

Pennsylvania Rifle: Revolutionary Weapon in A Conventional War?

AT THE beginning of the War for Independence, leading Americans confidently expected the Pennsylvania rifle to help them secure a swift victory. This firearm, perfected well over a decade before the Revolution, was to become, temporarily at least, a source of fierce national pride; many assumed it would give the American soldier a ready-made advantage over his musket-toting British counterpart. The Pennsylvania rifle, with its peculiar characteristics adapted to and evolved from the frontier experience, stood then and continues to stand as a monument to colonial ingenuity. As one writer penned effusively, the rifle "was the truest kind of American invention, the certain product of an American culture."¹

Popularizers of the rifle have been numerous and vocal. They paint a picture of colonial riflemen—rough-hewn giants of the primordial forest—marching forth to vanquish the minions of George III in more or less the same manner they furthered the course of westward empire. What riflemen did in the woodlands to advance civilization they did on the seaboard to ward off defeat from behind, or so the story goes.

However, filiopietistic notions about the rifle have been shattered, the myth of its pervasive significance all but dispelled. Still, there is a mystique associated with the rifle, perhaps because it is so often thought of in connection with native American genius. True, the rifle did not play as important a role as its protagonists once claimed. Nevertheless, it had a potential almost untapped during the war.

¹ Roger Burlingame, *March of the Iron Men* (New York, 1938), 121, who is echoed in John A. Kouwenhoven, *Made in America* (New York, 1948), 17-18. Like statements can be found in William J. Heller, "The Gunmakers of Old Northampton," *Pennsylvania German Society Publications*, XVII (1908), 6; Harry P. Davis, *A Forgotten Heritage* (Huntington, W. Va., 1941), 82-93.

Though by no means a superweapon, it could have been used more effectively. That it was not is a commentary on the social nature of invention and technological innovation, for a new weapon is of limited value unless there is a new doctrine to go along with it, and an industrial sector capable of producing it. A combination of factors, from military conservatism and industrial incapacity to an inability to see how the rifle could and should be improved, militated against its use. The rifle's peculiar wartime career can be traced to attitudinal and institutional restraints on technology in general and invention in particular in preindustrial America. Attitudinally, since American political and military leaders were unaccustomed to viewing invention as part of a larger technological and social hierarchy, they did not know how the rifle could best be used, or if its use would prove more disruptive than productive. Institutionally, the rebellious colonies lacked the managerial experience with large-scale production and centralized bureaucracy necessary to build a munitions industry from scratch. The rifle, then, serves as a fine example of the technological limitations of preindustrial America.

The superiority of rifled gun barrels had first been discovered in the late fifteenth or early sixteenth centuries by gunsmiths in central Europe. Whether by accident or experiment they found that a gun barrel scored with spiraling lands (high points) and grooves (depressions) was much more accurate than a smoothbore weapon. Spinning motion imparted to a bullet made it fly truer, cutting down on loss of velocity and propensity to windage.² Rifles consequently spread from the forests of Germany to other parts of Europe, as hunters preferred this more accurate weapon.³

² Robert Held, *The Age of Firearms* (New York, 1957), 138. In 1635 the first patent for rifling was granted in England; see James F. Severn, "The Rifled Bore, Its Development and Early Employment," *The American Rifleman*, CX (March 1962), 30. Benjamin Robins was probably the first Englishman to make extensive experiments with rifled pieces, however. For his report to the Royal Society of July 2, 1747, in which he predicted the rifle would revolutionize warfare, see James Wilson, ed., *The Mathematical Tracts of the Late Benjamin Robins* (London, 1761), I, 328-341.

³ Greased patches were not widely used in Europe until later because many subscribed to the "retarding and resisting" theory of rifling, which postulated that improved velocity and range came from the friction and compression generated when the ball was mashed down by a mallet. Held, *Age of Firearms*, 139; Henry J. Kauffman, *The Pennsylvania-Kentucky Rifle* (Harrisburg, 1960), 2.

Militarily, however, rifles saw little use in Europe until well after the American Revolution. Prior to the Napoleonic wars, rifles were used primarily by irregulars and light infantry—such as German *jaegers*—to shield columns of musket- and bayonet-equipped regulars. European military dogma emphasized “brute strength and cold steel,” thereby relegating the sniping warfare of riflemen to a secondary status.⁴

German immigrants first introduced rifles to the American colonies around 1700. Rifle production, in fact, began as a Pennsylvania monopoly, but by 1750 rifles were common in frontier communities along the length of the Alleghenies. Just prior to the Revolution shops had spread to Baltimore, Maryland; Alexandria, Cumberland, Winchester and Richmond, Virginia; Camden, South Carolina; Salisbury and Augusta, Georgia; and a few Pennsylvania gunsmiths reportedly migrated to western New York.⁵

The rifle went through a metamorphosis in colonial America, and differed strikingly from its European forebear. A few years after importation it became obvious a number of changes were desirable if not absolutely necessary to adapt the rifle to American conditions. Thus, colonial gunsmiths made basic alterations in rifle construction, leading to a distinctively American archetype peculiarly suited to American life.

Backwoodsmen complained that the short and heavy rifles used in central Europe, weighing close to twenty pounds, were incompatible with their needs. And since most hunted out of necessity, not love of sport, they wanted an even more accurate weapon. Gunsmiths accordingly lengthened the barrel to increase accuracy. In addition, they reduced the caliber and exterior barrel dimensions

⁴ J. F. C. Fuller, *British Light Infantry in the Eighteenth Century* (London, 1925), 46–70 *passim*.

⁵ Felix Reichmann, “The Pennsylvania Rifle: A Social Interpretation of Changing Military Techniques,” *Pennsylvania Magazine of History and Biography*, LXIX (1945), 314; Carlton O. Wittlinger, “The Small Arms Industry in Lancaster County, 1710–1840,” *Pennsylvania History*, XXIV (1957), 121–136; John C. Dillin, *The Kentucky Rifle* (Washington, 1924); Horace Kephart, “The Rifle in Colonial Times,” *Magazine of History*, XXIV (1890), 79–81; Kauffman, *Pennsylvania-Kentucky Rifle*, 8–31; Francis Jordan, *The Life of William Henry* (Lancaster, 1910), 3–55 *passim*; Charles W. Sawyer, *Firearms in American History* (Boston, 1910), 153–157; Townsend Whelen, *The American Rifle* (New York, 1918), 6; Harold L. Peterson, *Arms and Armor in Colonial America* (Harrisburg, 1956), 155.

to cut down on weight. Hunters who traveled long distances on foot for extended periods appreciated this last modification in particular. Greased patch and hickory ramrod totally eclipsed mallet and iron ramrod because the patch-wrapped bullet took less time to load and helped guard against the accumulation of fouled powder in the barrel. Quick repetition of fire was indispensable for hunting, but was even more essential for the hit-and-run tactics of Indian warfare, and such warfare was a frontier fact of life. Colonial rifle-makers also made dozens of minor alterations, from casting thicker trigger guards to selecting choice native hardwoods like curly maple and cherry for gunstocks.

These improvements enhanced the rifle's growing reputation as a precision firearm. It outstripped the smoothbore musket in accuracy and sophistication of design. Yet the musket was by far the most commonly used weapon during the American Revolution and for several decades after. On first observation this seems inexplicable. Muskets were accurate up to a range of eighty yards. Rifles, on the other hand, were deadly at thrice that distance. Muskets generally had a larger bore, but what the rifle surrendered in knock-down power it more than made up for in ease of carrying.

Pound for pound, a rifle was more efficient. Still, the musket had three advantages. First, it could use coarser powder; because cleaning fouled powder out of a grooved barrel was difficult, riflemen chose their powder carefully. Second, most rifles were made according to the users' specifications, not a uniform design. Riflemen consequently prepared their own cartridges, usually on the spot. Muskets were more "standardized"—the term is applied loosely here—hence musket-carrying soldiers often fired prepared cartridges. And they could ordinarily load more quickly since they did not have to worry about a snug fit. Third, and perhaps most important, muskets generally came complete with bayonets while rifles did not. Though uneven powder quality could only be eliminated with improved production, standardizing rifles and equipping them with bayonets posed technological obstacles no greater than those posed by musket production. But as will be seen, problems associated with introducing rifles into the American army derived as much from mental as from physical obstacles.

Despite their drawbacks, muskets were admirably suited to the

volley fire tactics of the day. After two or three exchanges of gunfire, European military thinkers believed bayonets should decide the ultimate fate of battle, so their manual of arms dealt only superficially with the proper aiming and firing of muskets. Many tacticians viewed muskets as merely convenient handles for bayonets. European footsoldiers were accordingly trained to fight in a solid line arrayed in an open field, ready at any moment for the tide-turning thrust of "cold steel." The individualistic type of warfare practiced by irregulars in Europe and riflemen in America "did not fit into the eighteenth century European pattern, and European habits died hard."⁶

In a war where the enemy preferred to follow traditional precepts, backwoods riflemen were confronted by their antithesis. Riflemen fought a mobile style of war, putting a premium on expert shooting—not massed volley fire, concealment, not open field formation, and quick movement, not the measured cadence of a linear assault. American rifles lacked bayonets, since bayonets represented a different martial philosophy, a philosophy of limited worth in the forest. Rifles could easily be adapted to take bayonets, but that did not mean the rifleman's performance against the British would improve correspondingly. Differences in fighting techniques went much deeper, as musket and rifle symbolized antipodal approaches to war. The American rifle had evolved from a different set of demands, a different mode of life. During the Revolution frontier riflemen faced something alien to their understanding; adjusting to the situation unnerved many and proved impossible for others.

Neither the riflemen nor their admirers knew this at the outset of the war; realization came only with time. Thus, when need arose for volunteers to assist the New Englanders laying siege to Boston, Patriot leaders turned to the riflemen. George Washington thought they would make excellent soldiers. Remembering his experiences with Braddock and the limitations of regulars in forest warfare, he looked to independent-minded riflemen, expecting them to form the core of a Continental Army. Numerous congressional delegates shared Washington's faith. Richard Henry Lee boasted that Fin-

⁶ Eric Robson, "The Armed Forces and the Art of War," *The New Cambridge Modern History*, VII (Cambridge, England, 1957), 174.

castle County and five other western Virginia counties could raise 1,000 riflemen each, all of whom could hit an orange from 200 yards.⁷ John Hancock had not yet met a rifleman, but the guarantees of Pennsylvania, Maryland, and Virginia leaders made him their champion. "They are the finest marksmen in the world," he exclaimed, "they do execution of their Rifle Guns at an amazing distance."⁸

Consequently, on June 14, 1775, Congress resolved that "six companies of expert riflemen, be immediately raised in Pennsylvania, two in Maryland, and two in Virginia."⁹ Counties along the Susquehanna River in Pennsylvania seemed to be overrun with eager volunteers, so Congress amended that state's quota from six to eight companies, those eight companies to be formed into an independent Pennsylvania Rifle Regiment. Even then Lancaster County had too many volunteers, so it organized two companies. Congress gave its assent, and the rifle regiment went from eight companies to nine.¹⁰ Meanwhile Virginia and Maryland had no difficulty in bringing their four companies to strength; volunteers were swarming in as they had in Pennsylvania. The Virginians in particular were reputed to be fierce warriors, many having seen action in Lord Dunmore's War. In all, over 1,250 riflemen marched to Boston when Congress had originally called for slightly less than 1,000.

Congress made certain the companies were outfitted in grand style, allocating \$15,000 for the Pennsylvania Rifle Regiment's expenses. At Reading and other towns along the route to Massachusetts the men received new rifles, knapsacks, blankets and canteens. Marylanders and Virginians enjoyed the same treatment.¹¹

Riflemen caused a stir in each town they passed through. A Baltimore resident reported that Daniel Morgan's company of Virginians

⁷ James C. Ballagh, ed., *The Letters of Richard Henry Lee* (New York, 1970), I, 130-131.

⁸ Edmund C. Burnett, ed., *The Letters of the Members of the Continental Congress* (Washington, 1921-1936), I, 134.

⁹ Worthington C. Ford, ed., *The Journals of the Continental Congress, 1774-1789* (Washington, 1904-1937), II, 89.

¹⁰ *Ibid.*, II, 104, 173.

¹¹ "The Journal of Aaron Wright," *Boston Evening Transcript*, Apr. 11, 1862, p. 1; Thompson's itemized expenses in Peter Force, ed., *American Archives*, 4th series (Washington 1837-1853), 1045-1046; Daniel Morgan's in Ford, ed., *Journals*, III, 267, 319-320, 329, 370.

looked "truly martial, their spirits amazingly elated, breathing nothing but a desire . . . to engage the enemies of American liberty."¹² The *Boston Gazette* noted the arrival of the riflemen in August, describing them as "an excellent Body of Troops . . . heartily disposed to prosecute, with the utmost Vigour, the Noble Cause in which they are engaged."¹³ And the speed with which the companies made their trek boosted their reputation, the Pennsylvanians from Cumberland County covering 441 miles in twenty-six days.¹⁴

Rifleman attire astounded New Englanders. Most wore buckskin breeches, some with belts of wampum tied around the top. Almost all had on wool or linen hunting shirts, ranging from ash-colored to deep brown or dark grey. A few sported mocassins ornately decorated with porcupine quills. Tomahawk, hunting knife, soft felt hat, powder horn and bullet pouch completed their garb.¹⁵ Washington would have preferred that the whole army be so attired, not only because of lightness and natural camouflage, but also because it would help remove "those Provincial distinctions which lead to Jealousy and Dissatisfaction." Besides, the British would fear everyone so dressed as a deadly marksman.¹⁶

At Washington's behest the riflemen displayed their sharpshooting skills at Cambridge, as they had at various points along their line of march. They purportedly gave an extraordinary show of accuracy with their weapons, hitting a mark from 200 yards—some doing this while on the "quick advance." Others struck targets seven inches in diameter from a range of 250 yards.¹⁷ Leaving their audience agape,

¹² *Virginia Gazette* (Purdie), Aug. 19, 1775.

¹³ *Boston Gazette and Country Journal*, Aug. 14, 1775.

¹⁴ George Morison, "Journal of the Expedition to Quebec," in Kenneth Rogers, ed., *March to Quebec* (Garden City, 1938), 506–508; flattering pieces on the riflemen are in Horace Kephart, "The Birth of the American Army," *Harper's Monthly Magazine*, XCVIII (May 1899), 961–970; William W. Edwards, "Morgan and His Riflemen," *William and Mary Quarterly*, 2nd series, XXIII (1914), 73–106; also see Henry J. Young, "The Spirit of 1775," *John and Mary's Journal*, no. 1 (March 1975).

¹⁵ John Joseph Henry, *Account of Arnold's Campaign Against Quebec* (Albany, 1877), 11; James Thacher, *Military Journal* (Hartford, 1862), 31; James Graham, *Life of Daniel Morgan* (New York, 1858), 63.

¹⁶ John C. Fitzpatrick, ed., *The Writings of George Washington* (Washington, 1932–1945), III, 325, 404, 415; V, 336; and II, 229, for Washington's feelings in 1758.

¹⁷ Thacher, *Military Journal*, 31; earlier demonstration by a Virginia company in Force, ed., *American Archives*, 4th series, III, 2; "Diary of John Harrower, 1773–1776," *American Historical Review*, VI (1900), 100.

they bivouacked in a special area, and were exempted from routine duties. Washington, it would appear, wanted to put his model soldiers on display.

Initially, riflemen caused a furor within the British lines, British sentries not being accustomed to their deadly sniping. Catching their opponents napping, nefarious "rebel" sharpshooters picked off the careless and unwary by long-range shots or in twilight sorties. Patriot newspapers gleefully followed their exploits.¹⁸ The propaganda value of the rifle aside, however, British soldiers in general adjusted to their menace and stayed safely out of sight behind breastworks. It did not take long for some American officers to discover that their great expectations were ill-founded, both as a result of rifleman temperament and the state of affairs at Boston.

Riflemen proved to be a mixed bag. Camp life was dull, forays and skirmishes with the British infrequent and even less consequential. With their highly touted weapons practically neutralized by siege tactics, some enlisted personnel grew bored and sullen. Their tempestuous dispositions vexed Washington and his staff, causing admiration in August to give way to criticism in October. Raucous and unlettered frontiersmen ignored military protocol, and their pretentiousness caused resentment. After a mob of Pennsylvanians broke a companion out of the Prospect Hill guardhouse, observers gave vent to their disgust. A New Englander characterized riflemen as "mutinous" and "vicious"; General Charles Lee "damned them and wished them all in Boston"; while Washington "said he wished they had never come."¹⁹ Benjamin Thompson, later Count

¹⁸ *New York Journal*, Aug. 17, 1775; Caleb Haskell, "Diary at the Siege of Boston and on the March to Quebec," in Roberts, ed., *March to Quebec*, 467, 468-472; Fitzpatrick, ed., *Writings of Washington*, III, 393-394; IV, 84; William Heath, *Memoirs* (Boston, 1798), 18; Frank Moore, ed., *The Diary of the American Revolution* (Hartford, 1876), 119-120.

¹⁹ Prospect Hill incident in Henry S. Commager and Richard B. Morris, eds., *The Spirit of Seventy-Six* (New York, 1967), 156-157; Fitzpatrick, ed., *Writings of Washington*, III, 490-491. Derisive comments are in the Adams Papers, Massachusetts Historical Society microfilm: Artemus Ward to John Adams, Oct. 30, 1775, I, 92 (reel 345); John Thomas to John Adams, Oct. 24, 1775, I, 10 (reel 345); Samuel Osgood to John Adams, Oct. 25, 1775, I, 103 (reel 345). Adding substance to the charges, see the list of deserters from the rifle companies in the George Washington Papers, Library of Congress microfilm, series 4, entry of Oct. 23, 1775 (reel 34). And it would seem that not all of the riflemen were truly marksmen, as some were weeded out and sent home. Fitzpatrick, ed., *Writings of Washington*, III, 490; and muster rolls in Force, ed., *American Archives*, 4th series, III, 253-254; IV, 491-492.

Rumford, scoffed "of all useless sets of men that ever encumbered an army, surely the boasted riflemen are . . . the most so."²⁰ Indeed, riflemen had done little to warrant the confidence many, especially the disappointed Washington, had in them.

Yet Washington realized, if somewhat belatedly, that Boston was not the best place to test the rifle's effectiveness, for light infantry tactics based on mobility could not be used there. Even though disappointed in the behavior of some enlisted men in the rifle companies, he kept his faith in their weapon. Accordingly, on January 1, 1776, the Pennsylvania Rifle Regiment was redesignated the First Regiment of the Army of the United Colonies, reflecting Washington's desire to mold his army around the riflemen. And that same month Congress directed Pennsylvania to raise five new Continental regiments, specifying that each regiment have one company of riflemen.²¹ Both Washington and Congress wanted riflemen to comprise a significant portion of the "national" army. Apparently they still hoped to capitalize on the rifle's inherent superiorities.

Congress recognized that sending more than 1,200 riflemen to Boston merely skimmed the surface of a vast reservoir. Riflemen appeared in abundance in the Continental and militia levies assembled in 1775 and 1776 from New York to Georgia. Pennsylvania, for example, raised an additional 1,000 riflemen for state service in March 1776.²² In short, there were many more rifles available, and many more riflemen under arms, than is normally appreciated.

Yet it cannot be assumed that because there were more riflemen in the Continental Army and state militia than is commonly conceded, the rifle's significance has been likewise slighted. The mediocre record of Continental riflemen at Boston has been noted. Three of those rifle companies later went on the Quebec expedition. Instead of filling their enemy with dread, most of the riflemen were taken prisoner. Because they fought along narrow streets in a drizzling downpour, they held no noticeable advantage over their opponents. On the contrary, faster loading, less temperamental

²⁰ Commager and Morris, eds., *Spirit of Seventy-Six*, 155.

²¹ Ford, ed., *Journals*, IV, 29. The regiment's title changed to the First Regiment of the Pennsylvania Line in July 1776, when a state numbering system was adopted.

²² Force, ed., *American Archives*, 4th series, V, 677, 681, 1225; William Henry Egle, ed., *Pennsylvania in the War of the Revolution* (Harrisburg, 1890), I, 263.

muskets equipped with bayonets were better for house-to-house fighting. The edge riflemen might have enjoyed if the battle had been fought in the open was negated once they passed within the city walls. Rather than exploiting their weapon's superiorities, they became victims of its inadequacies. Rifles had to be employed more imaginatively to be effective, otherwise all of the patriots would have been better off with muskets and bayonets.

Continental riflemen in South Carolina compiled a slightly better record than their counterparts further north. When Sir Henry Clinton made his bid to take Charleston in June 1776, South Carolina riflemen acquitted themselves well. Indeed, Charles Lee, commanding at Charleston, showed that the source of his irritation in Boston had been riflemen, not their rifles. He counted heavily on this weapon because "the enemy entertain a most fortunate apprehension of American riflemen."²³ They did not have much of a chance to prove their mettle, but they did prevent an amphibious assault from turning the flank of Fort Sullivan.²⁴

Interestingly enough, militia in Virginia and North Carolina made the first significant use of the rifle. In December 1775, Virginia riflemen turned out with other Virginia troops to maul a combined British and Loyalist force at Great Bridge. Three months later North Carolina riflemen trounced a column of Loyalists at the battle of Moore's Creek Bridge.²⁵ At both engagements the Patriots picked the site of battle, fought from concealment, left themselves an easy line of retreat, and, because their opponents had to approach along a narrow front, their accurate fire held sway. The Virginians and North Carolinians maximized the rifle's advantages and avoided a situation where its lack of a bayonet and slowness of loading would be factors.

Until the raising of a special corps under Daniel Morgan in 1777, Continental riflemen rarely had such opportunities. And while

²³ Jared Sparks, ed., *Correspondence of the American Revolution* (Freeport, 1970), II, 501-502.

²⁴ Edward McCrady, *The History of South Carolina in the Revolution* (New York, 1969), I, 152-153.

²⁵ Great Bridge in Force, ed., *American Archives*, 4th series, IV, 501-502; William Gordon, *The History of the Rise, Progress and Establishment of the Independence of the United States* (London, 1788), II, 111-113; Moore's Creek Bridge in Gordon, *History*, II, 209.

Morgan's contingent is often pointed to as the high-water mark for riflemen during the war, rifles were already being phased out several months earlier. In terms of numbers, there were never more riflemen in the Army than in the summer of 1776. The New York campaign would be the last time riflemen comprised a substantial portion of the Army. Washington had perhaps 2,000 riflemen at New York. Present were some New York militia riflemen, the original Pennsylvania Rifle Regiment (less two companies taken at Quebec), a new (though incomplete) regiment of Virginians and Marylanders, two Pennsylvania state rifle regiments, plus rifle companies in each Pennsylvania and Virginia line regiment. Washington, having forgiven the sins of the riflemen at Boston, would have liked to have had more. At his request Congress induced the original Pennsylvania riflemen—"a valuable and brave body of men"—to re-enlist for a bounty.²⁶ Washington and Congress, then, still intended to keep riflemen a significant part of the Continental Army. Considering the way those riflemen were used, one might wonder why.

American commanders on Long Island, for example, did not use them effectively. Riflemen accounted for fully one-third of the 2,800 front-line troops stationed there in August 1776, but they were split into small groups. When General William Howe seized the initiative and a British and Hessian column outflanked the American defenses, riflemen and their musket-carrying companions fled or were taken. Most riflemen had no chance to capitalize on their superior range because of the unexpectedness of the British move.²⁷ One participant noted that German *jaegers*, like American riflemen, did not have bayonets. But unlike Americans, *jaegers* were skilled in linear as well as irregular tactics.²⁸ Psychologically unprepared to deal with bayonet-wielding regulars, numerous riflemen simply broke and ran. German mercenaries therefore dismissed

²⁶ Fitzpatrick, ed., *Writings of Washington*, IV, 501–502. The original Pennsylvania Rifle Regiment (now the First Regiment of the Pennsylvania Line) was severely understrength, however—see Force, ed., *American Archives*, 5th series, I, 331–332. Attempts to raise new companies in Ford, ed., *Journals*, V, 473; understrength character of the Virginia-Maryland regiment in Fitzpatrick, ed., *Writings of Washington*, V, 202, 216; Burnett, ed., *Letters*, I, 518.

²⁷ Henry Johnston, *The Campaign of 1776 Around New York and Brooklyn* (Brooklyn, 1878), 64–65; Force, ed., *American Archives*, 5th series, I, 1213–1214; Commager and Morris, eds., *Spirit of Seventy-Six*, 433–440.

²⁸ Johnston, *Campaign*, part 2 (documents), 50.

them as contemptible. "Riflemen were mostly spitted to the trees with bayonets," jeered a Hessian officer, "these frightful people deserve more pity than fear."²⁹ A British officer later wrote that his comrades went out "rebel hunting" at night. Before unlucky riflemen could reload after their first shot they were "run through . . . as a rifleman is not entitled to any quarter."³⁰ Whatever mystique had been formerly associated with their prowess had rapidly worn off.

Admittedly, riflemen fared somewhat better on Manhattan Island than they had on Long Island, winning a few minor skirmishes.³¹ Skirmishes, however, did not alter the course of the campaign. Washington abandoned Manhattan, moved up to White Plains, crossed into New Jersey and ultimately retreated into Pennsylvania. The Maryland and Virginia rifle regiment did not make the trip. It fell captive to the British, along with the rest of the garrison left isolated at Fort Washington by the main army's withdrawal. The dogged resistance of those riflemen turned out to be one of the few bright spots during the siege of Fort Washington. They fought in open order in hilly terrain north of the fort, inflicting frightening casualties among their attackers by a sniping fire. But because the Hudson was on their flank they could not withdraw and they eventually laid down their arms.³² Tactically, they fought as was their wont; strategically, the British dictated the terms of battle.

Washington ended 1776 with the tattered remnants of an army. His victory at Trenton and fortunate escape through Princeton left him mulling over his prospects for the coming year. Of the 2,000 or so riflemen in the army six months earlier, less than a quarter remained. A growing number of officers agitated for their elimination altogether. Peter Muhlenberg, colonel of a Pennsylvania line regiment, requested that the men in his command be uniformly armed

²⁹ Edward J. Lowell, *The Hessians* (Port Washington, 1965), 65-66.

³⁰ Moore, ed., *Diary of the American Revolution*, 349-350.

³¹ Riflemen skirmishes at Harlem Heights in Commager and Morris, eds., *Spirit of Seventy-Six*, 470-471; Johnston, *Campaign*, part 2 (documents), 86-87; Johnston, *The Battle of Harlem Heights* (New York, 1970), 54-55; Fitzpatrick, ed., *Writings of Washington*, VI, 146, 179; Throg's Neck in Christopher Ward, *The War of the Revolution* (New York, 1952), I, 255; Heath, *Memoirs*, 59-60; Mamaroneck in Lowell, *The Hessians*, 75-76.

³² Alexander Graydon, *Memoirs of His Own Times* (New York, 1969), 192-202; John W. Fortescue, *A History of the British Army* (London, 1899-1920), III, 191-193.

with muskets.³³ Anthony Wayne complained "I don't like rifles—I would rather face an Enemy with a good Musket and Bayonet without ammunition." If Wayne had his way he would see "Rifles Intirely laid Aside."³⁴ The Board of War hesitated to accept any new rifle companies. If enough muskets had been available, it "would speedily reduce the number of rifles" and replace them with muskets, "as they are more easily kept in order, can be fired oftener, and have the advantage of bayonets." Washington joined the Board of War and his subordinate officers in favoring a substitution of muskets for rifles in line regiments.³⁵

Riflemen, in a sense, became scapegoats for defects in the American Army in general. Most American soldiers, not just riflemen, could not match British regulars. For both military and political reasons the Continental Army had not fought a truly "revolutionary" war. Whether or not Washington and Congress had ever intended to is debatable. If not, then their reliance on riflemen seems to have been based on the misconception that bayonetless rifles and backwoodsmen unappreciative of linear tactics could be all things to all people. As time wore on the army became more conservative in form and function. Thus, in the winter of 1777–1778, esteem for the rifle reached its nadir. That winter spent at Valley Forge witnessed significant changes in the American Army. Rifles had steadily fallen in reputation since the halcyon days of 1775, but wholesale disavowal of those weapons came only with the teachings of General Baron Wilhelm von Steuben.

Von Steuben sought to professionalize an amateurish army. The wide variety of weapons in American regiments—muskets, rifles, carbines, and fowling pieces—dismayed him. He corrected that by eliminating everything but bayonet-equipped muskets, insofar as

³³ Muhlenberg to Washington, Feb. 23, 1777, Washington Papers, series 4 (reel 40); also see John W. Wright, "The Rifle in the American Revolution," *American Historical Review*, XXIX (1924), 293–299.

³⁴ Wayne to the Board of War, June 3, 1777, Anthony Wayne Papers, III, 89, Historical Society of Pennsylvania.

³⁵ Force, ed., *American Archives*, 5th series, II, 1247; Wayne to Richard Peters, Feb. 8, 1778, Wayne Papers, IV, 78. Also see the letter of Col. William Thompson of South Carolina requesting that most of his rifles be replaced with muskets in Burnett, ed., *Letters*, II, 452.

stocks on hand would allow. He taught the manual of arms, platoon volley fire, and proper use of the bayonet.³⁶

The "new" American army emerging in the spring of 1778 was an army built around von Steuben's staid European principles. He deserves credit for transforming "rag, tag and bobtail" into a cohesive, disciplined fighting force. Yet his improvements entailed a rejection of most facets of native American warfare, a retrogression to "tried and true" fundamentals of eighteenth-century European warfare.

Von Steuben merely formalized an already present tendency. Prior to 1778 American military leaders had not implemented a systematic approach to war. A smattering of English, French, and German textbook procedures had been meshed with dicta of frontier warfare to produce soldiers comfortable with neither. Inclusion of riflemen in the Continental Army in 1775 and 1776 reflected Washington's desire to integrate the best aspects of frontier warfare into his battlefield tactics. Integration failed, however. Washington had men adept at linear tactics or irregular tactics, but few proficient at both. Riflemen were the least prepared to face the British, not because they did not know how to fight, but because they only knew how to fight in one particular fashion. Those most inclined to use rifles were also the least inclined to fight British regulars on the latter's terms. When faced with a crumbling army, American leaders understandably fell back on European techniques instead of experimenting with something new. In 1778 Charles Lee proposed an alternative to the von Steuben plan, but by then the trend could not be reversed.³⁷

A new approach would have required a more eclectic borrowing from European and American military experience. Back in 1757, New England pastor Gad Hitchcock proposed just such a mixture. Hitchcock stressed that the well-trained colonial ought to be adept at both European and Indian warfare. He should "not be unacquainted with the Methods of War that are practised by the

³⁶ John M. Palmer, *General Von Steuben* (New Haven, 1937), 140, 151-157; enthusiastic reception of von Steuben's modifications noted in Timothy Pickering to Congress, Papers of the Continental Congress, National Archives microfilm, Item 147, III, 143 (reel 158).

³⁷ Lee in the Lee Papers, *Collections of the New-York Historical Society*, II (1872), 383-389.

Enemy"; he should be able to "fight skillfully, either in the Wilderness or the field."³⁸ Though addressing himself to prospective militiamen in the French and Indian War, Hitchcock might have offered the same advice in 1775. Hitchcock recommended putting the colonial soldier on a par with his foe, be he Indian or European. The rifle would have given an added dimension. A bayonet-equipped rifle would have held the upper hand, its users fighting at long range whenever possible, but able to deal with the British their way if necessary.

Daniel Morgan's special rifle corps was the closest the Continental Army came to filling Hitchcock's prescription. In June 1777, Washington authorized Morgan to assemble a light infantry regiment of 500 riflemen.³⁹ The hulking Virginian scoured the ranks and selected men primarily from Pennsylvania and his home state. (Considering the difficulty Morgan had in finding rifles, the new regiment probably stripped the main army of them.) Morgan's Rifle Corps was treated as an elite body, as indeed it was. Some of the men in the regiment had marched with the original rifle companies to Boston in 1775, and had since been seasoned by experience. Though none had modified their guns to take bayonets, they were not as prone to panic. Henry Knox, in fact, valued the regiment as the most "respectable body of Continental troops that were ever in America."⁴⁰

In August Washington detached the Rifle Corps and sent it to assist the northern army under General Horatio Gates, informing Governor Clinton of New York that Morgan's men were the "pick of the army." He asked Israel Putnam to exaggerate the number of men with Morgan, hoping Indians serving with Burgoyne, on his way down the Hudson, would lose heart and go home.⁴¹

³⁸ Gad Hitchcock, *Sermon* (Boston, 1757), 12. For the conventional, nonrevolutionary character of the war see John Shy's essays "American Strategy: Charles Lee and the Radical Alternative," and "The Military Conflict Considered as a Revolutionary War," both reprinted in his *A People Numerous and Armed* (New York, 1976), 132-162, 193-224.

³⁹ Fitzpatrick, ed., *Writings of Washington*, VIII, 156, 236-237, 246; flattering assessment of Morgan's unit in Henry Carrington, *Battles of the American Revolution, 1775-1781* (New York, 1877), 61-62.

⁴⁰ Commager and Morris, eds., *Spirit of Seventy-Six*, 537.

⁴¹ Fitzpatrick, ed., *Writings of Washington*, IX, 70-71, 78, 82, 102.

At the battles of Freeman's Farm on September 19 and Bemis Heights on October 7, when Burgoyne tried desperately to turn Gates's flank, riflemen distinguished themselves again and again. Morgan and his regiment fought from concealment, letting loose a withering fire in both engagements. Burgoyne later confessed in testimony before the House of Commons that the riflemen slew an inordinate number of his officers, and caused dozens of Indians and Loyalist militia to desert.⁴² William Digby of the Shropshire Regiment observed that at Freeman's Farm all but one of the officers in his regiment fell to the riflemen.⁴³ At Bemis Heights, a British sergeant lamented, "the riflemen from trees effected the death of numbers," including General Simon Fraser.⁴⁴

Morgan's men bested light infantry, grenadiers, and *jaegers*, the cream of Burgoyne's army. Yet they did not fight alone. They had been reinforced by veteran units armed with muskets and bayonets. If not for their support the riflemen would have been driven from the field at least once during the fighting at Freeman's Farm. Thus Morgan's men may have been the catalyst bringing success in the Saratoga campaign, but they did not win it singlehandedly. After all, they constituted a small portion of Gates's 11,000-man army. And despite the lessons of two years of war, their guns could not take bayonets. Either riflemen refused to modify their weapons, fearing they would have to fight in close order, or Washington and his staff did not see how rifles could have been made more complete.

Morgan returned to the main Army a conquering hero. But, like the Army in general, his corps was decimated by the severe winter of 1777-1778 and several sharp actions with the British over that period. Finally, in July 1778, Washington sent a portion of the regiment west for frontier duty and disbanded the remainder, ordering the men to return to their old units. This not only ended

⁴² John Burgoyne, *A State of the Expedition From Canada* (London, 1780), 30, 102, 121-122. For commentaries on Morgan's unit and riflemen in general, see Don Higginbotham, *Daniel Morgan* (Chapel Hill, 1961), 16-77; John S. Pancake, *1777: The Year of the Hangman* (University, Ala., 1977), 82-83, 146-187.

⁴³ Commager and Morris, eds., *Spirit of Seventy-Six*, 580; also see James Wilkinson, *Memoirs of My Own Times* (Philadelphia, 1816), I, 243-247.

⁴⁴ Roger Lamb, *Memoirs of His Own Life* (Dublin, 1811), 199; also Thacher, *Military Journal*, 101-102; Charles Stedman, *The History of the Origin, Progress and Termination of the American War* (New York, 1969), I, 336-344.

the chapter on Morgan's contingent, it for all intents and purposes closed the book on the rifle in the Continental Army.⁴⁵ The irony of this was that it occurred less than a year after Morgan's Saratoga triumph.

Yet the days of Morgan's regiment had been numbered from the beginning. A special light infantry corps equipped with muskets and bayonets had been organized in July 1778. It would have been assembled earlier if trained men and adequate supplies had been available. Washington ordered each line battalion to organize a light infantry company, the individual companies in each battalion to combine as an independent regiment during campaigns.⁴⁶ In other words, Washington essentially reinstituted the system he had pushed for in 1775, except that he replaced riflemen with units armed and trained to fight in the same manner as regular line troops. Considering the tactics of the Continental Army by 1778, that seemed the logical decision. Washington overcame the handicap of having two types of soldiers—riflemen and musket-equipped regulars—in the same army. It was his formal announcement that the Continental Army was more European than American.

Disappearance from the Continental Army did not mean rifles were no longer used in the war. In the South, Continental riflemen were being phased out in favor of musket-armed regulars by 1777, as in the main army under Washington, but many of those men ended up in the partisan corps of Andrew Pickens, Francis Marion, and Thomas Sumter.

Southern militia, in fact, made the best long-term use of the rifle. Battle lines and full-scale engagements were few and far between, and the rifle finally came into its own. Riflemen won several victories. A small company of Virginians stunned Banastre Tarleton at

⁴⁵ Fitzpatrick, ed., *Writings of Washington*, XII, 140, 200, 214, 284, 406; XIII, 110; XIV, 43; XVII, 85. The corps was not officially disbanded until Nov. 7, 1779, when the riflemen returned from western New York. The rifles were stored with the Commissary of Military Stores, not to be redistributed except by Washington's personal order. Two companies, about ninety men, served in 1780 and 1781 as special sharpshooters. *Ibid.*, XIX, 252, 379, 479; XX, 187, 402. A new regiment, never brought up to full strength, was organized for the Yorktown campaign, once again as a special sharpshooting unit. *Ibid.*, XXII, 257-258, 341, 426-427.

⁴⁶ John W. Wright, "The Corps of Light Infantry in the Continental Army," *American Historical Review*, XXXI (1926), 454-461.

Wahab plantation.⁴⁷ Another band smashed a Loyalist force three times its size at Musgrove's Mills. Riflemen in the Deep South participated in every action from Fort Watson to Ninety-Six, to the last pitched battle at Eutaw Springs in September 1781.⁴⁸ Militia riflemen, many of them veterans of the defunct Continental rifle regiments, turned out to fight at Cowpens and Guilford Courthouse, and later marched alongside Lafayette in Virginia.⁴⁹

Riflemen fought most successfully at King's Mountain in October 1780 and Hannah's Cowpens in January 1781. At the former, approximately 1,100 Tennesseans, North Carolinians, and Virginians, most if not all of whom carried rifles, crushed a slightly smaller but similarly armed Loyalist army in the largest single action of the war between two bodies of riflemen. The Loyalists, many of whom had modified their weapons to take bayonets, tried to decide the battle with a headlong charge that the Patriots parried by dispersing and fighting from concealment.⁵⁰ Giving way before the Loyalist onslaught, the backwoodsmen cut their opponents to pieces, winning convincingly with well-directed fire.⁵¹ At the Cowpens, Daniel Morgan successfully mixed rifle with line tactics. His Virginia, North Carolina, and Georgia riflemen, knowing they were buttressed by Delaware and Maryland Continentals, poured a galling preliminary fire into the British before withdrawing to the rear. Nonetheless, Morgan's victory over Banastre Tarleton resulted as much from good fortune as sound tactics. If not for a sudden wheeling movement and bayonet charge by the Continentals, the steadfastness of the Virginia riflemen, the unexpected re-

⁴⁷ Ward, *The War of the Revolution*, II, 738-739.

⁴⁸ Jac Weller, "Irregular But Effective: Partizan Weapons Tactics in the American Revolution, Southern Theatre," *Military Affairs*, XXI (1957), 118-131.

⁴⁹ George W. Greene, *The Life of Nathanael Greene* (New York, 1972), III, 189-202; Henry Lee, *Memoirs of the War in the Southern Department* (Washington, 1827), 170-180; Banastre Tarleton, *A History of the Campaigns of 1780 and 1781 in the Southern Colonies of North America* (London, 1787), 269-279, 303-312; Gaillard Hunt, ed., *Fragments of Revolutionary History* (Brooklyn, 1892), 29-40, 46-56.

⁵⁰ According to Stedman, *History*, II, 220-223, many of the Loyalists at King's Mountain modified their rifles to take bayonets. See the general accounts in Commager and Morris, eds., *Spirit of Seventy-Six*, 1135-1145; J. Watts De Peyster, "The Affair at King's Mountain," *Magazine of American History*, V (1880), 401-424; Lyman C. Draper, *Kings Mountain and Its Heroes* (Chapel Hill, 1967), 237.

⁵¹ William Moultrie, *Memoirs of the American Revolution* (New York, 1968), II, 245.

turn to the field of the other militia, and a slashing cavalry charge by William Washington, the scales could have tipped to the other side.⁵² Morgan's fortuitous mixture of skittish militia and dependable line troops made his gamble pay off. Yet if he had had an army capable of fighting in either irregular or line fashion, depending on the situation at hand, his battle plan would not have been so risky. Nathanael Greene's attempt at Guilford Courthouse to imitate Morgan demonstrated just how lucky the latter had been.

Greene's problem at Guilford Courthouse was indicative of basic idiosyncracies within the American military establishment. Militia and Continentals waged different types of war. This explains how Washington could phase the rifle out of the Continental Army on the one hand, and on the other advise New York to raise a regiment of militia riflemen to serve on the frontier.⁵³ Militia, particularly when called to fight outside their state boundaries, had a disturbing habit of coming and going as they pleased. Still, because of their predilection for hit-and-run tactics, militia fought in a way making the unmodified rifle useful to them. Continentals dressed, drilled, and fought much like their British foes. In fact, they may have become too much like them. An American officer noted that at an encounter near Green Springs, Virginia, just before Cornwallis bottled himself up in Yorktown, a British force ironically turned the tables on the American attackers. American light infantry, bayonets leveled, advanced in close order through a woods, only to be stopped and hurled back in disorder by British regulars firing individually while dodging from tree to tree.⁵⁴

In passing it should be noted that the disparity between militia-men and Continentals was accentuated by American military organization. Continentals and militia were recruited and brigaded by states, with few exceptions. Early attempts to replace this procedure with a truly national army went nowhere. Getting all elements of this diffused organization to fight a new way would have been a monumental task.

Military conservatism played a still more important role in cur-

⁵² Accounts in Tarleton, *Campaigns*, 214-222; Graham, *Daniel Morgan*, 289-316; Com-mager and Morris, eds., *Spirit of Seventy-Six*, 901-902; Stedman, *History*, II, 318-325.

⁵³ Fitzpatrick, ed., *Writings of Washington*, XIV, 188.

⁵⁴ Hunt, ed., *Fragments of Revolutionary History*, 50.

tailoring the rifle's use during the war. To be sure, anticipating and planning for war back in 1775 was not feasible, given geographical and political divisions among colonies and the evolutionary nature of agitation for a break with the mother country. That the Patriots had to learn from experience was to be expected. Somewhere along the line, however, some farsighted strategist should have seen that the rifle was perhaps too perfect a reflection of colonial warfare, and needed to be modified to serve against an enemy of a very different nature, or else laid aside as unsuitable. Modification entailed changing the backwoodsman's aversion to training in bayonet tactics as well as physically altering the rifle, for it is erroneous to conclude that the war would have been won sooner if the entire army had been composed solely of frontier riflemen from the beginning.⁵⁵ John Simcoe, commander of the Queen's Rangers, correctly charged that riflemen, because of their limited training, "were by no means the most formidable of the rebel troops."⁵⁶

In all fairness to Washington and his staff, it should be pointed out that they did not have a free hand at making strategy. Due to political considerations, Washington had to keep his army close to the seaboard and, as at New York, sometimes stood and fought when his instincts told him to withdraw. There is also the possibility that irregular tactics based on the rifle may have led Patriots to avoid a serious confrontation with the British, thereby reducing the Continental Army's effectiveness. That army had to be a viable deterrent to British designs for political reasons, for local and world opinion, and, on a more mundane yet no less essential level, to keep enlistments from dropping precipitately. Indeed, William Moultrie wrote after the war that Fabian tactics caused too many to "grow tired and desert."⁵⁷ Moultrie's observation could be easily tied to the disturbing "unreliability and lack of discipline" among American soldiers noted by Daniel J. Boorstin.⁵⁸

⁵⁵ See Sawyer, *Firearms in American History*, 33, 37, 77-79, for this type of argument.

⁵⁶ John G. Simcoe, *Simcoe's Military Journal* (New York, 1844), 237. Likewise British officer George Hanger, while an admirer of the rifle as a precision weapon, criticized its limited tactical adaptability. George Hanger, *General George Hanger To All Sportsmen* (London, 1816), 122-124, 199-200.

⁵⁷ Moultrie, *Memoirs*, I, 365.

⁵⁸ Boorstin, *The Americans: The Colonial Experience* (New York, 1958), 368-369.

Failure to exploit the transcendent properties of the rifle, like inability to see the promise of David Bushnell's submarine the *Turtle*, exemplified a lack of appreciation for the latent powers of invention. Practically no inventive interest was taken in the rifle during the war. David Rittenhouse and Charles Willson Peale experimented with a telescopic sight for rifles in 1776, but ended their work abruptly when they almost put out their eyes. Rittenhouse later proposed to experiment with rifled cannon, but nothing came of it.⁵⁹

At this point it would seem that American military leaders missed their chance to capitalize on the technological superiority of the rifle, albeit that chance was small. They were prone to a conservatism commonly associated with the military mind. Some had not started out that way, otherwise Washington would not have attempted to fill the army with riflemen in 1775 and early 1776. At first glance Washington's later change of heart could be viewed as a contradiction to his expressed faith in the rifle. He, along with countless others, had revered the rifle as hard evidence that the colonies had bested the mother country in at least one field of technological endeavor. Yet champions of that weapon found themselves at the edge of a void when confronted by wartime realities. Their zeal outstripped their technological knowledge; their faith was no substitute for technological awareness, and that faith ultimately faltered. The Patriots had expected great things from the rifle, but when those did not materialize they retreated to an imitative, Europeanized approach to war. When riflemen failed to produce the desired results no one really understood why. Adapting the rifle

⁵⁹ Maurice Babb, "David Rittenhouse," *Pennsylvania Magazine of History and Biography*, LVI (1932), 113-125; Charles Sellers, *Charles Willson Peale* (Philadelphia, 1947), I, 126-133; Force, ed., *American Archives*, 4th series, V, 729. For an analysis of this problem in the larger context of invention in colonial America in general, see my "Technology in Revolutionary America" (Ph.D. dissertation, University of California, Santa Barbara, 1978). A parallel could easily be drawn between the phasing out of the long bow in the English army and the slowness to adopt rifles centuries later. See Thomas Esper, "The Replacement of the Long Bow by Firearms in the English Army," *Technology and Culture*, VI (1965), 382-393; C. G. Cruikshank, *Elizabeth's Army* (Oxford, 1966), 102-119. Excellent discussions of the problem of technological development and slow military adaptation are in I. B. Holley, *Ideas and Weapons* (New Haven, 1953), 3-22; and Elting E. Morison, *Men, Machines and Modern Times* (Cambridge, 1966), 17-44.

to linear tactics posed one set of problems; the intellectual gymnastics of rethinking those tactics to maximize the rifle's effectiveness posed another, whose solution lay beyond the ken of the Revolutionary generation. The Pennsylvania rifle, an adaptation to one environment, did not fare as well when placed in another. It was more than a simple tool, for it reflected a certain attitude about war, an attitude not universally applicable. American military leaders, only vaguely conscious of the social nature of invention, did not really grasp this. Hence they did not successfully adapt the rifle to their tactics or their tactics to the rifle.

Before passing judgment on Washington and the rest, it must be remembered that the new nation had a restricted industrial capacity, and at no point during the war did Americans have the luxury of retooling. Congress and the states operated with marginal resources. Benjamin Franklin's atavistic proposal that pikes and bows and arrows replace firearms as standard weapons resulted as much from the constant munitions shortages as from Franklin's dislike of muskets.⁶⁰ Even if Washington and Congress had committed themselves to a new type of army equipped with rifles, they probably could not have carried it off. Pennsylvania gunsmiths would have been happy to try, since they welcomed "an excuse to lay by the Musketwork and make Rifles, which are more profitable for them," but rifles took more time to make than muskets and undoubtedly many gunsmiths assembling muskets under committee of safety and congressional contracts were unfamiliar with the art.⁶¹ Besides, it proved impossible to keep Americans adequately supplied with muskets—much less rifles. Not only were rifles costlier and harder to make, European gunsmiths producing a large percentage of the Patriots' arms were not acquainted with rifles, or at least with American models.

Whether or not the rifle would have been used more imaginatively if the Patriots had had the industrial capacity to produce nine or ten thousand a year is a moot point. Though neither Washington nor Congress said so explicitly, the realization that they had to

⁶⁰ Albert H. Smyth, ed., *The Writings of Benjamin Franklin* (New York, 1905-1907), VI, 438-439. For the munitions problems in general, see my "Clandestine Aid and the American Revolutionary War Effort: A Re-examination," *Military Affairs*, XLIII (1979), 26-30.

⁶¹ Extract from Egle, ed., *Pennsylvania in the War of the Revolution*, I, 510.

fight with whatever they could scrape together on short notice may have shaped their thinking on the rifle. Be that as it may, it can be safely stated that the "Pennsylvania rifle" may have been the product of American genius, but it was not ingeniously employed during the Revolution. What is more, given the state of American industry, the tendencies of American troops, and the incomplete technological hierarchy of the era, it is just as well that the rifle experiment was set aside.

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