Food, Fuel, and the New England Environment in the War for Independence, 1775–1776

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ON 24 April 1775, five days after the battles of Lexington and Concord, Lieutenant John Barker of the British army assessed his situation. Ten to twelve thousand "Rebels" surrounded Boston, "keeping the Town block'd up." Confined to what was then a pear-shaped peninsula separating Boston Harbor from Back Bay, the soldiers had had "no communication with the Country since [19 April], the General [Thomas Gage] not allowing any body to come in or go out." Gage continually fretted about defending against an attack, but Barker confided in his journal that "I dare say [the colonists] will not put [one] in execution; they are now in such a good state of defence that it wou'd be no easy matter to force them. There is an Abbattis [*abatis:* a defensive barricade of felled trees and sharpened sticks] in front of the last Bastion, and across the road is a treple row of chevaux de frise [*chevaux de frise:* protecting lines of spikes]." The British army, on the other hand, had just begun to construct a battery "on the Hill above Charles Town Ferry, in order to defend the *Somerset* Man of War." Although safe behind British defenses, Barker was already impatient to "get out of this coop'd up situation." After two weeks he

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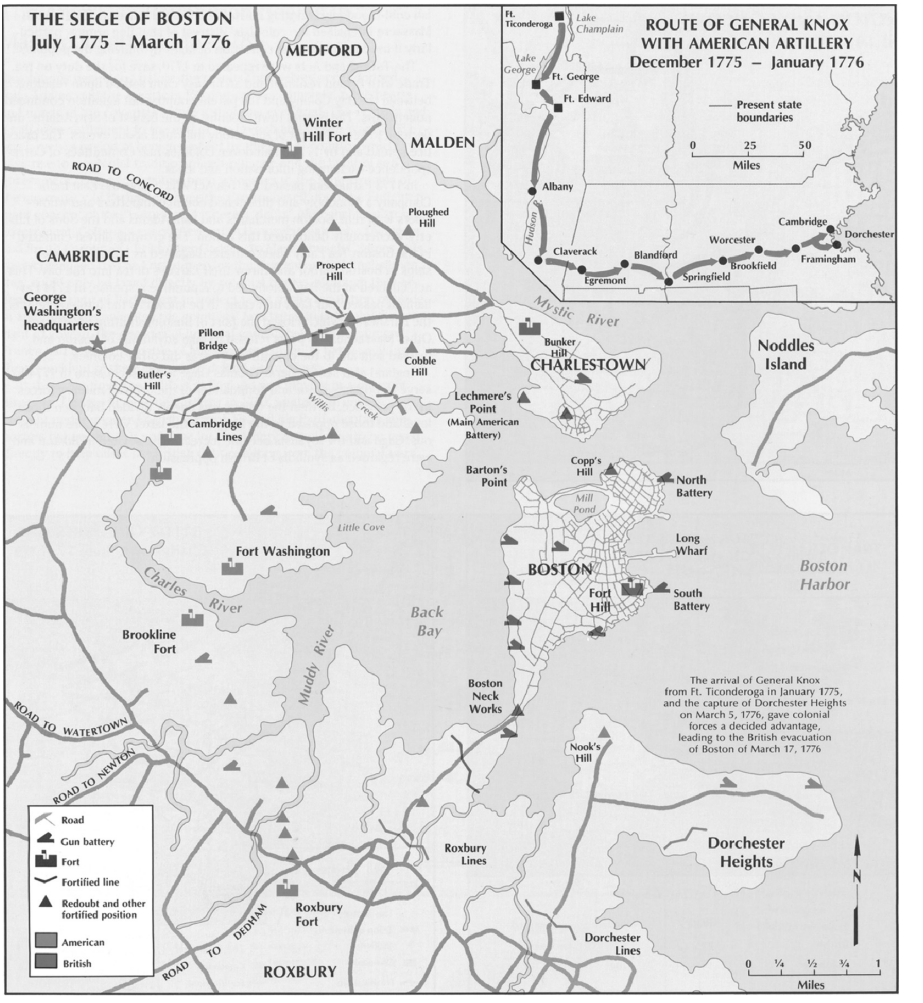
lamented the lack of activity, but "the worst of it is we are ill off for fresh provisions, none to be bought except now and then a little pork."[1]

The colonial militiamen fared better, for they began to receive fresh provisions soon after they surrounded Boston along an expansive, semi-circular perimeter that descended from Winter Hill (now Medford) in the north, arched through Charlestown and Cambridge to the west, and plunged and wrapped back east to Roxbury in the south (see map). But even though the men had sufficient food and drink, they suffered deplorable living conditions. The lucky ones occupied abandoned homes or vacant Harvard College buildings. As Joseph Trumbull of Connecticut observed on 2 May, "the Provincial Troops are not yet in Tents, and uncertain when they will be," because Massachusetts had yet to decide how it would allocate the mere 1,100 tents it had at its disposal. That same day, General Artemas Ward gave the first order for the men to dig latrine vaults. Powerful odors and frightfully unsanitary circumstances assaulted the men far more effectively than any weapons the British army could have mustered. Indeed, the colonists worried far less about an enemy attack than about getting housed, supplied, and organized.[2]

Military stalemate, constructing barracks, the search for food: the situations in which John Barker and Joseph Trumbull found themselves defined the first year of the War for Independence in New England. Open warfare had begun at Lexington and Concord and, two months later, in June, had turned even bloodier at Bunker's Hill, but until British forces evacuated Boston in March of the following year, such battles proved to be the exception rather than the norm. Notwithstanding a two-pronged invasion of Canada launched from upstate New York and from Maine, the vast majority of American and British forces spent

[1]John Barker, *The British in Boston, Being the Diary of Lieutenant John Barker of the King's Own Regiment from November 15, 1774 to May 31, 1776* (Cambridge: Harvard University Press, 1924), pp. 38, 40. I will provide accurate quotations and avoid the patronizing *sic*.

[2]Allen French, *The First Year of the American Revolution* (Boston: Houghton Mifflin, 1934), pp. 182–84; quotation p. 184.



SOURCE: *Historical Atlas of Massachusetts*, ed. Richard W. Wilkie and Jack Tager. (Amherst: University of Massachusetts Press, 1991).

their time in New England finding and acquiring supplies for themselves and denying the same to their enemy. The military's dependence on food may be obvious, but the extent of its reliance on animals and wood can hardly be exaggerated. A vision of cavalry officers charging into battle on sleek horses may fire our imaginations, but soldiers understood the far more urgent need for draft animals to pull wagons and cattle to supply the beef ration. And without wood, troops would not only lack barracks for shelter or fuel for heating and cooking, but they would have no firearms or naval ships. Inadequate supplies of wood, according to the Massachusetts House of Representatives, "not only tends to the Discouragement of the Soldiers from again inlisting into the Service of the United Colonies, but also may be attended with a Dispersion of the Army." The consequences would be severe: "the Loss of our Lives, Devastation of the Towns in this Neighbourhood, and Ruin of the Inhabitants."[3]

Historians of the Revolutionary period have noted the importance of food and fuel to the war effort, but they have generally done so only in passing on the way to other matters. Erna Risch and R. Arthur Bowler, two notable exceptions, delve deeply into matters of logistics, which Bowler defines as "the planning and implementation of the production, procurement, storage, transportation, distribution and movement of personnel, supplies and equipment."[4] Both of these studies, however, have emphasized the process of procurement rather than the source of supply or, in other words, the environmental context from which food and wood were extracted. Warfare, a human endeavor as dependent on the environment as farming and fishing, has recently drawn the attention of environmental historians, but the War for Independence, especially its crucial

[3]J. R. McNeill, "Woods and Warfare in World History," *Environmental History* 9 (July 2004): 388–410; Brooke Hindle, ed., *America's Wooden Age: Aspects of Its Early Technology* (Tarrytown, N.Y.: Sleepy Hollow Restorations, 1975); *Journals of the House of Representatives of Massachusetts, 1775–1776,* vol. 51, pt. 2 (Boston: Massachusetts Historical Society, 1983), p. 11.

[4]Erna Risch, *Supplying Washington's Army* (Washington, D.C.: Center of Military History, U.S. Army, 1981); R. Arthur Bowler, *Logistics and the Failure of the British Army in America, 1775–1783* (Princeton: Princeton University Press, 1975), p. vii.

first year, remains essentially uncharted territory.[5] During the Revolution's opening eleven months, both the war and the environment would change, and change each other, in critical ways.

Provisions up for Grabs

Following hostilities, British soldiers staggered back east from Lexington and Concord and dropped from exhaustion on Bunker's Hill. American forces halted their pursuit, established a guard outside of Charlestown, and retired to Cambridge to keep an eye on the British. Militia and civilian leaders conferred, quickly agreeing to surround Boston. General Artemas Ward established one camp in Cambridge, while General John Thomas took command of another in Roxbury. On 22 April, three days after the battles, the Massachusetts Provincial Congress assumed responsibility for the army and took steps to organize it on a more permanent basis. At first it sought to enlist 8,000 men, who would serve through the end of the year, but by the next day the Provincial Congress realized that circumstances called for a New England army of 30,000 men, of which 13,600 were pledged from Massachusetts. The process of creating this army would last for months.[6]

[5]For a classic and a recent survey of the field of environmental history, see Donald Worster, "Doing Environmental History," in *The Ends of the Earth: Perspectives on Modern Environmental History,* ed. Worster (Cambridge: Cambridge University Press, 1988), pp. 289–307, and J. Donald Hughes, *What Is Environmental History?* (Cambridge: Polity Press, 2006). For environmental scholars who treat warfare, see Richard P. Tucker and Edmund Russell, eds., *Natural Enemy, Natural Ally: Toward an Environmental History of Warfare* (Corvallis: Oregon State University Press, 2004), and Edmund Russell, *War and Nature: Fighting Humans and Insects with Chemicals from World War I to Silent Spring* (New York: Cambridge University Press, 2001). Elizabeth A. Fenn, *Pox Americana: The Great Smallpox Epidemic of 1775–82* (New York: Hill and Wang, 2001) covers the topic so thoroughly that I have omitted from this essay discussion of the disease, even though it played a critical role in Boston during the first year of the war.

[6]David Hackett Fischer, *Paul Revere's Ride* (New York: Oxford University Press, 1994), pp. 261–62; French, *The First Year,* pp. 26–27, 48–56. Dating at least from the publication of Richard Frothingham's *History of the Siege of Boston, and of the Battles of Lexington, Concord, and Bunker Hill* (Boston: C. C. Little & J. Brown, 1849) and continuing to the present day, the situation from 19 April 1775 to 17 March 1776 is typically referred to as the "siege" of Boston. However, a keyword search of the Library of Congress's digital collections *George*

The men who surrounded Boston initially carried with them a week's worth of rations, but as it became apparent that their blockade would continue, the Massachusetts Committee of Supplies issued a public notice "that there will be wanted for the Use of the Massachusetts Army, a large Quantity of the Articles following, viz. Shoes, Hose, coarse Cloths, Check, Cotton and Linen and Tow Cloth, Beef, Veal, Pork, Rice, Butter, Flour, Beans, Peas, Vinegar, Salt Fish, Molasses, Wood, and all Kinds of Grain." The demands continued when, in June, the Continental Congress formed the Continental Army, of about 10,000 to 12,000 men. Soon after George Washington took command of this force on 3 July 1775, the size of the army reached about 17,000 soldiers. By mid-October, 22,000 men were distributed fairly evenly in four well-established camps: Cambridge, Prospect Hill (Charlestown), Winter Hill (Medford), and Roxbury (see map).[7]

At the start of the blockade the British army occupied Boston, its 4,000 soldiers encamped on the Common and its

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Washington Papers at the Library of Congress, 1741–1799 [online], available at http://memory.loc.gov/ammem/gwhtml/gwhome.html, and *A Century of Lawmaking for a New Nation: U.S. Congressional Documents and Debates, 1774–1875* [online], available at http://memory.loc.gov/ammem/amlaw/lawhome.html, reveals that neither George Washington nor the members of the Continental Congress used the term in this context. John Shy recommends substituting the term "blockade" because a "blockade is necessarily passive and tests endurance of both sides (keeping themselves fed, warm, and healthy), while a siege is an active form of warfare, with fortifications pushed ever closer to the besieged place, and defenders sallying forth to disrupt this process. When Washington . . . turned the blockade into a true siege, with big guns fortified on Dorchester Heights, the British cleared out of Boston" (personal correspondence, 18 January 2006). Indeed, on 10 September 1775, Washington describes how the British forces are "suffering all the Inconveniencies of a Siege" but does not call it such. And when Congress thanked Washington and the troops for "their wise and spirited conduct in the siege and acquisition of Boston," it was referring to the final, active phase of the army's efforts. See George Washington to John A. Washington, 10 September 1775, Washington Papers, available at http://memory.loc.gov/cgi-bin/query/r?ammem/mgw:@field(DOCID+@lit(gw030359)), and 25 March 1776, *Journals of the Continental Congress, 1774–1789,* ed. Worthington C. Ford et al., 34 vols. (Washington, D.C., 1904–37), 4:234.

[7]French, *The First Year,* p. 27, n. 15, and pp. 58–67; Massachusetts Committee of Supplies, "In Committee of Supplies, Watertown, May 8th, 1775," in *Early American Imprints, Series 1: Evans, 1639–1800* (New York: Readex Microprint, 1985), fiche no. 14196; Robert K. Wright Jr., *The Continental Army* (Washington, D.C.: Center for Military History, United States Army, 1983), pp. 12–23; David McCullough, *1776* (New York: Simon & Schuster, 2005), pp. 25–27.

higher-ranking officers living in the town's finer houses. During the summer, the North government authorized reinforcements, which boosted the British forces to about 6,000 men in August and about 7,800 men in October. Boston itself had a subdued and deserted feel; as political tensions had escalated before the battles of 19 April, many patriots had left the town and smaller numbers of loyalists had trickled in. With the blockade now in place, General Gage initially proposed allowing civilians to enter or leave the town. By the first week of May, however, he had reversed course and prohibited the movement of civilians. In response, the Provincial Congress declared on 20 May that it would bar provisions from entering Boston "so long as . . . Gage shall suffer the persons or effects of the inhabitants of said Town, contrary to his plighted faith, to be retained."[8] The general felt some concern for the Bostonians' situation, but his British soldiers had their own problems obtaining provisions. Cut off from the mainland and therefore largely unable to acquire food and fuel for themselves, the British attempted to buy supplies from the colonists but were largely unsuccessful. Admiral Samuel Graves, commander of the Royal Navy in North American waters, believed that "the bulk of the People [are] through wicked Misrepresentations sufficiently disposed to distress the Kings forces: And this disposition among the Country people rendered our dependance for Fuel and fresh provisions very precarious." When goods were forthcoming, Graves was often unable to convey them to their destination because "the Fears of a few well disposed people to risk their Vessels, and the determination of the rest to prevent the Army and Navy having Supplies of provisions and Fuel, have caused most of the Vessels in this province to be dismantled and laid up."[9]

The Royal Navy quickly became the most important means by which British forces received necessities. Besides escorting transports arriving from England, Nova Scotia, and the

[8]French, *The First Year,* pp. 89, 104, 108, 122–24, 726, 738; quotation p. 127.

[9]Samuel Graves, 25 May 1775, in his journal "The Conduct of Vice-Admiral Samuel Graves in North America in 1774, 1775, and January, 1776," 3 vols., a transcript of which is contained in Ms. N-2012 (Tall), Massachusetts Historical Society (MHS), 1:101–2; Graves to Stephens, 13 May 1775, in "Graves in North America," 1:87.

West Indies, the navy was also intent on capturing American ships laden with goods. "The Army is in great Want of Beef and Pork," wrote Graves to Captain Wallace, "which I am informed there is a probability of obtaining . . . as great Quantities of Pork are usually shipped at this Season from Connecticut to the West Indies and the Eastern parts of this Province and that of New Hampshire." Flour, cattle, and other captured provisions arrived throughout the spring and summer, but, as Graves reported, "the Rebels have seized and carried off into their Ports several Vessels laden with Fuel, Lumber and Provisions coming to Boston, and . . . have retaken two Vessels seized by the *Falcon* and made the men prisoners."[10] Even at this early stage of the war, the basic environmental commodities of grain, meat, and wood dominated military policy. The strategists hoped to subdue the enemy not by conquering territory, sinking ships, or shooting soldiers but by feeding, sheltering, and warming their own forces and denying their enemy that same capability.

In the conflict's second month, the similarity in British and American policy became especially apparent. On the morning of 27 May, several hundred Massachusetts and New Hampshire troops supported a party of twenty to forty men who landed on Noddle's Island, about one mile northeast of Boston, and began driving off toward their own camps the cattle and horses grazing there.[11] Admiral Graves noted that "the Rebels [were] pursuing their avowed design of cutting off possible Supply to the Army and Navy, and of destroying what they cannot carry

[10]Graves to Wallace, 16 June 1775, and Graves to Stephens, 19 May 1775, in "Graves in North America," 3:441–42 and 1:92; see also 1:113, 1:178, and Barker, *The British in Boston,* p. 54.

[11]See Caleb Haskell, in *March to Quebec: Journals of the Members of Arnold's Expedition,* comp. Kenneth Roberts (New York: Doubleday, Doran, 1938), p. 460; Phineas Ingalls, "Phineas Ingallls Journal, 1775–76," Ms. S-395, MHS; Timothy Newell, "A Journal Kept During the Time Boston was Shut Up in 1775–6," *Collections of the Massachusetts Historical Society,* ser. 4, vol. 1 (1852), p. 262; "A Circumstantial Account of the Battle at Chelsea, Hog Island, Etc., in Massachusetts," in Peter Force, ed., *American Archives* (Washington, D.C., 1837–53), ser. 4, vol. 2, p. 719; Barker, *The British in Boston,* pp. 50–52; and Graves to Stephens, 7 June 1775, in "Graves in North America," 1:104–6. Today, Noddle's Island forms part of East Boston. The livestock belonged to two men from Boston and one from Newburyport, on the northern shore.

away," including several additional horses and cows, an old farmhouse, and a barn full of salt, hay, and lumber. Graves dispatched the schooner *Diana* and the sloop *Britannia* at about three o'clock, and, along with a contingent of forty marines present on the island, opened fire on the Americans and sent them scurrying to nearby Hog Island. As the Americans pulled back further to Chelsea, they carried off an additional three or four hundred sheep from Hog Island. At nine o'clock, several hundred American troops and two cannons joined the original force in Chelsea; together, they faced the *Diana,* and "a very heavy fire ensued from both sides." After two or three hours, the schooner ran aground within sixty yards of shore, and the British abandoned it once the tide started to recede. At dawn the next day, the Americans removed the ship's guns and burned the vessel, destroying it completely. In all, the Americans captured four cannons, about ten swivel guns, and the cattle, sheep, and horses from Noddle's and Hog Islands.[12] Their casualties amounted to four wounded, while Graves reported that two of his men had been killed and "several" wounded.

Cattle and Sheep on the Move

The livestock provided the American forces with much-needed provisions. During the first month of the blockade, the Massachusetts Provincial Congress informed its citizens about the seriousness of the situation. "The Quantity of Bread daily expended by the Army raised by this Colony for the Preservation of the Lives, Liberties and Properties of the Inhabitants of this and the other American Colonies, is very large, and you are sensible that a Failure to supply this necessary and important Article will be attended with the most fatal Consequences." The government urged town officials to acquire "all the Flour, Wheat, Rye and Indian Corn in the Hands of the Inhabitants of your Town, which is not wanted for their private Consumption,

[12]In a court case of 1786, Caleb Pratt testified that Noddle's Island had "a large Quantity of Horses and Catle also a Verry Grate number of Sheep, and some hoggs"; see "Noddle's Island," Ms. S-678, MHS. Regarding the *Diana,* each side claimed that their own men had burned the ship.

and hire Teams for transporting the same to the Magazine [in Watertown]." The capacity of the land to produce the required supplies was not in question, for a subsequent message stated that "the Country affords every thing in plenty necessary to subsist the Army . . . [but] we cannot at present obtain many things but by your Assistance." At the time the thirteen mainland British colonies were exporting so much flour and wheat annually that they could have fed an army of 240,000 men, but high prices, available currency, and transportation problems were constricting the grain supply.[13] But to paraphrase Deuteronomy 8:3, soldiers do not live on bread alone.

As of early June, Massachusetts soldiers were allotted a daily ration of one pound of bread. The bread was to be accompanied by half a pound of beef and half a pound of pork ("and if Pork cannot be had, one Pound and a Quarter of Beef"). Once a week, the soldiers were to receive one and a quarter pounds of salt fish in place of the day's meat allowance. The ration also included a pint of milk or a jill (four ounces) of rice, a quart of beer, and a jill of peas or beans per day; and, per week, six ounces of butter, a pound of soap to be shared by six men, and, if available, half a pint of vinegar.[14] A survey of the records for ten regiments reveals that while the men received their full bread ration and almost their full allowance of meat, they received only about one-third of the beef that was their due. During the early part of the blockade, the commissary provided scarcely any beef. The Massachusetts soldiers subsisted on pork

[13]Massachusetts Provincial Congress, "Supply Chamber, Watertown, May 25th, 1775," Evans fiche 42880; Massachusetts Committee of Supplies, "Chamber of Supplies, Watertown, June 18th, 1775," Evans fiche 42870. Richard Buel Jr. calculated that in 1770 the mainland colonies exported 604,836 barrels of flour, which would translate into about 118,500,000 daily one-pound rations of flour, which would supply an army of about 325,000 for one year. Because armies typically consumed 25 percent more rations than they had men, due to officers receiving additional rations as a privilege of their rank and due to "the presence of camp followers and support personnel," Buel arrived at a final figure of 243,591—still more than ten times the size of the Continental Army outside Boston in 1775. See *In Irons: Britain's Naval Supremacy and the American Revolutionary Economy* (New Haven: Yale University Press, 1998), pp. 7, 271–72 n. 8.

[14]Massachusetts Provincial Congress, "In Provincial Congress, Watertown, June 10th, 1775," Evans fiche 42876.

until the last week of May, after which supplies of beef arrived regularly (and supplies of pork essentially disappeared). Such findings run counter to the conclusions of earlier historians such as Victor Leroy Johnson, who claimed, "Of the two staple products constituting the ration, flour and meat, the latter was the easier to procure. In fact, the supply of either beef or pork had been more than sufficient ever since the army had settled down to the siege of Boston."[15]

Logistical challenges may account, in part, for Massachusetts' beef shortage. By comparison with their Massachusetts counterparts, soldiers from Connecticut fared well, but they had the benefit of the inspired leadership of Joseph Trumbull, the colony's commissary general. From his headquarters in Cambridge, Trumbull supervised nine commissaries who remained in Connecticut, each located in a town with a "productive hinterland," who purchased and transported required materials. One particular commissary, Colonel Henry Champion of Colchester, focused his efforts on supplying beef to the troops four days a week. Recognizing Trumbull's abilities, the Continental Congress appointed him commissary general for the entire Continental Army at the end of July. He quickly established a Court of Inspection, ordering his men to destroy any stores of "Stinking Putred Beef," and he rationalized the system by instructing suppliers to drive their hogs and cattle from all parts of New England to slaughterhouses and packing stations outside of Boston.[16] By late 1775, therefore, the army had the meat that some men had lacked during the previous summer.

[15]John Pigeon, "Commissary of the Massachusetts Army," kept a ledger [Ms. N-719, MHS] of the provisions billed "to Province" from 19 April to 2 August for the twenty-six regiments involved with the blockade of Boston. The ledger in its present state contains complete accounts for only fourteen regiments; I surveyed the ten that ran for at least two months. The ledger's general accuracy regarding the number of men and the rations they received can be confirmed by consulting Nathan Goold, *History of Colonel Edmund Phinney's Thirty-First Regiment of Foot* (Portland, Me.: Thurston Print, 1896), pp. 11–20, and John Sullivan, "The Morning Returns of the Regiments in Camp on Winter Hill," 27 July 1775, in "Revolutionary War Orderly Books, John Sullivan's Brigade," P-394, MHS, microfilm reel 4.2 [hereafter cited as Sullivan Orderly Books]. See Victor Leroy Johnson, *The Administration of the American Commissariat during the Revolutionary War* (Philadelphia: University of Pennsylvania, 1941), p. 44.

[16]Chester McArthur Destler, *Connecticut: The Provisions State* (Chester, Conn.: Pequot Press, 1973), pp. 15–19, 21–25; Sullivan, Orderly Books, 25 August 1775 for quotation; Johnson, *American Commissariat*, pp. 44–45.

That earlier scarcity, however, cannot be attributed solely to administrative and bureaucratic difficulties in the pre-Trumbull era. The British managed to capture many animals. To give just one example, a raid on Gardiner's Island, located near Long Island, New York, yielded 30 hogs, 1,000 sheep, 13 geese, and 3 calves. Upon departure, according to Benjamin Miller, the soldiers "left on [his] table half a guinea and a pistareen."[17] Animal husbandry practices may also help explain the beef shortage. Farmers in eastern Massachusetts typically kept their cattle on their farms during the winter months, but in the spring they tended to drive the animals west to richer pastures along the Connecticut River or north into New Hampshire and Vermont. These farmers may not have wanted (or may have been unable) to bring their cattle to Cambridge until later in the summer or in the fall.[18]

Curiously, despite the need for meat and even though sheep grazed throughout New England and America, mutton and lamb did not have an official place in the soldiers' diet. Percy Wells Bidwell and John I. Falconer argued that Americans generally disliked mutton because "the meat could not be successfully preserved by salting or smoking . . . [and] farmers didn't like the taste of fresh lamb or mutton, probably because of their own negligence in slaughtering."[19] The two agricultural historians are, however, mistaken on every count. Colonists may well have known from English cookbooks how to make "mutton-hams" by hanging them "in the Woodsmoke for a Fortnight," and they had numerous recipes for roast mutton, stuffed leg of mutton, fried loin of lamb, stewed mutton chops, mutton hash, and fricasseed lamb. Those without their own animals

[17]"Account of the Plundering of Fisher's, Gardiner's, Plumb, and Block Islands, by the British," 16 August 1775, in Force, *American Archives,* 3:88. They also seized 1,000 pounds of cheese and 7 tons of hay. The "payment" left by the British amounted to about twelve shillings.

[18]Percy Wells Bidwell and John I. Falconer, *History of Agriculture in the Northern United States, 1620–1860,* (Washington, D.C.: Carnegie Institution of Washington, 1925), pp. 27, 107–9; Johnson, *American Commissariat,* p. 10; Brian Donahue, *The Great Meadow: Farmers and the Land in Colonial Concord* (New Haven: Yale University Press, 2004), p. 213.

[19]Bidwell and Falconer, *History of Agriculture,* p. 110.

often purchased "mutton, Lamb, & Lamb heads."[20] When Parliament's Boston Port Bill of 1774 (one of the Coercive Acts) closed the port, many towns throughout Massachusetts, New England, and as far away as the Carolinas sent food, cash, wood, clothing, and other supplies for "the relief of those honest, industrious poor, who are most distressed by the late arbitrary and oppressive Acts." They sent, collectively, over 2,800 sheep and sometimes used the adjective "fat" to describe the animals and their potential delectability.[21] Why, then, were sheep spared the butcher's knife during the blockade?

The answer most likely rests with the Continental Congress, which formed the Association in October 1774 to ban imports from Great Britain, halt the consumption of East India Company tea, and if necessary prohibit exports to Britain the following year. The Association's seventh article pledged that "We will use our utmost endeavours to improve the breed of sheep, and increase their number to the greatest extent; and to that end, we will kill them as seldom as may be, especially those of the most profitable kind; nor will we export any to the West-Indies or elsewhere." The eighth article spelled out why sheep escaped the fate of cattle and hogs: "We will . . . promote agriculture, arts and the manufactures of this country, especially that of wool."[22] Within a month, deliveries of sheep to the poor of Boston had all but ceased, and they stopped

[20]For the recipe "To make Mutton-Hams," see Richard Bradley, *The Country Housewife and Lady's Director* (London, 1736), p. 15. For a pickled and smoked version, see Charles Carter, *The Complete Practical Cook* (London: W. Meadows, 1730), pp. 201–2. I believe that this long-standing knowledge in Britain could well have been transferred to America, especially by 1775. I thank Mr. Ivan Day for providing these references. For lamb and mutton recipes available just prior to the Revolution, see Susannah Carter, *The Frugal Housewife, or Complete Woman Cook* (Boston: Edes and Gill, 1772), Evans fiche 12348, pp. 2, 4, 38, 66, 76, and 96. Joseph Vose's account book lists the lamb and mutton purchases of 22 individuals from 1760 to 1774 (Joseph Vose Papers, 1760–1788, Ms. N-2073 [XT], MHS).

[21]Quotation from the Windham, Connecticut, Committee of Correspondence to the Selectmen of Boston, 28 June 1774, in "Correspondence, in 1774 and 1775, Between a Committee of the Town of Boston and Contributors of Donations for the Relief of the Sufferers by the Boston Port Bill," *Collections of the Massachusetts Historical Society,* ser. 4, vol. 4 (Boston: Little, Brown, 1858), p. 7. I tabulated the total number of sheep donated to Boston's poor from this correspondence. For the adjective "fat," see pp. 44, 48. The town of Brookline specifically sent mutton (see p. 256).

[22]*Journals of the Continental Congress,* 1:78.

altogether within two months' time. Similarly, the Committee of the City and Liberties of Philadelphia urged inhabitants to follow the Association and to purchase no "Ewe Mutton" from 1 January to 1 May 1775 and no "Ewe Lamb" from 1 January to 1 October. The committee further discouraged farmers from selling any such items to butchers and butchers from bringing such meat to city and suburban markets. Finally, during the summer of 1775, the Massachusetts Provincial Congress recognized that its request for 13,000 coats would generate "a very large demand for the Article of Wool, and inconceivable Mischief may ensue from delaying a speedy Provision for its Encrease." So the Provincial Congress once again urged its citizens to "refrain from Killing any Sheep or Lamb, (except it be in Cases of absolute Necessity) till the further Order of this Congress or some future assembly of this Colony."[23] At every level of government, from the city up to the Continental Congress, Americans were regulating their relationships with animals—and, therefore, attempting to maximize the colonies' chance to resist Parliament and British forces by enlisting the environment as their ally.

Consciously adopting a policy that would preserve the land's resources and the animals sustained by them, the Massachusetts Provincial Congress recommended that persons living on islands and along the Atlantic coast "remove their Hay, Cattle, Sheep, &c. that are exposed to those ravages, and cannot be sufficiently guarded, so far into the country as to be out of the way of those implacable enemies to this people." Washington's desire to starve the enemy informed a similar edict. "The great Scarcecity of Fresh Provision in their Army," he explained, "has led me to take every precaution to prevent a Supply: For this purpose I have ordered all the Cattle and Sheep to be drove from the Low Grounds and Farms within their Reach."[24] From

[23]Data on sheep deliveries are from "Sufferers by the Boston Port Bill." Committee of the City and Liberties of Philadelphia, "To the Public," 30 November 1774, Evans fiche 13539. Massachusetts Provincial Congress, "In Provincial Congress, Watertown, June 29, 1775," Evans fiche 14236.

[24]Massachusetts Provincial Congress, 23 May 1775, in Force, *American Archives*, 2:818; George Washington to Continental Congress, 14 July 1775, Washington Papers,

a defensive point of view, Washington's pronouncement was understandable, but it disrupted established networks of supply and transportation, which complicated the task of colonial commissaries.

The order also removed some animals from their accustomed habitat. Sheep were especially attuned to their surroundings. They thrived on closely cropped pasture grass, alkaline soils, and water from clear-flowing streams or wells. Coastal areas suited the animals' quirky characteristics; removing them to overcrowded inland pastures, it was discovered, "causes the sheep to take up much sand and earth into their stomachs with their food, which gives them an unthrifty appearance, and sometimes induces disease and death." Lieutenant Colonel Loammi Baldwin brought sheep into camp at Chelsea, just to the northeast of Boston, apparently to serve the food supply, but "the grazing land to which I was prepared that they should be confined to is so bare of feed that the Sheep are becom very poor and some have actually died. There are scarcely any among them that are in my measure fit to kill." To escape raids by the Royal Navy, Americans moved their sheep from areas that suited them biologically to locations that imperiled them. Other environmental effects during the summer of 1775 further compromised the sheep population. "By the scarcity of Hay," the Massachusetts House of Representatives recognized, some sheep "are rendered necessary to be Killed," and "the severe Drought in most Parts of the Colony render it impracticable for the Farmers to keep their whole Stock."[25]

Chelsea, given its proximity to Boston, was especially vulnerable to British attack and the exigencies of Washington's policies.

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available at http://memory.loc.gov/cgibin/query/r?ammem/mgw:@field(DOCID+@lit(gw030236)).

[25]Henry Stewart, *The Shepherd's Manual: A Practical Treatise on the Sheep* (New York: Orange Judd Co., 1878), pp. 12, 20. Regarding the suitability of coastal areas, Stewart proclaims, "From personal observation of these coast lands, the author is satisfied that no more healthful pastures exist anywhere" (p. 251). Loammi Baldwin to Joseph Trumbull, 16 August 1775, in Washington Papers, available at http://memory.loc.gov/cgibin/query/P?mgw:12:./temp/~ammem_KGtJ; *Journals of the House of Representatives of Massachusetts, 1775*, vol. 51, pt. 1 (Boston: Massachusetts Historical Society, 1982), 14 August 1775, pp. 71–72.

The townspeople agreed to move their cattle, horses, and sheep away from the British, but their animals "were so short of feed, that they Broke into and Spoiled a Considerable part of the mowing Land." "The feed thereof was Lost, and several of the Cattle, that were Drove Back, were Starved and Lost, and the Inhabitants of the Lower part of the town [closer to the British] were obliged to Carry back the Little hay they Cut, and the other produce of their farms . . . at Great Expense," to their new residences as far as eight miles away. Still, the town's suffering did not end. Many houses and barns were "so torn to pieces by the Soldiers" and "so spoiled by said Soldiers" that some buildings had to be condemned. Soldiers demolished one barn, thirty feet wide and sixty feet long, simply for firewood. They also burned "a Great many hundred Rales and posts, that fenced in Considerable of the Inclosures of the town . . . and thereby Laid a Considerable part of the town [as a] Common, for some years." Finally, the soldiers consumed and destroyed "a Considerable part of the corn, fruit, and Sauce [garden vegetables] of the town." That the soldiers who had wreaked such havoc belonged to the *Continental* Army reminds us that war's combatants can indiscriminately ravage the landscape.[26]

Even at this early stage of the war, the government's actions had far-reaching implications. According to historian Edward Countryman, by forming the Association, the Congress took "what may have been the most important single step in the transformation of the American movement from one of resistance to one of revolution." Congress called for committees to be formed "in every county, city, and town" and to carry out what historian Pauline Maier called "disciplined collective coercion." It wanted Americans to restrict not just their imports but also "every species of extravagance and dissipation," such as horse racing and cock fighting, not to mention "other expensive diversions and entertainments." That such calls for

[26]The quotations are from a 1780 petition of the selectmen of Chelsea to the General Court, requesting a reduction in the town's tax valuation. See Mellen Chamberlain, *A Documentary History of Chelsea, including the Boston Precincts of Winnisimmet, Rumney Marsh, and Pullen Point, 1624–1824,* 2 vols. (Boston: Massachusetts Historical Society, 1908), 2:473–74.

enforced morality encompassed the environment should come as no surprise, given the long tradition (especially in Puritan New England) of "subduing" the "howling wilderness."[27] The Association increased the government's power to make, almost by definition, "revolutionary" changes. Old habits and ways of thinking—buying imported goods, loyalty to Britain, eating mutton—had to be altered and replaced with new attitudes. The Continental Congress's actions had now established a precedent for how an *American* government might dictate its citizens' use of the environment.

Seaports under Fire

Throughout the summer, meat, bread, and drink reached Washington's men outside of Boston by means of wagon, rowboat, and sailing ship. Admiral Graves could almost see the "Vessels laden with Arms and Ammunition, Provisions, Grain, Flour, Salt, Melasses, and Wood" plying the waters between Cape Cod and the Piscataqua River in New Hampshire. Because "the [British] Army is in great Want of Beef and Pork" and "the Lives of a very considerable number [are] depending upon speedily receiving fresh Meat," Graves gave his captains orders to seize the American ships and "prevent every kind of Supply getting to the Rebels by Sea." Other officers were instructed to cruise the Bay of Fundy in Nova Scotia to protect British transports from "any pyratical Attempts of the Rebels."[28] George Washington kept three armed vessels in the vicinity of Boston Harbor to intercept British transports. At times, colonial Committees of Inspection managed to halt ships they suspected were bound for the British army. As a result soldiers and civilians in Boston suffered, and the threat of further privation loomed large. Graves reported that "wood is

[27] Edward Countryman, *The American Revolution* (New York: Hill and Wang, 1985), p. 5; *Journals of the Continental Congress,* 1:79, 78; Pauline Maier, *From Resistance to Revolution: Colonial Radicals and the Development of American Opposition to Britain, 1765–1776* (New York: Knopf, 1972), p. 280; Roderick Nash, *Wilderness and the American Mind,* 3rd ed. (New Haven: Yale University Press, 1982), pp. 23–39.

[28] Graves to Captain Burnaby, 5 July 1775, "Graves in North America," 1:134; Graves to Captain Wallace, 16 June 1775, 3:441–42; and Graves to Captain LeCras, 11 August 1775, 1:171–72.

and will be too scarce and dear," which meant that "we have no reliance on that Scheme [using the local contractor] of baking Bread this Winter," and "it will be difficult to provide Fuel to brew Spruce Beer for the Squadron."[29] Without spruce beer, which had the benefit of combating scurvy, the sailors faced hardships beyond just hunger.

Tired of waiting for reinforcements and instructions that never came, Admiral Graves "determined to wait no longer, but to annoy the Enemy in the best manner his small & crippled force would permit."[30] With General Gage's approval (which fell short of providing troops), Graves ordered Lieutenant Henry Mowat of the *Canceaux* in October 1775 to lead a fleet to Cape Ann Harbor and destroy it.

> [T]hat Town [had] fired in the month of August last upon his Majesty's Sloop *Falcon*, wounded her People and taken many Prisoners; you are to burn destroy and lay waste the said Town together with all Vessels and Craft in the Harbour that cannot with Ease be brought away. Having performed this Service you are to take the advantage of Wind and Weather, or any other favorable Circumstances, to fall upon and destroy any other Towns or places within the Limits aforesaid, and all Vessels or Craft to seize and destroy.

Graves especially targeted Portsmouth, New Hampshire; Falmouth (now Portland, Maine); and Machias. "You are to go to all or to as many of the above named Places as you can," he instructed Mowat, "and make the most vigorous Efforts to burn the Towns, and destroy the Shipping in the Harbours."[31] The principal focus of military action up to this point had been to manage Nature's bounty—the wood, animals, and grains upon which humans depended. With his ability to secure those products having been frustrated by the rebels, Graves shifted

[29]For the actions of committees in Pennsylvania, Massachusetts, and Rhode Island, see Force, *American Archives*, 3:1262–63, 976, 974–75. Graves to Stephens, 22 September 1775, "Graves in North America," 2:227.

[30]Journal entry, 29 August 1775, "Graves in North America," 1:190–91. Graves did not keep his "journal" at the time of these events but wrote it, in the third person, in 1777, in part to defend the actions he took during his command. For background, see French, *The First Year*, p. 19.

[31]Gage to Graves, 4 September 1775, "Graves in North America," 2:197–98, and Graves to Mowat, 6 October 1775, 2:250–51.

tactics and broadened his attacks beyond military targets. His decision to pursue a harsher course would have important consequences for the movement toward American independence.

Mowat sailed into a region whose inhabitants had bedeviled the British all summer. Machias, perched at the northernmost end of the Maine coast, struggled against the dual threats of privation and violence that beset the entire seaboard. In May 1775, the townspeople of Machias faced starvation, a severe drought the previous fall having diminished their crops and trade now at an impasse. The particular circumstances of their environment left them few options. "We have no country behind us to lean upon," the people explained in a petition to the Massachusetts Provincial Congress, "nor can we make an escape by flight; the wilderness is impervious, and vessels we have none." They asked for provisions, for which they would "pay the whole amount in lumber, the only staple of our country." The loyalist Ichabod Jones offered provisions in return for that lumber, which he intended to convey to the British army in Boston. But the deal collapsed, and the colonists decided "to take Captain Jones, if possible, and put a final stop to his supplying the King's Troops with any thing."[32]

For the rest of the summer, the inhabitants generally rebuffed British attempts to tap the region's forests for much-needed firewood. In July the people of Machias fought off one expedition, and those at Majabigwaduce, in Penobscot Bay, defeated another, taking a total of seven ships and about forty prisoners. First attempting the path of least resistance, the Royal Navy offered to buy wood from local loyalists and neutrals. In late September, Captain Thomas Bishop of the *Lively* approached the inhabitants of the Fox Islands in Penobscot Bay, but they hesitated to supply timber "for fear of being destroyed by [patriot] Col. [James] Cargill and his Ruffians from the Main." After Bishop had "given these People the strongest Assurances that they shall be paid for their Wood before we leave them," however, he was able to fill two sloops with the desired

[32] "Petition from the Inhabitants of Machias to the Massachusetts Congress," 25 May 1775, in Force, *American Archives*, 2:708; see Machias Committee to Massachusetts Congress, 14 June 1775, 2:988–90, for the incident with Ichabod Jones.

cargo.[33] Within a week of this incident, Mowat sailed the *Canceaux* and three other ships into the harbor at Falmouth, having decided that the situation at Cape Ann did not warrant an attack.[34]

Following standard protocol, on 17 October, Mowat sent an officer ashore to announce that the residents had two hours before Mowat would "execute a just punishment on the Town of Falmouth" for "the most unpardonable rebellion" they had carried out against "the best of Sovereigns." The town sent out a committee to negotiate, and Mowat eventually agreed to hold his fire until the following morning if he received eight muskets as a token of the town's agreement to turn over its cannon, arms, and ammunition. Town leaders delivered the muskets but knew they would never relinquish all of their arms. During the night "the sick, with the women and children, and as many of their effects as possible," evacuated, and at nine o'clock the next morning Mowat opened fire. According to the town's official report, a "horrible shower of balls, from three to nine pounds weight, bombs, carcasses, live shells, grapeshot, and musket balls" continued, "without many minutes cessation, until about six o'clock, P.M., during which time several parties came ashore and set buildings on fire by hand." In the ensuing skirmishes, the Falmouth forces suffered one man wounded and may have killed several British soldiers. The grim accounting after the attack showed that Mowat had largely succeeded in carrying out Graves's orders. About three-quarters of the town's buildings had been destroyed, including about one hundred thirty dwellings (many housing two or three families apiece), a church, the new courthouse, the library, and "almost every store and warehouse in Town." Fourteen ships were burned, several others seized, and "not much more than half of the moveables [goods] were saved out of the buildings

[33]Anonymous report, 12 August 1775, in Force, *American Archives,* 3:98; *Massachusetts House Journals, 1775,* vol. 51, pt. 1, 29 July 1775, p. 24. Bishop to Graves, 7 October 1775, "Graves in North America," 3:510–11; *Massachusetts House Journals, 1775,* vol. 51, pt. 1, 11 October 1775, p. 155. Bishop estimated Cargill's force at about five hundred men.

[34]William Howe reported to the Earl of Dartmouth on 27 November 1775, "From circumstances, it was found inexpedient to make any attack upon Cape Ann, whereupon they proceeded to Falmouth." Force, *American Archives,* 3:1680.

that were burnt."[35] In a region already suffering privation, the inhabitants of what was once Falmouth faced a winter of extreme hardship.

News of the attack shocked Americans and hardened their resolve to resist "the Ministerial troops and navy." Reporting to the Continental Congress with confirmation of the attack, Washington called it "an outrage exceeding in Barbarity and cruelty every hostile Act practiced among civilized nations." The Congress agreed, describing the burning of Falmouth as an act of "wanton barbarity and inhumanity that would disgrace savages." It hoped that "the spirit and virtue of a sensible nation" could bring "justice for the innocent oppressed colonies and . . . restore harmony and peace to the British Empire," but it also clearly stated its intentions: "the good people of these colonies will rely to the last on heaven, and their own virtuous efforts for security against the abusive system pressed by administration for the ruin of America and which if pursued must end in the destruction of a great Empire."[36]

Individual opinions ran equally hot. James Warren, President of the Provincial Congress, asked, "What can we wait for now[?] What more can we want to Justifie any Step to take, Kill, and destroy, to refuse them any refreshments, to Apprehend our Enemies, to Confiscate their Goods and Estates, to Open our Ports to foreigners, and if practicable to form Alliances &c. &c." Abigail Adams remarked, "Unsearchable are the ways of Heaven who permitteth Evil to befall a city and a people by those very hands who were by them constituded the Gaurdians and protecters of them." One writer, calling himself "A Freeman," used the attack on Falmouth as a bully pulpit to demand American independence.

> The savage and brutal barbarity of our enemies in burning Falmouth, is a full demonstration that there is not the least remains of virtue, wisdom, or humanity, in the British court; and that they are fully

[35]"H. Mowat, Commander of His Majesty's Ship *Canceau*, to the People of Falmouth," 16 October 1775, in Force, *American Archives*, 3:1153, "Account of the Destruction of the Town of Falmouth, October 18, 1775," 3:1169–73, and William Howe to Earl of Dartmouth, 27 November 1775, 3:1680.

[36]Washington to Continental Congress, 24 October 1775, in Force, *American Archives*, 3:1151; *Journals of the Continental Congress*, 29 November 1775, 3:391.

determined with fire and sword, to butcher and destroy, beggar and enslave the whole American people. Therefore we expect soon to break off all kind of connection with Britain, and form into a Grand Republic of the American United Colonies, which will, by the blessing of heaven, soon work out our salvation, and perpetuate the liberties, increase the wealth, the power and the glory of this Western world.[37]

The burning of Falmouth, which resulted from a policy born out of the British army and navy's inability to secure reliable sources of food and fuel, helped colonists take a critical step toward independence from Great Britain. "We have a glorious prospect before us," declared "A Freeman," "big with everything good and great." Although Lexington, Concord, Bunker Hill, the actions of the Continental Congress, parliamentary decisions, and royal decrees all drove a wedge between the motherland and her distant subjects, sheep, cattle, and trees also played an important role. With a commanding hold over the resources of the country they inhabited, Americans were reluctant to share them with, and often even to sell them to, an army they increasingly considered to be an occupying, not a protective, force.

British Forces Hunker Down

In the end, the Royal Navy did not burn Cape Ann, Portsmouth, Machias, or any other towns. The pounding of their own cannons during the bombardment of Falmouth had damaged Mowat's fleet, and little ammunition remained for subsequent attacks. With towns now fortifying their defenses, the British abandoned their revenge attacks to focus on surviving the coming frosts. Conventional eighteenth-century armies rarely conducted winter campaigns, but Admiral Graves and General William Howe, who had replaced Gage in October, would have been hard pressed to wage one in any case. The

[37]James Warren to John Adams, 20 October 1775, in *Papers of John Adams,* vol. 3, ed. Robert J. Taylor and Gregg L. Lint (Cambridge: Belknap Press of Harvard University Press, 1979), p. 222; Abigail Adams to John Adams, 25 October 1775, in *Adams Family Correspondence,* vol. 1, ed. L. H. Butterfield et al. (Cambridge: Belknap Press of Harvard University Press, 1963), p. 313; "A Freeman," writing in the *New England Chronicle,* quoted in McCullough, *1776,* p. 63.

Americans had firmly entrenched themselves around Boston, and without sufficient shipping to move men, supplies, and loyalists, the British had no choice but to hunker down until spring.[38]

Their situation was dire. In October, James Warren interviewed one man who reported that "fresh provisions are very scarce. 1 [shilling] sterling per pound and no vegetables, the meat Excessive poor, that the Troops have not been served with it but twice during the Summer and Fall, that their Duty is very severe and they Continue sickly." The citizens of Boston suffered much the same. According to one fisherman, "no Language can paint the distress of the inhabitants, most of them destitute of wood and of provisions of every kind. The Bakers say unless they have a new supply of wood they cannot bake above one fortnight longer—their Bisquit are not above one half the former size." Desperation was setting in. As the fisherman noted, "The Soldiers . . . are uneasy to a great degree, many of them declareing they will not continue much longer in such a state but at all hazards will escape; the inhabitants are desperate, and contriveing means of escape."[39]

As of 1 October, the British army had about 6,400 men fit for duty and another 1,400 sick in quarters or hospital. Two months later, General William Howe surveyed his stores and realized that he had enough pork and fish to last only until 19 April and enough wheat and flour (if means were available to turn it into bread) to make it to 25 May. To warm these men and cook their food, the Barrackmaster-General had on hand 668 cords of wood and 899 chaldrons (or about 29,000 bushels) of coal. The British barracks would turn chilly in mid-January, certainly an unwelcome prospect. For their 674 horses, 100 cattle, and 400 sheep, Howe had sufficient hay to last until 7 March

[38]French, *The First Year*, pp. 544, 527; Robert Middlekauff, *The Glorious Cause: The American Revolution, 1763–1789*, rev. ed. (New York: Oxford University Press, 2005), p. 304; Howe to Dartmouth, 26 November 1775, in Force, *American Archives*, 3:1672.

[39]James Warren to John Adams, 20 October 1775, in *Papers of John Adams*, 3:219; Abigail Adams to John Adams, 21 October 1775, in *Adams Family Correspondence*, 1:306.

and enough oats, corn, and bran to reach the end of April.[40] "Our condition is better than it has lately been," wrote a British officer at the time, "but it is still far from comfortable. . . . Many of our men are sick, and fresh provisions very dear." American intelligence painted a somewhat bleaker picture. "Provision is very scarce," reported Captain Richard Dodge to Washington in mid-December, "the officers say not more than enough to last them six weeks. One of the gentlemen says he dined with a man that dined with Lord Percy, a few days ago, upon horse-beef." For fuel, the British soldiers had "Orders from General Howe, to pull down the Old North Meeting-house, and one hundred wood houses."[41]

More than ever, the army's survival depended upon controlling essential environmental components—wood, animals, and edible plants—especially as the New England winter grew harsher and supplies dwindled. Graves urged Captain James Wallace to cruise the Rhode Island coast and "take every opportunity of getting Cattle for us, for our existence this Winter depends on Supplies of fresh Provisions for the People. If you can procure Potatoes, Turnips, Carrots, whether by Ravage or Purchase, send them here." As the winter wore on, terrible weather hampered the navy's ability to protect its ships. "The *Cerberus* had the Ordnance Brig under Convoy several days," explained Graves in one letter, and "was twice with her within a few Leagues of the Lighthouse, and yet from thick Weather and Gales of Wind they parted Company. . . . At last she was taken by a Rebel Privateer." Other vessels simply could not land

[40]For troop numbers, see French, *The First Year,* p. 530, esp. n. 8. For the returns on provisions, fuel, and forage, see the statements dated 27 November, 29 November, and 1 December 1775, in Force, *American Archives,* 4:160–62. D. Chamier, the Commissary of Provisions, used a figure of 12,000 troops to determine how long the food would last. I have adapted his calculations for an army of 7,800 men. To calculate how long the soldiers' wood might last, I used the Continental Army's rate of 1.5 cords of wood per week per 100 men; see the report by Thomas Mifflin, Quartermaster-General, in Washington's letter to the Continental Congress, 12 October 1775, in Force, *American Archives,* 3:1045. A cord of wood measures four feet high, four feet deep, and eight feet long.

[41]"Extract of a letter from an officer at Boston to a friend in Edinburgh, 2 December 1775," in Force, *American Archives,* 4:159, and Dodge to Washington, 16 December 1775, 4:299–300.

because of the "prevailing winds southeast and northwest, hard Gales each way, and with the former thick Weather, Rain, Snow and Ice without a friendly Port to push for except Boston." A fleet of thirty-six supply ships that left Great Britain in October and November met fierce storms and American privateers; only thirteen vessels reached Boston. Upon opening the holds, the sailors discovered that 183 of the 200 tons of potatoes had rotted.[42]

Graves understood the dimensions of the problem facing British forces. They would have difficulty acquiring supplies from the colonists because "the Resolves of the Congress respecting nonimportation &c will greatly impede our having provisions regularly." So, he informed the ministry, "Upon the whole I beg leave to offer it my opinion that we should not rely on the Continent of North America for Supplies of Provisions this Winter." In the short term, environmental circumstances forced the British to revise their plans. As the British experienced ever greater pressure to supply their men with grain, meat, and wood, they shifted their strategy and geographical focus. They had once hoped to isolate and starve the "seat of revolution" in Boston, but instead the British found themselves increasingly alone, cold, and hungry. William Howe knew he had to relocate to New York, where a superior port, richer hinterland, and friendlier population could better meet the army's demands. The struggles over provisions, therefore, were shifting the terrain upon which the war would be fought.[43]

The new strategy would also fail, however, because the first year of the war demonstrated a truth that haunted the British for the remainder of the war, whether in New York or elsewhere: they suffered from what R. Arthur Bowler called the "inability of the army to obtain any dependable supply of provisions in North America." Because British forces could not rally popular support among the Americans, they "could control

[42]Graves to Wallace, 11 November 1775, and Graves to Stephens, 28 December 1775 and 4 December 1775, "Graves in North America," 2:293–94, 353, 331; Bowler, *Logistics and Failure,* pp. 53–54.

[43]Graves to Stephens, 22 September 1775, "Graves in North America," 2:228. I thank Joseph Cullon for some of the insights described in this paragraph.

little more than those areas actually occupied in strength by the army and only as long as they were so occupied"; the army "could not expect supplies from any area it did not occupy."[44] Relying on Great Britain for provisions meant depending upon a bureaucracy three thousand miles away that was often inefficient, incompetent, and wracked by internal bickering and competition. Britain did not lose the war because of trees, animals, and grains, but its inability to obtain and control these elements of the environment contributed to the army's defeat.

Hay and a Dearth of Patriotism

Washington faced supply problems of his own. In early November 1775, he asked the Massachusetts General Court for 200 tons of hay to feed the animals of the Continental Army. In mid-December, the Court settled on a plan, requiring fifty-two towns in eastern Massachusetts to provide English and salt hay, their quotas ranging from 1 to 14 tons. Wary that any delay might produce "very great Inconveniences, and perhaps fatal Consequences," the Court named a committee to oversee local compliance. Concord acted quickly, taking special pains to fulfill its quota of 5 tons. The General Court had allotted £5 per ton of English hay, but the selectmen of Concord realized that "said hay cannot be obtained for said Sum" and resolved, with the Committee of Correspondence, to purchase the hay "as Cheep as possible and the [surplus?] to be Drawn out of the Town Treasury and for Conveying the said hay to Cambridge." Lexington and Reading likewise opened their coffers in order to meet, as the selectmen of Reading declared, "whatever it Costs more then £5 per Ton at Cambridge."[45]

[44]Bowler, *Logistics and Failure,* pp. 239–40.

[45]Washington's request to the General Court came 2 November 1775; see Force, *American Archives,* 3:1336. For the town allocations, see *Massachusetts House Journals, 1775–1776,* vol. 51, pt. 2, 16 December 1775, pp. 50–51. For town actions, see the microfilm collection *Early Massachusetts Records for Middlesex County* (n.p.: Early Massachusetts Records, Inc., 1976): Concord, 29 December 1775, p. 432, reel 3; Lexington, 1 January 1776, p. 256, reel 1; Reading, 8 January 1776, p. 16, reel 1. Each town has its own designated series of reels.

During December and January, a number of other towns failed to hold meetings or, when they did, neglected to discuss the hay quota. On 16 January 1776, finding that it could not fulfill Washington's appeal, the General Court established "the Rate of Six Pounds per Ton for English, and 50s. per Ton for Salt Hay" because the previous allowance fell "below the Market Price and short of what has been usually given by the Inhabitants of this colony, under a like Scarcity with the present."[46] Could a mere handful of shillings and pounds have led these townspeople to withhold their hay from the Continental Army? A variety of factors may have affected a town's readiness or reluctance to address the Court's request—for example, its relative wealth, its distance from the army camps, the quality of its roads, and the amount of manpower available—but an outraged commander believed that for all too many colonists, prices trumped patriotism. James Warren reported that Washington "has offered 5/. per [ct?] for hay and 20/. per Cord for wood, and cannot be supplyed. This he Imputes to a Monopolizeing Avaritious Spirit and perhaps not wholly without foundations." On a matter unrelated to hay, Washington angrily noted that there was "a dearth of Publick Spirit, & want of Virtue; such stock jobbing, and fertility in all the low Arts to obtain advantages." At the end of November, he faced the prospect of Connecticut's troops returning home, "and such a dirty, mercenary Spirit pervades the whole, that I should not be at all surprizd at any disaster that may happen."[47] The people may well have been greedy and self-serving, but an environmental perspective helps place their disinclination to contribute hay in perspective.

[46]The minutes for the meetings of towns are found in *Early Massachusetts Records*. For the Court's actions, see *Massachusetts House Journals, 1775–1776*, vol. 51, pt. 2, pp. 147–48.

[47]James Warren to John Adams, 5 November 1775, in *Papers of John Adams*, 3:281; Washington to Joseph Reed, 28 November 1778, in *The Papers of George Washington: Revolutionary War Series*, ed. W. W. Abbot et al., 16 vols. (Charlottesville: University Press of Virginia, 1987), 2:449. In a much-quoted observation, Washington went on to write, "could I have foreseen what I have, & am like to experience, no consideration upon Earth should have induced me to accept this Command."

According to Warren, "We are to Supply the Army with Hay and wood, which our people say they can't do and keep their Cattle now fat over the winter. This has Occasioned great difficulty here." A survey of fourteen towns within a twenty-five-mile radius of Boston reveals that in 1771 most locations harvested fewer tons of hay than they needed to feed their own animals. The data in the table show that towns such as Dedham, Weymouth, and Woburn produced less than 70 percent of the hay that their horses, cattle, oxen, and sheep would consume; Bridgewater, Lexington, and Reading produced less than 80 percent of their needs; and Concord and Weston harvested less than 90 percent of what the animals would have eaten. Even towns like Marlborough and Sudbury, which met, respectively, 94 and 91 percent of their hay requirements, would have been hard pressed to send several tons of the crop to the army. Only the towns of Brookline, Ipswich, Malden, and Roxbury, all of which had the benefit of salt marshes to supplement their hay production, could comfortably meet the General Court's demands.[48]

Taken at face value, these figures indicate that townspeople's animals were underfed, and so for most individuals, any attempt to meet the General Court's allocation would have entailed a significant sacrifice. But we should not take the data completely at face value. On the one hand, the shortage of hay may have been less dire than has been described; during the winter, farm animals ate a variety of foods, including oats, rye, turnips, cabbages, carrots, beans, pumpkins, and corn (including the stalks and husks).[49] By maximizing these dietary supplements, some towns may have generated surplus hay to send to the army.

[48]James Warren to John Adams, 5 November 1775, in *Papers of John Adams,* 3:281.

[49]Arthur Young, *Rural Oeconomy: Or, Essays on the Practical Parts of Husbandry,* 2nd ed. (London: T. Becket, 1773), pp. 29, 94; *Georgick Papers for 1809* (Boston: Massachusetts Society for Promoting Agriculture, 1809), pp. 9–11; *Papers: Consisting of Communications made to the Massachusetts Society for Promoting Agriculture, and Extracts* (Boston: Adams and Rhoades, 1807), pp. 21, 35–37, 79–85; Henry Stewart, *The Shepherd's Manual,* rev. ed. (New York: Orange Judd Co., 1881), pp. 59–60. To complicate matters further, different kinds of hay have different nutritional values. See, e.g., Henry Follansbee Long, "The Salt Marshes of the Massachusetts Coast," *Historical Collections of the Essex Institute* 47 (January 1911): 8.

TABLE

Hay Consumption and Production in Fourteen Massachusetts Towns, ca. 1775, with Continental Army's Requirement

Town		Animals' (number) hay requirements (tons)*					Hay harvested (tons)				Excess or (deficit) in tons	Quota requested for Army in 1775 (tons)		
		Horses	Cattle	Oxen	Goats & sheep†	Total	English	Meadow	Salt	Total		English	Salt	Total
Bridgewater	Number	551	1920	653	2786									
	Hay	1102	2880	980	557	5519	2108	2117		4225	(1294)	6		6
Brookline	Number	79	232	97	106									
	Hay	158	348	146	21	673	423	165	145	733	60	9	3	12
Concord	Number	212	938	426	715									
	Hay	424	1407	639	143	2613	650	1586		2236	(377)	5		5
Dedham	Number	326	1140	429	1285									
	Hay	652	1710	644	257	3263	645	1600		2245	(1018)	5		5
Ipswich	Number	425	1667	575	4303									
	Hay	850	2500	863	861	5074	1087	1240	3595	5922	848	5		5
Lexington	Number	126	584	165	357									
	Hay	252	876	248	71	1447	385	758		1143	(304)	2		2
Malden	Number	75	455	90	403									
	Hay	150	682	135	81	1048	285	299	569	1153	105		10	10
Marlborough	Number	220	926	424	1041									
	Hay	440	1389	636	208	2673	1073	1446		2519	(154)	5		5

TABLE, continued

Reading	Number	195	843	262	877									
	Hay	390	1265	393	175	2223	484	1144		1628	(595)	4		4
Roxbury	Number	290	471	216	185									
	Hay	580	707	324	37	1648	898	410	317	1625	(23)	9	5	14
Sudbury	Number	235	1001	472	1003									
	Hay	470	1501	708	201	2880	583	2043		2626	(254)	9		9
Weston	Number	118	516	194	476									
	Hay	236	774	291	95	1396	602	532		1134	(262)	3		3
Weymouth	Number	99	579	93	1078									
	Hay	198	869	139	216	1422	477	275	171	923	(499)	2		2
Woburn	Number	208	752	318	623									
	Hay	416	1128	477	125	2146	566	930		1496	(650)	5		5

SOURCE: *The Massachusetts Tax Valuation List of 1771,* ed. by Bettye Hobbs Pruitt (Boston: G. K. Hall, 1978).

*Figures based on a formula in Carolyn Merchant, *Ecological Revolutions: Nature, Gender, and Science in New England* (Chapel Hill: University of North Carolina Press, 1989), pp. 179–81, derived from an 1840 Maine debt law that set requirements of hay for winter fodder: horses, 2 tons; cattle (and oxen, adult castrated males, by extension), 1.5 tons; and sheep, 0.2 ton.

†Tax assessors combined goats and sheep, but I have found no evidence of goats being kept eastern Massachusetts.

On the other hand, tax lists may have underreported livestock numbers. Because some farmers grazed their cattle in western Massachusetts, New Hampshire, and Vermont during the summer, their livestock were out of the tax assessors' sight and, presumably, his account book. Furthermore, in 1775 farmers probably had less hay available to them than what had been reported on the 1771 lists. The months of May, June, and July 1775 experienced only nineteen days of rain, whereas those same months in 1771 had received rain on thirty-two days. "Tis exceeding dry weather," Abigail Adams wrote to her husband on 25 June 1775. "We have not had any rain for a long time. Bracket has mowed the medow and over the way, but it will not be a last years crop." About one week later, Cotton Tufts wrote to John Adams, "The Season has been very dry—from Boston to Scituate on the Sea Shore extending about 10 Miles back—in Weymouth not more than half the Hay on Upland that was produc'd last Year."[50] If the 1771 tax list reveals that many towns struggled to produce enough hay to feed their livestock, the dry weather of 1775 would have complicated that effort.

Agricultural trends also seem to have compromised farmers' ability to feed their herds. From 1749 to 1771, farmers in Concord increased the number of their cows, but their hay production dropped by over 200 pounds an acre over that same time. According to Brian Donahue, "the downward trend would prove enduring: the yield from the meadows was slumping toward the soggy bottom where it would lodge throughout the early decades of the nineteenth century." Since lower hay yields put a cap on the numbers of livestock that could be added to towns like Concord, a corollary must also hold true: steady or

[50]Johnson, *American Commissariat,* p. 10; Donahue, *The Great Meadow,* p. 213. The meteorological data come from the diary accounts of Jeremiah Green and John Tudor of Boston in 1771, and from Belcher Noyes in Boston in 1775. The 1775 data for the towns of Scituate, Cambridge, and Concord, although less complete, generally follow Boston's patterns. See *Historical Climatology of New England and New York, Pennsylvania, New Jersey,* Climate Change Institute, University of Maine, http://www.umaine.edu/oldweather/index.asp. For the quotations from Abigail Adams to John Adams, 25 June 1775, and from Cotton Tufts to John Adams, 3 July 1775, see *Adams Family Correspondence,* 1:232, 237.

growing numbers of animals limited the amount of hay available for the Continental Army.[51] Perhaps patriotism spurred Concordians to vote to use town money to meet their quota of hay, but they probably had to do so because a shortage of hay had increased its value.

For Want of a Woodpile

The dearth of an even more important environmental product—wood—threatened to dissolve the Continental Army. Washington told a committee from the General Court on 1 November, before the winter had even gotten underway, that "I did not believe that we had then more than four days' stock of wood beforehand. I little thought that we had scarce four hours', and that different Regiments were upon the point of cutting each others' throats for a few standing locusts near their encampments, to dress their victuals with. This, however, is the fact." He warned that "this Army, if there comes a spell of rain or cold weather, must inevitably disperse; the consequence of which needs no animadversion of mine." Already struggling with the task of reenlisting his men (those from Connecticut were scheduled to depart on 10 December and the rest of the troops on the last day of the month), Washington believed that "the distress of the soldiers in the article of wood will, I fear, have an unhappy influence upon their enlisting again."[52] The most serious threat facing the Continental Army at the time, therefore, came not from British forces but from its own diminishing woodpiles.

Washington's soldiers took action on their own behalf. Some voluntarily joined teams of woodcutters, while others followed orders to prepare charcoal or deliver wood to the army's various camps. Washington urged the General Court to "draw more teams into the service, or [order that] the Quartermaster-General [be] empowered to impress them." Other soldiers,

[51] Donahue, *The Great Meadow,* pp. 208, 210.

[52] Washington to General Court of Massachusetts, 2 November 1775, in Force, *American Archives,* 3:1336. The subject of reenlisting is treated most completely in French, *The First Year,* chap. 31.

driven by desperation, malice, or greed, cut down trees located on lands Washington declared off limits to all. General William Heath heard that "Great Destruction is made of the Timber and wood on Sewall's Farm to the Great Injury of the young lady whose Property I am Informed it is, as well as to the Publick, as private property should ever be held most sacred, and inasmuch as his Excellency General Washington has repeatedly most strictly forbid all violations." He ordered Colonel William Prescott to "speedily and effectually prevent any further Destruction." Similarly, General Charles Lee noticed that "the Trees on the Common Public Road Leading from the Camp to Mystick . . . have been Wantonly and Unnecessarily Cut down and Barked"; he held the day's field officer responsible so that "no More Havock of this Kind is made" in the future.[53] Washington was saddened "to see so many valuable plantations of trees destroyed. I endeavoured (whilst there appeared a possibility of restraining it) to prevent the practice, but it is out of my power to do it. From fences to forest trees, and from forest trees to fruit trees, is a natural advance to houses, which must next follow." The shadow that profiteering cast over hay meadows darkened the forests as well. "Little or no wood is brought in," Washington noted in October, "and it is apprehended the owners keep it back to impose an unreasonable price."[54] The General Court addressed all of these problems in the months that followed.

Faced with Washington's request for ten thousand cords of wood (along with the two hundred tons of hay mentioned previously), the General Court "spent the whole of last Fryday and Evening [November 3] on the Subject," wrote James Warren. "We at last Chose a Committee in Aid to the Quarter Master General to purchase those Articles, and Impowered them to

[53]For greater manpower in gathering fuel, see "Sullivan Orderly Books," 28 October 1775, 19 November 1775, and 17 December 1775; Washington to General Court, 2 November 1775, in Force, *American Archives*, 3:1336; Gen. William Heath to Col. William Prescott, 8 October 1775, "William Heath Papers, 1774–1872," P-205, MHS, reel 1; "Sullivan Orderly Books," 11 August 1775.

[54]Washington to General Court, 2 November 1775, in Force, *American Archives*, 3:1336; Washington to Council of Massachusetts, 6 October 1775, 3:965.

Enter the wood Lotts of the Refugees, Cut, Stack, and procure Teems to Carry to the Camp wood as fast as possible. . . . The Teems are passing all day, and I hope this Step will be a radical Cure." The committee also had the power to spend up to two thousand pounds of the colony's money to purchase wood. Jonathan Green, for example, cut and carried over six cords of wood from Stoneham to "the Gard house, at Winnesimmit [near Chelsea]" during the last six weeks of the year. All of these efforts proved inadequate, however, so on 2 December the Court ordered twenty-five towns to fulfill a specific quota of wood (ranging from one to six cords) each day and to haul it to a specific camp of the Continental Army.[55]

As with the hay quota, towns varied in their responses to the new demand. The Reading selectmen quickly apportioned their quota among the town's three parishes and named for each a supervisor to oversee the work therein. In a series of town meetings that stretched from 1 December to 7 January, the people of Stoneham discussed nothing but their wood responsibility. Eventually they decided to "proportion the above sd. wood . . . according to the province tax upon the inhabitants of sd. Stoneham." The Lexington selectmen voted in mid-December to take 50 cords from town land, then on 1 January to cut 100 cords from town swamp land, and two weeks later to cut another 150 cords from the swamp land (but protect 30 maples at the southwest corner). Finally, at the end of January

[55]Washington to General Court, 2 November 1775, in Force, *American Archives,* 3:1336; James Warren to John Adams, 5 November 1775, in *Papers of John Adams,* 3:281; Chamberlain, *A Documentary History of Chelsea,* 2:508. The army's camp at Cambridge required 24 cords per day, supplied by the following towns, per their quotas: Concord (3), Natick (3), Needham (5), Newton (6), Weston (6), and Waltham (4). The Prospect Hill (Charlestown) camp needed 16 cords per day and was supplied by Lexington (5), Bedford (4), Lincoln (3.5), Wilmington (3.5), and Watertown (3.5). Winter Hill (Medford) used 18 cords per day and was to be supplied by Medford (3), Stoneham (2.5), Malden (3.5), Reading (5), Woburn (5), and Wilmington (1). Finally, the Roxbury camp burned 17 cords per day and was supplied by Roxbury (2), Dedham (3), Stoughton (2), Dorchester (3), Braintree (4), Milton (3), Medfield (2), and Walpole (2). See *Massachusetts House Journals, 1775–1776,* vol. 51, pt. 2, pp. 9, 11. At this rate, the 10,000 cords would last from early November to mid-March. The House gave no explanation why the quotas it imposed exceeded the daily needs at each army camp. Perhaps it was already anticipating a certain lack of compliance on the part of the towns.

the selectmen "Voted to Chuse a Committee to Sell off the remainder of the wood with all the [Pines?] both Standing and fallen in the Town Swamp where it has been already Cutt over for the Use of the Army." Lexington, like Reading, also paid its residents to carry the wood to camp.[56]

The selectmen of Malden sent a petition to the General Court "setting forth the inconvenience attending its supplying the Army with 3 Cords and an half of Wood daily, and praying Relief." In another instance, the rationale for which was not explained, the General Court eased Natick's wood quota by one-third. Other towns—Lincoln, Medford, Newton, Watertown, and Weston among them—held no meetings to discuss the quota, and so we cannot gauge their participation. However, on 26 December the House of Representatives decided to send its members to meet directly with the selectmen of the towns, reiterating "the Distresses of the Army" and "the great Danger the Country is exposed to from a Dispersion of the Army, which must take Place if it is not supplied with Wood." The members hoped to obtain not just the previously established quota amounts but from each town "as much more as they possibly can, at least Half as much more as has been set on them as aforesaid." Perhaps inspired by these face-to-face meetings, the towns of Bedford and Wilmington soon acted, and Concord voted to give twelve shillings per cord above the going rate of twenty-four shillings.[57]

The Massachusetts government did not limit itself to pleading. It had previously allowed people to cut wood from the lots abandoned by loyalists. Because this policy had not yielded a sufficient amount of firewood, the General Court now empowered a committee "to enter the Wood Lands of any Person

[56]Reading, p. 15; Stoneham, n.p.; Lexington, pp. 255–57—all in the first microfilm reel for each town, *Early Massachusetts Records*.

[57]The minutes for the meetings of these towns can be found in *Early Massachusetts Records*. Malden's petition is mentioned in 15 December 1775, *Massachusetts House Journals, 1775–1776*, vol. 51, pt. 2, p. 44. The decision on Natick appears on pp. 14–15 (5 December 1775) of the same, and the House's actions of 16 December and 26 December 1775 on pp. 76–77. Bedford acted on 1 January 1776 (p. 14) and Wilmington on 8 January (p. 159), *Early Massachusetts Records*. For Concord, see p. 433, Concord reel 3.

or Persons within this Colony, and after apprizing the Wood thereon standing and growing, to cause the same to be cut down and carried to the Camp to supply said Army." The committee would pay for all wood obtained in this manner, as well as the wages for the ax men and the owners of any teams used to haul the load away. Given the dire circumstances facing the Continental Army, the government was willing to exert its authority, proclaiming that "if any Person, Owner and Proprietor of such Wood Land, shall molest or hinder the said Committee," the members could "cause such Person to be arrested and sent to this Court, to be dealt with according to the Demerits of his Contempt." Of the fifteen town meeting minute books I have consulted, none even mentioned the new powers the Court was arrogating to itself. The government demanded much of the towns now that war had begun—from equipping troops and paying their wages to forming committees of correspondence, inspection, and safety—and by and large towns understood the new priorities. In describing Concord's unique situation, Robert Gross explained the new circumstances confronting all the towns surrounding Boston: "In the process of fighting the British assault on their autonomy, the townspeople allowed state government to assume extraordinary power over their lives."[58] The Continental Association had required Americans to forego mutton and lamb, and now the Massachusetts General Court forced residents to give up their wood.

Confronting this crisis, the government acted expeditiously, likely without close regard to available supply and almost certainly without concerns about sustainability. In other words, contemporaries may not have investigated, but we certainly can, whether the forests surrounding Boston could offer up enough wood to fulfill Washington's request for 10,000 cords. We can approach the matter by returning to Concord. In 1771 the town covered about 13,000 acres, of which pasture,

[58]23 and 25 December 1775, *Massachusetts House Journals, 1775–1776,* vol. 51, pt. 2, pp. 67, 69, 71; Robert A. Gross, *The Minutemen and Their World* (New York: Hill and Wang, 1976), pp. 133–34, quotation p. 134.

tillage, fresh meadow, and English and upland mowing land totaled about 7,800 acres, woodland about 3,640 acres, and unimproved and unimprovable land about 1,560 acres.[59] Each of Concord's two hundred or so farms burned 20–30 cords of wood each year, for a total expenditure of 4,000–6,000 cords for the entire town.[60] Since an acre of woodland managed for fuel production would yield close to one cord per acre per year, Concord was perched at the brink of having insufficient land to support its fuel needs.[61] In the waning weeks of 1775, the General Court had requested that Concord provide the army with 3 cords of wood a day during the winter, or about 400 cords in all. The residents may have dipped into their own woodpiles, but, more likely, they cut standing timber. If they did so, they would have cleared, beyond their typical usage, approximately 400 additional acres of managed woodland or 25–80 acres of unmanaged forest.[62] While these calculations are fraught with

[59]The pasture, tillage, and meadow acreage was calculated from *Massachusetts Tax Valuation List,* pp. 194–201. Gross estimated that this improved land comprised about 60 percent of all the land in the town: see his "Culture and Cultivation: Agriculture and Society in Thoreau's Concord," *Journal of American History* 69:1 (June 1982): 56, table 1, note d. Elsewhere, he stated that "I have assumed that half of all Concord land was forest and brush in 1749 and have applied a reported Concord figure of 40 percent unimproved in 1784 to the 1771 data" (*Minutemen,* p. 215, n. 38). The 1771 list does not contain the categories "woodland" and "unimproved land," but Gross's data for land use in Concord from 1781 to 1801 show a fairly steady rate of 35–37 percent of the land as woodland combined with unimproved or unimprovable land and about 27.6 percent as just woodland. See "Culture and Cultivation," p. 58, table 4. For my estimates, I have used the figure of 28 percent woodland.

[60]For the figure of 200 farms, see Gross, "Culture and Cultivation," p. 44, and Donahue, *The Great Meadow,* p. 214. Merchant (*Ecological Revolutions,* p. 157) uses the 30 cords per year figure, whereas Michael Williams (*Americans and Their Forests: A Historical Geography* [New York: Cambridge University Press, 1992], p. 78) says that the "typical rural household" used 20–30 cords annually; Donahue (*The Great Meadow,* p. 214) uses a consumption rate of 20 cords per year.

[61]The sustainable yield rate comes from Mollie Beattie, Charles Thompson, and Lynn Levine, *Working with Your Woodland: A Landowner's Guide* (rev. ed., Hanover, N.H.: University Press of New England, 1993), p. 38. Donahue, *The Great Meadow,* states that "By rule of thumb, the sustainable production of New England woodland is one cord per acre per year or perhaps a bit less" (p. 214). I have followed Donahue's lead in combining the acreage of woodland with that of unimproved land because, as he states, "whether such land was cutover woods or overgrown pasture, it was on its way to becoming forest again" (p. 214).

[62]The figure of 400 cords comes from the daily quota multiplied by 133 days, which in turn comes from Washington's request of 10,000 cords divided by the army's usage

imprecision, it seems clear that Concord could not comfortably fulfill the Court's demand for wood.

A number of towns, like Concord, did not respond immediately to the General Court's first call for wood. Such reluctance may have had its roots in environmental realities, not lack of patriotic fervor. "Concord's woodlands were just adequate to supply the inhabitants with fuel indefinitely," Brian Donahue has concluded. This precarious situation almost certainly obtained elsewhere in eastern Massachusetts, and it may have discouraged some farmers from supplying Washington's troops. Concord's farmers, like their fellows in nearby towns, practiced a sustainable, interconnected form of agriculture, where "tillage land, grassland, and woodland were closely balanced against one another." A change in any one landscape, therefore, necessarily altered the others. "Had ways been found to expand the cultivated acreage there might have been more corn to eat and beef to sell," Donahue mused, "but the kitchen would have been colder."[63] Still, Concord did provide wood for the Continental Army. Although a general relationship may have existed between surplus environmental resources and revolutionary enthusiasm, in the case of Concord, townspeople's involvement at the outbreak of hostilities surely would have brushed aside qualms about cutting the community's dwindling woodlands. Having risked their lives, Concordians would not have withheld their wood.

The Good of the Land

Supply problems continued to dog the Continental Army during the early months of 1776. Officers fought over piles of boards needed to complete the task of constructing barracks;

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of 75 cords per day (see n. 55 above). The figure of 25–80 acres of unmanaged forest comes from Beattie, Thompson, and Levine (*Working with Your Woodland,* p. 38), who state, "Typically, an unmanaged New England forest contains from five to fifteen cords of potential fuelwood [per acre] that have accumulated as the stand grew." The 1771 tax list does not enumerate acres of woodland, let alone how much, if any, was unmanaged or "virgin."

[63]Donahue, *The Great Meadow,* pp. 214, 216. For details on the workings of this agricultural system, see chaps. 7–8.

a soldier was charged with the "crime" of "getting wood"; and flour supplies ran dangerously low. Bostonians continued to suffer as the blockade wore on. On 13 March 1776, Timothy Newell saw "Soldiers and sailors plundering . . . houses, shops, warehouses—Sugar and salt &c. thrown into the River, which was greatly covered with hogsheads, barrels of flour, house furniture, carts trucks &c. &c." Even after the British forces departed four days later, the Massachusetts House of Representatives had to appropriate £1,000 so that the Continental Army could purchase firewood. However, with British troops finally gone from Boston (their occupation began in September 1768), the people of Massachusetts rejoiced, as their doubts lifted and their tensions eased. "I feel very differently at the approach of spring to what I did a month ago," wrote Abigail Adams to her husband at the end of March. "We knew not then whether we could plant or sow with safety, whether when we had toild we could reap the fruits of our own industery, whether we could rest in our own Cottages, or whether we should not be driven from the sea coasts to seek shelter in the wilderness, but now we feel as if we might sit under our own vine and eat the good of the land."[64]

This new day would not shine as brightly in other places. Jonathan Green's farm in Chelsea felt the ravages of the blockade as soldiers—Americans, not British—feasted on the products of his land and labor. During the summer and fall of 1775, Green lost 30 bushels each of green peas, cherries, and pears; 10 bushels each of potatoes and roasting ears of corn; 5 bushels of turnips; 500 cabbages; and enough apples to make 30 barrels of cider. In fact, Green's accounting helps explain how American soldiers enhanced, or offset shortages in, their official rations of bread, meat, beer, rice, and peas. The soldiers also destroyed 4 tons of his grass and hay by tromping and lying

[64]Capt. Richard Dodge to Col. Loammi Baldwin, 2 February 1776, in Chamberlain, *Documentary History of Chelsea*, 2:471; "Return of the Guards Camp on Winter Hill," 20–23 January 1776, in Sullivan, "Revolutionary War Orderly Books"; Col. Joseph Trumbull to Col. Jabez Huntington, 13 January 1776, Huntington-Wolcott Papers, 1698–1778, Ms. N-1456, MHS; Newell, "A Journal," p. 274; 20 March 1776, *Massachusetts House Journals, 1776*, vol. 51, pt. 3, p. 24; Abigail Adams to John Adams, 31 March 1776, in *Adams Family Correspondence*, 1:370.

upon it and by allowing livestock to graze freely in the fields and pastures. Such destruction would have prevented Green from contributing to the General Court's hay quota. Elsewhere, the war marked the land more permanently. A gazetteer in 1785 observed that Roxbury, a town of about 7,100 acres, had its woods "very considerably lessened in consequence of the extraordinary demand for the use of the American army encamped in and near the town, in the winter of 1775; there now remains about 550 acres of wood land," or only about 8 percent of the total area.[65]

Such changes came at a pivotal moment in the history of the New England environment and the nascent United States. Americans cut the forests and spared the sheep because an embryonic national and state government, as well as the military force they created, needed fuel and wool. As these institutions accrued more and more authority in a time of war, they began to mold a relationship between Americans and their environment that has since developed into a twenty-first-century society of regulations and controls. Coincidentally, the Revolution unleashed new ideas about equality. Old notions of hierarchy fell away before attacks on all sorts of distinctions, ranging from clothing and forms of address to concepts of human nature and moral character. Robert Gross has argued that in Concord, this change meant "the old deference to magistrates had weakened, and representatives were being treated not as 'fathers' but as hired agents of the people. The citizens of Concord were taking control of their political lives." The people used such opportunities "to alter their own lives, to think new thoughts, to act on the best ideas of mankind, to liberate themselves from the dead weight of the past."[66] That dead weight included the sustainable but limiting agricultural practices of the eighteenth century. By the first half of the nineteenth century, the people

[65]Chamberlain, *A Documentary History of Chelsea,* 2:475–77; *Geographical Gazetteer of the Towns in the Commonwealth of Massachusetts* (Boston: Greenleaf and Freeman, 1784–85), Evans fiche 44535.

[66]For notions of equality, see Gordon S. Wood, *The American Revolution: A History* (New York: Modern Library, 2002), pp. 100, 120–21; for an extended discussion of the changes caused by the Revolution, see his *The Radicalism of the American Revolution* (New York: Knopf, 1992). Gross, *Minutemen,* p. 191.

of Concord had come to embrace commercial dairy farming and had immersed themselves in the market economy. They cut the forests back to only one-tenth of the town's land to make way for the hayfields and pastures the dairy cows required. The American Revolution ushered in a new age, and the market economy spread to every corner of the land, profoundly affecting how Americans thought about and used the environment.[67]

In 1775 and 1776, however, this America—revolutionary in its social structure, government, economy, and use of the environment—lay beyond the horizon, hidden from those engaged in the War for Independence. But the struggles that America and Great Britain endured, shaped by the environmental necessities and realities of that first year, set the stage for much of what was to come.

[67]Donahue, *The Great Meadow*, p. 228. Ted Steinberg, *Down to Earth: Nature's Role in American History* (New York: Oxford University Press, 2002), p. xi, argues that the commodification of nature was the single most important force shaping the environmental history of the United States.

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