General Nathanael Greene,” 1 June 1781, in *The Writings of George Washington*, vol. 22; Washington, “Letter to Comte de Rochambeau,” 4 July 1781, in *The Writings of George Washington*, vol. 22; Washington, “General Orders,” 6 July 1781, in *The Writings of George Washington*; Washington, “Letter to the Board of War,” 21 June 1781, in *The Writings of George Washington*, vol. 22.

¹⁴⁴ Robertson, “Letter to Lord Amherst from James Robertson,” 8 May 1781, in Klein and Howard, eds., *The Twilight of British Rule in Revolutionary America*, 196.

¹⁴⁵ Robertson, “Letter to Lord Amherst from James Robertson,” 12 June 1781, in Klein and Howard, eds., *The Twilight of British Rule in Revolutionary America*, 204.

region. Aside from the Battle of Monmouth, there had been few major engagements in the north in the latter period of the Revolutionary War. Nonetheless, keeping armies in the field for years involved numerous weather-related challenges, and the British and Americans both faced the weather's influence as they strategized for a decisive victory.¹⁴⁶

¹⁴⁶ Riedesel, "Plan of an Expedition from Canada Against the Ohio River and Alleghany Mountains and Blue Ridge, in Cooperation with an Expedition of the Army of New York Against Mount Chesapeake. Drawn up by General Riedesel in 1781, for General Clinton," in von Eelking, ed., *Memoirs, Letters, and Journals of Major General Riedesel*, 2: 252, 255.

CHAPTER 3

THE WAR IN THE SOUTH, 1778-1781

Weather and wars alike can be inconstant, shifting and flowing from one place to another. As weather can change hourly, so also the setting and strategy of war can vary significantly over time. In the American War of Independence, the southern colonies transformed from forgotten backwaters to decisive battlegrounds in the war's later years. The south began on the periphery when open conflict erupted in Massachusetts, and in the early years of the war the great armies and battles remained clustered in the north. However, by 1778, factors such as the disastrous defeat at Saratoga, the stymieing of British efforts in the north, and the new French menace against Britain's Caribbean holdings encouraged strategic changes. On North America itself, grandiose yet elusive hopes of loyalist support beckoned the British southward. By the end of 1778, Britain moved to regain control of Georgia, or at least its major port at Savannah. The next year, after indecisive skirmishing through the summer, Franco-American forces ineffectually laid siege to Savannah in the fall of 1779. Just before the end of the year, major British forces under Clinton himself sailed from New York; they captured Charleston, South Carolina, in early 1780. Partisan warfare intensified throughout the southern colonies, along with major battles including those at Camden, Cowpens, and Guilford Courthouse, as British forces moved northward toward the Chesapeake and what became a war-ending siege at Yorktown, Virginia. Though the battlegrounds changed from north to south and then crept north again, weather in its multifarious forms remained a consistent challenge for armies in the field. Fighting in the south followed a different pace than in the north. While armies in New York huddled in winter quarters, southern armies fought key battles in the winter months, and when the prime campaign season came in the north, southern troops typically entered summer quarters. Alongside the heat, the southern climate delivered heavy rains that frustrated movement. The weather tended to affect more adversely the army that needed to act more vigorously. The necessity to avoid the heat heavily guided American and British strategic thinking in the southern theater and led to vigorous winter campaigns, but warm temperatures remained an inescapable factor in battles and marches, and

frequent rains and flooding offered additional tactical and logistical difficulties not usually seen in the north.

The warm climate helped frustrate even such meager military ventures as armies undertook in the south. The heat could do more to a soldier's health than the enemy often did. In May 1778, American Colonel Charles C. Pinckney, in Georgia, reported to General William Moultrie the discomforts heavy dews imposed on his men, since they lacked tents for shelter. When the region was not too wet, it was too dry. Continental General Robert Howe, in Georgia, claimed his men "suffer exceedingly," from a shortage of canteens and lack of water.¹⁴⁷ From South Carolina, Moultrie likewise expressed fears that if the weather dried out too much, the troops would run short of water in the sweltering summer heat. He especially worried for the soldiers' health in July and August. The American forces under Howe launched a botched invasion of East Florida in late June. The heat and weather struck at the health of expedition soldiers, probably more than scattered, brief encounters with British troops did. In a council of war on 11 July, the American officers concluded "by the inclemency of the climate, the greater part of the army now well, will be by continuing here or advancing most probably be destroyed."¹⁴⁸ Moultrie wrote later that month to Henry Laurens, then President of the Continental Congress, that an invasion of Florida was impossible in that season. He urged that any further attacks be postponed until November, when the heat would moderate. In West Florida, a hurricane obliterated British General John Campbell's efforts to defend his territory against Spanish attack. He could not transport men and supplies to sites he needed to fortify because "...every small craft and almost every boat in this province was either greatly damaged or totally destroyed in a hurricane...that rose the sea twelve feet above high-water mark, and of which the violence was such that vessels of considerable burthen were drove several miles inland."¹⁴⁹ The storm also "entirely destroyed" the seaward fortifications of Pensacola, which left it vulnerable and required much exertion by the troops to rebuild.¹⁵⁰ By the end of 1778, the

¹⁴⁷ Robert Howe, "Letter to General Moultrie," 23 May 1778, in Moultrie, *Memoirs of the American Revolution*, 2: 382.

¹⁴⁸ Moultrie, *Memoirs of the American Revolution*, 1:235.

¹⁴⁹ John Campbell, "Letter from Brigadier General John Campbell to General Sir Henry Clinton," 10 February—21 March 1779, in Davies, ed., *Documents of the American Revolution*, 17:54-55.

¹⁵⁰ John Campbell, "Letter from Brigadier General John Campbell to General Sir Henry Clinton," 10 February—21 March 1779, in Davies, ed., *Documents of the American Revolution*, 17:57.

Americans in the south had achieved nothing, but the British managed to capture Savannah quickly at the very end of December, setting the stage for escalating conflict in the south.¹⁵¹

In the winter months of 1779, rain tended to plague the armies, but by May the escalating heat prompted both sides to reduce southern operations for much of the summer. Near the beginning of the year, General Moultrie worried about the maintenance of roads and bridges, necessary for communication between American forces. Considering how the roads were “now wearing away very fast,” in relatively dry weather, “...how will they be when the rains set in, as they seem to begin to day?”¹⁵² The South Carolina government promised to preserve Moultrie’s lines of communication against the winter rainfall. The British captured Augusta, Georgia, at the end of January, further securing the colony, while loyalist and patriot militias grappled indecisively through February and March. American militiaman James Fergus reported that after the Battle of Brier Creek (an American defeat on 3 March) many of the fleeing soldiers suffered from a cold, frosty night. By the beginning of May, hot, dry weather shriveled streams and made fording easier, but could also bring marching troops to a halt in an effort to avoid the worst heat of the day. Paradoxically, through the end of May frigid night temperatures also periodically added to soldiers’ discomfort. Later in May, Moultrie found “so little water in the swamps, from the excessive drought which then prevailed, that he determined not to risk an action at this post.”¹⁵³ Both sides knew that summer was inhospitable in the south (and winter likewise in the north), yet each side tried to campaign in those times anyway. However, winter more thoroughly shut down campaigning in the north than summer did campaigning in the south. The British made a flubbed attempt to attack Charleston, South Carolina, in May; among the expedition’s tribulations, unexpected flooding temporarily blocked its advance. The weather was apparently warm enough that Hessian jaeger von Feilitzsch all the way up in New York heard report that the British southern army “can do nothing more because of the great heat.”¹⁵⁴ After a feeble siege in

¹⁵¹ Charles C. Pinckney, “Letter to William Moultrie,” 24 May 1778, in Moultrie, *Memoirs of the American Revolution*, 1: 212-213; Moultrie, “Letter to General Robert Howe,” 31 May 1778, in Moultrie, *Memoirs of the American Revolution*, 1: 215; Moultrie, “Letter to General Robert Howe,” 5 June 1778, in Moultrie, *Memoirs of the American Revolution*, 1: 219; Pinckney, “Letter to William Moultrie,” 10 July 1778, in Moultrie, *Memoirs of the American Revolution*, 1: 232; Moultrie, “Letter to Henry Laurens,” 26 July 1778, in Moultrie, *Memoirs of the American Revolution*, 1: 239-240.

¹⁵² Moultrie, “Letter to Colonel Charles C. Pinckney,” 10 January 1779, in Moultrie, *Memoirs of the American Revolution*, 1: 260.

¹⁵³ William Dobein James, *A Sketch of the Life of Brig. Gen. Francis Marion* (1821; Marietta, GA: Continental Book Co., 1948), 23.

¹⁵⁴ Von Feilitzsch, *Diary*, in von Feilitzsch and Bartholomai, *Diaries of two Ansbach Jaegers*, 61.

severe heat, by early June the British under General Augustine Prevost retreated to Beaufort, South Carolina, which Prevost believed would provide a better place for sheltering his men from the unhealthy heat while still protecting Georgia from rebel incursions. Around the same time, one American officer declared “The season for action was almost exhausted; and the heat of the weather, or the attendant disorders of our summer, would very shortly have put an end to the contention of the armies, and compelled them to retire into Summer quarters.”¹⁵⁵ Moultrie advised his Continental superior, General Benjamin Lincoln, to take care with troop movements, lest the extreme heat exhaust the soldiers and render them useless. After the early British gain of Augusta, weather helped prevent further serious developments in the south until the fall. Clinton promised Lord Germain that, “The weather will admit of our acting in Carolina in the beginning of October, and many motives call our attention to that point.”¹⁵⁶ However, the major British movement did not come until the following year; it was the Americans who had one more move to make in the fall.¹⁵⁷

A last major operation of 1779 unsuccessfully tried to gain an edge by using autumn fog. Admiral Charles Hector, comte d’Estaing, brought significant French naval and land forces to attempt to retake Savannah, lost to the British the previous December. American troops under General Benjamin Lincoln joined the French to besiege the city, beginning in September. Clinton, as well as an anonymous French officer, recorded how the Franco-American forces repeatedly took advantage of heavy morning fog to conceal the construction as they advanced their siege works. After weeks of ineffective bombardments, the allies launched a major attack on Savannah, perhaps, one observer theorized, spurred to hurry the end of the siege by concern over the possibility of autumn storms. On 9 October, the allies launched an assault on the city while it was still dark and a “very thick fog...made it impossible to determine on the sudden

¹⁵⁵ Colonel Grimkie, “Letter to J. Kean,” 21 June 1779, in Moultrie, *Memoirs of the American Revolution*, 1: 495.

¹⁵⁶ Clinton, “Extract of Clinton to German,” 21 August 1779, in Clinton, *The American Rebellion*, 418.

¹⁵⁷ Pinckney, “Letter to William Moultrie,” 17 January 1779, in Moultrie, *Memoirs of the American Revolution*, 1: 269; Moultrie, “Letter to Colonel Charles C. Pinckney,” 26 January 1779, in Moultrie, *Memoirs of the American Revolution*, 1: 275; Moultrie, *Memoirs of the American Revolution*, 1: 402; Moultrie, “Letter to Benjamin Lincoln,” 4 May 1779, in Moultrie, *Memoirs of the American Revolution*, 1: 405; Augustine Prevost, “Letter from Major General Augustine Prevost to General Sir Henry Clinton,” 21 May 1779, in Davies, ed., *Documents of the American Revolution*, 17: 127-129; Augustine Prevost, “Letter from Major General Augustine Prevost to Lord George Germain,” 10 June 1779, in Davies, ed., *Documents of the American Revolution*, 17: 142; Moultrie, “Letter to Benjamin Lincoln,” 18 July 1779, in Moultrie, *Memoirs of the American Revolution*, 2: 28; James Fergus, “Pension Application Deposition,” in Dann, ed., *The Revolution Remembered*, 177, 178, 181, 184.

where the real attack was intended or how many.”¹⁵⁸ Eventually daylight came, but the fog and gun smoke remained “impenetrably close,” and therefore British General Prevost reported “...it was judged improper to draw a number of troops sufficient for a respectable sortie...which had we known all we...might have done.”¹⁵⁹ Some of the enemy forces were only ever heard, not seen, but that advantage was not enough to win. The French and Americans suffered unusually heavy casualties and the siege came to an inglorious end. However, the lingering uncertainty the fog caused over the disposition of the French and American forces prevented the British from sending a sortie in pursuit. As the morning fog cleared on 18 October, Savannah’s British defenders found the French and Americans had departed and given up the siege. The year concluded with little progress in the south itself, but from New York General Clinton and thousands of British troops embarked for a new target: Charleston.¹⁶⁰

Winter weather influenced the timing of Clinton’s campaign against Charleston in numerous ways. The prospect of ice around New York, “which not infrequently renders their insular situation useless at the season toward their defense,” forced Clinton to reduce his invasion force and leave more troops behind to defend the city than would otherwise have been necessary.¹⁶¹ New York harbor likewise had the potential to completely freeze over and trap the invasion fleet, a possibility that lent urgency to the departure. On the other hand, the ships could not depart in the middle of stormy weather, either. The “mildness of the climate” was one of the prime advantages to invading South Carolina, but that too had a time limit.¹⁶² The timing of the attack on Charleston was based on “knowing...that above all, an army could not tolerate camping in the field, undertaking siege operations, nor conducting long marches there during the heat, beginning in June, it was necessary to begin the expedition immediately and to have

¹⁵⁸ Prevost, “Letter from Major General Augustine Prevost to Lord George Germain,” 1 November 1779, in Davies, ed., *Documents of the American Revolution*, 17: 246.

¹⁵⁹ Prevost, “Letter from Major General Augustine Prevost to Lord George Germain,” 1 November 1779, in Davies, ed., *Documents of the American Revolution*, 17: 247.

¹⁶⁰ Charles C. Jones, Jr., ed., *The Siege of Savannah by the Fleet of Count D’Estaing in 1779* (1874; New York: The New York Times & Arno Press, 1968), 25; Elizabeth Lichtenstein Johnston, *Recollections of a Georgia Loyalist*, edited by Arthur Wentworth Eaton (1836; Spartanburg, SC: The Reprint Company, 1972), 61; Prevost, “Letter from Major General Augustine Prevost to Lord George Germain,” 1 November 1779, in Davies, ed., *Documents of the American Revolution*, vol. 17, 247; Clinton, *The American Rebellion*, 150; Prevost, “Extract of Letter from Major General Prevost to Sir Henry Clinton,” 2 November 1779, in Clinton, *The American Rebellion*, 432-434.

¹⁶¹ Clinton, *The American Rebellion*, 152.

¹⁶² Banastre Tarleton, *A History of the Campaigns of 1780 and 1781 in the Southern Provinces of North America* (1787; New York: The New York Times & Arno Press, 1968), 4.

concluded it by the end of May.”¹⁶³ Meteorological considerations helped determine the planning for the South Carolina campaign, and the weather only wielded a heavier hand as the troop transports departed New York.¹⁶⁴

Ferocious storms pounded and scattered the British fleet, both delaying Clinton’s offensive and weakening the invasion force itself. After the ships had loaded but before they cleared harbor, on 23 December, an ice flow wrecked one transport. Rough weather held up their departure slightly, but they finally set sail under clear skies on 26 December. Beginning on 28 December, stormy weather struck, and occurred frequently throughout January. Storms dispersed much of the convoy, and sank several transports; most of the passengers managed to transfer to other ships. Hessian soldier Johann Hinrichs witnessed his transport nearly collide with the fleet flagship in the tempest. In a gale on 12 January 1780, Hinrichs grumbled to his diary, “Everything the same! Still a westerly wind! We cruised up and down. Terrible weather! Snow, rain, hail, storm, foaming waves, and bitter cold!”¹⁶⁵ By 2 February, most of the fleet reassembled off Savannah after over a month of turbulent sailing. The reports of the storm damage sounded so severe that British prisoner of war Thomas Hughes believed they must be false. He suspected the Continental Congress was trying “to palliate the impending evil” of the imminent British victory by fabricating stories about storms that “sunk a number ships...and drown’d half the army.”¹⁶⁶ Clinton dryly reported to Lord Germain “a very tedious voyage in uncommon bad weather,” which involved “the total loss of an ordnance ship...and much the greater part of the horses brought for cavalry.”¹⁶⁷ British Lieutenant Colonel Banastre Tarleton declared the loss of Clinton’s artillery and cavalry “deranged and impeded the intended attack upon Charles town.”¹⁶⁸ The delays that resulted from the storm granted the Americans extra time to fortify Charleston and prepare for the British onslaught. However, Hinrichs believed that the prolonged voyage and storm-damage delays also left the Americans in the dark about when to expect the attack on Charleston, which allowed the British to make their initial landings near

¹⁶³ Christian Friedrich Bartholomai, “Extracts from the diary covering the expedition to the southern part of North America (December 1779 – June 1780),” in von Feilitzsch and Bartholomai, *Diaries of two Ansbach Jaegers*, 93.

¹⁶⁴ Bartholomai, “Extracts from the diary covering the expedition to the southern part of North America (December 1779 – June 1780),” in von Feilitzsch and Bartholomai, *Diaries of two Ansbach Jaegers*, 86-87, 89.

¹⁶⁵ Johann Hinrichs, “Diary,” in *The Siege of Charleston*, edited and translated by Bernard A. Uhlendorf (1938; New York: The New York Times & Arno Press, 1968), 125.

¹⁶⁶ Hughes, *A Journal*, 84.

¹⁶⁷ Clinton, “Letter to Lord George Germain,” 9 March 1780, in Tarleton, *A History of the Campaigns of 1780 and 1781*, 35.

¹⁶⁸ Tarleton, *A History of the Campaigns of 1780 and 1781*, 4.

Charleston unopposed. Overall the weather had given Clinton's hoped-for conquest of South Carolina a thoroughly rocky start.¹⁶⁹

The British army persevered through a sweeping variety of weather, each with different challenges, even as it approached Charleston, before the siege began. As the fleet prepared to sail from Savannah to land near Charleston, on 7 February they "Had a terrible storm today from the SW.—hurricane, rain, hail, thunderstorm."¹⁷⁰ Rough weather a few days later likewise prevented troops from disembarking near Charleston. "There is probably no land," Hinrichs asserted, "which is subject to so many and such sudden changes of weather as this province. No two months, days, or hours are alike. Even in winter...the most sudden changes are common: from cold to almost unbearable heat, from rain to drought, from hurricane to pleasant air."¹⁷¹ The British experienced all these. Much of late February was cold, and one officer recorded snow and frozen lakes on 23 February. Other days the weather warmed precipitously, so that, "Even in January it is so hot that a German, accustomed to a colder climate, finds the heat nearly intolerable."¹⁷² Heavy rains also impeded the British advance. Regarding a route British artillery might use to approach Charleston, General Moultrie declared, "The rains have filled our rivers and swamps so much, that it is almost impossible for the enemy to drag their cannon and artillery stores along. I think they cannot pass this way...."¹⁷³ Moultrie expressed similar confidence to South Carolina's governor. Despite the inconveniences rain and thunderstorms imposed, throughout March the British marched and skirmished their way closer to the city. As the weather began to warm on 17 March, one Hessian officer lost a chance to ambush the enemy and capture much-needed horses because he let his men leave the ambush site to take a break from the hot day. On 20 March the British fleet entered the outer portion of Charleston harbor, passing

¹⁶⁹ Johan Christoph von Huyn, "Diary," in Uhlendorf, ed., *The Siege of Charleston*, 369, 371; Ewald, "Letter of Johann Ewald to unnamed Baron," 29 February 1780, in Uhlendorf, ed., *The Siege of Charleston*, 21, 23; Johann Hinrichs, "Diary," in Uhlendorf, ed., *The Siege of Charleston*, 109, 111, 113, 117-141, 143, 179; Bartholomai, "Extracts from the diary covering the expedition to the southern part of North America (December 1779 – June 1780)," in von Feilitzsch and Bartholomai, *Diaries of two Ansbach Jaegers*, 96-104; Ewald, *Diary*, 190-191, 193-194; Tarleton, *A History of the Campaigns of 1780 and 1781*, 5, 34.

¹⁷⁰ Hinrichs, "Diary," in Uhlendorf, ed., *The Siege of Charleston*, 175.

¹⁷¹ Hinrichs, "Diary," in Uhlendorf, ed., *The Siege of Charleston*, 335, 337.

Hinrichs continued, "Winter lasts from October to April. January is usually clear; February and March are rainy and windy, with occasional beautiful days; April is a dry and good month; May brings much fog, rain, and sultry air; June, July, August, and September are unhealthy and frequently fatal to foreigners because of the excessive heat, suffocating electric storms, and damp nights pregnant with fetid fogs; October, November, and December bring rain, cold, some ice, a few beautiful days, hurricanes, and rain with wind."

¹⁷² Hinrichs, "Diary," in Uhlendorf, ed., *The Siege of Charleston*, 151.

¹⁷³ Moultrie, "Letter to Benjamin Lincoln," 22 February 1780, in Moultrie, *Memoirs of the American Revolution*, 2: 47-48.

an outer sandbar, and fully cutting off the city; prior to this, an untimely storm could have swept them out to sea and thrown the campaign into disarray. Naval power gave the British a tremendous asset, but it also left them more vulnerable to weather from the sea than their more land-bound opponents. By the end of March, British forces had surrounded Charleston and the real siege began.¹⁷⁴

As the siege of Charleston – and the season – progressed, the heat became an increasingly serious concern. The day the siege began, 29 March, Hessian Major Ewald found himself “very thirsty because of the extraordinary heat of the sun.”¹⁷⁵ American soldier William James later criticized the American commander, Lincoln, for choosing to defend Charleston. If Lincoln had kept his army in the field and avoided getting trapped in the city, James believed “...in a few months the climate would have fought his battles.”¹⁷⁶ British Lieutenant Colonel Tarleton formed a similar assessment of the danger the rising summer heat posed. In early April fog helped conceal British ships as they slipped past the American Fort Moultrie to penetrate deeper into Charleston’s defenses. Though the heat increased, as late as 26 April the troops still endured a “blustering cold night.”¹⁷⁷ Nonetheless, on 27 April Ewald expressed eagerness to complete the siege and capture Charleston, “For the dangers and difficult work were the least of the annoyance: the intolerable heat, the lack of good water, and the billions of sandflies and mosquitoes made up the worst nuisance.”¹⁷⁸ One soldier actually claimed the sand could get hot enough in summer that an egg would cook on it. Hinrichs estimated they experienced only one comfortable day for every fifteen unpleasant days. “The heat of the summer,” he declared, “which fatigues the body upon the slightest movement...through perspiration weakens the constitutions, demands that one partake of much liquid.”¹⁷⁹ Near the coast, one soldier recorded how strong winds created the “danger of losing one’s eyes by the blowing of sand.”¹⁸⁰ On 5 May, Tarleton launched a surprise attack on the American cavalry force that had already been

¹⁷⁴ Ewald, *Diary*, 195-196; Moultrie, “Letter to Governor Rutledge,” 22 February 1780, in Moultrie, *Memoirs of the American Revolution*, 2: 49; Moultrie, *Memoirs of the American Revolution*, 65; Bartholomai, “Extracts from the diary covering the expedition to the southern part of North America (December 1779 – June 1780),” in von Feilitzsch and Bartholomai, *Diaries of two Ansbach Jaegers*, 113-114, 119-120, 141-142, 144-145; Anthony Allaire, *Diary of Lieut. Anthony Allaire* (1881; New York: The New York Times & Arno Press, 1968), 5-7, 9-10; Ewald, *Diary*, 209-210.

¹⁷⁵ Ewald, *Diary*, 217.

¹⁷⁶ James, *A Sketch of the Life of Brig. Gen. Francis Marion*, 35.

¹⁷⁷ Allaire, *Diary of Lieut. Anthony Allaire*, 15.

¹⁷⁸ Ewald, *Diary*, 234.

¹⁷⁹ Hinrichs, “Diary,” in Uhlendorf, ed., *The Siege of Charleston*, 153.

¹⁸⁰ Allaire, *Diary of Lieut. Anthony Allaire*, 15.

exhausted from marching in the heat. Sometimes heavy rain still swelled creeks and hindered British military movements. A powerful downpour combined with American cannon fire to demolish a portion of British siege works. By mid-May, one British soldier in the north, hearing reports of the siege's progress, felt "The only thing to hinder the town falling into our hands will be the climate. If the siege is protracted till next month, the heat will be too intense for the soldiers to carry the approaches."¹⁸¹ At last, though, the American defenders gave in to the implacable British advance; British forces entered Charleston on 12 May – not a moment too soon for the British soldiers.¹⁸²

The fall of Charleston greatly advanced British control of South Carolina, but the now-omnipresent summer heat slowed further execution of Britain's plans for the southern theater. The danger the warmth posed appeared in the way veteran campaigner Major Ewald suffered "a sunstroke due to the intense power of the sun," simply while walking around Charleston; the heat reduced him to "vomiting for two hours," followed by rest and consumption of much liquid.¹⁸³ Near the end of May, Tarleton pursued a Continental force under Colonel Abraham Buford; a number of Tarleton's horses died from the exhausting heat, but he nevertheless inflicted a crushing defeat on the Americans at Waxhaws on 29 May. On 1 June 1780, as Clinton prepared to depart South Carolina and return to New York, he gave Cornwallis a campaign plan that tried to account for the southern climate. He left in part because he expected the onset of the hottest season of the year would halt operations. However, Clinton hoped that after Cornwallis fully secured the Carolinas, he would assist with British operations in the Chesapeake region, when "the season will admit of it in that climate. This may happen, perhaps, about September, or, if not, early in October."¹⁸⁴ Such a plan, however, proved too ambitious for the summer – the heat prevented Cornwallis from even reaching North Carolina until September. While grand strategy paused to seek shade, small bands of patriots and loyalists clashed viciously throughout the South Carolina backcountry. The British shifted troops around, worked to construct insulated

¹⁸¹ Hughes, *A Journal by Thos: Hughes*, 86.

¹⁸² Tarleton, *A History of the Campaigns of 1780 and 1781*, 14, 19-20, 39, 48; Hinrichs, "Diary," in Uhlendorf, ed., *The Siege of Charleston*, 241; Allaire, *Diary of Lieut. Anthony Allaire*, 11, 16; Hinrichs, "Diary," in Uhlendorf, ed., *The Siege of Charleston*, 151, 337; Bartholomai, "Extracts from the diary covering the expedition to the southern part of North America (December 1779 – June 1780)," in von Feilitzsch and Bartholomai, *Diaries of two Ansbach Jaegers*, 141-142.

¹⁸³ Ewald, *Diary*, 242.

¹⁸⁴ Henry Clinton, "Extract – Sir Henry Clinton to Earl Cornwallis, 1 June 1780," in Henry Clinton, *Observations on Some Parts of Earl Cornwallis' Answer to Sir Henry Clinton's Narrative: Appendix* (1783; New York: Research Reprints, Inc., 1970), 7.

huts to shelter their men from the sun's bombardment, and built up supplies to invade North Carolina. Cornwallis noted the "excessive heat of the season," made transporting supplies to Camden for a new base "a work of infinite labor."¹⁸⁵ British troops often rose early in the day to begin marching, sought shady locales in which to halt much of the day, including during uncomfortable and frequent afternoon thunderstorms, and then resumed marching in the evening. In such unpleasant settings, they skirmished often with rebel forces. The intense heat stifled British strategy in the summer of 1780, and the next major offensive move came from the Americans.¹⁸⁶

After the disastrous American losses at Charleston, Continental General Horatio Gates (the nominal victor of Saratoga) hoped to reverse American fortunes, but heat and haze together muddled both his offensive hopes and the British response. As Gates collected militia and Continental troops in North Carolina, militiaman Guilford Dudley experienced the discomfort of "forced marches in the sultry weather."¹⁸⁷ Gates drove his army through climatically hostile and loyalist-inhabited territory toward the British post at Camden, South Carolina, and Cornwallis advanced from Charleston to greet him. Another militiaman in Gates' army, Garret Watts, recalled, "The weather was warm excessively," when the armies clashed at Camden on the morning of 16 August.¹⁸⁸ Fog initially obscured the advance of the American troops. They came close to outflanking the right edge of the British line, but the British discovered in time for Cornwallis to shift his forces. Cornwallis, describing the battle, explained "It was at this time a dead calm, with a little haziness in the air, which preventing the smoke from rising, occasioned so thick a darkness, that it was difficult to see the effect of a very heavy and well-supported fire on both sides."¹⁸⁹ Ultimately, though, Gates' lines shattered and the British gained a decisive victory. The heat intervened to discourage Cornwallis from a decisive pursuit of the fleeing

¹⁸⁵ Cornwallis, "Letter from Earl Cornwallis to Sir Henry Clinton," 14 July 1780, in Cornwallis, *Correspondence of Charles, First Marquis Cornwallis*, 1: 51.

¹⁸⁶ Tarleton, *A History of the Campaigns of 1780 and 1781*, 5, 27, 85, 87; Clinton, *The American Rebellion*, 177, 223; Tarleton, "Letter from Earl Cornwallis to Sir Henry Clinton," 30 June 1780, in Tarleton, *A History of the Campaigns of 1780 and 1781*, 118; Cornwallis, "Letter from Earl Cornwallis to Sir Henry Clinton," 6 August 1780, in Cornwallis, *Correspondence of Charles, First Marquis Cornwallis*, 1:54; Tarleton, "Letter from Earl Cornwallis to Sir Henry Clinton" 6 August 1780, in Tarleton, *A History of the Campaigns of 1780 and 1781*, 128; Allaire, *Diary of Lieut. Anthony Allaire*, 18, 21, 23; Cornwallis, "Extract – From Earl Cornwallis to Sir Henry Clinton, 6 August 1780," in Clinton, *Observations on Some Parts of Earl Cornwallis' Answer*, 14-16.

¹⁸⁷ Guilford Dudley, "Pension Application Deposition," in Dann, ed., *The Revolution Remembered*, 214.

¹⁸⁸ Garret Watts, "Pension Application Deposition," in Dann, ed., *The Revolution Remembered*, 194.

¹⁸⁹ Cornwallis, "Letter to Lord George Germain," 21 August 1780, in Tarleton, *A History of the Campaigns of 1780 and 1781*, 132.

Americans or from any other aggressive follow-up to the victory at Camden. He explained to Lord Germain the difficulties of administering South Carolina even in the absence of a major rebel army. The climate was so poor from June to October that troops could not be sent out into it “without a certainty of their being rendered useless for some time for military service, if not entirely lost.”¹⁹⁰ The summer heat and the ill health it inflicted held up the British conquest more effectively than two American armies had.¹⁹¹

As the weather cooled, the war in the south heated up. Loyalist Lieutenant Anthony Allaire noted a first, unusual, chilly morning as early as 21 August. With the prospect of at least slightly cooler temperatures, on 8 September, Cornwallis invaded North Carolina. Though the defeat at Camden shocked and demoralized patriot forces, the backcountry militia conflicts continued. In early October 1780, American partisan groups assembled and pursued a large loyalist militia force under Major Patrick Ferguson. Heavy autumn downpours on 7 October prompted some of the partisan leaders to want to halt. Colonel Isaac Shelby insisted to fellow American officers “I will not stop till night, if I follow Ferguson into Cornwallis’ lines!”¹⁹² The other partisan leaders silently acquiesced and continued their rainy march. Not much further along, they learned Ferguson’s force had stopped at King’s Mountain. They soon caught up and wiped out Ferguson’s loyalists, crushing Tory morale in North Carolina and seriously derailing British strategy there (which relied on loyalist support). In the face of this disruption, Cornwallis sought to secure the British outpost at Ninety-six, South Carolina, only to have heavy rains fatigue the marching troops. Elsewhere American raiders used fog to cover hit-and-run attacks, while flooded streams restricted the mobility of British forces. The first freeze of the year came on 30 October, Lieutenant Allaire reported, sheathing everything with a quarter inch of ice. While chaos and partisan raiding ran amok, General Nathanael Greene arrived to take command of the tattered fragments of Continental forces in the south. Sometimes it grew cold enough to cause soldiers discomfort, as Moultrie, now a prisoner of the British, complained to them about

¹⁹⁰ Cornwallis, “Letter from Earl Cornwallis to Lord George Germain,” 20 August 1780, in Cornwallis, *Correspondence of Charles, First Marquis Cornwallis*, 1: 490.

¹⁹¹ Josiah Martin, “Letter from Governor Josiah Martin to Lord George Germain,” 18 August 1780, in Davies, ed., *Documents of the American Revolution*, 18: 143; Cornwallis, “Extract of a letter from Lord Cornwallis to Lord George Germain,” 21 August 1780, in Clinton, *The American Rebellion*, 453; Jones, *History of New York During the Revolutionary War*, 1: 387; Tarleton, *A History of the Campaigns of 1780 and 1781*, 155, 157; Moultrie, *Memoirs of the American Revolution*, 2: 237, 246.

¹⁹² Isaac Shelby, “Account of Colonel Isaac Shelby of North Carolina,” in Commager and Morris, eds., *Spirit of ‘Seventy-Six*, 2: 1141.

“unfinished...very cold and disagreeable,” quarters in which they wanted captured officers to live.¹⁹³ It was far different from the northern theater, however, and Greene wrote to his wife Catharine how the comparatively mild southern weather made Greene’s life much easier as he worked to rebuild the southern army and train new units. Much activity lay ahead in the cool season.¹⁹⁴

The southern winter of 1780-1781 permitted comfortable campaigning, but along with comparatively moderate temperatures came frequent rains that tended to harry whomever most needed to move rapidly at the time. From icy New York, in late December Clinton dispatched a force under Benedict Arnold to raid Virginia. A “violent whirlwind” damaged some of the ships and postponed the sailing of the transports.¹⁹⁵ They reached the Chesapeake just after the beginning of 1781. Colonel John Graves Simcoe, commander of the Queen’s Rangers under Arnold, noted that after a raid on 6 January against Richmond, rains made the roads slippery and difficult to traverse. By Arnold’s command, Major Ewald led another raiding party on 10 January. There had been a thunderstorm earlier, but now Ewald enjoyed a “beautiful, clear evening with moonlight.”¹⁹⁶ Because of the storm earlier in the day, much rain remained on the ground and foliage, and Ewald managed to detect enemy troops by hearing their horses walking through the puddles. Arnold’s raiders continued to assail the Chesapeake region throughout January, and the rains kept coming as well. Heavy rainfall on the night of 25 January actually aided the British. Arnold ordered Simcoe to recover some wagons captured by the Americans near Portsmouth, Virginia. A deluge made for chaotic fighting and prevented the Americans from mounting an effective pursuit. Down in the Carolinas, clear weather early in the month seemed to ease British troop movements. Greene, on the other hand, struggled with severe rains that made it impossible to get the ammunition and powder across overflowing rivers without ruining it. As one wing of Greene’s army, under Daniel Morgan, bolstered patriot militia and suppressed loyalists, Cornwallis deployed troops under Tarleton to eliminate Morgan’s force.

¹⁹³ Moultrie, “Letter to Colonel Innis,” 25 December 1780, in Moultrie, *Memoirs of the American Revolution*, 2: 148.

¹⁹⁴ Allaire, *Diary of Lieut. Anthony Allaire*, 18, 21, 24-26, 33-35; Isaac Shelby, “Account of Colonel Isaac Shelby of North Carolina,” in Commager and Morris, eds., *Spirit of ‘Seventy-Six*, 2: 1141; Francis Rawdon, “Letter from Lord Rawdon to Major-general Leslie,” 24 October 1780, in Clinton, *Observations on Some Parts of Earl Cornwallis’ Answer*, 34; Tarleton, *A History of the Campaigns of 1780 and 1781*, 162, 167; Greene, “Letter to Catharine Greene,” 29 December 1780, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 16.

¹⁹⁵ Ewald, *Diary*, 258.

¹⁹⁶ Ewald, *Diary*, 269.

The winter's rain swelled creeks, "greatly impeded" Tarleton's progress, and made finding easy fords a priority as Tarleton pursued Morgan.¹⁹⁷ Tarleton's pursuit ended at Cowpens, South Carolina, on 17 January, when Morgan achieved a spectacular victory and smashed Tarleton's band. This set the stage for a new campaign for the rain to dominate, as Cornwallis himself began to pursue Morgan's command.¹⁹⁸

Heavy rains and overflowing streams troubled both armies, but at the most critical points the winter flooding seemed to abet the Americans. From Cowpens, Morgan began forced marches north to rendezvous with Greene, while Cornwallis attempted to hunt down and destroy Morgan's detachment before he could rejoin the rest of the American army. Greene warned his subordinate to beware lest a flash flood trap him against a river with nowhere to turn. "The Pedee rose 25 feet last week in 30 hours," Greene cautioned as he explained his efforts to prepare boats for the army.¹⁹⁹ Floodwaters also blocked General Francis Marion from delivering supplies to Greene, and elsewhere a storm destroyed a bridge over a flooded stream, blocking another American supply route. The floods hurt the British more than Morgan. Cornwallis reported that the "swelling of numberless creeks in our way, rendered all our efforts fruitless," in the pursuit of Morgan's corps.²⁰⁰ Finally Morgan crossed the Catawba River and rejoined Greene – the evening before what Greene dubbed the "happy intervention of a great storm which raised the Catabow so high that the Enemy cou'd not Cross."²⁰¹ The dark waters barricaded Cornwallis for days; even trained veterans with years of experience in field still could not overcome a raging torrent.²⁰²

¹⁹⁷ Charles Cornwallis, "Letter to Henry Clinton," 18 January 1781, in Charles Cornwallis, *An Answer to that part of the Narrative of Lieutenant-General Sir Henry Clinton, K.B. Which relates to the Conduct of Lieutenant-General Earl Cornwallis During the Campaign in North-America in the year 1781* (1783; New York: Research Reprints, Inc., 1970), 2.

¹⁹⁸ Ewald, *Diary*, 269; Simcoe, *A Journal*, 164, 171-172; Alexander Leslie, "Extract – From Major-general Leslie to Sir Henry Clinton," 8 January 1781, in Clinton, *Observations on Some Parts of Earl Cornwallis' Answer*, 52; John Mazaret, "Letter from Major John Mazaret to Nathanael Greene," 11 January 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 96; Tarleton, *A History of the Campaigns of 1780 and 1781*, 212.

¹⁹⁹ Greene, "Letter to General Daniel Morgan," 19 January 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 147.

²⁰⁰ Cornwallis, "Letter to Lord Germain from Cornwallis," 17 March 1781, in Tarleton, *A History of the Campaigns of 1780 and 1781*, 261.

²⁰¹ Greene, "Letter to Baron Steuben," 3 February 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 242.

²⁰² Francis Marion, "Letter from General Francis Marion to Nathanael Greene," 20 January 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 165; William Pendergast, "Letter from Lieutenant William Pendergast to Nathanael Greene," 23 January 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 179; Tarleton, "Intelligence from the southward," 28 February 1781, in Tarleton, *A History of the Campaigns of 1780 and 1781*, 254-255; Moultrie, *Memoirs of the American Revolution*, 2: 259; Tarleton, *A History*

Receding floodwaters eventually allowed Cornwallis to pass the watery barrier and forced Greene to retreat. With his entire army together again, Greene attempted to prevent the British from crossing when the waters fell, but the Catawba simply had too many fords for the Americans to guard them all well. It was only a matter of time until the British crossed. Finally the Catawba calmed enough that Cornwallis determined to exploit the opportunity to cross at Cowan's Ford on 1 February. The morning was "very dark and rainy," but despite the difficulties, Cornwallis elected to force the crossing because he knew "the rain then falling would soon render the river again impassable."²⁰³ The rain throughout the day caused the river at the ford to rise and made the army's crossing difficult. A vastly outnumbered force of Americans offered brief, but fierce, resistance as well. Once across the river, the heavy rain slowed infantry movements, but Tarleton's more mobile cavalry managed to raid a gathering of patriot militia at Tarrant's Tavern. Since Greene felt unready to give battle, he retreated, and the great chase resumed.²⁰⁴

Greene continued to take advantage of flooded rivers to stay out of Cornwallis' reach until Greene felt prepared to battle, and could do so on his terms. When Cornwallis passed the Catawba on 1 February, Greene hastened northward toward the Yadkin River. Rain fostered darkness and bad roads that obstructed Cornwallis' pursuit. Smaller streams likewise flooded, so that Cornwallis fumed that he was "much distressed by the rivers and creeks being swelled."²⁰⁵ On 3 February, an advanced British force caught up to the Americans as they crossed the Yadkin. A force of about one hundred American riflemen ambushed the British, then dispersed and escaped with minimal losses. Greene had secured all available boats for his own crossing, and even with them the floods made the river difficult. It completely stymied the British pursuit. However, "fearing that the river might fall so as to be fordable," Greene moved off further to

of the Campaigns of 1780 and 1781, 225-227; Greene, "Letter to George Washington," 9 February 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 267; Greene, "Letter to Samuel Huntington, President of the Continental Congress," 31 January 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 225.

²⁰³ Cornwallis, "Letter to Lord Germain from Cornwallis," 17 March 1781, in Tarleton, *A History of the Campaigns of 1780 and 1781*, 262.

²⁰⁴ Greene, "Letter to Samuel Huntington, President of the Continental Congress," 31 January 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 225; Tarleton, *A History of the Campaigns of 1780 and 1781*, 225-227; Cornwallis, "Letter to Lord Germain from Cornwallis," 17 March 1781, in Tarleton, *A History of the Campaigns of 1780 and 1781*, 261-263.

²⁰⁵ Cornwallis, "Letter from Earl Cornwallis to Lord Rawdon," 4 February 1781, in Cornwallis, *Correspondence of Charles, First Marquis Cornwallis*, 1: 83.

more secure camp.²⁰⁶ As at the Catawba, Greene felt unable to secure fords with his available troops; he relied on the high waters to stop the British. Despite making the most of the floods for defense, Greene also observed that the heavy rains and flooded creeks had hindered his own efforts to gather troops to be able to face Cornwallis. The “excessive rains” and impassable Yadkin held Cornwallis briefly, and then as the waters dropped he resumed his pursuit.²⁰⁷ However, by mid-February Greene crossed the Dan River, out of North Carolina and into Virginia. Cornwallis finally turned away, conceding failure. Greene used the time to marshal his troops, and later that month returned to North Carolina. As Greene approached the British to fight, his cavalry commander Henry Lee warned him to “be aware of every weather.” He worried the Americans’ deficiency of bayonets would leave them especially vulnerable to rain; Cornwallis might “turn storms to his purposes.”²⁰⁸ Greene, instead, after using the weather to evade Cornwallis until he was primed to fight, now faced little trouble from it, as he chose his battleground and let Cornwallis come to him. The British won the field at Guilford Courthouse on 15 March – but suffered crippling casualties that made it a strategic success for the Americans. Following the Battle of Guilford Courthouse, Lee recalled that night was “rainy, dark, and cold,” and the harsh weather killed some of the wounded who had survived the battle.²⁰⁹ Cornwallis now seemed to give up on the south, and turned away to the Chesapeake region, leaving Greene free.²¹⁰

As Cornwallis prepared to invade to Virginia, summer heat retained its strategic and tactical dominance in the south as Greene worked to reclaim the Carolinas from British control. While partisan raiding from the likes of Lee and Marion harried the British, Greene masterfully continued his streak of tactically indecisive but strategically successful battles and maneuvers.

²⁰⁶ Greene, “Letter to George Washington,” 9 February 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 268.

²⁰⁷ Moultrie, *Memoirs of the American Revolution*, 2: 262.

²⁰⁸ Henry Lee, “Letter from Colonel Henry Lee, Jr. to Nathanael Greene,” 1 March 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 379.

²⁰⁹ Henry Lee, “Extract from the Memoirs of Henry Lee,” in Commager and Morris, eds., *Spirit of ‘Seventy-Six*, 2: 1166.

²¹⁰ Tarleton, *A History of the Campaigns of 1780 and 1781*, 225-227; Greene, “Letter to George Washington,” 9 February 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 268; Tarleton, “Intelligence from the southward,” 28 February 1781, in *A History of the Campaigns of 1780 and 1781*, 254-255; Greene, “Letter to General Isaac Huger,” 5 February 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 7: 251; Cornwallis, “Letter to Lord Germain from Cornwallis,” 17 March 1781, in Tarleton, *A History of the Campaigns of 1780 and 1781*, 264; Edward Stevens, “Letter from General Edward Stevens to Thomas Jefferson,” 8 February 1781, in *The Papers of Thomas Jefferson, Volume 4: 1 October 1780 to 24 February 1781*, edited by Julian P. Boyd, et al. (Princeton: Princeton University Press, 1951), 561-562.

He lost the Battle of Hobkirk's Hill on 25 April to British Lord Francis Rawdon, but soon forced Rawdon to withdraw British forces from the area. Through May and June, Greene besieged the British outpost at Ninety-six. When Rawdon marched to relieve Ninety-six, in June, Moultrie observed that if Rawdon forced those troops "to undertake a march of two hundred miles at this inclement season of the year," then "...it is not to be doubted that numbers of them must have been left behind at the end of every day's march."²¹¹ British officers Tarleton and Lieutenant Colonel Nisbet Balfour confirmed that heat slowed the rescue mission and exhausted the British soldiers. When they approached Ninety-six, Greene gave up the siege and withdrew, but fatigue and the heat forced Rawdon to break off a pursuit. He soon evacuated the British fort at Ninety-six, another gain for Greene despite the failure of the siege itself. The heat's power increased as summer arrived. At the Congaree Creek in early July, Rawdon struck a crossing guarded by Lee and his cavalry legion. The noon heat, "which seemed almost to disable every sort of motion," left the American troops unwary, and helped Rawdon's army to easily drive them off and capture the ford.²¹² Soon after, the war in the south took its summer hiatus, "the intemperateness of the climate, for a season, overcoming the violence of man."²¹³ This "rage of a burning sun... a climate, at that season, peculiarly inimical to man," as Tarleton described it, took the lives of fifty of Rawdon's men all on its own.²¹⁴ Moultrie judged the weather similarly, noting the ill health and discontent it fostered among American soldiers. The armies for the most part camped and rested until September. In August, Greene did attempt to strike a British outpost, but heavy rainfall flooded the surrounding swamps and forced him to detour. Greene and the British clashed one last time at Eutaw Springs on 8 September. As with other southern battles, the heat struck as fiercely as the armies, and reduced their combat effectiveness. American soldiers recalled desperately seeking water as soon as they could once the battle ended, for they were parched and exhausted by the hot day. As with Greene's other battles, at Eutaw Spring he retreated yet gained strategically, as the British withdrew further from the Carolina countryside and concentrated near the coast. Fighting in the Carolinas drew to a close after this, but critical events continued to transpire in Virginia.²¹⁵

²¹¹ Moultrie, *Memoirs of the American Revolution*, 2: 286.

²¹² Tarleton, *A History of the Campaigns of 1780 and 1781*, 505.

²¹³ Tarleton, *A History of the Campaigns of 1780 and 1781*, 506.

²¹⁴ Tarleton, *A History of the Campaigns of 1780 and 1781*, 507.

²¹⁵ Nisbet Balfour, "Letter from Lieutenant Colonel Nisbet Balfour to Lord George Germain (No. 6)," 27 June 1781, in Davies, ed., *Documents of the American Revolution*, 20: 164; Tarleton, *A History of the Campaigns of 1780*

Amid ongoing partisan resistance and the aftermath of frightful casualties at Guilford Courthouse, both Cornwallis and Clinton seemed uncertain about British strategy, but throughout the period remained cognizant of the dangers heat posed to British troops. In early April, Cornwallis, from North Carolina, wrote to a fellow general, “Now, my dear friend, what is our plan? Without one we cannot succeed, and I assure you I am quite tired of marching about the country in quest of adventures.”²¹⁶ He eventually determined to invade Virginia – in part, he later argued, to escape the hot climate to the south for what he (apparently mistakenly) believed would be a more comfortable summer in Virginia. Clinton seemingly failed to provide definitive orders for Cornwallis, but fired off numerous missives throughout the spring and summer in which heat held a prominent place in his thoughts. First he supposed warm weather would end fighting in the Carolinas for summer, as in the past, and therefore he could transfer troops from Cornwallis to the Chesapeake. In March, he proposed that the British establish a base at Yorktown, from which expeditions could be sent out by ship during the summer months, when it would be too hot for other kinds of movement. However, by the end of April, he doubted the summer weather would permit a long campaign to conquer Virginia. Still later, Clinton practically ridiculed Cornwallis’ interest in operations in Virginia, deriding the summer as “a period when the deadly epidemics of that sickly climate begin to rage all military enterprise ought of course to cease.”²¹⁷ This “devoured, hostile country at the most unhealthy season of the year, when the rays of the sun are more fatal than even a superior and victorious foe,” was the place for which Cornwallis abandoned the Carolinas in May.²¹⁸ Hot fighting and heated strategizing lay ahead.²¹⁹

British raiding parties sent by ship from New York, Cornwallis’ southern army, and scattered American forces all roved Virginia in the spring and summer of 1781, and while the

and 1781, 466-467, 486, 498, 506-510, 514; Moultrie, *Memoirs of the American Revolution*, 2: 298, 356; Greene, “Letter to Thomas McKean, President of the Continental Congress,” 25 August 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 9: 242; Robert Kirkwood, *The Journal and Order Book of Captain Robert Kirkwood*, edited by Joseph Brown Turner (Port Washington, NY: Kennikat Press, 1970), 23; James, *A Sketch of the Life of Brig. Gen. Francis Marion*, 133-136.

²¹⁶ Cornwallis, “Letter to Major General William Phillips,” 10 April 1781, in Commager and Morris, eds., *Spirit of ‘Seventy-Six*, 2: 1201.

²¹⁷ Clinton, *The American Rebellion*, 290.

²¹⁸ Clinton, *The American Rebellion*, 291.

²¹⁹ Cornwallis, *An Answer to that part of the Narrative of Lieutenant-General Sir Henry Clinton*, iii; Clinton, “Letter from General Sir Henry Clinton to Lord George Germain (No. 124),” 23 April—1 May 1781, in Davies, ed., *Documents of the American Revolution*, 20: 115; Clinton, “Extract of Substance of opinions given to Major General Phillips in several conversations held with him previous to his embarkations, on the subject of operations in the Chesapeake,” circa 10 March 1781, in Clinton, *The American Rebellion*, 493; Clinton, “Letter to Charles Cornwallis from Henry Clinton,” 30 April 1781, in Clinton, *Observations on Some Parts of Earl Cornwallis’ Answer*, 88;

heat often undermined their efforts, storms also waylaid all armies. Soldiers showed little concern for generals' strategies as they sweated and panted and tromped through sweltering weather; they understood mainly how the weather affected them. So severe was the heat during the day that at one point a British detachment halted its march in the middle of the day and resumed traveling at two o'clock the following morning to avoid the heat. An American force under Lafayette had similar difficulties. Rain intervened when a British cavalry patrol encountered American militia in May; it ruined the American weapons and enabled the British to rout them. British Colonel Simcoe kept his rangers concealed in woods when possible to shelter them from the heat as they guarded Gloucester, Virginia. Tarleton relied on long marches early in the mornings and in the evening, struggling to find a temperate time of day that avoided both heat and darkness. On a raid against American supply caches, he considered that the supplies destroyed were not worth the losses in men and horses he suffered due to combat and the heat. The weather refused to make life easy for Major Ewald, marching with the British; at Portsmouth in June he saw "...in the evenings from six to ten o'clock daily there are the most frightful thunderstorms."²²⁰ Later in June, Ewald similarly noted that his unit began marching before daylight "since otherwise the awful heat would oppress us again very much."²²¹ Once, severe rains near Fredericksburg interfered with movements enough to force British marauders to give up on their target. Ewald plaintively described the tribulations soldiers faced at the end of June: "For six weeks the heat has been so unbearable that many men have been lost by sunstroke or their reason has been impaired. Everything that one has on his body is soaked as with water from the constant perspiration. The nights are especially terrible, when there is so little air that one can scarcely breath."²²² Although some raiding and skirmishing continued, many British forces collected around Yorktown by the beginning of August – too late to spare Cornwallis' army the misery of operating in the heart of summer. Cornwallis' apparent lack of strategic direction,

²²⁰ Ewald, *Diary*, 303.

²²¹ Ewald, *Diary*, 308.

²²² Ewald, *Diary*, 314. Ewald expanded to his enumeration of weather-based suffering a couple weeks later (15 July): "Added to this is the unbearable heat, which increases all the time. It is often so intense that one can hardly breath, especially after a terrible thunderstorm, when all the air seems to vanish. Moreover, the worst thunderstorms come with each evening and last through half the night. With each thunderbolt a brilliant zigzag flashes around our heads, combined with the most violent downpour," Ewald, *Diary*, 318.

more than ignorance of the weather, resulted in his traipsing about Virginia in summer's warmth.²²³

Throughout the summer of 1781, Clinton displayed earnest concern for heat's effects on Cornwallis' men, bombarding Cornwallis with letters about the risks heat posed, but Cornwallis largely disregarded his superior's recommendations. Clinton thought Cornwallis could seize some base on the Chesapeake and then ship many of his troops away – north – to a more comfortable climate. He claimed even an intercepted letter of “Mr. Washington” agreed that land operations should cease in Virginia during the summer.²²⁴ Toward the end of June, Clinton wrote to another general that he expected that Cornwallis would have taken up summer quarters due to the heat by that time and sent much of his army to New York. He was disappointed in this, as Cornwallis continued to ramble around Virginia, achieving little other than trivial victories and the exhaustion of his army. Letter after letter flew south from New York, as June, July, and August passed, carrying variations on the same theme. He encouraged Cornwallis to take up a defensive post and await the return of cooler weather to resume offensive operations. Aside from “desultory water expeditions,” no other activity was appropriate for a season so harmful to soldiers' health.²²⁵ Cornwallis' actions and written responses revealed he did not share Clinton's concern for the heat, although he did complain later in August of how hot and unhealthy Yorktown was, after he chose to settle at that post. He warned Clinton on 22 August that it would take another six weeks to fortify Gloucester and Yorktown, in order that the “fatigue and difficulty of constructing such works in this warm season,” would not exhaust his troops.²²⁶ For all his many letters and clear awareness of the harm heat could do to soldiers (more than Cornwallis, seemingly), Clinton apparently did not provide firm enough direction to Cornwallis to meaningfully guide his wayward subordinate. Whatever Clinton's failings as senior

²²³ Simcoe, *A Journal*, 203; Tarleton, *A History of the Campaigns of 1780 and 1781*, 292, 295-296, 355, 358; Simcoe, *A Journal*, 248-249; George Weedon, “Letter to Nathanael Greene,” 5 September 1781, in Conrad, et al., eds., *The Papers of General Nathanael Greene*, 9: 300; Ewald, *Diary*, 319-320;

²²⁴ Clinton, “Extract of a letter from Sir Henry Clinton to Lord George Germain,” 9 June 1781, in Clinton, *The American Rebellion*, 529.

²²⁵ Clinton, “Letter from Henry Clinton to Charles Cornwallis,” 11 July 1781, in Cornwallis, *An Answer to that part of the Narrative of Lieutenant-General Sir Henry Clinton*, 168.

²²⁶ Cornwallis, “Letter from Charles Cornwallis to Henry Clinton,” 22 August 1781, in Cornwallis, *An Answer to that part of the Narrative of Lieutenant-General Sir Henry Clinton*, 187.

commander, it was Cornwallis' choices that dragged his army through a grueling summer before settling at Yorktown.²²⁷

Combat in the American War of Independence reached a literally stormy conclusion at Yorktown in October 1781 that also highlighted the armies' inability to forecast the weather. Cornwallis' now-settled army at Yorktown faced an irritating mix of still-hot days and increasingly chilly nights as autumn arrived. Learning how Cornwallis had holed up at Yorktown, Washington and his French counterpart General Jean Baptiste Donatien de Vimeur, comte de Rochambeau, departed New York and reached Virginia in late September. Once convinced to strike in Virginia rather than against New York, Washington urged his men to make haste, before the season grew any later. He declared the "present moment offers in prospect the epoch which will decide American Independence and the Glory and superiority of the Allies."²²⁸ Heavy rains halted the Franco-American forces as they began constructing siege works around Yorktown on 5 October, but for the most part the siege went well. Thanks to a crucial French naval victory at the Battle of the Chesapeake, Cornwallis remained trapped at Yorktown. His defenses crumbled under enemy bombardment while French and American troops edged ever closer. At last, Cornwallis tried to escape, to slip at least part of his army across the James River to Gloucester, whence they could break free from their besiegers. If Cornwallis had possessed a greater ability to predict short-term weather, he might have acted differently before evening on 16 October. Of three groups to cross the river, the first sneaked over in the night without incident. As the second batch was in transit, Cornwallis wrote to Clinton, "...at this critical moment, the weather from being moderate and calm, changed to a most violent storm of wind

²²⁷ Clinton, "Letter to Charles Cornwallis from Henry Clinton," 15 June 1781, in Clinton, *Observations on Some Parts of Earl Cornwallis' Answer*, 112; Clinton, "Extract of a letter from Sir Henry Clinton to Major General Leslie," 23 June 1781, in Clinton, *The American Rebellion*, 532; William Knox, "Letter to William Knox from James Robertson," 12 July 1781, in Klein and Howard, eds., *The Twilight of British Rule in Revolutionary America*, 209; Clinton, "Letter from Henry Clinton to Charles Cornwallis," 8 July 1781, in Cornwallis, *An Answer to that part of the Narrative of Lieutenant-General Sir Henry Clinton*, 164; Clinton, "Extract of a letter from Sir Henry Clinton to Earl Cornwallis," 11 July 1781, in Clinton, *The American Rebellion*, 543; Clinton, "Extract of a letter from Sir Henry Clinton to Lord George Germain," 13 July 1781, in Clinton, *The American Rebellion*, 545; Clinton, "Letter from General Sir Henry Clinton to Lieutenant General Earl Cornwallis," 11 July 1781, in Davies, ed., *Documents of the American Revolution*, 20: 185; Clinton, "Letter from Henry Clinton to Charles Cornwallis," 15 July 1781, in Cornwallis, *An Answer to that part of the Narrative of Lieutenant-General Sir Henry Clinton*, 149-150; Clinton, "Extract of a letter from Sir Henry Clinton to Earl Cornwallis," 27 August 1781, in Clinton, *The American Rebellion*, 562; Cornwallis, "Letter from Charles Cornwallis to Henry Clinton," 20 August 1781, in Cornwallis, *An Answer to that part of the Narrative of Lieutenant-General Sir Henry Clinton*, 155.

²²⁸ Washington, "General Orders," 30 September 1781, in *The Writings of George Washington*, vol. 23.

and rain, and drove all the boats, some of which had troops on board, down the river.”²²⁹ The squall capsized some of the boats. It was impossible to get more men across the river in either direction. Hessian Major Ewald captured the chaos of the moment: “I will not forget this past night in all my life.... It was dark as a sack, and one could neither see nor hear anything because of the awful downpour and heavy gale. Moreover, there was a most severe thunderstorm, but the violent flashes of lightning benefited us, since we could at least see around us for an instant.”²³⁰ Fortunately the storm’s severity prevented the French and Americans from perceiving and exploiting any of the British distress. About two o’clock in the morning on 17 October, the winds lessened enough that Cornwallis managed to recall the troops who had previously reached Gloucester. By dawn they had all returned to Yorktown. The brief but ill-timed storm ended Cornwallis’ plans to save his army from the trap Yorktown had become. Cornwallis asked to open surrender negotiations later that day. The major North American military operations of the American War of Independence concluded soon after as Cornwallis surrendered his army.²³¹

²²⁹ Cornwallis, “Letter from Charles Cornwallis to Henry Clinton,” 20 October 1781, in Cornwallis, *An Answer to that part of the Narrative of Lieutenant-General Sir Henry Clinton*, 210.

²³⁰ Ewald, *Diary*, 337.

²³¹ Ewald, *Diary*, 328; Martin, “Narrative of Sergeant James Sullivan Martin, from Connecticut,” in Commager and Morris, eds., *Spirit of ‘Seventy-Six*, 2: 1230-1231; Simcoe, *A Journal*, 253; Cornwallis, *An Answer to that part of the Narrative of Lieutenant-General Sir Henry Clinton*, xiv; Von Closen, *The Revolutionary Journal of Baron Ludwig von Closen*, 153, 155; Tarleton, *A History of the Campaigns of 1780 and 1781*, 387-388; Cornwallis, “Letter from Charles Cornwallis to Henry Clinton,” 20 October 1781, in Cornwallis, *An Answer to that part of the Narrative of Lieutenant-General Sir Henry Clinton*, 209-210.

CONCLUSION

The war was not completely over. Fighting continued abroad between Britain and her European foes, from the Mediterranean to the Caribbean. News of the disaster at Yorktown – the loss of Cornwallis’ entire army – rocked British morale and triggered political upheaval in Britain. Transatlantic peace negotiations and political machinations followed. Although they had no great battles or campaigns to fight, the British and American armies remained in the field for two years, until the Treaty of Paris at the close of 1783 officially ended the war. For over two years after Yorktown, soldiers continued to endure discomfort from the heat and rain and snow. However, after Yorktown, the armies’ conflict was over; nature’s chance to participate in the outcome of the colonies’ rebellion had passed.²³²

Nature exerted a pervasive, inescapable influence that affected the strategy of British and American generals in the Revolutionary War, made many operations more or less difficult, determined victory or defeat in some battles, and shaped the daily lives and activities of thousands of soldiers and officers. Sometimes the war’s participants tried to plan for the weather, sometimes they seemed to ignore it, but it was always present, subtly but powerfully affecting the conduct of the war. There was no meteorological determinism; weather did not singlehandedly decide the outcome of the war independently of human decisions. In some cases, soldiers overcame meteorological obstacles and achieved their goals in spite of the inclement weather. The weather was equally, though less visibly, present on the good days. For every battle plan that literally got lost in fog (as at Germantown), for every movement that a rainstorm checked (as when Cornwallis pursued Daniel Morgan to the Catawba), there were other days when the weather granted clear skies and easy visibility for combat, and days when it permitted long, easy marches in comfortable temperatures. Visible or invisible, weather was, and is, everywhere, all the time.

Despite weather’s presence in generals’ thoughts, they had little ability to forecast the weather, and could only anticipate general seasonal or climatic trends. Then they had to react and adapt, to alter their actions according to nature’s whims. Weather forecasting did not exist in any

²³² William Feltman, *The Journal of Lt. William Feltman, 1781-1782* (1853; New York: The New York Times & Arno Press, 1969), 9-10, 12-14, 29-32, 34-38, 40-41.

meaningful sense. Though sources such as almanacs may have purported to offer meteorological insights, no sources suggest army commanders looked to them for guidance. If generals or their officers (including local loyalists, for the British) did not know the climate, they probably consulted local knowledge of climate and general seasonal patterns, but showed no further forecasting ability. Thermometers and barometers existed, but these instruments would only have worked at ground level; they had no satellites, no weather balloons, no radar to detect what was happening higher in the atmosphere. In any event, the absence of meteorological measurements from soldiers' diaries or letters suggests they did not tote such instruments with them as they marched across the countryside. They knew what the weather was normally like, overall, year after year, but each day's specific conditions remained unknowable.

There are few indications that army commanders significantly altered the ways they coped with meteorological difficulties. Over the course of the war, for example, the tactics for adapting to severe heat remained the same. Washington cited the ubiquitous supply problems caused by previous winters when he issued requests for aid, and as the war continued he began to make increasingly early efforts to prepare supplies for the winter. However, the fact that the army was not engaged in a major campaign in summer-fall of 1779 and 1780 (unlike in 1776 or 1777, for example) also would likely have made it easier to devote time and effort to winter preparations, and may explain his earlier wintering preparations. Beyond that, neither side seemed to develop new or improved methods for dealing with the weather. The technology available for weapons, communication, transportation, and other aspects of war – all threatened by one or more types of weather – and underlying attitudes toward war in general did not change during the conflict, establishing limits that no strategic planning could surmount.

It is difficult to declare who benefitted more from weather in the War of Independence, to decide whether nature played favorites. A much later general, writing about a different war, shared an insight that seems applicable. Dwight Eisenhower wrote “Some soldier once said ‘The weather is always neutral.’ Nothing could be more untrue. Bad weather is obviously the enemy of the side that seeks to launch projects requiring good weather, or of the side possessing great assets, such as strong air forces, which depend upon good weather for effective operations.”²³³ From the snows outside Quebec that dampened and disoriented the American invasion of Canada, to the storm over the James River that halted Cornwallis' evacuation of Yorktown, the

²³³ Dwight David Eisenhower, *Crusade in Europe* (Garden City, NY: Doubleday, 1948), 240.

weather often hindered the side attempting the more aggressive or vigorous action. Even then, sometimes the weather was impartial – no soldier liked standing guard in a cold, snowy winter, and both sides lost men to the heat at Monmouth.

Weather represents a striking commonality between the opposing sides. American and British generals looked to the same times as campaign seasons, feared the same effects of heat and winter on their men, and had their gunpowder equally ruined by inconvenient squalls. Neither army demonstrated markedly superior understanding of the weather. Though American suffering – predominately at Valley Forge – has become nearly legendary, many accounts by British personnel throughout the war highlight the fact that British and Hessian soldiers also suffered through icy winters (and through painfully hot summers). European visitors, however, were inclined to complain more of the climatic extremes – hotter summers and colder winters than in Europe – than colonists did. Commanders on both sides misjudged or ignored the weather – from Robert Howe’s ill-timed invasion of Florida to Clinton’s hot march from Philadelphia – to the detriment of their men. Throughout the war, soldiers in both armies remained conscious that weather discomfited them, and thought mostly of how it affected them, only rarely speaking about weather’s strategic impact on their campaigns, as their generals did. Those generals faced the task of reconciling their strategic goals with the physical limitations the environment imposed and the harm it could inflict on their men. Winter in the north and summer in the south were military off-seasons because of the weather, but the prospect of victory incited leaders on each side to operate in the hostile weather. Although the schism between Britain and the colonies widened irreversibly during the war, weather remained a common aspect of the military experience to the end.

Wars do not revolve around single causes. They are decided by many forces, ranging from politics, to economics, to culture, to religion, to weather. To understand fully the war between Britain and her erstwhile thirteen colonies, one must acknowledge the weather’s hand. Strategy, logistics, morale, and health – any interpretation of such topics remains incomplete without recognition of nature’s role. Meteorological force did not singlehandedly control the course or outcome of the conflict, but its contribution cannot be ignored.

The weather influences human activity. Even in an era of “climate control” devices like air conditioning and central heating, as well as automobiles that allow people to travel in comfort through all manner of weather, the weather still affects human planning and actions. The ongoing

connection between weather and military operations appears clearly in the advanced computer technology, satellite networks, and highly trained meteorologists employed by the U.S. military today to observe the entire globe and forecast future meteorological conditions. From the campaigns of powerful, modern armies to a young child's choice of when to play outside, weather still affects human choices. The history of the American War of Independence offers perspective and insight on this enduring reality.

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