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Industrial Manifest Destiny: American Firearms Manufacturing and Antebellum Expansion

The years surrounding the origins of the term “Manifest Destiny” were a transitional period in the history of industrialization. Historians have done much to analyze the impact of major technological shifts on business structure and management, and to connect eastern markets and westward expansion. They have paid less attention, however, to the relationship among continental geopolitics, industrial development, and frontier warfare. This article uses War Department papers, congressional reports, and manufacturers’ records to examine how the arms industry developed in response to military conflict on the frontier. As public and private manufacturers altered production methods, product features, and their relationships to one another, they contributed to the industrial developments of the mid-nineteenth century.

Keywords: firearms industry, nineteenth-century United States, territorial expansion, innovation, federal government, Samuel Colt, military, private sector, public sector

At the Crystal Palace Exhibition in London in 1851, the United States won a greater share of prizes than any other nation. Of particular note were its firearms. Three years after the Exhibition, Britain’s Board of Ordnance decided to stock its new national armory with

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American-made machinery.¹ The story of American success at this international display has been well told in studies of the American system of manufactures. But the question of how the United States developed technology that its former colonizer coveted has not yet been answered fully.

Part of the answer lies in the firearms industry and the ideology of “Manifest Destiny,” a phrase coined by magazine editor John L. O’Sullivan in 1845 to advocate the United States’ annexation of new territory.² The years surrounding the phrase’s origins were a transitional period in the history of industrialization, and historians have done much to analyze the impact of major technological shifts on firms, regional markets, business management, and workers and communities.³ They have done less, however, to explore these shifts in relation to the frontier violence that was endemic to antebellum territorial expansion. The frontier has long occupied American historians as a site of violence, opportunity, and exceptionalism. Frontier warfare did not make the United States “exceptional,” but the realities of military conflict in the pursuit of territorial expansion in North America had particular effects on its manufacturing. Americans’ ability to acquire land depended on an implicit commitment among settlers, manufacturers, and federal officials to improve firearms.

When O’Sullivan gave a name to Americans’ territorial ambitions, he described a phenomenon—already underway—that would contribute to arms innovation. Warfare in Florida against the Seminole Indians in the late 1830s and early 1840s provided the first major experience for

¹ Carolyn Cooper, “A Connecticut Yankee Courts the World,” in Herbert G. Houze, Carolyn C. Cooper, and Elizabeth Mankin Kornhauser, *Samuel Colt: Arms, Art, and Invention* (New Haven, 2006), 8.

² John L. O’Sullivan, “Annexation,” *The United States Magazine and Democratic Review*, July/Aug. 1845.

³ Alfred D. Chandler, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, Mass., 1977). For business and technology, see also, Naomi R. Lamoreaux, “Entrepreneurship, Business Organization, and Economic Concentration,” in Stanley L. Engerman and Robert E. Gallman, eds., *The Cambridge Economic History of the United States II* (Cambridge, U.K., 2000), 403–34. Two of the most compelling studies of expansion and industrial capitalism are, William Cronon, *Nature’s Metropolis: Chicago and the Great West* (New York, 1992); Richard White, *Railroaded: The Transcontinentals and the Making of Modern America* (New York, 2011). For the frontier and economic growth, see also Thomas C. Cochran, “The Paradox of American Economic Growth,” *The Journal of American History* 61, no. 4 (1975): 925–42. Works on the social and cultural changes that accompanied a rise in the factory system include Barbara M. Tucker, *Samuel Slater and the Origins of the American Textile Industry, 1790–1860* (Ithaca, 1984); Mary H. Blewett, *Men, Women, and Work: Class, Gender, and Protest in the New England Shoe Industry, 1780–1910* (Urbana, 1988); Alan Dawley, *Class and Community: The Industrial Revolution in Lynn* (Cambridge, Mass., 1976); Thomas Dublin, *Transforming Women’s Work: New England Lives in the Industrial Revolution* (Ithaca, 1994); David A. Zonderman, *Aspirations and Anxieties: New England Workers and the Mechanized Factory System, 1815–1850* (New York, 1992); and David Hounshell, *From the American System to Mass Production, 1800–1932: The Development of Manufacturing Technology in the United States*, vol. 4 (Baltimore, 1985).

weapon adaptation and a military market for the private sector. Soon after, the United States declared war on Mexico, which became a testing ground and marketing platform for the firearms industry. Beyond their cultural contexts and ideological underpinnings, Manifest Destiny and the “frontier” matter for business historians because they provided the impetus for innovation in the arms industry, which laid the groundwork for developments in other industries.⁴

Merritt Roe Smith’s now forty-year old work on technological change at the federal armory at Harpers Ferry, Virginia, is still the standard-bearer of scholarship on the development of the arms and machine tool industry. But while Smith focused on how local customs shaped industrial change, this article connects eastern firearms manufacturing with the conflict and violence that accompanied the ideology of Manifest Destiny.⁵ The experiences of soldiers and citizens on the southern frontier prompted ordnance officials to undertake new experiments in weapon production, and arms makers to develop repeating firearms. These technological innovations helped contribute to the “American

⁴ As Patricia Limerick reminds us, the settlement of the North American continent was about more than individual adventurism and violent bravery; it had everything to do with the brutal realities of capitalism. Patricia Nelson Limerick, *The Legacy of Conquest: The Unbroken Past of the American West* (New York, 1987). For the original “frontier thesis,” which argued that the existence of a frontier provided opportunities for white Americans that were unavailable in Europe, see Frederick Jackson Turner, “The Significance of the Frontier in American History,” *Annual Report of the American Historical Association* (1893): 197–227. Although Turner associated this frontier with violence, Patricia Nelson Limerick, Richard White, and others have done more to reveal the violence and economic exploitation involved in territorial expansion. James R. Grossman, *The Frontier in American Culture: Essays by Richard White and Patricia Nelson Limerick* (Berkeley, 1994). Historians disagree over the usage of “frontier” versus “borderlands.” The term “frontier” has more commonly been associated with Anglo-American dominance and colonial binaries, while “borderlands” often signifies more fluid zones of interaction. Andrew R. L. Cayton and Fredrika J. Teute, eds., *Contact Points: American Frontiers from the Mohawk Valley to the Mississippi, 1750–1830* (Chapel Hill, 1998); Pekka Hämäläinen and Samuel Truett, “On Borderlands,” *The Journal of American History* 98, no. 2 (2011): 343–44; and Jeremy Adelman and Stephen Aron, “From Borderlands to Borders: Empires, Nation States, and the Peoples in Between in North American History,” *The American Historical Review* 104, no. 3 (1999): 815–16. David Silverman has recently and compellingly defined “frontier” as a “zone of contact in which indigenous people exercised significant and sometimes even disproportionate power and the outcome was uncertain and contested.” David Silverman, *Thundersticks: Firearms and the Violent Transformation of Native America* (Cambridge, Mass., 2016), 19. In general, all of these terms reflect larger epistemological shortcomings. Andrew Cayton, “Not the Fragments but the Whole,” *The William and Mary Quarterly* 69, no. 3 (2012): 514. It is not my intention to enter into the theoretical debates surrounding these terms, but for the purposes of linking contested territory and Anglo-American–Native conflict to manufacturing, I consider “frontier” in the rather limited sense of a sparsely settled backcountry characterized by episodes of violent conflict, which required military and material support.

⁵ Merritt Roe Smith, *Harper’s Ferry Armory and the New Technology: The Challenge of Change* (Ithaca, 1977); Merritt Roe Smith, “Army Ordnance and the ‘American System’ of Manufacturing, 1815–1861,” in Merritt Roe Smith, ed., *Military Enterprise and Technological Change: Perspectives on the American Experience* (Cambridge, Mass., 1985), 39–86.

system of manufactures,” a term that likely originated in 1850s England to describe the interchangeability and mechanization that characterized American manufacturing.⁶ This article does not enter into the debate about when, where, and if, true interchangeability developed. Instead, it shows how what became known as the “American system of manufactures” owed its development to manufacturers’ willingness to improve weapons in accordance with the demands of an expanding populace on the frontier.⁷

The arms industry, in the United States and elsewhere, has always influenced civilian industries through technology spin-off. Some of America’s major industries, such as the machine tool, sewing, and eventually automobile industries incorporated innovations from the arms industry’s interchangeable production.⁸ There were long-existing networks of machine workers, investors, and wholesalers that linked firms in firearms, textile, and metalworking.⁹ Individual mechanical engineers

⁶ Nathan Rosenberg, *Technology and American Economic Growth* (New York, 1972), 87–88. David Hounshell notes that while Rosenberg and others attribute the expression to a variety of British reports on American manufacturing in the mid-1850s, it was not really used except by historians, and not until the early twentieth century. David Hounshell, *From the American System to Mass Production, 1800–1932: The Development of Manufacturing Technology in the United States*, vol. 4 (Baltimore, 1985), 16–17.

⁷ While Merritt Roe Smith and David Hounshell argue that armory practices led to the achievement of interchangeability by the 1840s, historian Donald Hoke asserts that interchangeability was far from an absolute concept for manufacturers and was not solely a product of federal arms-making. Hoke maintains that interchangeability varied not only across industries, but also from factory to factory, and developed slowly throughout the nineteenth century, largely in the private sector. Smith, *Military Enterprise and Technological Change*; Hounshell, *From the American System to Mass Production*; Donald R. Hoke, *Ingenious Yankees: The Rise of the American System of Manufactures in the Private Sector* (New York, 1989), 3–4. The first conventional musket made entirely of interchangeable parts was manufactured in 1844, but historians disagree about exactly when and by whom interchangeability was achieved. Merritt Roe Smith, “John H. Hall, Simeon North, and the Milling Machine: The Nature of Innovation among Antebellum Arms Makers,” *Technology and Culture* 14, no. 4 (1973): 589. Not all historians of technology agree. Robert B. Gordon emphasized the importance of improvements in artificers’ handwork over the influence of ordnance officers and superintendents. Robert B. Gordon, “Simeon North, John Hall, and Mechanized Manufacturing,” *Technology and Culture*, 30, no. 1 (1989): 179–88, and “Who Turned the Mechanical Ideal into Mechanical Reality?” *Technology and Culture* 29, no. 4 (1988): 744–78. James Farley, on the other hand, argues for the persistent importance of the Ordnance Department in driving innovation. Farley, *Making Arms in the Machine Age: Philadelphia’s Frankford Arsenal, 1816–1870* (University Park, Pa., 1994), xv, 64. Decius Wadsworth to Roswell Lee, 15 Dec. 1818, Letters Received from Officials and Officers of the War and Treasury Departments, Records of the Springfield Armory, Mass., box 1, target #2, RG 156, National Archives, Waltham, Mass. (hereafter, NAW).

⁸ Clive Trebilcock, “Spin-Off in British Economic History: Armaments and Industry, 1760–1914,” *The Economic History Review* 22, no. 3 (1969): 474–90; Nathan Rosenberg, “Technological Change in the Machine Tool Industry, 1840–1910,” *The Journal of Economic History* 23, no. 4 (1963): 442.

⁹ David R. Meyer, *Networked Machinists: High Technology Industries in Antebellum America* (Baltimore, 2006); and David R. Meyer, “Formation of Advanced Technology

moved between and among different industries and nations, often parlaying the technical skills acquired at an armory into employment and machine development elsewhere.¹⁰ Nathan Rosenberg has shown how independent machinery-producing firms took off after 1840 because of technical convergence in metal-using industries, which faced similar problems related to power transmission, feed mechanisms, friction reduction, and metal properties. Specialized, high-speed machine tools such as milling machines and precision grinders grew out of the production requirements of arms makers. For example, a government contractor developed the turret lathe for the production of percussion locks for an army horse pistol in 1845. The lathe was later adapted and modified for the production of components for sewing machines, watches, typewriters, and locomotives. In particular, machining requirements of sewing machines were very similar to those of firearms production. One repeating rifle inventor also developed a machine for turning sewing machine spools, which spawned an automatic screw machine that was subsequently used in shoe machinery, hardware, rifles, and ammunition.¹¹

These sorts of inventions contributed to mass production, which had its start during the era of Manifest Destiny as a result of changes in the firearms market. Although comparisons between firearms production in England and the United States tend to associate American arms manufacturing with much more robust domestic demand than in England, a major civilian market did not exist prior to the 1840s.¹² Debates about

Districts: New England Textile Machinery and Firearms, 1790–1820,” *Economic Geography* 74, no. s1 (1998): 42–43.

¹⁰ Henry Burden, for example, specialized in hot-working techniques in metal and moved from Scotland to the United States where he worked at the Springfield Armory before inventing machines for producing bar iron. Paul J. Uselding, “Henry Burden and the Question of Anglo-American Technological Transfer in the Nineteenth Century,” *The Journal of Economic History* 30, no. 2 (1970): 312–37; Rosenberg, “Technological Change in the Machine Tool Industry,” 421.

¹¹ Rosenberg, “Technological Change in the Machine Tool Industry,” 418–31.

¹² Joshua L. Rosenbloom, “Anglo-American Technological Differences in Small Arms Manufacturing,” *The Journal of Interdisciplinary History* 23, no. 4 (1993): 684–85; H. J. Habakkuk, *American and British Technology in the Nineteenth Century* (Cambridge, U.K., 1962). Probate inventories reveal greater percentages of gun ownership in the first half of the nineteenth century than Michael Bellesiles’s discredited study of gun ownership in early America showed, but dealers in eastern cities repeatedly told arms manufacturers that their customer base did not warrant an expansion of sales. Michael A. Bellesiles, “The Origins of Gun Culture in the United States, 1760–1865,” *The Journal of American History* 83, no. 2 (1996): 425–55; Mark D. Groover, “The Gibbs Farmstead: Household Archaeology in an Internal Periphery,” *International Journal of Historical Archaeology* 9, no. 4 (2005): 229–89; W. H. Isely, “The Sharps Rifle Episode in Kansas History,” *The American Historical Review* 12, no. 3 (1907): 553. U.S. Circuit Court, *The Trial of Samuel Colt: Complete Report of the Trial of Samuel Colt vs. The Mass. Arms Company, Tried June 30, 1851, in U.S. Circuit Court, Boston, Mass., before Hon. Levi Woodbury, Associate Justice, U.S. Supreme Court*

gun ownership in early America miss the ways in which this market changed as a result of Manifest Destiny. If, as Pamela Haag argues, civilian consumption of firearms was limited until arms makers employed strategic sales and marketing to create a market for guns in the second half of the nineteenth century, this was only possible because of frontier experience.¹³ Settlers in newly acquired territory demanded firearms, and private arms makers pioneered nationwide advertising techniques that linked revolvers and rifles with frontier warfare. At the same time that the civilian market was expanding, the federal government was subsidizing weapon improvements that brought national arms production to international preeminence. It then transitioned away from the regular contractors, who it had spent decades patronizing, to private firearms companies because of more flexible supply policies that included short-term contracts with new suppliers. Government purchases further bolstered mass production.

During the mid-nineteenth century, American firearms production caught up to and surpassed its British and French counterparts because the United States had military ambitions akin to Europe's in the preceding century. The way military conflicts influenced manufacturing decisions, however, differed.¹⁴ Russia's outmoded weaponry during the Crimean War (1853–1856), for example, prompted its military to develop a first-line battle rifle, but by the 1860s, it slowed manufacturing initiatives and turned to the United States for arms purchases.¹⁵ Impressed by the machinery and production of U.S. firearms manufacturers, Russian armorers adopted many of their techniques in the following decades. On the other hand, many British arms makers rejected aspects of the American System because mass

(Harriman, Tenn., 1953), 8. None of this is to say that Americans did not buy guns. From the earliest days of colonization, European-Americans and Native Americans purchased and traded for guns to hunt and fight with. Rather, there was not enough "natural" demand to entice the expansion of production. Carl P. Russell, *Guns on the Early Frontiers: A History of Firearms from Colonial Times through the Years of the Western Fur Trade* (Berkeley, 1957); Merwyn Carey, *American Firearms Makers* (New York, 1953). For the "gun frontier," see Silverman, *Thundersticks*, 18.

¹³ Pamela Haag, *The Gunning of America: Business and the Making of American Gun Culture* (New York, 2016), 58–59.

¹⁴ Priya Satia, *Empire of Guns: The British State, the Industrial Revolution, and the Conscience of a Quaker Gun-Manufacturer* (New York, 2018); Ken Alder, *Engineering the Revolution: Arms and Enlightenment in France, 1763–1815* (Chicago, 2010). The United States remained more self-sufficient in firearms supply than most European nations in the second half of the nineteenth century. Andrew Moravcsik, "Arms and Autarky in Modern European History," *Daedalus* 120, no. 4 (1991): 31.

¹⁵ Peter B. Brown, "The Problematics of Armory Modernization in Late Imperial Russia," *Russian History* 21, no. 1 (1994): 65–81, 65.1; Joseph Bradley, *Guns for the Tsar: American Technology and the Small Arms Industry in Nineteenth-Century Russia* (Dekalb, Ill., 1990).

production technologies did not fit the market they served.¹⁶ To understand how and why industry changes, and in the American case the rise of the civilian arms market and the American system of manufactures, we have to look beyond the factory to the particularities of geopolitical ambitions and the battlefield.

Arms Production in the 1830s

For the first half of the nineteenth century, the majority of small arms manufacturing occurred at two federal armories in Harpers Ferry, Virginia, and Springfield, Massachusetts, and at the private factories of federal contractors, mostly in New England. Although there were more than three hundred small shops that manufactured guns nationwide, most of these employed only a few workers. In 1840, the federal armories produced more than one-third of the nation's firearms and employed over five hundred workers.¹⁷ The federal armories each received about \$200,000 every year, plus additional monies as needed. An 1808 law stipulated that private manufactories, rather than the federal armories, supply state militia. This law, which provided \$2,000 annually for contracts, was a compromise between congressmen who wished to expand the national armories and those who wished to allow states to outfit their own militia.

Despite ambivalence over the federal control of arms supplies, the federal government dictated the terms of arms production because the private sector lacked capital and markets. In the decades following the nation's founding, gunsmithing was still a small-scale, specialized trade. Gunsmiths spent about a month of labor on each weapon and often forged the barrel, assembled the gunstock, and completed grinding and filing tasks themselves.¹⁸ Labor was expensive, and consumer demand did not warrant capital investment in the enlargement of gun factories.¹⁹ Most families only purchased one gun for their households, if that. General stores and wholesalers' inventories illustrate this: they were filled with foodstuffs, candles, and clothing items, not muskets and rifles.²⁰ The private merchant ships and occasional privateering

¹⁶ Russell I. Fries, "British Response to American System," *Technology and Culture* 16, no. 3 (1973): 403.

¹⁷ Rosenbloom, "Anglo-American Technological Differences in Small Arms Manufacturing," 688.

¹⁸ *The Boston Directory* (Boston, 1800).

¹⁹ Maine-born arms manufacturer John Hancock Hall, for example, went into debt financing his business in the 1810s and subsequently turned to government contracting. R. T. Huntington, *Hall's Breechloaders* (York, Pa., 1972), 9.

²⁰ See for example, Danvers, Mass., General Store Daybook, 1789–1791, Account Books (unidentified) Collection, 1703–1852, folio vol. 6; and Worcester or Boston, Mass., Wholesale

expeditions that needed weapons on board did not provide reliable demand, either. Even manufacturers who had gotten some of the first federal contracts in the 1790s turned to other pursuits once their contracts ended. As Purveyor of Public Supplies Tench Coxe had recognized in 1807, only advance-sum contracts could “excite and promote the small arms manufacturing and bring the business to settled form.”²¹ From the 1810s onward, manufacturers like Nathan Starr understood that the operation of a “large and expensive factory” depended on “steady encouragement from the government.”²²

Federal support of small arms manufacturing has been well documented; so, too, has the relationship between the arms industry and interchangeable production, which meant that all armories machine produced identical gun parts.²³ In the 1810s, the federal government, for example, paid for the expansion of Simeon North’s Middletown, Connecticut, factory; North subsequently developed a milling machine that, according to Merritt Roe Smith represented “the first glimmerings of interchangeable production.”²⁴ The device achieved a high degree of precision by mechanically feeding a table holding the work piece (or part to be cut, shaped, and smoothed) into a rotary multiple-toothed cutter. Historians of technology have demonstrated that a factory needed to produce at least one thousand guns to make interchangeable parts production worthwhile.²⁵ In the early nineteenth century, only

and Imports Account Book, Account Books (unidentified) Collection, 1703–1852, folio vol. 11 both in American Antiquarian Society, Worcester, Mass. (hereafter, AAS).

²¹[Tench Coxe?], Rough Draft of Letter to Secretary of War, 5 Nov. 1807, Coxe Irvine Papers - Philadelphia Supply Agencies: Correspondence, Reports, Returns, Bill Accounts, Receipts, Vouchers and Contracts 1794–1842, Records of the Office of the Quartermaster General, Record Group 92, Entry 2118, box 136, National Archives and Records Administration, Washington, D.C. (hereafter NARA).

²²Nathan Starr to John Rodgers, President of the Board of Navy Commissioners, 23 Mar. 1816, vol. 3, Records Collection of the Office of Naval Records and Library, Record Group 25, Entry 328, NARA.

²³Older studies of small arms manufacturing offer exhaustive details about private and public gun production in early America. In addition to Smith, *Harper’s Ferry Armory*, see Felicia Johnson Deyrup, *Arms Makers of the Connecticut Valley: A Regional Study of the Economic Development of the Small Arms Industry, 1798–1870* (Northampton, Mass., 1948); James B. Whisker, *The United States Armory at Springfield, 1795–1865* (Lewiston, N.Y., 1997); James B. Whisker and Kevin Spiker, *The Arms Makers of Massachusetts, 1610–1900* (Palo Alto, Calif., 2012).

²⁴Simeon North, Dec. 1826, Firearms Makers Collection, box 1, folder 1, Middlesex County Historical Society, Middletown, Conn.; Simon Newton Dexter North and Ralph H. North, *Simeon North, First Official Pistol Maker of the United States: A Memoir* (Concord, N.H., 1913), 78–79, 86; Merritt Roe Smith, “John H. Hall, Simeon North, and the Milling Machine: The Nature of Innovation among Antebellum Arms Makers,” *Technology and Culture* 14, no. 4 (1973): 574–76.

²⁵Rosenbloom, “Anglo-American Technological Differences in Small Arms Manufacturing,” 691. Also, U.S. troops used rifles and muskets, which were less precise and so could more easily be made by interchangeable manufacture. Robert A. Howard, “Interchangeable

the federal government was willing and able to devote the resources to this. Private makers frequently modified the models they made, which made interchangeability impractical.²⁶ Their civilian consumers had little desire for interchangeable guns because they were unlikely to have multiple identical guns from which to scavenge parts. Soldiers, on the other hand, needed to be able to change and repair defective parts quickly in the field.

Despite all the advances in supply levels and manufacturing processes by the 1830s, there still existed a fair degree of insecurity surrounding the quality of American arms at the War Department, especially in comparison to Europe. Americans had long admired French arms making; following the Revolutionary War, the War Department ordered two volumes of a French guide to manufacturing weapons, complete with tables on standardized measurements. The French Charleville musket served as the U.S. standard up through the 1790s.²⁷ Even after the United States developed its own weapons standards and achieved self-sufficiency in arms production, it continued to look overseas. In the late 1830s, U.S. minister Richard Rush cautioned the War Department that, “we live in an age when the world is moving forward . . . the French have made improvements in guns.”²⁸ This was made worse by the fact that the French opposed U.S. expansionist policies and threatened to interfere with its presence in the southwest.²⁹ Americans were less envious of the technicalities of British arms making, but more concerned about the threat Britain posed to their consolidation of the North American continent. The U.S. government still had to import from Britain some of the firearms used as gifts for Indians, and those it contracted for domestically had to match the British northwest rifle, which treaty recipients preferred over American models.³⁰ This was especially irksome as the United States and Britain competed for control of the Pacific Northwest.

Parts Reexamined: The Private Sector of the American Arms Industry on the Eve of the Civil War,” *Technology and Culture* 19, no. 4 (1978): 649.

²⁶ Howard, “Interchangeable Parts Reexamined,” 645.

²⁷ Drawings and Tables of Foreign Ordnance, vols 1 and 2, 1787, Records of the Office of the Chief of Ordnance, Record Group 156, Entry 69, NARA; Neil L. York, “Pennsylvania Rifle: Revolutionary Weapon in a Conventional War?” *The Pennsylvania Magazine of History and Biography* 103, no. 3 (1979): 308, 314; Samuel Hodgson to John Harris, 3 Sept. 1798, Post Revolutionary War Papers, Record Group 45, NARA.

²⁸ Richard Rush to Joel Roberts Poinsett, 18 Feb. 1838, box 10, folder 5, Joel Roberts Poinsett Papers (Collection 0512), The Historical Society of Pennsylvania, Philadelphia, Pa. (hereafter, JRPP).

²⁹ R. A. McLemore, “The Influence of French Diplomatic Policy on the Annexation of Texas,” *The Southwestern Historical Quarterly* 43, no. 3 (1940): 342–47.

³⁰ “Report from the Secretary of War,” *American State Papers* (hereafter *ASP*), 28 Feb. 1839, 25th Congress, 3rd Session, no. 273, at 2, 554.

When conducting tests on a new breechloader in 1837, a board of U.S. army officers noted its susceptibility to explosion by writing that, “these objections may be overcome by those in Europe who are devoting great attention and consideration to this [style of gun]; if so, we should place ourselves on a footing with those nations who may adopt it, and to whom hereafter we may be opposed.”³¹ A year later, Secretary of War Joel Roberts Poinsett received a letter warning him that, “we do not value mechanical and manufacturing industry enough.”³² These warnings were not unfounded. There was a new sense of urgency from Americans on the ground in frontier areas who begged the War Department to push for more troops and arms because of “the increase of our population and fortifications, the extension of our boundaries, and the constant irritating disturbance on the frontiers.”³³

Firearms in Florida

The site of many of these “irritating disturbances”—violent skirmishes with Native American societies—was Florida.³⁴ The United States had acquired the peninsula in the 1819 Transcontinental Treaty with Spain, which extended the United States’ southern boundary to the Pacific coast. Florida’s extensive coastline offered coveted commercial access to Caribbean and Atlantic markets; it was also a particularly violent battleground. Before the treaty with Spain, U.S. troops fought Seminoles in Spanish territory, which Secretary of War John C. Calhoun and President James Monroe advocated for the “safety of our fellow-citizens.”³⁵ Throughout the 1820s and 1830s, white settlers in Florida petitioned the federal government for protection from the native peoples living there.³⁶ Beginning in 1835, the second round of Florida Seminole Wars absorbed a tremendous amount of resources (between \$30 million and \$40 million—50 percent of annual

³¹ “Report of the President of a Board of Officers on Improvements in Fire-Arms by Hall, Colt, Cochran, Leavitt, and Baron Hackett, as Compared with the United States Musket,” *ASP*, 3 Oct. 1837, 25th Congress, 1st Session, Military Affairs, vol. 7, no. 743, at 528.

³² James Renelden to Poinsett, 2 Mar. 1838, box 10, folder 7, JRPP.

³³ James Gadsden to Poinsett, 15 Dec. 1837, box 9, folder 14, JRPP.

³⁴ For a recent analysis of the importance of Florida for Manifest Destiny, see Laurel Clark Shire, *The Threshold of Manifest Destiny: Gender and National Expansion in Florida* (Philadelphia, 2016).

³⁵ William Weeks, *John Quincy Adams and American Global Empire* (Lexington, Mass., 1992), 107–10; “War with the Seminole Indians,” *ASP*, 25 Mar. 1818, 15th Congress, 1st Session, Military Affairs, vol. 1, no. 163, at 680.

³⁶ “Seminole Hostilities,” *ASP*, 3 June 1836, 24th Congress, 1st Session, no. 271, at 19.

expenditures—and forty thousand troops) with little at first to show for it.³⁷ Florida became a testing ground for American arms.

An inequitable treaty signed in 1832 required Seminoles to move west of the Mississippi over the ensuing three years.³⁸ Not surprisingly, they did not want to leave their land, a fact made brutally apparent by the murder of the officer appointed to superintend their removal, several days after Christmas in 1835. One night after dinner, General Wiley Thompson and another officer walked outside their garrison's perimeters, where a party of Indians ambushed them. Thompson was shot fourteen times and stabbed in the chest. The other officer died on the spot.³⁹

Following Thompson's death, the War Department requested federal appropriations to carry out a military campaign in Florida. Secretary of War Lewis Cass told the Committee of Ways and Means that, "the means of making anything like a detailed estimate of the expenses, are not within the reach of the Department," but settled on \$80,000.⁴⁰ (All told, the United States would spend \$1,588,848.) The Ordnance Department scrambled to redirect supplies from the nation's arsenals to Florida.⁴¹ Each year, the War Department distributed arms, usually muskets, to state militia in proportion to the number of men in service. The amount stayed constant at \$200,000 up through the Civil War (as did the amount appropriated for the two federal armories) and was distributed according to the number of militia in service. Florida had about thirteen hundred of its own militia, plus about twenty-two hundred volunteers and militia from Washington, D.C., Pennsylvania, Louisiana, New York, Alabama, Tennessee, Georgia, Missouri, South Carolina, and "friendly Indians," and between two thousand

³⁷ "Estimates and Appropriations for Suppressing Hostilities of the Seminole Indians in Florida," *ASP*, 15 Sept. 1837, 25th Congress, 1st Session, no. 739, at 466; "Expenditures in Suppressing Indian Hostilities in Florida," *ASP*, 15 Dec. 1840, 26th Congress, 2nd Session, no. 8, at 10. Annual federal expenditures, exclusive of public debt, were \$17.5 million in 1835, \$30.9 million in 1836, and \$39.2 million in 1837. "Statement Showing the Amount of Annual Estimates Submitted by the Secretary of Treasury, and Annual Expenditures," *ASP*, 29 June 1838, 25th Congress, 2nd Session, no. 497, at 16–20.

³⁸ Andrew Welch, *A Narrative of the Early Days and Remembrances of Ocoela Ninkanochee, Prince of Econchatti* (London, 1841), 212–15. For the coercion and negotiation involved in the removal of Creek Indians from the Southeast before the infamous Trail of Tears, see Christopher D. Haveman, *Rivers of Sand: Creek Indians Emigrations, Relocation, and Ethnic Cleansing in the American South* (Lincoln, 2016).

³⁹ "Seminole Hostilities," *ASP*, 3 June 1836, 24th Congress, 1st Session, no. 271, at 246–47.

⁴⁰ "Hostile Indians in Florida," *ASP*, 5 Jan. 1836, 24th Congress, 1st Session, no. 38; "Estimates and Appropriations for Suppressing Hostilities of the Seminole Indians in Florida," *ASP*, 5 Sept. 1837, 25th Congress, 1st Session, no. 739, at 466.

⁴¹ William Maynadier, Circular, 1 Oct. 1838, Records of the Chief of the Ordnance Department, Record Group 156, Entry 3, NARA.

and four thousand regular troops.⁴² Regular troops received supplies from the federal armories.⁴³

In 1837, former President Andrew Jackson, who sought the removal of Seminoles from their homeland, wrote to the War Department that, "A well-chosen brigade with such officers as I could select, numbering 1,000 bayonets and rifles, in addition to the regulars now in Florida would destroy the Seminole Indians in 30 days from the time of their reaching Tampa Bay."⁴⁴ Jackson was wrong, for the Seminole engaged in effective guerilla warfare. Former Adjutant General and Florida politician James Gadsden complained about their use of hiding places. The war, in his consideration, was "shamefully prolonged."⁴⁵

The Arms Industry Changes

In part, as a response to the events in Florida, the War Department placed increased importance on the improvement and experimentation of arms during the late 1830s. It capitalized on decades of direct investment in private armories and on the network of artificers, ordnance chiefs, armory superintendents, and individual contractors. Labor transfer between and among the private and public sectors paid off as workers and officers shared technical knowledge and exchanged machine tools.⁴⁶ The War Department used federal resources to consolidate control over production by dispatching armory employees to contractors' factories to observe machinists at work.⁴⁷ The Springfield Armory began to absorb much of the mechanical talent in the region, and by the 1840s, the quality of its employees was unparalleled.⁴⁸

Talent was not enough. The Ordnance Department had to learn to supply weapons for the type of fighting occurring in Florida.⁴⁹ Based on conversations with officers on the ground there, Ordnance officers decided to, for example, use buck and ball cartridges because they dispersed more widely than traditional ones and were best for camouflaged

⁴² "Documents Accompanying the Report of the Secretary of War," *ASP*, 5 Dec. 1840, 26th Congress, 2nd Session, at 50; "Expenditures in Suppressing Indian Hostilities in Florida," *ASP*, at 6.

⁴³ "Bond of the Officers of the Tallahassee Volunteers," 10 Feb. 1840, vol. 2, Contracts for Ordnance and Ordnance Supplies, Records of the Chief of the Ordnance Department, Record Group 156, Entry 78, NARA.

⁴⁴ Andrew Jackson to Poinsett, 27 Aug. 1837, box 9, folder 3, JRPP.

⁴⁵ *Ibid.*

⁴⁶ Meyer, *Networked Machinists*, 231.

⁴⁷ Smith, "John H. Hall, Simeon North, and the Milling Machine," 588.

⁴⁸ Uselding, "Henry Burden and the Question of Anglo-American Technological Transfer," 327; Smith, "John H. Hall, Simeon North, and the Milling Machine," 589.

⁴⁹ For a description of the nature of warfare in Florida, see John T. Sprague, *The Origin, Progress, and Conclusions of the Florida War* (New York, 1848).

fighting among swampy forests.⁵⁰ In 1837, a board of officers conducted a series of experiments on guns produced at private and public armories, which involved target firing to determine celerity and penetration. The trials also involved physical examination for such qualities as “simplicity,” “utility,” and “durability.” The board’s qualitative comments on the trials reveal a preoccupation with combat in Florida. The board noted that one particular rifle was superior because it could transition between infantry and cavalry seamlessly and hence would be useful in a place where many operations relied on dragoons (soldiers who fought as cavalry when mounted, as infantry when dismounted).⁵¹

At the same time as the fears and realities of warfare in Florida informed officers’ experiments and conclusions, the federal government subsidized ordnance officials’ inspections of cannon foundries, small arms manufactories, and arsenals in Europe. The officials toured England, Scotland, Sweden, Russia, Prussia, Belgium, and France to determine what they needed to do to improve production in the United States. The U.S. officers returned satisfied that once all flintlocks were replaced with percussion locks, U.S. muskets would be superior to any made elsewhere.⁵² It was increasingly becoming the case, in fact, that the United States, not Europe, was the hub of arms making. Europeans had begun taking notice of American guns and sending their own officials to visit U.S. armories.

These visitors were interested primarily in the national armories and the factories of government contractors, where the majority of improvements in gun production had occurred since the 1790s. Commercial production in the private sector, however, began to take off in the 1830s, albeit it in fits and starts. New weapon inventions were starting to appeal to investors, a marked change from earlier attitudes toward arms manufacturing and the time when, according to one patent attorney, “it was not so common to be looking for new things.”⁵³ Lowell, Massachusetts, textile capitalists, for example, were interested in investing in the production of John W. Cochran’s “celebrated rifle.”⁵⁴ Cochran was an inventor from Lowell who manufactured rifles at a private factory in Springfield.

⁵⁰ Jackson to Poinsett, 14 Oct. 1837, box 9, folder 8, JRPP; Brown, “Notes on U.S. Arsenals,” 450.

⁵¹ “Report of the President of a Board of Officers on Improvements in Fire-Arms,” *ASP*, at 526.

⁵² “Documents Accompanying the Report of the Secretary of War,” *ASP*, 5 Dec. 1840, 26th Congress, 2nd Session, no. 1, at 58.

⁵³ U.S. Circuit Court, *The Trial of Samuel Colt*, 39.

⁵⁴ Jonathan Amory to Francis C. Lowell, 10 July 1836, box 6, folder 5.6, Francis Cabot Lowell II Papers, Massachusetts Historical Society, Boston, Mass.

Another New England inventor helped establish the patent arms industry when he applied revolving techniques to rifles and pistols in the 1830s. Samuel Colt was the son of a Massachusetts textile manufacturer, who funded his first business ventures. Colt claimed to have conceived of the revolver while apprenticed on a voyage to India, but in all likelihood, he saw or learned about revolving guns from the Englishmen with whom he traveled. When Colt returned to the United States, he hired a mechanic in Hartford, Connecticut, to make his first “rotating gun.”⁵⁵ Because the early U.S. patent system was notoriously unprofitable, Colt traveled to England for his first patent. When he returned to the United States in 1836, the patent system was undergoing reforms that made patents more lucrative ventures.⁵⁶ Although Colt’s first U.S. patent coincided with these reforms, he struggled to profit in the absence of a robust market for revolvers. Colt’s manufacturing costs were high, which made his arms too expensive for the average consumer, who did not necessarily want a gun that could fire multiple times without reloading.⁵⁷ Additionally, the government was reluctant to purchase new inventions.

The military, however, was beginning to experiment with weapons developed in the private sector. Amidst a general climate of government reform and cost-effectiveness in the 1830s, the Senate required the War Department to conduct an examination of the improvements in firearms made by noncontractors.⁵⁸ Colt’s and Cochran’s firearms, along with those of John H. Hall, Daniel Leavitt, and Baron Hackett, were included in the government tests of 1837. These tests signaled the very beginning of changes in the relationship between private and public manufacture, even though the board ultimately selected arms made by a government contractor. The winning firearms were the breechloaders (which allow for quick reloading) developed by John Hall in conjunction with the federal armories.⁵⁹ The officers praised them specifically for their

⁵⁵ Jack Rohan, *Yankee Arms Maker: The Incredible Career of Samuel Colt* (New York, 1935), 23; U.S. Circuit Court, *The Trial of Samuel Colt*, 39.

⁵⁶ For the nineteenth-century patent system, see Zorina B. Khan, *The Democratization of Invention: Patents and Copyrights in American Economic Development, 1790–1920* (New York, 2005); Zorina B. Khan, “Premium Inventions: Patents and Prizes as Incentive Mechanisms in Britain and the United States, 1750–1930,” in Dora L. Costa and Naomi R. Lamoreaux, eds., *Understanding Long-Run Economic Growth: Geography, Institutions, and the Knowledge Economy* (Chicago, 2008); Naomi R. Lamoreaux, Kenneth L. Sokoloff, and Dhanoos Sutthiphisal, “Patent Alchemy: The Market for Technology in U.S. History,” *Business History Review* 87, no. 1 (2013): 3–38.

⁵⁷ Haag, *The Gunning of America*, 25–26; Henry Barnard, *Armsmear: The Home, the Arm, and the Armory of Samuel Colt: A Memorial* (New York, 1860), 197.

⁵⁸ Steven Lubar, “The Transformation of Antebellum Patent Law,” *Technology and Culture* 32, no. 4 (1991): 932–59.

⁵⁹ The board reported: “However ingenious therefore may be the invention however credible the skill of the manufacturer, the board is of the opinion that the arm of Cochran is

simplicity, "in order that those who use them may readily comprehend their principles and utility."⁶⁰ Hall's guns were single-shot and did not have the "various appendages" that Colt's and Cochran's did. Again, the final decisions reflected a preoccupation with frontier warfare and the particularities of combat in Florida. The board recognized the advantage of Colt's continuous fire, but determined that Hall's and Hackett's arms could be loaded more easily on horseback than Colt's and Cochran's, whose parts had to be disconnected to charge them. Officers worried that the multichambered firearms were too complicated for the average soldier. Although Hall's flintlock breech-loading rifles were praised, they would not see much use in Florida, partly because of ignition difficulties in damp conditions. His percussion-ignition carbines (shorter-barreled rifle), however, were given to dragoons in Florida.⁶¹

The War Department valued military applicability over novelty and in general erred on the side of safety and reliability. Officials were wary of inventors like Colt, who were motivated by profit rather than battlefield realities. It is not that War Department officials did not value innovation. Ordnance Chief George Bomford, for example, often ordered experiments for such inventions as improved iron for gun barrels.⁶² For them, however, innovation mattered if it improved battle outcomes, while for Colt and other private arms makers, innovation meant potentially profitable patents. The Ordnance Department, for example, prized interchangeability because it made weapon repairs easier. Private arms makers, on the other hand, did not fully subscribe to interchangeable production methods because they were not yet cost-effective. David Meyer has shown how for all the attention paid to Colt's production of revolvers, their parts did not interchange. Instead, he and others made the parts as uniform as possible, but focused most attention on the final fitting process.⁶³

Colt, however, knew the government was a potentially lucrative customer and made adjustments accordingly. He spoke with a field officer in Florida who wanted a weapon that would overcome the Seminole strategy of making a feigned attack, followed by an intense onslaught, during which many soldiers died while reloading their

an unsafe weapon . . . the arm of Colt may be usefully applied in special cases . . . naval service . . . but not adapted to the general purposes of the service." "Report of the President of a Board of Officers on Improvements in Fire-Arms," *ASP*, at 528.

⁶⁰ "Report of the President of a Board of Officers on Improvements in Fire-Arms," *ASP*, at 526.

⁶¹ Brown, "Notes on U.S. Arsenals," 454.

⁶² See for example, George Bomford to Superintendent, Springfield Armory, 5 Oct. 5, 1833, Letterbook, vol.1, Letters Received from Officials and Officers of War and Treasury Departments, Records of the Springfield Armory, Mass., RG 156, NAW.

⁶³ Meyer, *Networked Machinists*, 278.

single-shot muskets.⁶⁴ Although Colt's first revolvers were impractical for field use, they had the potential to permit U.S. troops to fend off a Seminole offensive. They fired more than ten rounds in a minute, and their ramrods, which many men dropped in the loading process, were attached to the body of the weapon.⁶⁵ Colt sold five hundred rifles to Quartermaster General Thomas Sidney Jesup in Florida in 1838, but continued to experiment with ways to improve the revolver.⁶⁶ Colt implemented a loading lever so that the hammer rested on a safety pin situated between two caps, rather than on the cap itself, to prevent the weapon from firing unintentionally.⁶⁷

The government tested Colt's repeating firearms again. On November 18, 1840, a board of officers of the first dragoons met in Pennsylvania to compare Colt's new repeating carbines with Hall's standard carbines. Military officers' concerns with battle line applicability made them hesitant to adapt new inventions, and they were reluctant to relinquish control of the production process.⁶⁸ The board conducted ten experiments, an example of which involved the carbines "slung to a man mounted, who galloped rapidly for a mile, the piece swinging against the side of the horse." Colt's carbines held up well to rough use by the experimenters and were faster than Hall's—firing eighteen rounds in two minutes forty-five seconds to Hall's eight minutes; they were less accurate, however. Hall's carbines hit the target eighty seven times, Colt's sixty nine.⁶⁹ Ultimately, the board reported that, "foregoing experiments were very successfully made, and have impressed us with the belief of the utility of these repeating fire-arms for military purposes." Even so, they recommended a six-month trial period in the field.⁷⁰

As the government slowly embraced private arms makers, it changed its relationship with its regular contractors. By the 1830s, the federal armories produced about 80 percent of the nation's serviceable arms, which meant that the government no longer needed to sustain long-term relationships with manufacturers. Contracting in general did not

⁶⁴ Rohan, *Yankee Arms Maker*, 93–94; Jacob Neff, *The Army and Navy of America: From the Period of the French and Indian Wars to the Close of the Florida War* (Philadelphia, 1845), 610.

⁶⁵ Barnard, *Armsmear*, 166–68, 198.

⁶⁶ Haag, *The Gunning of America*, 28.

⁶⁷ Barnard, *Armsmear*, 166–68.

⁶⁸ Secretary of War Joel Poinsett, for example, said he didn't want to waste any more government resources on trying to increase the rapidity of firing "without long-tried experiments in the field." "Report of the Secretary of War," *ASP*, 5 Dec. 1840, 26th Congress, 2nd Session, at 21.

⁶⁹ "Report from the Secretary of War, transmitting the report of a board of dragoon officers appointed to witness an exhibition of the repeating fire-arms and water-proof ammunition invented by Samuel Colt," *ASP*, 16 Dec. 1840, 26th Congress, 2nd Session, no. 14, at 2.

⁷⁰ *Ibid.*, at 3.

end, but it issued the last round of advance-sum contracts in 1834.⁷¹ Instead of investing in the factories of private arms makers, the government began altering contract terms to reap maximum military benefit at minimum public cost. In its 1839 contract with Simeon North for ten thousand carbines, for example, the Ordnance Department expected “perfect uniformity,” and to be able to “exchange parts without impairing efficiency,” but reserved “the right to annul any part of the contract.”⁷² This was a stark change from the 1810s and 1820s, when Ordnance officials had negotiated extra funding for North’s manufacturing pursuits. The Ordnance Department now reserved the right to nullify entire contracts if more than three-quarters were not filled, or if, in some cases, like Lemuel Pomeroy’s 1840 contract for six thousand muskets, 100 percent of the annual amount was not met.⁷³ This new approach to contracts caused anxiety among regular contractors, who, unlike Colt, had dedicated their entire careers to government manufacture. Asa Waters, who had spent over a quarter century making contract muskets in Millbury, Massachusetts, begged Ordnance Chief Bomford for additional work in 1841, promising to produce pistols at 10 percent cheaper than could be done at the national armories. He even offered to forego payment for over a year if that would be more amenable to the ordnance budget.⁷⁴ Waters spent the next few years looking elsewhere for business, but never stopped applying for government work, even though, as he said to another contractor, “they keep applying the screws closer and closer to grinding harder upon the contractors.”⁷⁵

Another way the War Department consolidated its control over military production during the Seminole Wars, even as it started to purchase from the private sector, was to replace the civilian superintendents of the federal armories with ordnance officers. For New Englanders, far removed from war in Florida, this was an odious change. Springfield employees and town denizens petitioned Congress to avoid changes in the law. Changes, they argued, “may be proper in the organization of the army and navy, but are degrading, oppressive, and tyrannical when

⁷¹ “Documents from War Department,” *ASP*, 1 Nov. 1836, 24th Congress, 2nd Session, no. 2, at 328; M. W. Edwards to Asa Waters, 15 Dec. 1834, box W 3, Waters Family Papers, 1749–1873, AAS.

⁷² Contract with Simeon North, 2 May 1839, vol. 2, Records of the Chief of the Ordnance Department, Record Group 156, Entry 78, NARA.

⁷³ Contract with Lemuel Pomeroy, 24 Feb. 1840, vol. 2, Contracts for Ordnance and Ordnance Supplies, Records of the Chief of the Ordnance Department, Record Group 156, Entry 78, NARA.

⁷⁴ Waters to George Talcott, 14 Nov. 1840, and Waters to Bomford, 28 Aug. 1841, folio vol. 1, Waters Family Papers, AAS.

⁷⁵ Waters to Eli Whitney Jr., 8 Dec. 1845, Octavo vol. 7, Letterbook 1837–65, Waters Family Papers, AAS.

applied to intelligent and high-minded citizen mechanics.”⁷⁶ Civilian arguments were no match for War Department goals to appoint men with military experience to oversee weapon production.⁷⁷ Civilian James Robb was replaced by James Ripley, a major of ordnance who had fought in the First Seminole War. Some historians have described Ripley as averse to innovation due to his suspicion of weapons makers like Colt and his slowness to adopt new technologies, but earlier in his career, Ripley was responsible for improvements to artillery. Ripley’s stance likely reflected his military experience and the fact that innovation was not necessarily compatible with security.⁷⁸ Either way, his appointment so infuriated workers in Springfield that they brought a lawsuit against him, accusing him of unfair layoffs, resource mismanagement, and the deterioration of the quality of arms.⁷⁹ Just as their petitions against changes in superintendence failed, so too did this lawsuit. The War Department, which sought to defeat the Seminoles in Florida, perceived military administration as a good thing.⁸⁰ The government kept Ripley on, and regardless of his management style, the Ordnance Department was able to meet requests for additional supplies and arm most of the troops with new guns. During Ripley’s tenure, the M1816 (flintlock firearm, infantry musket) was replaced with the first conventional musket of interchangeable parts: the Springfield Model 1842.⁸¹

The same year as adoption of the new Springfield model, Congress passed a law for the armed occupation of Florida by settlers who would receive federal subsidies for their own defense. Instead of negotiating a peace, the commander of U.S. troops offered the remaining Seminoles money and a rifle to move to a reservation in southwest Florida.⁸²

Proving Ground in Mexico

While U.S. troops battled Seminoles in Florida, Mexico and Texas loomed large on the national agenda. Once Texas became an independent republic in 1836, Americans debated admitting it to the union, along with other Mexican territory to which they had dubious claims.

⁷⁶ Charles Stearns, *The National Armories: A Review of the Systems of Superintendency, Civil and Military, Particularly with Reference to Economy and General Management at the Springfield Armory* (Springfield, Mass., 1853), 13, 74.

⁷⁷ Brown, “Notes on U.S. Arsenal,” 453.

⁷⁸ Haag, *The Gunning of America*, 28.

⁷⁹ “Report of the Secretary of War,” *ASP*, 13 May 1846, 29th Congress, 1st Session, no. 344, at 2.

⁸⁰ “Documents from War Department,” *ASP*, 14 Nov. 1842, 27th Congress, 3rd Session, no. 2, at 208.

⁸¹ Brown, “Notes on U.S. Arsenal,” 449–51; “Expenditures in Suppressing Indian Hostilities in Florida,” *ASP*, at 9.

⁸² U.S. Circuit Court, *The Trial of Samuel Colt*, 8.

Insecurities about Britain, which urged Texas to maintain its sovereignty rather than join the United States, drove much of the discussion.⁸³ France also opposed annexation. Although the United States had supported France in a minor war against the British-backed Mexican government in the 1830s, the French government wanted unfettered access to Texan markets and feared the geopolitical consequences of an expansive United States.⁸⁴

Despite foreign opposition, the U.S. Congress made Texas a state in December, 1845, and declared war on Mexico less than six months later.⁸⁵ It was not a popular war, but it was one that the nation was prepared to wage. Indeed, a Mexican officer had visited the United States in the early 1840s to observe its first-rate artillery, even as Mexico had access to British arms.⁸⁶ Americans no longer worried about their weapon supply or anxiously compared their guns to foreign ones. As one Philadelphia area newspaper noted, the government had plenty of “muskets ready for shipment at a moment’s notice.”⁸⁷ Two months after fighting commenced, the War Department reported that the number of arms produced at Springfield greatly exceeded that of the previous year.⁸⁸ By June the following year, the United States had over \$8.4 million worth of small arms in its inventory.⁸⁹ Many of these arms represented the latest in firearm technology, including the first conventional musket made entirely of interchangeable parts.⁹⁰

Because of achievements in federal arms production and the rise of patent arms manufacturing, the Ordnance Department lessened its reliance on its regular private contractors. By 1846, only a handful of the Springfield Model 1842, for example, were manufactured outside of the federal armories. Ordnance adopted Simeon North’s and John Hall’s development of percussion lock technology and milling machines that made possible the manufacture of interchangeable parts, and then turned away from them. It spent the almost \$1 million it received during the war to improve infrastructure at the federal armories and arsenals and to update its machine tool inventory, which included

⁸³ Paul E. Sturdevant, “Robert John Walker and Texas Annexation: A Lost Champion,” *The Southwestern Historical Quarterly* 109, no. 2 (2005): 196.

⁸⁴ McLemore, “The Influence of French Diplomatic Policy on the Annexation of Texas,” 342–47.

⁸⁵ Greenberg, *Manifest Destiny*, 103–8.

⁸⁶ Gouverneur Kemble to Poinsett, 21 Oct. 1847, box 16, folder 18, JRPP.

⁸⁷ *The North American* (Philadelphia), 23 May 1846, 1.

⁸⁸ “List of Papers Accompanying the Report of the Secretary of War,” *ASP*, 5 Dec. 1846, no. 1, at 165.

⁸⁹ “List of Papers Accompanying the Report of the Secretary of War,” *ASP*, 30 Nov. 1847, no. 8, at 686.

⁹⁰ Brown, “Notes on U.S. Arsenals, 449–51; “Expenditures in Suppressing Indian Hostilities in Florida,” *ASP*, at 9.

machines for introducing percussion cap technology to flintlock muskets and rifles.⁹¹ At the same time, however, Ordnance alerted long-term contractors that they “must be prepared to reduce their quantity of work for the future.”⁹² If they wanted to continue work, they could examine the new model musket at Springfield, but they “must expect increased vigilance in inspection of these arms, and also that, on account of the large stock of muskets on hand and the increasing demand of the states for other arms . . . orders for muskets will be diminished considerably.”⁹³

If the Ordnance Department did need more arms, it solicited them through advertisements, even as it recognized that the “system of advertising would result in the final ruin” of some of its regular contractors.⁹⁴ New government business helped private upstarts like Colt, whose Patent Arms Manufacturing Company had shut down in the early 1840s when it was unable to pay its debts after the markets for armed conflict in Florida and Texas dried up.⁹⁵ Colt no longer owned manufacturing equipment, or even a revolver on which to model new ones, but he anticipated profits from arming soldiers with repeating firearms. Samuel H. Walker, former captain of the Texas Rangers, advised him on dimensions and various mechanical issues, and Colt made improvements specifically for frontier service.⁹⁶ Walker negotiated Colt’s first government contract during the Mexican–American War for one thousand revolvers in January 1847. Colt subcontracted the work to Eli Whitney Jr., whose armory had received decades of federal financial support. Colt then opened his own factory later that year, after entering into a second government contract in July.⁹⁷ From the government’s standpoint, this arrangement worked particularly well. Colt bore the majority of manufacturing costs, while U.S. troops had success with his revolvers, which received glowing reports from the battlefield. D. E. Twiggs, Seminole War veteran and commander under both General Zachary Taylor

⁹¹ “List of Papers Accompanying the Report of the Secretary of War,” *ASP*, 5 Dec. 1846, at 162.

⁹² Bomford to G. N. Briggs, 20 Feb. 1839, Records of the Chief of the Ordnance Department, Record Group 156, Entry 3, NARA.

⁹³ Bomford to Edwards and Goodrich, 9 Mar. 1839, Records of the Chief of the Ordnance Department, Record Group 156, Entry 3, NARA.

⁹⁴ Waters to Whitney Jr., 8 Dec. 1845, Octavo vol. 7, Letterbook 1837–65, Waters Family Papers, AAS.

⁹⁵ Houze, Cooper, and Kornhauser, *Samuel Colt: Arms, Art, and Invention*, 65.

⁹⁶ Henry Barton, “The United States Cavalry and the Texas Rangers,” *The Southwestern Historical Quarterly* 63, no. 4 (1960): 510; Samuel Colt to Samuel Walker, 10 Dec. 1846, in Colt, *Samuel Colt’s Own Record of Transactions with Captain Walker and Eli Whitney, Jr., in 1847* (Hartford, 1949), 16–17; Colt to S. R. Hamilton, 16 July 1846, in James L. Mitchell, *Colt: A Collection of Letters and Photographs about the Man, the Arms, the Company* (Harrisburg, 1959), 3.

⁹⁷ Carl P. Russell, *Guns on the Early Frontiers: A History of Firearms from Colonial Times through the Years of the Western Fur Trade* (Berkeley, 1957), 217–18.

and General Winfield Scott, endorsed them to Congress, which made the Ordnance Department's decision-making look good.⁹⁸

American officers credited the superiority of their arms for their ability to overcome enemy numbers. The Battle of Buena Vista in February 1847, was a U.S. victory that has largely been attributed to the superiority of American artillery over Mexican troop numbers, but it was not just howitzers that enabled the American success. Colonel Humphrey Marshall of the Kentucky cavalry reported that his regiment of four hundred, "armed with rifles, or with carbine, pistol and sabre," was victorious against almost fifteen hundred men. Another commander noted that, "notwithstanding the great superiority of their numbers, [our] riflemen kept up a deliberate and well-directed fire upon them," and General Zachary Taylor boasted that Americans "maintained their ground handsomely against a greatly superior force, holding themselves under cover and using their weapons with deadly effect."⁹⁹ Civilians on the home front, too, took pride in the nation's ability to supply troops readily with guns and ammunition. One newspaper reported several days after the declaration of war that "we learn that over 2,000 muskets and over 700 kegs of ball and buck shot cartridges . . . are destined for the Rio Grande."¹⁰⁰ The cartridges were the same kind used in Florida; their success in Mexico was a testament to the efficacy of weapon experiments in the 1840s.

Experimentation started to pay off for Colt, as well, as military officials became more amenable to his alterations. Toward the end of the war, an arms inspector had reported Colt to Ordnance Chief George Talcott for departing from the pistol pattern of his first delivery, but after only a mild scolding, Talcott allowed Colt to "serve as a guide" for the inspection process.¹⁰¹ The Secretary of War approved Colt's modifications and Colt received payment shortly thereafter.¹⁰² If, as Donald Hoke maintains, the private sector outpaced the public in innovation, especially in the 1850s, this was the result of battle experience.¹⁰³ An ordnance officer commented that the greatest improvements to Colt's arms were made in the years following the Mexican-American War, when their weight was significantly reduced.¹⁰⁴ One report stated that, "in the

⁹⁸ David E. Twiggs to Thomas Jefferson Rusk, 21 Apr. 1848, in Colt, *Samuel Colt's Own Record*, 84–85.

⁹⁹ "List of Papers Accompanying the Report of the Secretary of War," *ASP*, 30 Nov. 1847, no. 8, at 133–34, 166–67, 190.

¹⁰⁰ *The North American*, 19 May 1846, 1.

¹⁰¹ Talcott to Colt, 14 Feb. 1848, Records of the Chief of the Ordnance Department, Record Group 156, Entry 3, NARA.

¹⁰² Talcott to Colt, 8 Apr. and 14 June 1848, Records of the Chief of the Ordnance Department, Record Group 156, Entry 3, NARA.

¹⁰³ Hoke, *Ingenious Yankees*, 3–4.

¹⁰⁴ U.S. Circuit Court, *The Trial of Samuel Colt*, 20.

progress of improvement, complexity has yielded to simplicity, and delicacy to strength." They had also become a lot safer than during the government experiments of the late 1830s. In a series of Ordnance tests in 1848 and 1849, the burst rate decreased from 5.6 to 1 percent. Although Colt was \$2,000 in debt after completing his second government order during the war, these improvements would increase the marketability of his revolvers in the years following.

The New Market for Firearms

The war with Mexico changed the arms industry. Scholars have located the origins of mass production and mass marketing in the years preceding the Civil War, but while they have focused on the machinery and the sales and marketing techniques that accompanied and engendered these changes, they have neglected the influence of antebellum military conflict.¹⁰⁵ In addition to the fact that Mexico turned to U.S. arms makers to restock its arsenals after the military destroyed thousands of weapons at the close of the war, the Treaty of Guadalupe Hidalgo and the subsequent Gadsden Purchase added over 550,000 square miles to U.S. territory, which increased private and public demand for arms. In addition to the boost in population and security needs, the war also provided marketing testimony as Americans increasingly associated firearms with victory in Mexico. The experience of the Mexican-American War, combined with frontier defense in its aftermath, helped transform this market.

The War Department estimated that the United States needed at least a million arms in its arsenals to be available at a moment's notice because new territory required that U.S. troops be "almost constantly in the field."¹⁰⁶ One colonel of ordnance said that, "although the supply of arms on hand may appear large, I am of opinion that it should be kept up and increased by manufacturing more annually than

¹⁰⁵ Paul Uselding, for example, focuses on the changes in machinery that enabled mass commercialization. He argues that Elisha King Root, factory foreman and general superintendent of Colt Armory in Hartford, Connecticut, was largely responsible for the "commercialization" of the revolver because of his role in developing die-forging, one of the most important processes in modern mass-production industries. Paul Uselding, "Elisha K. Root, Forging, and the 'American System,'" *Technology and Culture* 15, no. 4 (1974): 567; Haag, *The Gunning of America*; Harold C. Livesay, "Marketing Patterns in the Antebellum American Iron Industry," *Business History Review* 45, no. 3 (1971): 269–95.

¹⁰⁶ Some Americans sold arms to Mexico before the war, but these sales increased after. See, for example, Asa H. Waters and Co. to Richard M. Jones, 13 Oct. 1842, Octavo vol. 7, Letterbook 1837–65, Waters Family Papers, AAS; Brian DeLay, "How Not to Arm a State: American Guns and the Crisis of Governance in Mexico, Nineteenth and Twenty-First Centuries," *Southern California Quarterly* 95, no. 1 (2013): 11.

is requisite for ordinary consumption.”¹⁰⁷ The federal government had to “protect the lines of emigration to New Mexico and Oregon . . . with mounted riflemen.”¹⁰⁸ Settlers, too, wanted guns. Samuel Colt himself claimed that prior to the Mexican-American War, there did not exist a civilian market for revolvers.¹⁰⁹

By 1860, however, the number of guns produced for the civilian market was several times larger than that produced for or by the military.¹¹⁰ Part of the reason for this change had to do with marketing. Colt, in particular, became known for his nationwide marketing and successful branding.¹¹¹ This success depended on the association of his arms with frontier conquest. Testimony from American soldiers who used Colt’s revolvers in Mexico, for example, became a major selling point. Before the war had even ended, a Hartford, Connecticut, newspaper published an article—reprinted in other papers—announcing that Colt would be opening a new armory in the city to make guns for the government and for private sale. The article cited the use of Colt’s arms, which fired at the rate of six thousand charges per minute, by the Regiment of U.S. Rifles in Mexico. It also quoted General Zachary Taylor’s endorsement of Colt’s revolvers as weapons that “may be relied upon under *all* circumstances,” and noted that Taylor’s opinion had been formed by men who “have performed feats of almost romantic daring and gallantry with them, during the war with Mexico.”¹¹² After the war, newspaper stories credited Colt’s revolvers for U.S. victory.¹¹³ One of Colt’s first print advertisements from the early 1850s depicted a scene from the Mexican-American war, and an advertisement from 1858 harkened

¹⁰⁷ “List of Documents Accompanying the Report of the Secretary of War,” *ASP*, 28 Oct. 1851, 26th Congress, 2nd Session, no. 2, at 448; “Report of the Secretary of the Treasury, Showing the Receipts and Expenditures, &c., for the Fiscal Year Ending June 30, 1850,” *ASP*, 16 Dec. 1850, 31st Congress, 2nd Session, no. 11, at 65. The federal government’s ability to protect settlers had long mattered for its relationship with frontier settlers. American military and commercial benefits encouraged residents of New Mexico to acquiesce to the United States during the Mexican-American War. Max L. Moorhead, *New Mexico’s Royal Road: Trade and Travel on the Chihuahua Trail* (Norman, Okla., 1954), 193.

¹⁰⁸ “List of Documents Accompanying the Report of the Secretary of War,” *ASP*, 21 Nov., and 23 June 1851, 26th Congress, 2nd Session, no. 2, at 61, 328–29.

¹⁰⁹ U.S. Circuit Court, *The Trial of Samuel Colt*, 8.

¹¹⁰ Howard supports his argument about civilian markets by citing the 400,000 firearms produced by Colt and Sharps between 1851 and 1860, versus the 218,493 produced by the federal armories. This evidence obscures the fact that both manufacturers also sold their arms to federal troops on the frontier, but indeed, the civilian market for firearms grew in the decade following the Mexican-American War. Robert A. Howard, “Interchangeable Parts Reexamined: The Private Sector of the American Arms Industry on the Eve of the Civil War,” *Technology and Culture* 19, no. 4 (1978): 634.

¹¹¹ Livesay, “Marketing Patterns in the Antebellum American Iron Industry,” 286.

¹¹² *Salem Register*, 4 Oct. 1847, 2.

¹¹³ *Connecticut Courant*, 20 Jan. 1849, 10.

back to their being “the first rifle fired” in Florida in 1837.¹¹⁴ Frontier scenes were powerful marketing tools in the United States, and to some extent overseas.¹¹⁵

Although Colt dedicated significant energies to overseas markets in the 1850s—opening a factory in London in 1852, and entering contracts with the British and Russian governments during the Crimean Wars—he increasingly focused on U.S. markets. He closed the London factory in 1857.¹¹⁶ The U.S. government had rejected Colt’s terms for a new contract immediately following the war, but soon recognized the superiority of his revolvers for “mounted and frontier troops.”¹¹⁷ Officers linked Colt’s revolvers with Manifest Destiny ideology in their endorsements: Colonel Charles A. May, captain of the 2nd Regiment Dragoons used Colt’s revolvers in Florida, Mexico, and New Mexico, and said, “I should not hesitate, with ten men, armed with these pistols, to go anywhere across the plains.”¹¹⁸

At the same time, federal officials told their regular contractors that demand did not warrant additional contracts.¹¹⁹ At the start of the Mexican-American war, Eli Whitney Jr. had more than enough work for the military and was reluctant to take on work for Colt.¹²⁰ After the war, the government further minimized its use of regular contractors and relied on settlers to test new weapons out for them. Settlers and local soldiers in Oregon, for example, used Sharps rifles—an improved version of Hall’s breechloader patented by Christian Sharps in 1848—well in advance of federal troops.¹²¹

¹¹⁴ Richard A. Dillio, “Samuel Colt’s Peacemaker: The Advertising that Scared the West,” *History of Media Technology*, 9 Dec. 2017.

¹¹⁵ Herbert C. Houze, “Samuel Colt and the World,” and Elizabeth Mankin Kornhauser, “George Catlin and the Colt Firearms Series,” both in Houze, Cooper, and Kornhauser, *Samuel Colt: Arms, Art, and Invention*, 185 and 203–24 respectively.

¹¹⁶ A. Merwyn Carey, *American Firearms Makers* (New York, 1953), 22. According to William N. Hosley, Colt cared even more about courting favor with European monarchs such as Czar Nicholas than he did with making sales. Hosley, *Colt: The Making of an American Legend* (Amherst, 1996), 94.

¹¹⁷ Haag, *The Gunning of America*, 34; “Petition of Samuel Colt,” Referred to the Committee of Military Affairs, ASP, 12 Dec. 1848, 30th Congress, 2nd Session, *U.S. Congressional Serial Set*, Miscellaneous, no. 3, at 2.

¹¹⁸ U.S. Circuit Court, *The Trial of Samuel Colt*, 22.

¹¹⁹ Talcott to Whitney Jr., 27 Mar. 1848, Records of the Chief of the Ordnance Department, Record Group 156, Entry 3, NARA.

¹²⁰ Whitney Jr. to Colt, 8 Dec. 1846, in Colt, *Samuel Colt’s Own Record*, 14.

¹²¹ Jack Hornback, “A Brief Historical Introduction to Oregon Firearms,” *Oregon Historical Quarterly* 50, no. 1 (1949): 47; Winston Oliver Smith, *The Sharps Rifle: Its History, Development and Operation* (New York, 1943), 8.

Oregon had fewer than 1,000 settlers in 1840; this population increased from 12,093 in 1850 to 52,465 in 1860 and was likely to purchase firearms.¹²² Sharps's trip down South to drum up business had been unproductive, but he found the majority of his first sales in the West.¹²³ Emigration guides advised each party of wagon travelers to spend almost 20 percent of the total cost of the voyage on arms—purchasing one rifle and one pistol per person.¹²⁴ Cautionary tales from the frontier warned emigrants of the dire consequences of not being properly armed.¹²⁵

Colt's revolvers had "grown into general favor with the army and country" and now Sharps's were catching up, as Americans rapidly settled territory west of the Mississippi River.¹²⁶ The Mexican-American War had made Colt's arms famous; Sharps received press from the use of his rifles by antislavery emigrants and activists in Kansas Territory, a battleground over the fate of slavery between 1854 and the Civil War. Settlers in the territory owned firearms, but their squirrel rifles, buffalo guns, and old army muskets were not nearly as effective as the Sharps breech-loading rifles that wealthy New Englanders and emigrant societies funneled into the territory to combat proslavery inhabitants.¹²⁷ All told, antislavery groups spent over \$40,000 on Sharps firearms and ultimately succeeded in making the territory a free state.¹²⁸ On the eve of the Civil War, Colt's and Sharps's factories in Hartford, Connecticut, the two largest private manufactories in the nation, pulled in over \$1million and \$325,000 per year, respectively.¹²⁹ While production at the two federal armories remained steady at around twenty thousand guns per year, Colt and Sharps produced about twice that number.¹³⁰

Other major private arms makers got their start during this period. Windsor, Vermont, arms maker Nicanor Kendall partnered with Samuel

¹²² The population was 17,069,453 in 1840, 23,191,876 in 1850, and 31,443,321 in 1860. United States Census, 1840, 1850, 1860, NARA microfilm publications M432, M653, and M704, NARA; FamilySearch, <http://FamilySearch.org>.

¹²³ Smith, "Army Ordnance and the 'American System' of Manufacturing," 78; Haag, *The Gunning of America*, 113.

¹²⁴ John Disturnell, *The Emigrant's Guide to New Mexico, California, and Oregon: Giving the Different Overland and Sea Routes Compiled from Reliable Authorities with a Map of North America* (New York, 1850), 6.

¹²⁵ Riley Root, *Journal of Travels from St. Josephs to Oregon with Observations of that Country, Together with Some Description of California, Its Agricultural Interests, and a Full Description of Its Gold Mines* (Oakland, 1955), 9.

¹²⁶ "In Senate of the United States," *ASP*, 30 Jan. 1851, 31st Congress, 2nd Session, no. 257, at 1–2.

¹²⁷ Isely, "The Sharps Rifle Episode in Kansas History," 553.

¹²⁸ *Ibid.*, 565.

¹²⁹ Howard, "Interchangeable Parts Reexamined," 638.

¹³⁰ *Ibid.*, 635; "Expenses National Armories," *ASP*, 12 Jan. 1848, 30th Congress, 1st Session, Ex. Doc. no. 22, at 2.

E. Robbins and Richard S. Lawrence in 1844. They performed some government contract work, but were informed, like Whitney and others, not to expect much business after 1848.¹³¹ Robbins and Lawrence turned to building machinery for other armories, and for the British Government in 1854, and contracted to make Sharps rifles in 1850. They overextended themselves, however, and declared bankruptcy in 1855. Their creditors turned their armory into a sewing machine factory, but during the Civil War, returned to making firearms. Worcester, Massachusetts, rifle maker Edwin Wesson patented a revolver in 1848 and two years later, his younger brother Daniel formed the Massachusetts Arms Manufacturing Company with Horace Smith and Joshua Stevens.¹³² Horace Smith and Daniel Wesson then founded Smith and Wesson, which Oliver Winchester purchased in 1855 and renamed Volcanic Repeating Arms in 1855. The company later became New Haven Arms Company, and sold rifles to the Union Army during the Civil War. In 1866, Winchester renamed the company yet again; the Winchester Repeating Arms Company emerged as one of the preeminent American arms manufacturers.¹³³

Conclusion

Acting on the belief that the United States had the right to expand across the continent, Americans unintentionally contributed to the industrial developments of the mid-nineteenth century. The relationships among military demands, markets, and innovation were not unique to the nineteenth-century United States, but the Manifest Destiny context points to the importance of understanding the particularities of military conflict and the changes it engenders.¹³⁴ As the federal government sponsored military action along its frontiers and in Mexico, manufacturers adapted the arms they produced to better suit combat experience. Although U.S. officials envied European arms manufacturing during the nation's first decades, in 1853, the British government sponsored an industrial reconnaissance mission to the United States,

¹³¹Talcott to Robbins and Lawrence, 10 Feb. 1848, Records of the Chief of the Ordnance Department, Record Group 156, Entry 3, NARA.

¹³²U.S. Circuit Court, *The Trial of Samuel Colt*, 86.

¹³³Haag, *The Gunning of America*, 60.

¹³⁴Nor should we view its wars as exceptional. See Michael Geyer, and Charles Bright, "Global Violence and Nationalizing Wars in Eurasia and America: The Geopolitics of War in the Mid-Nineteenth Century," *Comparative Studies in Society and History* 38, no. 4 (1996): 652. For the comparison of the U.S. Civil War and German Wars for Unification, see Satia, *Empire of Guns*; and Alder, *Engineering the Revolution*.

and several years later established an armory that used American methods and machines.¹³⁵

By the Mexican-American War, federal armories were capable of providing arms for troops within and beyond U.S. borders. The government lessened its dependence on contractors, but still did business with the private sector that it had helped develop. The private arms industry, meanwhile, thrived on frontier experience and demand. It came to be dominated by men like Samuel Colt, whose later business ventures, along with those of Oliver Winchester, grew to be the most iconic private arms suppliers of the American West. They benefitted from private and public sales in a way that earlier manufacturers had not and gained a national and international following.

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¹³⁵ Rosenbloom, “Anglo-American Technological Differences in Small Arms Manufacturing,” 683–84.