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Author(s): Elizabeth A. Fenn

Source: *The Journal of American History*, Vol. 86, No. 4 (Mar., 2000), pp. 1552-1580

Published by: [Organization of American Historians](#)

Stable URL: <http://www.jstor.org/stable/2567577>

Accessed: 03/09/2010 07:57

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# Biological Warfare in Eighteenth-Century North America: Beyond Jeffery Amherst

Elizabeth A. Fenn

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Did he or didn't he? For generations, the Amherst–smallpox blanket episode has elicited animated debate both within and beyond academic circles. In books, journals, and now in internet discussion groups, historians, folklorists, and lay people have argued the nuances of the case. Some have contended that at Gen. Jeffery Amherst's orders, British subordinates at Fort Pitt in 1763 did indeed infect local Indians with items taken from a nearby smallpox hospital. Others have argued that they did not, that the British lacked the knowledge, the ability, or the desire to do so. Still others have claimed that regardless of intent, the timing is wrong, that the Indians around Fort Pitt came down with smallpox well before the damning exchange of letters between Jeffery Amherst and his subordinate Henry Bouquet, and that in fact they were sick even before they received "two Blankets and an Handkerchief" out of the post's smallpox hospital. Finally, and perhaps predictably, a recent article has focused on the incident's genesis as a highly mutable cross-cultural legend that reflects deep anxieties about encounters with the "other."<sup>1</sup>

Elizabeth A. Fenn is an assistant professor of history at George Washington University. This essay received the Louis Pelzer Memorial Award for 1999.

I am grateful to John Mack Faragher for suggesting that I write this article and for commenting on an early draft. Wayne Lee shared important references with me and helped me locate the essay in the field of military history. Members of the Michigan Colonial Studies Seminar and the Michigan History of Medicine and Health Colloquium provided helpful critiques of an earlier version, as did the Faculty and Graduate Student Seminar at the University of South Florida department of history. Further insights, references, and assistance came from Holly Brewer, Erika Bsumek, John Dann, Pat Galloway, Don Higginbotham, Margaret Humphreys, Paige Raibmon, Neal Salisbury, Mark Wheelis, and Peter Wood, as well as the editors and anonymous reviewers of the *Journal of American History*. Financial support came from the Charlotte W. Newcombe Foundation.

<sup>1</sup> William Trent, "William Trent's Journal at Fort Pitt, 1763," ed. A. T. Volwiler, *Mississippi Valley Historical Review*, 11 (Dec. 1924), 400. For an excellent appraisal of the Fort Pitt episode that places it in the context of the larger and more complicated struggle for control of the Ohio Valley, see Michael-N. McConnell, *A Country Between: The Upper Ohio Valley and Its Peoples, 1724–1774* (Lincoln, 1992), 194–96. For an example of an Internet discussion devoted to biological warfare and smallpox, see the H-OIEAHC discussion log for April 1995, available at <http://www.h-net.msu.edu/logs/>. For the contention that the attempt at biological warfare was "unquestionably effective at Fort Pitt," see Francis Jennings, *Empire of Fortune: Crowns, Colonies, & Tribes in the Seven Years War in America* (New York, 1990), 447–48, 447n26. On the issue of timing, see Bernhard Knollenberg, "General Amherst and Germ Warfare," *Mississippi Valley Historical Review*, 41 (Dec. 1954), 489–94; Bernhard Knollenberg to editor, "Communications," *Mississippi Valley Historical Review*, 41 (March 1955), 762; and Donald H. Kent, to editor, *ibid.*, 762–63. For a cross-cultural analysis of the incident's place in a pantheon of other such "legends," see Adrienne Mayor, "The Nessus Shirt in the New World: Smallpox Blankets in History and Legend," *Journal of American Folklore*, 108 (Winter 1995), 54–77.

What follows is not an attempt to condemn or exonerate Jeffery Amherst. The man's documentary record speaks loudly enough regarding his character, if not regarding his ultimate culpability for the smallpox that struck Indians near Fort Pitt in 1763 and 1764. Nor is this essay an exhaustive accounting of all the accusations and incidents of biological warfare in late-eighteenth-century North America. It is, however, an attempt to broaden the debate and to place it in context.<sup>2</sup> Our preoccupation with Amherst has kept us from recognizing that accusations of what we now call biological warfare—the military use of smallpox in particular—arose frequently in eighteenth-century America. Native Americans, moreover, were not the only accusers. By the second half of the century, many of the combatants in America's wars of empire had the knowledge and technology to attempt biological warfare with the smallpox virus. Many also adhered to a code of ethics that did not constrain them from doing so. Seen in this light, the Amherst affair becomes not so much an aberration as part of a larger continuum in which accusations and discussions of biological warfare were common, and actual incidents may have occurred more frequently than scholars have previously acknowledged.

### Fort Pitt, 1763

The most famous “smallpox blanket” incident in American history took place in the midst of Pontiac's Rebellion in 1763. In May and June of that year, a loose confederation of tribes inspired by the Ottawa war leader Pontiac launched attacks on British-held posts throughout the Great Lakes and Midwest. On May 29, 1763, they began a siege of Fort Pitt, located in western Pennsylvania at the confluence of the Allegheny and Monongahela rivers. The officer in charge at Fort Pitt was the Swiss-born captain Simeon Ecuyer. On June 16, 1763, Ecuyer reported to Col. Henry Bouquet at Philadelphia that the frontier outpost's situation had taken a turn for the worse. Local Indians had escalated the hostilities, burning nearby houses and attempting to lure Ecuyer into an engagement beyond the walls of the well-protected post, where traders and colonists, interlopers on Indian lands, had taken refuge. “We are so crowded in the fort that I fear disease,” wrote Ecuyer, “for in spite of all my care I cannot keep the place as clean as I should like; moreover, the small pox is among us. For this reason I have had a hospital built under the bridge beyond musket-fire.” Henry Bouquet, in a letter dated June 23, passed the news on to Jeffery Amherst, the British commander in chief, at New York. “Fort Pitt is in good State of Defence against all attempts from Savages,” Bouquet reported, but “Unluckily the small Pox has broken out in the Garrison.”<sup>3</sup> By June 16, then, from sources unknown, small-

<sup>2</sup> A thorough appraisal of the use of biological warfare in the prescientific era can be found in Mark Wheelis, “Biological Warfare before 1914,” in *Biological and Toxin Weapons: Research, Development, and Use from the Middle Ages to 1945*, ed. Erhard Geissler and John van Courtland Moon (Oxford, 1999), 8–34.

<sup>3</sup> For a summary of the documentation of this incident, see Knollenberg, “General Amherst and Germ Warfare,” 489–94; and Kent to editor, “Communications,” 762–63. While my conclusions differ from Knollenberg's, much of the evidence consulted is the same. Simeon Ecuyer to Henry Bouquet, June 16, 1763 [translation], in *The Papers of Col. Henry Bouquet*, ed. Sylvester K. Stevens and Donald H. Kent (30 series, Harris-

pox had established itself at Fort Pitt. It is likely that Amherst knew of the situation by the end of June.

But it was not Amherst, apparently, who first proposed the use of smallpox against the Delaware, Shawnee, and Mingo Indians surrounding Fort Pitt. Nor was it Amherst who executed the scheme. While the actual provenance of the plan remains unclear, a brief description of the deed itself appears in the diary of William Trent, a trader and land speculator with ties to the more prominent George Croghan. On June 23, the very day that Bouquet penned his letter to Amherst from Philadelphia, Trent reported that two Delaware dignitaries, Turtle's Heart and Mamaltee, visited Fort Pitt late at night and asked to speak with post officials. A conference took place the following day, June 24, in which the Indians urged the British to abandon the fort, and the British, for their part, refused. The parleys came to a close, and the Indians asked for "a little Provisions and Liquor, to carry us Home." The British obliged their request. "Out of our regard to them," wrote William Trent, "we gave them two Blankets and an Handkerchief out of the Small Pox Hospital. I hope it will have the desired effect."<sup>4</sup> He does not mention who conceived the plan, and he likewise does not mention who carried it out, but Fort Pitt account books make it clear that the British military both sanctioned and paid for the deed. The records for June 1763 include this invoice submitted by Levy, Trent and Company:

To Sundries got to Replace in kind those which were taken from people in the Hospital to Convey the Smallpox to the Indians Viz<sup>t</sup>:

2 Blankets . . . . .	@ 20/	£2''	0''	0
1 Silk Handkerchef . . . . .	10/			
& 1 linnen do: . . . . .	3/6	0''	13''	6

Captain Ecuyer certified that the items "were had for the uses above mentioned," and Gen. Thomas Gage ultimately approved the invoice for payment, endorsing it with a comment and his signature.<sup>5</sup>

Had Jeffery Amherst known of these actions, he certainly would have approved. From the safety of his New York headquarters, he laid forth his own strategy for bio-

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burg, 1940–1943), series 21649, part 1, p. 153. The series numbers cited here correspond to the Additional Manuscripts classification of the British Museum, London, where the original manuscripts are stored. These numbers are also printed in the published version of the papers. Because libraries holding the published *Papers of Col. Henry Bouquet* have bound them in a variety of configurations, I have cited the series number rather than the volume number to make the precise location of each reference clear. Bouquet to Jeffery Amherst, June 23, 1763, *ibid.*, ser. 21634, p. 196.

<sup>4</sup>Alexander McKee gives the name of the second Delaware representative as "Maumaidtee." Alexander McKee, Report of Speeches of the Delaware Indians [addressed to George Croghan], Fort Pitt, June 24, 25, 1763, in *Papers of Col. Henry Bouquet*, ed. Stevens and Kent, ser. 21655, p. 210; Trent, "William Trent's Journal at Fort Pitt," ed. Volwiler, 400.

<sup>5</sup>Levy, Trent and Company: Account against the Crown, Aug. 13, 1763, in *Papers of Col. Henry Bouquet*, ed. Stevens and Kent, ser. 21654, pp. 218–19. While the account was submitted for payment in August, the items in it are all listed under the date "1763 June." As Mark Wheelis has pointed out, readers should note that William Trent refers to a single handkerchief in his journal, while the invoice is for two: one silk, one linen. Wheelis, "Biological Warfare before 1914," 23n73.



Sir Jeffery Amherst, K.B., painted by Joshua Reynolds, engraved by James Watson. In July 1763, Amherst asked Col. Henry Bouquet whether it could be “contrived” to “Send the Small Pox among those Disaffected Tribes” around Fort Pitt.

*Courtesy National Archives of Canada/C-040905.*

logical warfare in early July, prompted no doubt by Bouquet’s letter of June 23 informing him that smallpox had broken out at the Monongahela post. In an undated memorandum that is apparently a postscript to a letter of July 7, 1763, Amherst proposed the following to Bouquet: “Could it not be contrived to Send the *Small Pox* among those Disaffected Tribes of Indians? We must, on this occasion, Use Every Stratagem in our power to Reduce them.” Bouquet, now at Carlisle en route to Fort Pitt with reinforcements, replied on July 13, also in postscript: “I will



Col. Henry Bouquet responded warmly to General Amherst's proposal to spread smallpox, but he expressed concern over the possibility that he might catch the contagion himself. Because smallpox was endemic in Europe, most Europeans went through it in childhood and thus were immune as adults. The Swiss-born Bouquet must have somehow escaped the disease. The documents currently available do not reveal whether he ever carried out Amherst's suggestion.

*Courtesy National Archives of Canada/C-004464.*

try to inoculate the Indians by means of Blankets that may fall in their hands, taking care however not to get the disease myself." To this Amherst responded approvingly on July 16. "You will Do well to try to Inoculate the Indians by means of Blanketts, as well as to try Every other method that can serve to Extirpate this

Execrable Race.”<sup>6</sup> Unbeknownst to both Bouquet and his commander in chief, their subordinates at Fort Pitt had already conceived and executed the very plan proposed. If the garrison at Fort Pitt perpetrated a second, later act of biological warfare at Amherst’s behest, the documents currently available make no mention of it.

What the documents do show, however, is that smallpox struck hard among the Indians around Fort Pitt in the spring and summer of 1763. On April 14, 1764, a man named Gershom Hicks arrived at the British post, having escaped from the Shawnee and Delaware Indians who had held him captive since May 1763. In a deposition taken the day of his arrival, Hicks reported “that the Small pox has been very general & raging amongst the Indians since last spring and that 30 or 40 Mingoes, as many Delawares and some Shawneese Died all of the Small pox since that time, that it still continues amongst them.” Five months later, in September 1764, the epidemic continued to wreak havoc among the Shawnees. “Y<sup>e</sup> poor Rascals are Dieing very fast with y<sup>e</sup> small pox,” reported Col. Andrew Lewis from Virginia’s Blue Ridge Mountains; “they can make but Lttle Resistance and when Routed must parish in great Numbers by y<sup>e</sup> Disordere.” Accounts of the plague continued to circulate as late as 1765, when Killibuck, a prominent Delaware leader, told the Indian agent William Johnson of the destruction it had wrought. “The Shawanes lost in three Months time 149 Men besides Women & Children by Sickness above a year ago,” Killibuck reported; “also many of them dyed last Summer of the Small Pox, as did Several of their Nation.” As the historian Michael McConnell has pointed out, it is possible and perhaps likely that the epidemic stemmed from multiple sources of infection. John M’Cullough, a fifteen-year-old captive among the Indians, reported that the disease took hold after an attack on some settlers sick with the smallpox along central Pennsylvania’s Juniata River. The timing, however, is uncanny: the eruption of epidemic smallpox in the Ohio country coincided closely with the distribution of infected articles by individuals at Fort Pitt.<sup>7</sup> While

<sup>6</sup>Memorandum by Sir Jeffery Amherst, [July 7, 1763], in *Papers of Col. Henry Bouquet*, ed. Stevens and Kent, ser. 21634, p. 161. (Stevens and Kent tentatively assign the undated document the date of May 4, 1763, but this is apparently an error.) Bouquet to Amherst, Aug. 11, 1763, *ibid.*, 243; Bouquet to Amherst, July 13, 1763, in Jeffery Amherst, *Official Papers, 1740–1783* (microfilm, 202 reels, World Microfilms Publications, 1979), reel 32, frame 305. The published typescript of this last document deviates in important ways from the original. See Bouquet to Amherst, July 13, 1763, in *Papers of Col. Henry Bouquet*, ed. Stevens and Kent, ser. 21634, p. 214. For the July 16 letter, see Amherst to Bouquet, July 16, 1763, in Amherst, *Official Papers*, reel 33, frame 114. Here the deviations in the published typescript are insignificant. See Memorandum by Sir Jeffery Amherst, [July 16, 1763], in *Papers of Col. Henry Bouquet*, ed. Stevens and Kent, ser. 21634, p. 161. (Stevens and Kent tentatively assign the date of May 4, 1763, to this document as well, but this is incorrect.)

<sup>7</sup>Deposition of Gershom Hicks, April 14, 1764, in *Papers of Col. Henry Bouquet*, ed. Stevens and Kent, ser. 21650, part 1, p. 102. Five days later, under pressure from Fort Pitt officials, Hicks recanted much of his testimony and de-emphasized the Indians’ martial intentions. He apparently made no reference to smallpox in his second deposition. William Grant, Re-Examination of Gershom Hicks, in *Papers of Col. Henry Bouquet*, ed. Stevens and Kent, ser. 21651, pp. 7–10. For more on Hicks, see Edward Ward to Sir William Johnson, May 2, 1764, in *The Papers of Sir William Johnson*, ed. Milton W. Hamilton (14 vols., Albany, 1921–1965), XI, 169–71. On the Virginia Indians, see Andrew Lewis to Bouquet, Sept. 10, 1764, in *Papers of Col. Henry Bouquet*, ed. Stevens and Kent, ser. 21650, part 2, p. 127. For Killibuck’s account, see William Johnson, Journal of Indian Affairs, [Johnson Hall, March 1–3, 1765], in *Papers of Sir William Johnson*, ed. Hamilton, XI, 618. On the possibility of multiple sources of infection, see McConnell, *Country Between*, 195–96. M’Cullough’s report is in Archibald Loudon, ed., *A Selection, of Some of the Most Interesting Narratives, of Outrages, Committed by the Indians, in Their Wars, with the White People* (1808; 2 vols., New York, 1977), I, 331. Knollenberg has emphasized Gershom Hicks’s testimony

blame for this outbreak cannot be placed squarely in the British camp, the circumstantial evidence is nevertheless suggestive.

Usually treated as an isolated anomaly, the Fort Pitt episode itself points to the possibility that biological warfare was not as rare as it might seem. It is conceivable, of course, that when Fort Pitt personnel gave infected articles to their Delaware visitors on June 24, 1763, they acted on some earlier communication from Amherst that does not survive today.<sup>8</sup> The sequence of events, however, makes it more likely that Amherst and Fort Pitt authorities conceived of the idea independently. In each case, the availability of contagious material (thanks to the smallpox epidemic at the post itself) seems to have triggered the plan of infection. Ecuyer reported the outbreak at Fort Pitt on June 16, and the attempt to communicate the disease took place eight days later. Amherst learned of the outbreak in Bouquet's letter of June 23, and the commander in chief proposed his own scheme on July 7. The fact that a single wartime outbreak could prompt two independent plans of contagion suggests that the Fort Pitt incident may not have been an anomaly. Evidence from other fields of battle indicates that in the minds of many, smallpox had an established, if irregular, place in late-eighteenth-century warfare.

### Why Smallpox?

As the twenty-first century begins, smallpox remains the only disease known that is appropriately discussed in the past tense. On May 8, 1980, the World Health Organization confirmed that after two thousand years of human suffering, smallpox had been eradicated from the world. A physical reminder of this triumph still appears in the mottled vaccination scar that most Americans born before 1971 bear on one upper arm. In 1971, the United States dropped smallpox from its routine immunization protocol, and unless they have traveled abroad, Americans born after that date have no such scar. Today, despite rumors of clandestine supplies of the virus, smallpox no longer poses an immediate public health threat.<sup>9</sup>

In the late eighteenth century, however, smallpox was the most fearsome disease

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that smallpox had ravaged the Indians "since last spring." He believes this means the disease was present among nearby tribes even before Fort Pitt personnel distributed the infected blankets on June 24. While it is possible that Knollenberg is right, he may also be investing too much precision into what Hicks intended as a general statement. Hicks had only been captured in May, and June might well be considered "spring" in the hills of western Pennsylvania. Knollenberg, "General Amherst and Germ Warfare," 494.

<sup>8</sup> Such a communication might have been either written or oral in form. It is also possible that documents relating to such a plan were deliberately destroyed.

<sup>9</sup> For the eradication certificate, see F. Fenner et al., *Smallpox and Its Eradication* (Geneva, 1988), frontispiece. On clandestine supplies, see "Virus in the Deep-Freeze," *U.S. News & World Report*, Oct. 2, 1995, p. 27; Richard Preston, "The Bioweaponers," *New Yorker*, March 9, 1998, pp. 62–65; and *New York Times*, June 13, 1999, pp. A1, A12. The United States announced on April 22, 1999, that it would not destroy its stores of the smallpox virus in large part because of the threat of bioterrorism: *New York Times*, April 23, 1999, p. A3. On the possibility that smallpox could be released in the course of archaeological excavations, see Joseph Kennedy, "The Archaeological Recovery of Smallpox Victims in Hawaii: Scientific Investigation or Public Health Threat?," *Perspectives in Biology and Medicine*, 37 (Summer 1994), 499–510; Peter Razzell, "Smallpox Extinction—a Note of Caution," *New Scientist*, July 1, 1976, p. 35; and W. B. Ewart, "Causes of Mortality in a Subarctic Settlement (York Factory, Man.) 1713–1946," *Canadian Medical Association Journal*, 129 (Sept. 1983), 571–74.

known. In his characteristic prose, the British historian Thomas Macaulay later described it as “the most terrible of all the ministers of death.” The charge of deliberate propagation of the disease was thus extremely serious, but it was also surprisingly common. In this regard, smallpox was unique among plagues, for it stands nearly alone in the annals of eighteenth-century biological warfare. This was the case in part because of the nature of smallpox itself and in part because of the world’s rather extraordinary understanding of the illness even before Edward Jenner developed cowpox vaccination in 1796 and published his findings in 1798.<sup>10</sup>

Smallpox was caused by a virus called *Variola*.<sup>11</sup> For twelve days after infection occurred, the *Variola* virus circulated through the body while victims remained unaware that they incubated the disease. Then, usually on the twelfth day, influenza-like symptoms struck, typified by fever, headache, backache, vomiting, and, in some patients, a profound emotional despondency. Unless sufferers knew they had been exposed to smallpox, the diagnosis often did not become clear until day fifteen or sixteen, when the classic rash appeared.

The physical presentation of the rash served as a fairly accurate indicator of a patient’s prognosis. If it turned inward and hemorrhaged beneath the skin, death was nearly inevitable and came quickly. This was rare, but it occurred most often among pregnant women. More typically, the characteristic pustules pushed through the skin surface, covering all of the body but concentrating most densely on the face and extremities, including the soles of the feet and palms of the hands. Some individuals developed confluent smallpox, in which the pustules ran together into one painful, oozing mass. Most of those unlucky sufferers died.<sup>12</sup> More frequently, however, the pustules remained discrete, and the disease pursued its course. The rash began drying out sometime in the third week. By the time a month had passed (four to five weeks after the initial infection occurred), most of the scabs had fallen off, leaving telltale scars behind to mark the patient as a survivor.

The consequences varied. Besides scarring and death, they could include blindness and bone deformity. For expecting mothers, smallpox usually resulted in premature termination of pregnancy. For children, there are indications that the disease may have stunted growth.<sup>13</sup> But for all smallpox survivors, the negative consequences of the disease had to be balanced against its ultimate reward—lifelong immunity. An individual who had lived through smallpox would never get the disease again.

<sup>10</sup> Thomas Babington Macaulay, *The History of England from the Accession of James the Second*, ed. Charles Harding Firth (6 vols., London, 1914), V, 2468; Edward Jenner, *An Inquiry into the Causes and Effects of Variolae Vaccinae or Cow-Pox* (London, 1798).

<sup>11</sup> Modern medical science has recognized two strains of the virus: *Variola major* and *Variola minor*. *Variola minor*, however, did not emerge until the closing years of the nineteenth century. Fenner et al., *Smallpox and Its Eradication*, 242–43.

<sup>12</sup> Hemorrhagic smallpox, according to A. Ramachandra Rao’s study of approximately 7,000 cases of smallpox, occurred in only 2.4 percent of all cases; it was, however, notably more common among women, occurring in 22 percent of smallpox cases among pregnant women. Rao also reports that 62 percent of patients with confluent smallpox died. A. Ramachandra Rao, *Smallpox* (Bombay, 1972), 8, 126, 25.

<sup>13</sup> Fenner et al., *Smallpox and Its Eradication*, 55; Hans-Joachim Voth and Timothy Leunig, “Did Smallpox Reduce Height? Stature and the Standard of Living in London, 1770–1873,” *Economic History Review*, 49 (no. 3, 1996), 541–60.



This twentieth-century smallpox patient was photographed in the Ivory Coast. The disease usually left its victims scarred for life.

World Health Organization photograph, A014034.

*Courtesy National Library of Medicine.*

Infection with *Variola* occurred by direct or indirect contact between human beings. There was no animal reservoir for smallpox. Nor was it transmitted by food, water, or a nonhuman vector such as the mosquito. Most often, *Variola* gained entrance to a potential victim through the respiratory tract, either by direct inhalation or by finger-borne contamination. Transmission could also occur through an open wound in the skin, but with the exception of deliberate cases of inoculation,

this was relatively rare. In “naturally” acquired smallpox, respiratory tract contamination was far more common.<sup>14</sup>

Typically, infection took place when a sick person coughed or sneezed in the presence of a susceptible individual, especially during the first week of the rash when the mucous membranes of the mouth and throat were severely affected. Viral shedding was heaviest in such oropharyngeal secretions, but patients also released viable virus in urine, scabs, and the fluid of unhealed skin lesions. Scabs were probably the least infectious of these forms, because they buried the *Variola* virus in dried pustular matter. Far more contagious were desiccated droplets from skin lesions, nasal secretions, and saliva.<sup>15</sup>

The survival of viable virus in these dried-out bodily secretions meant that while face-to-face contact was the most common way of transmitting smallpox, it was certainly not the only way. Susceptible individuals might contract the disease by shaking out bedclothes, sweeping the floor, or doing anything else that caused viral particles to become airborne. Documented twentieth-century smallpox outbreaks have occurred among workers handling hospital laundry at a considerable distance from the hospital itself.<sup>16</sup> The implications for eighteenth-century studies are clear: the disease certainly could have spread by means of “two Blankets and an Handkerchief” from a smallpox hospital. And it could have spread by other means as well.

Eighteenth-century Americans, regardless of ethnic, social, or economic background, had never heard of a virus. In 1683, Anthony van Leeuwenhoek had observed bacteria, which he called “animalcules,” through his microscope, but germ theory was barely nascent. Nevertheless, when it came to smallpox, hard experience had taught people important principles of both contagion and prevention. Because its features were so distinctive and because incidents of smallpox usually came after some kind of contact with a sick individual, the contagious nature of the disease was relatively easy to discern. This was not the case with infections such as typhus (usually transmitted by lice), bubonic plague (transmitted by fleas from rats), yellow fever (transmitted by mosquitoes), malaria (also transmitted by mosquitoes), cholera (transmitted by water), or even tuberculosis (which might remain latent for years).<sup>17</sup> Such diseases, obscure in their etiology, might well be attributed to swamp gases, moral turpitude, or astrological phenomena. But not smallpox.

“No condition of air &c can produce the small-pox,” wrote Dr. William Douglass of Boston in 1722, “without some real communication of infection from a small-

<sup>14</sup> Fenner et al., *Smallpox and Its Eradication*, 186–87, 1322–33.

<sup>15</sup> *Ibid.*, 182–87; and A. W. Downie et al., “The Recovery of Smallpox Virus from Patients and Their Environment in a Smallpox Hospital,” *Bulletin of the World Health Organization*, 33 (1965), 615–22.

<sup>16</sup> Studies indicate that *Variola* virus in scabs “could retain infectivity at room temperature for years.” Fenner et al., *Smallpox and Its Eradication*, 115–16, table 2.11. On laundry workers and the survival of smallpox in cotton and bedding, see Downie et al., “Recovery of Smallpox Virus,” 622; C. O. Stalleybrass, *The Principles of Epidemiology and the Process of Infection* (London, 1931), cited in Fenner et al., *Smallpox and Its Eradication*, 194; Cyril William Dixon, *Smallpox* (London, 1962), 300–302, 419–21; and F. O. MacCullum and J. R. McDonald, “Survival of Variola Virus in Raw Cotton,” *Bulletin of the World Health Organization*, 16 (1957), 247–54.

<sup>17</sup> On Anthony van Leeuwenhoek, see W. Barry Wood Jr., *From Miasmas to Molecules* (New York, 1961), 14–16. On the etiology of the diseases listed, see Bernard D. Davis et al., *Microbiology: Including Immunology and Genetics* (Hagerstown, 1973), 780, 803–4, 851–52, 904–8, 1379, 1384–87.

pox illness." Most eighteenth-century Americans familiar with the disease understood this; hence they implemented quarantine when smallpox struck. In 1721, when two men sick with smallpox turned up on a ship in Boston harbor, the town selectmen isolated them in a house marked by a red flag and then hired a nurse and posted guards to enforce the quarantine. Similarly, when smallpox broke out among the Creek Indians of Georgia and Alabama in 1748, unaffected members of the tribe followed the trader James Adair's advice "to cut off every kind of communication" with the infected towns. Near Charleston, South Carolina, in 1760, the governor ordered sentinels stationed outside the home of a woman who came down with smallpox. Eight years later, to control a particularly deadly outbreak, officials in Williamsburg, Virginia, imposed a three-week quarantine on anyone with symptoms of the disease.<sup>18</sup>

Even where legally imposed quarantine did not exist, susceptible Americans took pains to avoid contact with individuals and locales infected with the disease. In February 1763, a young Thomas Jefferson canceled his plans to visit Williamsburg when he learned that the ailment had taken hold there. "The small pox is in town," he wrote to Dr. John Page, "so you may scratch out that sentence of my letter wherein I mentioned coming to Williamsburgh so soon." When the British evacuated Boston in March 1776, Abigail Adams could barely contain her eagerness to return to the city, but she checked herself because the troops had left rampant smallpox in their wake. "Do not you want to see Boston," she wrote to her husband John; "I am fearfull of the small pox, or I should have been in before this time." Three years later the pox struck the Moravian settlement of Salem, North Carolina. "This condition practically cut off all intercourse with Salem, and if people came or passed through they were afraid," noted one diarist.<sup>19</sup>

If people understood that contact with sick individuals could spread smallpox, they knew that contaminated objects could pass on the disease as well. In November 1775, when an overzealous revolutionary took "hospital stores consisting of blankets, sheets and shirts" from the British barracks in New York, the Provincial Congress ordered the items returned. "If we had sent the Blankets up to the [Continental] Army we might in all Probability have Poisoned the Northern Army by sending the

<sup>18</sup> William Douglass to Cadwallader Colden, May 1, 1722, in "Letters from Dr. William Douglass to Dr. Cadwallader Colden of New York," ed. Jared Sparks, *Collections of the Massachusetts Historical Society*, 32 (1854), 168. This episode led to one of the most famous smallpox epidemics in American history, culminating in the "inoculation controversy" and the fire-bombing of Cotton Mather's house. Ola Elizabeth Winslow, *A Destroying Angel: The Conquest of Smallpox in Colonial Boston* (Boston, 1974), 44–45. On the fire-bombing, see Cotton Mather, *The Diary of Cotton Mather*, ed. Worthington Chauncey Ford, *Collections of the Massachusetts Historical Society*, 68 (1912), 657–58. On the Creek Indians, see James Adair, *Adair's History of the American Indians*, ed. Samuel Cole Williams (1930; New York, 1966), 364. On the Charleston outbreak, see Suzanne Krebsbach, "The Great Charlestown Smallpox Epidemic of 1760," *South Carolina Historical Magazine*, 97 (Jan. 1996), 30–37. On Williamsburg, see Wyndham B. Blanton, *Medicine in Virginia in the Eighteenth Century* (Richmond, 1931), 285, 287; and John Duffy, *Epidemics in Colonial America* (Baton Rouge, 1953), 39.

<sup>19</sup> Thomas Jefferson to John Page, Jan. 20, 1763, in *Papers of Thomas Jefferson*, ed. Julian P. Boyd (27 vols., Princeton, 1950–), I, 8; Abigail Adams to John Adams, March 31, 1776, in *The Book of Abigail and John: Selected Letters of the Adams Family, 1762–1784*, ed. L. H. Butterfield, Marc Friedlander, and Mary-Jo Kline (Cambridge, Mass., 1975), 120; "From the Bagge MS. 1779," in *Records of the Moravians in North Carolina*, ed. Adelaide L. Fries (8 vols., Raleigh, 1922–1969), III, 1283.

small Pox among them,” the Congress explained. Less than a year later, in April 1776, the Virginia Committee of Safety authorized the payment of £38.18.6 to Capt. James Grier, “the amot. of the valuation of sundry clothes belonging to his Company, burnt at Fredericksburg . . . to prevent the spreading of the Small pox with which it was Supposed they were infected.” When a soldier died of smallpox in Richmond in 1781, the commissary supplied the African American man who had nursed him with “a Jacket with sleeves, a pair of Breeches, a Shirt, and a pair of Stockings” in order “that his own may be destroyed.”<sup>20</sup> Yet as the Fort Pitt incident shows, this valuable knowledge could serve two masters: while it helped people to control the disease, it also enabled them to spread it.

The same was true of inoculation, a powerful new weapon in the eighteenth-century anti-smallpox arsenal. In fact, inoculation was steeped in controversy precisely because it both controlled smallpox and contributed to its spread. Also called “variolation,” inoculation had seen use for hundreds of years elsewhere in the world before Europeans learned of the procedure. Then, at virtually the same moment, in the four-year period from 1713 to 1717, Europeans around the globe latched onto the practice and sent word of it home. The timing was perhaps not coincidental, for smallpox had already begun a resurgence in Europe that would last through the rest of the century. Inoculation’s two most famous popularizers were the Englishwoman Mary Wortley Montague and the American minister Cotton Mather. Montague learned of the practice in Constantinople, where her husband served as Britain’s ambassador to Turkey. Mather learned of it in Boston from his slave Onesimus, one of thousands of Akan-speaking “Coromantee” slaves forcibly exported from Africa’s Gold Coast to the colonies of the New World.<sup>21</sup>

The practice of inoculation was indeed remarkable, but modern readers must not confuse it with *vaccination*, the much safer procedure that Edward Jenner developed in 1796 utilizing the cowpox virus. *Inoculation*, by contrast, entailed deliberate infection with *Variola*. By implanting infectious smallpox material in an open wound, physicians learned that in most cases they could bring on a milder form of the disease than when the infection occurred “naturally.” It is a phenomenon that eludes medical explanation to this day. The milder symptoms of inoculated smallpox cannot be explained simply by virtue of a cutaneous versus a respiratory route of infection. The Chinese had for centuries practiced variolation by “insufflation” — blowing infectious scab material up the nostrils of the patient. The patient still came down with smallpox, and there was still great risk involved. But the case fatal-

<sup>20</sup> New York Provincial Congress to J. Hancock, Nov. 2, 1775 (microfilm: microcopy 247, reel 81, item 67, vol. 1, p. 129), Papers of the Continental Congress, RG 360 (National Archives, Washington, D.C.); Virginia Committee of Safety, Proceedings of the Committee, April 30, 1776, in Robert L. Scribner and Brent Tarter, eds., *Revolutionary Virginia: The Road to Independence, a Documentary Record* (7 vols., Charlottesville, [1973]–1983), VI, 496; summary of letter from George Muter, March 8, 1781, in *Papers of Thomas Jefferson*, ed. Boyd, V, 96–97.

<sup>21</sup> On the European acquisition of inoculation, see Donald R. Hopkins, *Princes and Peasants: Smallpox in History* (Chicago, 1983), 46–51. On the resurgence of smallpox in Europe, see Genevieve Miller, *The Adoption of Inoculation for Smallpox in England and France* (Philadelphia, 1957), 29–35. Mather’s account of his interview with Onesimus can be found in George Lyman Kittredge, ed., “Lost Works of Cotton Mather,” *Proceedings of the Massachusetts Historical Society*, 45 (Feb. 1912), 422.

ity rate of 0.5 to 2.0 percent from inoculated smallpox seemed enviable by comparison to the case fatality rate of 20 to 30 percent from the natural form of the illness.<sup>22</sup> In the end, survivors of inoculation won the same highly cherished prize as other smallpox survivors: lifelong immunity to the disease.

Effective though it was, inoculation came at a price. Inoculees did come down with smallpox, and like anyone else sick with the disease, they could pass it on to others in the “natural” way. In the absence of strict quarantine, inoculation was as likely to start an epidemic as to end one. Because the symptoms could be mild, inoculees often felt well enough to circulate in public, and they frequently did so, despite knowing that the consequences for others might be fatal. Abigail Adams, for example, who had expressed her own fear of the contagion earlier, “attended publick worship constantly, except one day and a half” while she underwent inoculation in 1776. The Virginia outbreak of 1768 began when an inoculator allowed “some of his Patients to go abroad too soon,” spreading the disease “in two or three Parts of the Country.”<sup>23</sup> Such incidents were by no means unusual and meant that inoculation was highly controversial if not banned outright in many of the English colonies.

### Other Accusations and Incidents

Eighteenth-century biological warfare is at best a slippery topic of inquiry. (The term “biological warfare” is itself anachronistic, but it remains well suited for describing what eighteenth-century Americans clearly viewed as a distinctive category of acts and allegations.) The long-standing debate over the Fort Pitt episode—easily the best-documented incident in the period—reveals how very treacherous the historical landscape can be. Even contemporaries could rarely prove culpability beyond refute in a suspicious outbreak of disease; for historians, the task is next to impossible. Accidents happened, and unintentional contagion was common, particularly in wartime. Moreover, in those rare cases where malicious intent was evident, as at Fort Pitt in 1763, the actual effectiveness of an attempt to spread smallpox remains impossible to ascertain: the possibility always exists that infection occurred by some “natural” route.

While all of this complicates the historian’s task, it may nevertheless have enhanced smallpox’s appeal as a weapon. For unlike rape, pillage, and other atrocities in which the intent and identity of the perpetrator could be made clear, the propagation of smallpox had the advantage of deniability. In the honor-bound world in which eighteenth-century military officials lived, this may well have been biological warfare’s greatest attribute. It is possible, given the dearth of ironclad evidence, that biological warfare did not occur beyond the Fort Pitt incident. But another perspective

<sup>22</sup> See Hopkins, *Princes and Peasants*, 109; and Fenner et al., *Smallpox and Its Eradication*, 165, 252–53, 268. For comparative case fatality rates, see *ibid.*, 246.

<sup>23</sup> Abigail Adams to John Adams, Aug. 5, 1776, in *Book of Abigail and John*, ed. Butterfield, Friedlander, and Kline, 150–51; William Nelson to John Norton, Feb. 27, 1768, in *John Norton & Sons, Merchants of London and Virginia, Being the Papers from Their Counting House for the Years 1750 to 1795*, ed. Frances Norton Mason (Richmond, 1937), 38.

also seems warranted, particularly when smallpox's deniability is taken into account: the shortage of conclusive documentation may simply indicate that perpetrators did not record their deeds.

The surviving evidence is rife with ambiguity. Some accusations served propaganda purposes in situations of social or military stress.<sup>24</sup> Others come from oral traditions, at times recorded long after the alleged incidents took place. Many allegations are unsubstantiated, and some are weakly substantiated at best. Nevertheless, the sheer weight of the evidence that follows points to the distinct possibility that eighteenth-century biological warfare was more common than historians have previously believed.

It may well have been Indians, not whites, who used the strategy first. In his voluminous *History and Description of New France*, Pierre-François-Xavier de Charlevoix recounts an Iroquois act of biological sabotage against the English during Queen Anne's War in the early 1700s. The English army, Charlevoix writes, "was encamped on the banks of a little river; the Iroquois, who spent almost all the time hunting, threw into it, just above the camp, all the skins of the animals they flayed, and the water was thus soon all corrupted." The army, Charlevoix continued, suspected nothing. Soldiers "continued to drink this water, and it carried off so many, that Father de Mareuil, and two officers . . . observing the graves where the dead were buried, estimated the number at over a thousand." This account is remarkable not only because it seems to be the only eighteenth-century American incident that did not involve smallpox but also because the perpetrators were Indians. In this regard, the fact that smallpox was *not* the weapon of choice is hardly surprising. Already decimated by repeated epidemics, American Indians everywhere more likely viewed smallpox as a enemy in its own right than as a weapon that might bring down their adversaries.<sup>25</sup> The years that followed would show how true this was.

Amherst aside, smallpox seemed to be everywhere during the Seven Years' War. D. Peter MacLeod has demonstrated elegantly how Indian participation in the conflict with the British waxed and waned according to their simultaneous struggle against smallpox. In 1755–1756 and again in 1757–1758, the disease wreaked havoc among the Indians allied with the French. After the Lake George campaign of 1757, the French-allied Potawatomis suffered greatly in a smallpox outbreak that

<sup>24</sup> The Jesuits faced many such allegations in seventeenth-century New France. See Reuben Gold Thwaites, ed., *The Jesuit Relations and Allied Documents: Travels and Explorations of the Jesuit Missionaries in New France, 1610–1791* (74 vols., Cleveland, 1896–1901), XI, 15, 39, XII, 85, 237, XIII, 215, XIV, 53, 103, XV, 19–35, XVI, 39, 53–55, XX, 28–31, 73, XXX, 227, XXXIX, 125–31.

<sup>25</sup> Even the Aztecs may have tried to utilize such a strategy during the Spanish conquest from 1519 to 1521. Motecuhzoma reportedly asked his magicians to work "some charm" against the Spaniards that might "cause them to break out in sores" or even "cause them to fall sick, or die, or return to their own land." Ironically, it was the Aztecs, not the Spaniards, who succumbed en masse to smallpox. Miguel-Leon Portilla, ed., *The Broken Spears: The Aztec Account of the Conquest of Mexico* (Boston, 1966), 34. On Queen Anne's War, see Pierre-François-Xavier de Charlevoix, *History and General Description of New France*, ed. and trans. John Dawson Gilmery Shea (6 vols., New York, 1900), V, 221–22. For other incidents that may represent deliberate smallpox propagation on the part of Native Americans, see William Francis Butler, *The Great Lone Land: A Tale of Travel and Adventure in the North-West of America* (London, 1910), 367–72; and James G. McCurdy, *By Juan de Fuca's Strait: Pioneering along the Northwestern Edge of the Continent* (Portland, Oreg., 1937), 197.

they believed stemmed from deliberate infection by the British. In July 1767, the British Indian superintendent William Johnson interviewed a man named Cornelius Van Slyke, held prisoner among the Chippewas and the Potawatomis for four years. Van Slyke told Johnson the Potawatomis believed "that the great Number they lost of their People at & returning from Lake George in 1757, was owing to y<sup>e</sup>. English poisoning the Rum, & giving them the Small Pox, for which they owe them an everlasting ill will." The innuendo here is that the infection was willful, and it is possible that biological warfare occurred. But it is far more likely that the source of the contagion that ravaged the Potawatomis was the famous attack (fictionalized in James Fenimore Cooper's *Last of the Mohicans*, 1826) on unarmed prisoners leaving Fort William Henry on August 10, 1757.<sup>26</sup> Many of those prisoners were sick with smallpox.

By the nineteenth century, intentional smallpox infection turned up regularly in Native American oral histories. The Ottawa Indians suffered from smallpox after the 1757 campaign, and their tradition held that the disease came from Montreal, ironically in the possession of the Indians' French allies at the time of the outbreak. "This smallpox," according to Andrew Blackbird's account, "was sold to them shut up in a showy tin box, with the strict injunction not to open the box on their way homeward." When they arrived at their village on the shores of Lake Michigan, the Indians opened the box only to find another box and then another inside. In the end, Blackbird says, the Ottawas "found nothing but mouldy particles in this last little box." Many inspected it, and shortly thereafter, smallpox broke out. According to the story, an enormous Ottawa village, extending for miles west of Mackinac, "was entirely depopulated and laid waste." It is unlikely that the French would have knowingly passed smallpox on to their Indian supporters at this crucial juncture in the Seven Years' War. But the accusation may well reflect a Native American perception that since they had caught the disease while fighting for the French, the French were therefore responsible for the devastation it caused. Eager to retain and appease their Indian allies, French officials laid the blame for the epidemic in the British camp.<sup>27</sup> If further documentation for this alleged incident exists, it remains undis-

<sup>26</sup> D. Peter MacLeod, "Microbes and Muskets: Smallpox and the Participation of the Amerindian Allies of New France in the Seven Years' War," *Ethnohistory*, 39 (Winter 1992), 42–64. On the epidemic among the Potawatomis, see *ibid.*, 49; R. David Edmunds, *The Potawatomis: Keepers of the Fire* (Norman, 1978), 55–56; and James A. Clifton, *The Prairie People: Continuity and Change in Potawatomi Indian Culture, 1665–1965* (Lawrence, 1977), 102. The French, according to Cornelius Van Slyke, went to great lengths to convince the Indians "that in case they made peace with y<sup>e</sup>. English, they would soon repent it, as they [the British] would then come into their Villages, & thereby destroy em by poison, Small Pox & ca. Which the Informant says they believe as much as can be." William Johnson, "Examination of Cornelius Van Slyke," July 21, 1767, Native American History Collection (William L. Clements Library, Ann Arbor, Mich.). I would like to thank John Dann of the Clements Library for sharing this document with me. For a valuable appraisal of the Fort William Henry affair, see Ian K. Steele, *Betrayals: Fort William Henry & the "Massacre"* (New York, 1990).

<sup>27</sup> Andrew J. Blackbird, *Complete Both Early and Late History of the Ottawa and Chippewa Indians of Michigan, a Grammar of Their Language, Personal and Family History of the Author* (Harbor Springs, Mich., 1897), 2–3. Another vaguely worded accusation against the French can be found in a letter dated November 1681: "we have forbidden the coming down of ninety Canoes belonging to Outawas, heavily laden with peltries, through apprehensions of the small pox (*peste*), which was introduced among that people by well-known vagabonds (*libertins*), against whom the Governor was unwilling that information should be lodged." M. du Chesneau to M. de Seigneulay, Quebec, Nov. 13, 1681, *Documents Relative to the Colonial History of the State of New-York: Procured in Holland, England, and France*, ed. Edmund Bailey O'Callaghan (15 vols., Albany, 1853–1887), IX, 154. On the French blaming the British, see MacLeod, "Microbes and Muskets," 50–51.

covered. Nor is it clear how, if at all, this tradition might be linked to the Fort Pitt episode six years later.

Other accusations of deliberate contagion surfaced among the Ottawa Indians' Ojibwa neighbors. Around 1770, according to an Ojibwa account related by John J. Heagerty, traders at Mackinac infected visiting Indians with a contaminated flag presented to the Indians "as a token of friendship." After the homeward-bound Ojibwas unfurled the flag among friends at Fond du Lac on Lake Superior, smallpox broke out. Some three hundred reportedly died at Fond du Lac alone. Writing in 1928, Heagerty noted that the account still remained in circulation: "The Indians to this day are firmly of the opinion that the small-pox was, at this time, communicated through the articles presented to their brethren by the agent of the fur company at Mackinac." William Warren included another version of the same tradition in his *History of the Ojibway Nation* (1884), implying that it took place later, launching the region's devastating smallpox epidemic of 1780–1782. It is worth noting that Warren, the son of an Ojibwa woman and a fur trader, discredits the account after he relates it, saying that the Ojibwas, Crees, and Assiniboines picked up the infection in a raid on a Hidatsa village on the upper Missouri.<sup>28</sup>

Not all accusations of biological warfare in this period came from Native Americans. In September 1757, vessels carrying some three hundred paroled British prisoners sailed from Quebec to Halifax, Nova Scotia. Some of the parolees were survivors of the massacre at Fort William Henry just over a month before. Some of them, moreover, were sick with smallpox. Four died in transit, and another twenty showed symptoms by the time they reached their destination. French motives in shipping the sick prisoners drew suspicion. "This was said," according to an unnamed accuser, "to have been an attempt to introduce the small-pox into Halifax, many men being ill of the disorder on their embarkation. Providence, however, frustrated this benevolent design."<sup>29</sup>

The next great conflict to shake the continent was the Revolutionary War. Once again, smallpox erupted repeatedly, and once again, those on the receiving end believed that the outbreaks were not all accidental. Allegations of biological warfare arose in the course of confrontations at Quebec, Boston, and Yorktown, as well as during the mobilization of the Earl of Dunmore's Ethiopian Regiment on the Chesapeake. At Boston, charges of deliberate smallpox propagation by the British cropped up even before the outbreak of hostilities at Lexington and Concord. "The [British] soldiers try all they can to spread the *smallpox*," wrote an unnamed Bostonian in January 1775. "One of their Officers inoculated his whole family without letting any person know it,—there was a man, his wife, and seven children, under the same roof, and not one of them ever had it." When the American siege of Boston began in April, the disease became epidemic among British soldiers and other

<sup>28</sup> John J. Heagerty, *Four Centuries of Medical History in Canada* (2 vols., Toronto, 1928), I, 44–45. William Warren was a native-born Ojibwa speaker and interpreter who devoted much of his life to recording the tribe's history and lore. William W. Warren, *History of the Ojibway Nation* (1884; Minneapolis, 1957), 257–62.

<sup>29</sup> Steele, *Betrays*, 135–38; unattributed quotation in Heagerty, *Four Centuries of Medical History in Canada*, I, 42.

residents of the city. "The small pox rages all over the Town," wrote George Washington from his headquarters in nearby Cambridge on December 14. "Such of the [British] Military as had it not before, are now under inoculation—this I apprehend is a weapon of Defence, they Are using against us."<sup>30</sup>

In fact, Washington already suspected that the British, in an effort to infect the vulnerable Continental Army, had inoculated some of the refugees leaving the city. On December 3, 1775, four deserters had arrived at the American headquarters "giving an account that several persons are to be sent out of *Boston*, this evening or to-morrow, that have been lately inoculated with the small-pox, with design, probably, to spread the infection, in order to distress us as much as possible." It was, according to Washington's aide-de-camp, an "unheard-of and diabolical scheme." Washington at first regarded the report with disbelief. "There is one part of the information that I Can hardly give Credit to," he wrote. "A Sailor Says that a number of these Comeing out have been inoculated, with design of Spreading the Smallpox through this Country & Camp."<sup>31</sup>

A week later, however, as the pox erupted among the refugees, the American commander in chief changed his mind. In a letter to John Hancock on December 11, 1775, he explained his reappraisal: "The information I received that the enemy intended Spreading the Small pox amongst us, I could not Suppose them Capable of—I now must give Some Credit to it, as it has made its appearance on Severall of those who Last Came out of Boston." The Americans controlled the outbreak through careful quarantine and disinfection of both refugees and their effects. In the aftermath, the *Boston Gazette* carried a sworn declaration from one refugee, a servant, saying that he had been inoculated and then, as the pustules broke out, ordered by his master to embark on a crowded vessel leaving the city. There he could not avoid communicating the infection to "A Number of said Passengers," as the boat's departure was delayed more than two weeks. According to another report, a Boston physician named Dr. Rand had admitted "that he had effectually given the distemper among those people" quitting the city.<sup>32</sup>

Both accusations and evidence of biological warfare dwindled as the siege of Boston continued in the opening months of 1776, but in March, as the British intent to evacuate the city became clear, American fears escalated once more. On March 13,

<sup>30</sup> Extract of a letter from Boston, author unknown, *London Evening Post*, March 25–28, 1775, reprinted in Margaret W. Willard, ed., *Letters on the American Revolution, 1774–1776* (Boston, 1925), 57–58; George Washington to John Hancock, Dec. 14, 1775, in *The Papers of George Washington: Revolutionary War Series*, ed. W. W. Abbot and Dorothy Twohig (26 vols., Charlottesville, 1983–), II, 548.

<sup>31</sup> Robert H. Harrison to Council of Massachusetts, Dec. 3, 1775, in *American Archives*, ed. Peter Force, 4th ser. (6 vols., Washington, 1837–1853), IV, 168; Washington to Hancock, Dec. 4, 1775, in *Papers of George Washington: Revolutionary War Series*, ed. Abbot and Twohig, II, 486.

<sup>32</sup> Washington to Hancock, Dec. 11, 1775, in *Papers of George Washington: Revolutionary War Series*, ed. Abbot and Twohig, II, 533; Washington to Hancock, Nov. 28, 1775, *ibid.*, 447; Samuel Bixby, "Diary of Samuel Bixby," *Proceedings of the Massachusetts Historical Society*, 14 (March 1876), 297; Washington to James Otis Sr. [Mass. General Court], Dec. 10, 1775, in *Papers of George Washington: Revolutionary War Series*, ed. Abbot and Twohig, II, 526; John Morgan to Washington, Dec. 12, 1775, *ibid.*, 541–42; Washington to Joseph Reed, Dec. 15, 1775, *ibid.*, 553. On the servant refugee, see *Boston Gazette and Country Journal*, Feb. 12, 1776, p. 4. On Dr. Rand, see Ezekiel Price, "Diary of Ezekiel Price, 1775–1776," *Proceedings of the Massachusetts Historical Society*, 7 (Nov. 1863), 220.

watching British troops prepare to leave, Washington ordered “that neither Officer, nor soldier, presume to go into Boston” without his permission, “as the enemy with a malicious assiduity, have spread the infection of the smallpox through all parts of the town.” That very evening the American commander received word “by a person just out of Boston, that our Enemies in that place, had laid several Schemes for communicating the infection of the small-pox, to the Continental Army, when they get into the town.” Deliberate or not, smallpox exploded in Boston after the siege, infecting troops and civilians alike.<sup>33</sup>

Boston was not the only city besieged by American troops through the winter of 1775–1776. At Quebec another siege was underway, and here again, smallpox emerged as a major player in military affairs. While the American efforts to keep the Continental Army free of smallpox were generally successful at Boston, they failed dismally at Quebec. Here the disease erupted almost immediately upon the Americans’ arrival outside the walled city in late November and early December of 1775. What followed was one of the great disasters in American military history. An American attempt on the city failed in a blizzard on the night of December 31, and the army settled in for a miserable, snowbound siege that lasted until the first week of May 1776, when British reinforcements arrived. Riddled with smallpox, the Americans retreated, first to the town of Sorel, where the Richelieu River joins the Saint Lawrence, and then, in midsummer, southward to Ticonderoga and Crown Point. “Oh the Groans of the Sick,” wrote one soldier during the retreat, “What they undergo I Cant Express.” At Crown Point, according to the physician Lewis Beebe, death became “a daily visitant in the Camps. But as Little regarded as the singing of birds.”<sup>34</sup>

Many accused the British general, Sir Guy Carleton, of willfully infecting the American camp during the wintry siege of the Canadian city. In the deathbed diary he dictated in 1811, the Pennsylvania rifleman John Joseph Henry recalled that smallpox had been “introduced into our cantonments by the indecorous, yet fascinating arts of the enemy.” The Continental Congress held hearings on the debacle even as the Northern Army still suffered from smallpox at Ticonderoga. Thomas Jefferson’s abbreviated notes of the testimony reveal that several of the witnesses believed the epidemic was no accident. Capt. Hector McNeal, for example, said “the small pox was sent out of Quebeck by Carleton, inoculating the poor people at government expence for the purpose of giving it to our army.” Likewise, according to another witness, it “was said but no proof that Carleton had sent it into the suburbs of

<sup>33</sup> George Washington, General Orders, March 13, 1776, in *Papers of George Washington: Revolutionary War Series*, ed. Abbot and Twohig, III, 458; Washington, General Orders, March 14, 1776, *ibid.*, 466. “The Small pox prevails to such a degree in Boston,” wrote Gen. Artemas Ward on July 4, “and so many of the Soldiers got the disorder, that I apprehend the remainder of them must soon be inoculated.” Inoculations began that very day. Artemas Ward to Washington, July 4, 1776, *ibid.*, V, 210; James Thacher, *A Military Journal of the American Revolution* (Boston, 1823), 54; Whitfield J. Bell Jr., *John Morgan, Continental Doctor* (Philadelphia, 1965), 188; Price, “Diary of Ezekiel Price,” 259.

<sup>34</sup> Bayze Wells, “Journal of Bayze Wells of Farmington, May, 1775–February, 1777,” *Collections of the Connecticut Historical Society*, 7 (1899), 267; and Lewis Beebe, “Journal of a Physician on the Expedition against Canada, 1776,” *Pennsylvania Magazine of History and Biography*, 59 (Oct. 1935), 337.

St. Roc where some of our men were quartered." The testimony of a Dr. Coates reiterated the theme: "Was supposed Carlton sent out people with it," Jefferson noted in his shorthand. Jefferson, for one, found the testimony credible. "I have been informed by officers who were on the spot, and whom I believe myself," he wrote to the French historian François Soulés, "that this disorder was sent into our army designedly by the commanding officer in Quebec. It answered his purposes effectually."<sup>35</sup>

Smallpox was present at Quebec when the American army arrived, and it seems probable, as they mingled with *habitants* outside the city, that the troops would have picked up the *Variola* virus regardless of any actions on Carleton's part. "The small pox is all around us, and there is great danger of its spreading in the army," wrote the soldier Caleb Haskell on December 6, 1775, shortly after the siege began. "We have long had that disorder in town," observed a British officer on December 9, as the disease made its first appearance among the Americans. Carleton's humane treatment of American smallpox victims taken prisoner when the siege ended would seem to undermine the argument that he deliberately infected the American lines.<sup>36</sup> Nevertheless, it remains possible. By providing a ready supply of inoculees and other contagious patients, the ongoing presence of smallpox in Quebec might in fact have made deliberate infection easier to disguise.

Meanwhile, farther south, more accusations of willful contagion surfaced in Virginia, where some eight hundred African American refugees from slavery had rallied to the British cause in response to a promise of freedom from the colony's royal gov-

<sup>35</sup> John Joseph Henry, "Campaign against Quebec," in *March to Quebec: Journals of the Members of Arnold's Expedition*, ed. Kenneth Roberts (New York, 1940), 374–75; Thomas Jefferson, "Notes of Witnesses' Testimony concerning the Canadian Campaign, July 1–27, 1776," in *Papers of Thomas Jefferson*, ed. Boyd, I, 435, 437, 447–48; Thomas Jefferson, "Comments on Soulés' *Histoire*, August 8, 1786," *ibid.*, X, 373, 377n24. Other members of Congress were likewise convinced by the evidence. In 1777 full-scale inoculation of the Continental Army began, in part to address the troops' vulnerability to biological warfare. In May 1777, the Foreign Affairs Committee offered the following explanation: "Our troops have been under inoculation for the small pox with good success which purgation we hope will be the means of preserving them from fever in the summer. however it will frustrate one canibal scheme of our enemies who have constantly fought us with that disease by introducing it among our troops." Foreign Affairs Committee to Commissioners in France, May 2, 1777 (reel 102, item 78, vol. 21, p. 99), Papers of the Continental Congress.

<sup>36</sup> Caleb Haskell, "Diary at the Siege of Boston and on the March to Quebec," in *March to Quebec*, ed. Roberts, 482–83. The diarists Jacob Danford and Thomas Ainslie both stated that smallpox had "long raged in town." It should be noted that Danford's and Ainslie's diaries are suspiciously similar to one another as well as to the diary attributed to Hugh Finlay. Jacob Danford, "Journal of the Most Remarkable Occurrences in Quebec, by an Officer of the Garrison," *New-York Historical Society Collections*, 13 (1880), 181; Thomas Ainslie, *Canada Preserved: The Journal of Captain Thomas Ainslie*, ed. Sheldon S. Cohen (New York, 1968), 27; Hugh Finlay (?), "Journal of the Siege and Blockade of Quebec by the American Rebels, in Autumn 1775 and Winter 1776," *Literary and Historical Society of Quebec, Historical Documents* (no. 4, 1875), 5. American prisoners taken in the Americans' Dec. 31 attack on the city were granted permission to be inoculated in prison. See, for example, Francis Nichols, "Diary of Lieutenant Francis Nichols, of Colonel William Thompson's Battalion of Pennsylvania Riflemen, Jan. to Sept., 1776," *Pennsylvania Magazine of History and Biography*, 20 (no. 4, 1896), 506; and John Topham, "The Journal of Captain John Topham, 1775–6," *Magazine of History*, 13 (extra no. 50, 1866; reprint, Tarrytown, N.Y., 1916), 30, 38–39. When the Americans fled on May 6, 1776, many of the sick were left behind on the Plains of Abraham. Noting "that many of his Majesty's deluded subjects of the neighbouring provinces, labouring under wounds and diverse disorders," were "in great danger of perishing for want of proper assistance," Carleton ordered his men "to make diligent search for all such distressed persons, and afford them all necessary relief, and convey them to the general hospital, where proper care shall be taken of them." Carleton's orders are reprinted in Andrew Parke, *An Authentic Narrative of Facts Relating to the Exchange of Prisoners Taken at the Cedars* (London, 1777), 4–5.

error, John Murray, Earl of Dunmore. Written on November 7, 1775, and issued a week later, Dunmore's limited emancipation proclamation inspired African Americans and terrified the slaveholding revolutionaries who spearheaded the American revolt. By May 1776, however, smallpox had infested the governor's little band of freedom fighters in their precarious waterfront camp near Norfolk. Dunmore decided to move to a safe spot and inoculate his men. "His Lordship," according to a rumor in the *Virginia Gazette*, "before the departure of the fleet from Norfolk harbour, had two of those wretches inoculated and sent ashore, in order to spread the infection, but it was happily prevented."<sup>37</sup>

In the end, it was Dunmore's black regiment that suffered most from the disease, dwindling under its impact to 150 effective men and eventually withdrawing from Virginia entirely. "Had it not been for this horrid disorder," wrote Dunmore, "I should have had two thousand blacks; with whom I should have had no doubt of penetrating into the heart of this Colony." When the American rebels questioned one eyewitness to the ravages of smallpox and to Dunmore's final withdrawal, they broached the topic of biological warfare directly: "How long were they inocul[ated] & was it done to communicate it to the People on shore[?]" asked the interrogators. "By no means," was the vague response, "every one in the Fleet was inoculated, that had it not."<sup>38</sup>

A year later, in the spring of 1777, rumors of a Tory conspiracy to propagate smallpox swept the state of New Hampshire. "There are great numbers of people bound together by the most solemn oaths and imprecations to stand by each other and to destroy the persons who betray them," wrote Josiah Bartlett, one of the state's delegates to the Continental Congress; "besides ruining the paper currency it seems their design is, this Spring to spread the small pox through the country." Many patriots had expressed concern, he added; "we have reason to think most of the Tories in

<sup>37</sup> The best account of Dunmore's Ethiopian Regiment remains Benjamin Quarles, *The Negro in the American Revolution* (Chapel Hill, 1961), 19–32. The accusation can be found in Dixon and Hunter's *Virginia Gazette*, June 15, 1776, quoted in *Naval Documents of the American Revolution*, ed. William Bell Clark, William James Morgan, and Michael J. Crawford (10 vols., Washington, D.C., 1964–1996), V, 554. By another account, five of Dunmore's sailors deserted before the governor left Norfolk. "They inform me they have the smallpox," wrote William Woodford. The relation, if any, between these deserters and the rumors of willful propagation of smallpox at the same time is not clear. "Extract of a letter from Col. [William] Woodford to General [Andrew] Lewis, dated Norfolk, May 22," *ibid.*, 209.

<sup>38</sup> John Murray, Earl of Dunmore, to the Secretary of State, June 26, 1776, in George W. Williams, *History of the Negro Race in America from 1619–1800* (New York, 1885), 342, quoted in Gerald W. Mullin, *Flight and Rebellion: Slave Resistance in Eighteenth-Century Virginia* (New York, 1972), 132; "[James] Cunningham's Examination 18th July 1776," in *Naval Documents of the American Revolution*, ed. Clark, Morgan, and Crawford, V, 1136. An unnamed "fever" also afflicted the men as they underwent inoculation on Gwynn's Island at the mouth of the Piankatank River: "Narrative of Captain Andrew Snape Hamond, [H. M. S. Roebuck, June 1 to June 30]," *ibid.*, 840. Deserters from Dunmore's force did carry smallpox ashore. In July "a man that called himself a deserter from Lord Dunmore" broke out with smallpox a day after joining a Maryland militia regiment. While the documentation reveals no direct accusation of malfeasance, the innuendo is clearly there. "I have spoken to Dr. Browne, who had the care of the fellow, and he says he thinks he was inoculated," wrote Lieutenant Bennett Bracco. Bennett Bracco to Maryland Council of Safety, July 26, 1776, in *American Archives*, ed. Peter Force, 5th ser. (3 vols., Washington, 1837–1853), I, 592. On July 23, Maj. Thomas Price likewise informed the Maryland Council of Safety that the infection had reached his camp on St. George's Island. "We have several Deserters from the Enemy most of them in the small Pox," he wrote. Thomas Price to the Maryland Council of Safety, July 23, 1776, in *Naval Documents of the American Revolution*, ed. Clark, Morgan, and Crawford, V, 1193.

New England are in the plan." There is no further evidence that such a plan existed, although smallpox did erupt in Exeter in the spring of 1778.<sup>39</sup>

Additional accusations surfaced in 1781, as Gen. Charles Cornwallis's southern campaign came to a close. The British retreat to Yorktown in many ways echoed Lord Dunmore's Virginia campaign five years earlier. Again, African American slaves flocked to British lines seeking freedom from their revolutionary masters. And again smallpox cut them down, for African Americans, like all other Americans, were far more likely to be susceptible to the disease than were troops from Europe.<sup>40</sup>

As early as June 1781, American soldiers in Virginia suspected Cornwallis's army of using smallpox-infected blacks to propagate disease. "Here I must take notice of some vilany," wrote Josiah Atkins as his regiment pursued the British near Richmond. "Within these days past, I have marched by 18 or 20 Negroes that lay dead by the way-side, putrifying with the small pox." Cornwallis, Atkins believed, had "inoculated 4 or 500 in order to spread smallpox thro' the country, & sent them out for that purpose." A Pennsylvania soldier, William Feltman, found a "negro man with the small-pox lying on the road side" on June 25, supposedly left by a British cavalry unit "in order to prevent the Virginia militia from pursuing them." By October, with surrender looming on the horizon, Cornwallis had become desperate. "The British," noted James Thacher in his diary, "have sent from Yorktown a large number of negroes, sick with the small pox, probably for the purpose of communicating the infection to our army." Writing three days after the capitulation, Robert Livingston hoped that reports of such conduct would sway Europeans to the American side. "In Virginia," he wrote, "they took the greatest pains to communicate the Small Pox to the Country; by exposing the dead bodies of those who had died with it, in the most frequented places." Benjamin Franklin later reiterated the charge in his "Retort Courteous."<sup>41</sup>

It may be tempting to dismiss such accusations as so much American hyperbole. But evidence indicates that in fact the British did exactly what the Americans charged. At Portsmouth, Virginia, in July 1781, Gen. Alexander Leslie outlined his plan for biological warfare in a letter to Cornwallis. "Above 700 Negroes are come

<sup>39</sup> Josiah Bartlett to William Whipple, April 21, 1777, in *The Papers of Josiah Bartlett*, ed. Frank C. Mevers (Hanover, N.H., 1979), 157–58. On Exeter, see Mary Bartlett to Josiah Bartlett, May 28, 1778, Box 1, Josiah Bartlett Papers, 1761–1794 (New Hampshire Historical Society, Concord, N.H.).

<sup>40</sup> In London, smallpox had become endemic by this time. Moreover, in at least one rural area of England, the disease tended to appear in five-year cycles. Other rural areas were probably similar. British soldiers (and probably Hessians as well) were much more likely than Americans to have gone through smallpox in childhood. S. R. Duncan, Susan Scott, and C. J. Duncan, "The Dynamics of Smallpox Epidemics in Britain, 1550–1800," *Demography*, 30 (Aug. 1993), 405–23.

<sup>41</sup> Josiah Atkins, *The Diary of Josiah Atkins*, ed. Steven E. Kagle (New York, 1975), 32–33; William Feltman, *The Journal of Lt. William Feltman 1781–82* (1853; New York, 1969), 6; Thacher, *Military Journal of the American Revolution*, 337; Robert R. Livingston to Francis Dana, Oct. 22, 1781 (reel 102, item 78, vol. 21, p. 99), Papers of the Continental Congress. Franklin's accusation was direct: "Having the small-pox in their army while in that country, they inoculated some of the negroes they took as prisoners belonging to a number of plantations, and then let them escape, or sent them covered with the pock, to mix with and spread the disease among the others of their colour, as well as among the white country people; which occasioned a great mortality of both, and certainly did not contribute to the enabling debtors in making payment." Benjamin Franklin, "The Retort Courteous," in *Writings: Benjamin Franklin*, ed. J. A. Leo Lemay (New York, 1987), 1126–27.

down the River in the Small Pox," he wrote. "I shall distribute them about the Rebell Plantations." Even if they pardoned their actions by saying they could no longer support so many camp followers, the fact that sick African Americans might communicate smallpox to the enemy could not have been lost on British commanders.<sup>42</sup>

### Biological Weapons and the Ethics of War

As readers familiar with Hernán Cortés's smallpox-aided conquest of Mexico are no doubt aware, warfare and disease have historically come hand in hand. In many instances, accusations of biological sabotage have trailed close behind. One need only look to Thucydides' account of the plague of Athens, possibly the first description of smallpox on record, to find accusations that the unnamed pestilence arose from the malicious acts of a military foe. But late-eighteenth-century America differed from ancient Greece in a very important way: the technical knowledge required to carry out biological warfare was now commonplace. All that was needed was sufficient will and justification to perform the act. Today, in the post–Geneva Protocol era, many people find it hard to imagine an ethical construct that might affirm such behavior.<sup>43</sup> But eighteenth-century rules of war left much more room for excess. While victims of smallpox found the deliberate transmission of the disease reprehensible, army personnel found sanction for such actions in customary codes of international and military conduct.

In the seventeenth and eighteenth centuries, many of the widely accepted rules of European warfare had seen codification in Hugo Grotius's *De jure belli ac pacis*, first published in 1625, and Emmerich de Vattel's *The Law of Nations*, published in 1758. Both works established theoretical protections in war for women and children and for the elderly and infirm. They addressed the issue of surrender, and they determined when soldiers should give "quarter" to their enemies. Beyond all this, they also included strictures against the use of poison weapons and "the poisoning of streams, springs, and wells." In an era before microbiology, in which deadly toxins and infectious microbes were hardly distinguishable, it is nearly inconceivable that either Grotius or Vattel would have excluded communicable disease from the

<sup>42</sup> Alexander Leslie to Charles Cornwallis, July 13, 1781 (microfilm: frames 280–81, reel 4), Cornwallis Papers, P.R.O. 30/11/6 (Public Record Office, London, Eng.). Johann Ewald, a Hessian soldier fighting for the British, felt that the loyal African Americans who absconded to the British were treated with great injustice when Cornwallis ordered them to leave camp: "I would just as soon forget to record a cruel happening. On the same day of the enemy assault, we drove back to the enemy all of our black friends, whom we had taken along to despoil the countryside. We had used them to good advantage and set them free, and now, with fear and trembling, they had to face the reward of their cruel masters." Johann Ewald, *Diary of the American War: A Hessian Journal*, ed. and trans. Joseph P. Tustin (New Haven, 1979), 335–36.

<sup>43</sup> On Mexico, see Noble David Cook, *Born to Die: Disease and New World Conquest, 1492–1650* (New York, 1998), 211–14. On the plague of Athens, see Thucydides, *History of the Peloponnesian War*, 2.48. The Geneva Protocol went into effect in 1928, prohibiting biological warfare among nations signing the agreement. League of Nations, Treaty Series, "Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of Warfare," signed at Geneva, June 17, 1925, entered into force Feb. 8, 1928, *Publication of Treaties and International Engagements Registered with the Secretariat of the League*, 94 (no. 2138, 1929), 65–74.

general category of "poisons."<sup>44</sup> All of these rules applied, theoretically at least, to "civilized" nations engaged in what were termed "just" wars.

For our purposes, ironically, the most important corollary to these customarily determined rules was that in certain situations, they did not apply. Cases in point included not only "unjust" wars but also rebellions, wars against enemies who themselves violated the laws of war, and wars against "savage" or "heathen" people. Vattel used the Turks and Mongols as his example, but his general point is clear: "nations are justified in uniting together as a body with the object of punishing, and even exterminating, such savage peoples." An earlier formulation of this philosophy had allowed the English to pursue brutal policies in Ireland, on the grounds that the Irish were not just rebels but (despite their professed Christianity) barbarians as well. More than one historian has argued that Ireland provided the English with a convenient ideological precedent for their actions in the New World. And colonists did indeed justify their own savage conduct in New England's seventeenth-century Indian wars by touting the "savagery" of the natives they brutalized.<sup>45</sup> In conflicts with "heathen" Indians, European rules of war gave license to unfettered violence, complete annihilation, and, yes, biological warfare.

Jeffery Amherst, for one, clearly adhered to this view. In 1763, during the summer of the Fort Pitt incident, Amherst stated his belief that total war against Native Americans was warranted. "Indeed," he wrote, "their Total Extirpation is scarce sufficient Attonement for the Bloody and Inhuman deeds they have Committed." Three weeks later he reiterated this opinion: "I shall only Say, that it Behoves the Whole Race of Indians to Beware . . . of Carrying Matters much farther against the English, or Daring to form Conspiracys, as the Consequence will most certainly Occasion measures to be taken, that, in the End will put a most Effectual Stop to *their very being*." Col. Henry Bouquet's sentiments mirrored those of his superior officer. It was Bouquet, after all, who was so enamored of a proposal to hunt Indians with dogs. "As it is a pity to expose good men against them," he wrote, "I wish we

<sup>44</sup> Hugo Grotius, *De jure belli ac pacis libris tres*, ed. James Brown Scott, trans. Francis W. Kelsey (1646; 3 vols., New York, 1964), III, 734–36, 739–40; Emmerich de Vattel, *The Law of Nations: or, Principles of the Law of Nature; Applied to the Conduct and Affairs of Nations and Sovereigns* (1758; New York, 1964), 280, 282–83, 289; Barbara Donagan, "Atrocity, War Crime, and Treason in the English Civil War," *American Historical Review*, 99 (Oct. 1994), 1149–51. Grotius and Vattel explicitly differentiated between poisoning an enemy's water supply and cutting it off completely. It was lawful, they said, to divert water flow or, in Vattel's words, to "cut it off at its source . . . in order to force the enemy to surrender." But poisoning the same water supply was forbidden. Vattel, *Law of Nations*, esp. 289; and Grotius, *De jure belli ac pacis*, 653.

<sup>45</sup> Vattel, *Law of Nations*, 246. The Spanish friar Francisco de Vitoria had argued quite differently in the 1500s. "Even if the barbarians refuse to accept Christ as their lord, this does not justify making war on them or doing them any hurt": Franciscus de Vitoria [Francisco de Vitoria], *De Indis de iure belli relaciones*, ed. Ernest Nys (1917; New York, 1964), 137–38. On Ireland, see Nicholas Canny, "The Ideology of English Colonization: From Ireland to America," *William and Mary Quarterly*, 30 (Oct. 1973), 575–98; Barbara Donagan, "Codes and Conduct in the English Civil War," *Past and Present* (no. 118, Feb. 1988), 70–71; Donagan, "Atrocity, War Crime, and Treason in the English Civil War," 1139, 1148–49; and Howard Mumford Jones, "Origins of the Colonial Ideal in England," *Proceedings of the American Philosophical Society*, 85 (Sept. 1942), 448–65. On New England, see Jill Lepore, *The Name of War: King Philip's War and the Origins of American Identity* (New York, 1998), 112; Ronald Dale Karr, "'Why Should You Be So Furious?': The Violence of the Pequot War," *Journal of American History*, 85 (Dec. 1998), 888–89, 899–909; and Adam J. Hirsch, "The Collision of Military Cultures in Seventeenth-Century New England," *Journal of American History*, 74 (March 1988), 1187–1212.



Although Gen. Thomas Gage did not replace Jeffery Amherst as commander in chief of British forces in North America until after the Fort Pitt episode, he apparently approved of the biological warfare attempt after the fact. Later, during the Revolutionary War, Americans feared Gage might try something similar at the siege of Boston. "I have been concerned lest General Gage should spread the small-pox in your army," the Rev. Thomas Allen warned Seth Pomeroy in 1775.  
*Courtesy National Archives of Canada/C-001347.*

could make use of the Spaniard's method, and hunt them with English Dogs, Supported by Rangers, and some Light Horse, who would I think effectually extirpate or remove that Vermine."<sup>46</sup> Brutality knew no bounds in wars with "savages," and in the view of these men, Native Americans clearly fit the bill.

<sup>46</sup> Jeffery Amherst to George Croghan, Aug. 7, 1763, in Amherst, *Official Papers*, reel 30, frame 249; Amherst

Amherst and Bouquet were not alone. Backed by the force of both custom and law, many in the British military seem to have held similar beliefs. There is no evidence, for example, that the personnel who actually carried out the deed at Fort Pitt expressed any ethical qualms about their actions. Nor, apparently, did Gen. Thomas Gage, who succeeded Amherst as commander in chief. It was Gage, in the end, who approved the reimbursement of Levy, Trent and Company for “Sundries got to Replace in kind those which were taken from people in the Hospital to Convey the Smallpox to the Indians” at Fort Pitt. The British general made it clear in an accompanying note that he had read the invoice closely, and his authorization of payment carried with it a tacit approval of the actions taken. Years later, during the siege of Boston, American officials feared Gage would himself try to “spread the small-pox” in the Patriot forces surrounding the city. “If it is In Genral Gages power I Expect he will Send y<sup>e</sup> Small pox Into y<sup>e</sup> Army,” wrote Seth Pomeroy, who had become acquainted with Gage during the Seven Years’ War; “but I hope In y<sup>e</sup> Infnight Mercy of God he will prevent It, as he hath don In Every atempt that he has made yet.”<sup>47</sup>

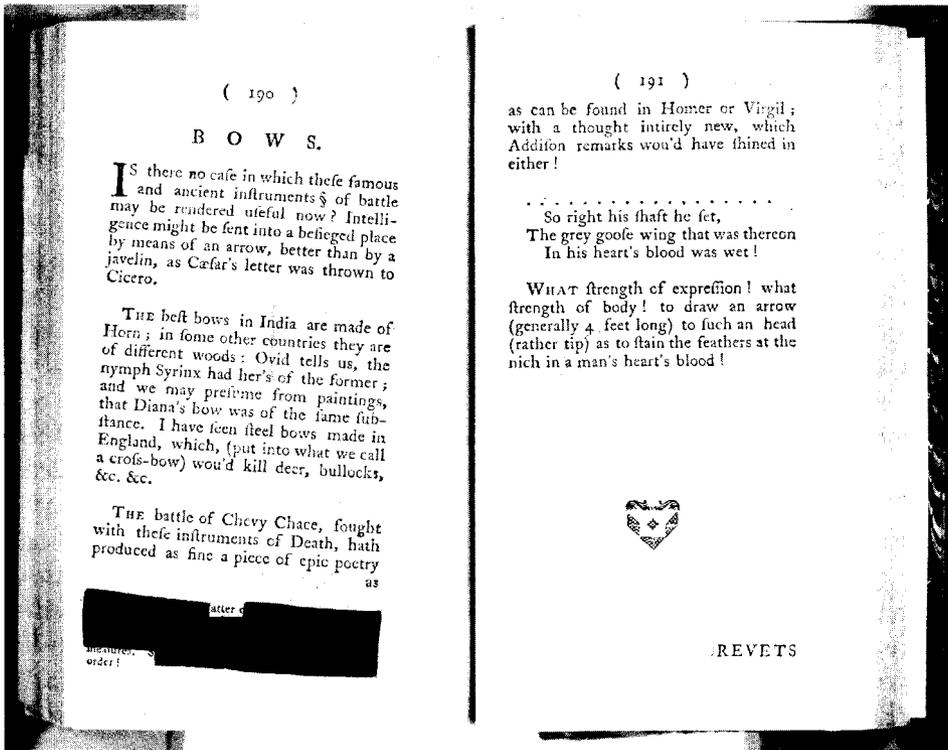
By comparison to the British, the Spanish and French faced comparatively few charges of wielding smallpox against Native Americans in the eighteenth century. But here too, evidence indicates that European officials and colonists might have been receptive to the idea. An account from Baja California describes a 1763 epidemic that erupted when “a traveling Spaniard who had just recently recovered from smallpox presented a shred of cloth to a native.” The vague wording, however, makes it unclear whether the infection was deliberate. In 1752, during the jockeying that preceded the Seven Years’ War, smallpox made an appearance among several Canadian Indian tribes. Charles Le Moyne de Longueuil, the temporary governor of Canada, observed how useful it would be if the disease took hold among the Ohio tribes who had recently gone over to the English: “’Twere desirable that it should break out and spread, generally, throughout the localities inhabited by our rebels. It would be fully as good as an army.”<sup>48</sup> Wishful thinking is a far cry from

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to William Johnson, Aug. 27, 1763, *ibid.*, frame 257; Henry Bouquet to Amherst, July 13, 1763, *ibid.*, reel 32, frame 305. For a published, typescript version of the last document, see *Papers of Col. Henry Bouquet*, ed. Stevens and Kent, ser. 21634, p. 215. For a full version of the proposal to use dogs, see *ibid.*, ser. 21649, part 1, pp. 214–15.

<sup>47</sup> Gage made the following note with his endorsement: “The Within Acc<sup>t</sup>. not belonging to any particular Department, but the Articles ordered for the use of the Service, by the off<sup>r</sup>. Comm<sup>ds</sup>, Col<sup>o</sup>. Bouquet will order the Acc<sup>t</sup>. to be discharged & place it in his Acc<sup>t</sup>. of extraordinary.” Levy, Trent and Company: Account against the Crown, Aug. 13, 1763, in *Papers of Col. Henry Bouquet*, ed. Stevens and Kent, ser. 21654, pp. 218–19. The Reverend Thomas Allen had forewarned Pomeroy that Gage might deliberately spread smallpox. Seth Pomeroy to Asahel Pomeroy, May 13, 1775, in *The Journals and Papers of Seth Pomeroy, Sometime General in the Colonial Service*, ed. Louis Effingham de Forest (New Haven, 1926), 166; Thomas Allen to Seth Pomeroy, May 4, 1775, 167. On Pomeroy’s familiarity with Gage, see John Richard Alden, *General Gage in America: Being Principally a History of His Role in the American Revolution* (Baton Rouge, 1948), 256.

<sup>48</sup> Accusations that French Jesuits deliberately spread smallpox were quite common in the seventeenth century. (See note 24 above.) Jacob Baegert, *Observations in Lower California*, trans. M. M. Brandenburg (Berkeley, 1952), 77. For more on the California outbreak, see Robert H. Jackson, “Epidemic Disease and Population Decline in the Baja California Missions, 1697–1834,” *Southern California Quarterly*, 63 (Winter 1981), 316, 321. Charles Le Moyne, Baron de Longueuil, to Antoine Louis Rouillé, April 21, 1752, *Documents Relative to the Colonial History of the State of New-York*, ed. O’Callaghan, X, 249.



A footnote proposing the military use of smallpox against Americans during the Revolutionary War was excised from all but three known copies of Robert Donkin's *Military Collections and Remarks* (New York, 1777). The perpetrator and the date of the excision remain unknown.  
*Courtesy William L. Clements Library, University of Michigan.*

contemplating or proposing the deliberate dissemination of smallpox. But the governor's comment does indicate a mind-set that might have approved of such action.

Far more ambiguity surrounded the use of smallpox against Americans of European descent—the allegation that surfaced repeatedly during the Revolutionary War. Nothing captured these moral tensions so clearly as a little book titled *Military Collections and Remarks*, published in British-occupied New York in 1777. Written by a British officer named Robert Donkin, the book proposed a variety of strategies the British might use to gain the upper hand in the American conflict. Among them was biological warfare. In a footnote to a two-page section on the use of bows and arrows, Major Donkin made the following suggestion: "Dip arrows in matter of smallpox, and twang them at the American rebels, in order to inoculate them; This would sooner disband these stubborn, ignorant, enthusiastic savages, than any other compulsive measures. Such is their dread and fear of that disorder!"<sup>49</sup>

<sup>49</sup> Robert Donkin, *Military Collections and Remarks* (New York, 1777), 190–91, insert.

Such ideas may have been common in verbal banter, but they rarely made it into print. What happened next is therefore revealing, for it shows how controversial the topic of biological warfare was during the American Revolution: Donkin's provocative footnote survives in only three known copies of his book. In all others, it has been carefully excised. The person responsible for this act is unknown, as is the timing. But the fact that only three known copies survived intact seems to indicate that the excision took place close to the time of publication, before the volume was widely distributed.<sup>50</sup> Likely perpetrators include the author, the publisher, or an agent acting on behalf of British high command. Someone may well have found the suggestion morally offensive; or, in the battle for the "hearts and minds" of the American people, someone may have realized that explicit calls for biological warfare could only make enemies.

If the strategy was controversial, those who sought sanction for biological terror could nevertheless find it in customary codes of conduct. Donkin himself called the Americans "savages," and this alone countenanced the repudiation of behavioral constraints in war. The colonists, in fact, even cultivated a symbolic "Indian" identity in episodes such as the Boston Tea Party. But beyond this, the Americans were also "rebels." Sentiments regarding rebellion were changing, but popular insurrection, like savagery, could legitimate a war of unrestrained destruction—a war in which conventional strictures against biological warfare would not apply. Writing in 1758, Emmerich Vattel took a somewhat more moderate approach than Hugo Grotius had taken a century earlier. But there was no consensus on this among British officers. While some took a conciliatory stance early in the war, it appears that by 1779 a majority of British officers had become what one scholar has termed "hard-liners"—men who believed that "nothing but the Bayonet & Torch" could quell the colonial revolt. Included among them were men such as Banastre Tarleton, notorious for terrorizing the Carolina backcountry, and Charles Grey, famous for two nighttime bayonet attacks on sleeping American soldiers. In one of these attacks, Grey's men shouted "No Quarters to rebels" as they leapt upon their slumbering foes.<sup>51</sup>

If the mere fact of rebellion was grounds enough for such an attitude, the diffi-

<sup>50</sup> Some copies of the book contain an engraved insert replicating the missing text. For an example of both the excision and the insert, see the copy of Donkin, *Military Collections and Remarks*, 190n., in the Clements Library, University of Michigan, Ann Arbor. I am grateful to John Dann of the Clements Library for bringing Donkin's book to my attention and for informing me of the recent discovery of a third intact copy.

<sup>51</sup> On Indian-as-America symbolism, see Hugh Honour, *The New Golden Land: European Images of America from the Discoveries to the Present Time* (New York, 1975), 84–117, 138–60. See Vattel, *Law of Nations*, 336–37; and Grotius, *De jure belli ac pacis*, I, 139–63, II, 551. On views within the British military, see Stephen Conway, "The Great Mischief Complain'd of: Reflections on the Misconduct of British Soldiers in the Revolutionary War," *William and Mary Quarterly*, 47 (July 1990), 378–79; Stephen Conway, "To Subdue America: British Army Officers and the Conduct of the Revolutionary War," *William and Mary Quarterly*, 43 (July 1986), 396–97; and Armstrong Starkey, "Paoli to Stony Point: Military Ethics and Weaponry during the American Revolution," *Journal of Military History*, 58 (Jan. 1994), 18. The "Bayonet & Torch" quotation is from Patrick Campbell to Alexander Campbell, July 8, 1778, Campbell of Barcaldine Muniments, G.D. 170/1711/17, S.R.O., quoted in Conway, "To Subdue America," 392. On "hard-liners," see *ibid.*, 404–5; and Conway, "The Great Mischief Complain'd of," 370–90. On Banastre Tarleton and Charles Grey, see Harold E. Selesky, "Colonial America," in *The Laws of War: Constraints on Warfare in the Western World*, ed. Michael Howard, George J. Andreopoulos, and Mark R. Shulman (New Haven, 1994), 80–83.

culties presented by long sieges and the Americans' unconventional fighting methods provided additional justification. In the view of many British soldiers, the Americans had themselves violated the rules of war many times over. Some took offense at the effective Patriot sniping during the retreat from Lexington. Others resented the withering musket fire at Bunker Hill, where General Gage's men believed "the Enemy Poisoned some of their Balls." Confronted by rebellion and frustrated by atrocities committed by a "savage" American enemy who often refused to face off head-to-head on the field of battle, British officers may well have believed the propagation of smallpox was justified and put this belief into practice, especially given the fact that the law of nations apparently permitted it. It is worth recalling that Jeffery Amherst, who had found biological warfare so unabashedly justifiable in 1763, was an extremely popular figure in England. According to the historian Robert Middlekauff, he was "probably the most admired military leader in the nation" during the era of the American Revolution.<sup>52</sup> That General Leslie and other British officers may have thought and acted as Amherst did should come as no surprise.

Predictably, accusations of willful smallpox infection subsided temporarily with the end of the Revolutionary War. They would resurface in the 1830s, when a terrible smallpox epidemic devastated Indians in the American West, striking many of the same tribes that had suffered under an equally deadly epidemic in the early 1780s. Fur traders circulating among Native Americans in the intervening years found that memories of the earlier outbreak were so strong that even the mere threat of willful infection could elicit compliance from uncooperative Indians.<sup>53</sup>

It is clear, however, that while Native Americans suffered most from smallpox, they were neither the only targets of its use on the battlefield nor the only ones who leveled the charge against others. The Fort Pitt incident, despite its notoriety, does not stand alone in the annals of early American history. Accusations of deliberate smallpox propagation arose frequently in times of war, and they appear to have had merit on at least one occasion—the Yorktown campaign—during the American Revolution. Elsewhere the evidence is often ambiguous. But it nevertheless indicates

<sup>52</sup> Selesky, "Colonial America," 81–83. On the poisoned musket balls, see Thomas Sullivan, "The Common British Soldier—From the Journal of Thomas Sullivan, 49th Regiment of Foot," ed. S. Sydney Bradford, *Maryland Historical Magazine*, 62 (Sept. 1967), 236. On Amherst, see Robert Middlekauff, *The Glorious Cause: The American Revolution, 1763–1789* (New York, 1982), 406.

<sup>53</sup> In 1812 or 1813, when Indians around Astoria (at the mouth of the Columbia River) showed signs of hostility, the trader Duncan McDougall threatened to infect them with smallpox: "He assembled several of the chieftains, and showing them a small bottle, declared that it contained the small-pox; that although his force was weak in number, he was strong in medicine; and that in consequence of the treacherous cruelty of the northern Indians, he would open the bottle and send the small-pox among them. The chiefs strongly remonstrated against his doing so. They told him that they and their relations were always friendly to the white people; that they would remain so; that if the small-pox was once let out, it would run like fire among the good people as well as among the bad; and that it was inconsistent with justice to punish friends for the crimes committed by enemies. Mr. M'Dougall appeared to be convinced by these reasons, and promised, that if the white people were not attacked or robbed for the future, the fatal bottle should not be uncorked." Ross Cox, *The Columbia River; or, Scenes and Adventures during a Residence of Six Years on the Western Side of the Rocky Mountains among Various Tribes of Indians Hitherto Unknown*, ed. Edgar I. Stewart and Jane R. Stewart (1831; Norman, 1957), 169–70.

that the famous Fort Pitt incident was one in a string of episodes in which military officials in North America may have wielded *Variola* against their enemies. Justification for doing so could be found in codes of war that legitimated excesses even as they defined constraints. Biological warfare was therefore a reality in eighteenth-century North America, not a distant, abstract threat as it is today. Its use was aimed, as one patriot writer accusingly put it in the year of Yorktown, "at the ruin of a whole Country, involving the indiscriminate murder of Women and Children."<sup>54</sup>

<sup>54</sup> Robert R. Livingston to Francis Dana, Oct. 22, 1781 (reel 102, item 78, vol. 21, p. 99), Papers of the Continental Congress.