

ARMY ORDNANCE AND INERTIA TOWARD A CHANGE
IN SMALL ARMS THROUGH THE CIVIL WAR

By

Carl L. Davis

Bachelor of Science

Oklahoma State University

Stillwater, Oklahoma

1958

Submitted to the faculty of the Graduate School of
Oklahoma State University
in partial fulfillment of the requirements
for the degree of
MASTER OF ARTS
August, 1959

FEB 29 1960

ARMY ORDNANCE AND INERTIA TOWARD A CHANGE
IN SMALL ARMS THROUGH THE CIVIL WAR

Thesis Approved:

OA Hilton

Thesis Adviser

Thomas L. Knight

Robert MacLean

Dean of the Graduate School

438594

PREFACE

The following study centers in the problem of inertia in military technology dating from the early nineteenth century to the end of the Civil War. However, limited time and space have allowed for the examination of only a small segment of this broad field. The paper concentrates upon small arms, and for that reason makes almost no mention of heavy ordnance and machine guns.

One obvious fact emerges from a study of the military. It is that the army officers were conservatives and generally opposed change. This statement is far from startling. It is generally understood. Some attempt has been made to show how the officers of a small regular army rationalized their position, and, more important, to show some detail of the position they took. I have concluded that their reasoning was determined by three major forces: first, the rigidity of the military structure; second, the army's lack of imagination; and third, its hard core of conservatism and traditionalism. The three causes are open to question, but it is hoped that they will serve as a basis for further study.

For aid on this paper I would like to acknowledge the following: Mr. Alton Juhlin of the Special Services section of the library, who acquired much of the needed materials; Dr. Homer L. Knight, head of the Department of History, who has been of great assistance during my graduate study; Dr. Theodore L. Agnew whose critical reading and many suggestions were of immeasurable value; Dr. LeRoy H. Fischer who was always ready to come to

my aid, and for his critical reading of this thesis; and Dr. O. A. Hilton whose knowledge of military affairs and history in general kept this paper within reasonable bounds of scholarship.

TABLE OF CONTENTS

Chapter	Page
I. THE ORDNANCE BUREAU IN 1861	1
II. AN EXISTING BODY OF PREJUDICE	17
III. WAR AND CHANGING OPINION	34
IV. CONCLUSION	49
BIBLIOGRAPHY	53

CHAPTER I

THE ORDNANCE BUREAU IN 1861

The opening of hostilities in April of 1861 caught the United States Government and its military establishment unprepared psychologically and philosophically, as well as materially, for war. The traditional American point of view was to distrust, perhaps for good reason, a well-organized and powerful military establishment. European monarchies and dictatorships were of such close kin to the military in the minds of most Americans as to be almost inseparable. Most Americans felt that military might was the tool of tyrants and the natural enemy of liberty. A strong military, they felt, could not be trusted to keep the best interests of a democratic society at heart.

With the protection afforded by its geographic position, the United States could easily avoid the dangers of a large and powerful military class. The army could be kept small by congressional control. The "founding fathers" had seen fit constitutionally to limit army appropriations, at least in time, to two years.

Even in event of danger a large standing army was not needed. At the first roar of the cannons patriot volunteers would quickly spring to the colors and swell the ranks of the army. Some officers felt that the small well-trained regular army would be the core of the new brigades, divisions, and corps of this expanded force. There was no need for an expensive and powerful bureaucracy to manage the army. The militias were organized in

the states, and their administration could easily be transferred to the national government in time of war.

This was the philosophy which permeated as well as regulated the Ordnance Bureau and most of the other bureaus of the War Department in 1861. Since the weapons of war were standard, and since tactics did not dictate a need for new ones, expensive and complicated weapons would be unnecessarily costly and wasteful.¹ Despite the warning of the Chief of Ordnance, Colonel Henry Knox Craig, less than four years before the outbreak of the war that the government should have on hand at least a million small arms, no action had been taken.²

The Ordnance Bureau on the eve of the Civil War was not without its problems. Many flintlocks in the Government arsenals still were to be converted to the percussion system. New infantry shoulder arms were being introduced which changed the official calibre from .54 to .58 inch. Equally serious was the problem of supplying the states with arms and ordnance materials from the federal stores, which themselves were far from adequate. But these and other problems would be solved by steady and hard work. All that was needed was time, and there was plenty of that, or so it was believed.

The Civil War broke with sudden fury on the unprepared departments of

¹Generally, infantry tactics were to advance upon the enemy, with the purpose of closing and engaging him with bayonets.

²Colonel H. K. Craig, Chief of Ordnance, to Secretary of War John H. Floyd, August 14, 1857, A Collection of Annual Reports and Other Important Papers Relating to the Ordnance Department, 1812-1889, 4 vols. (Washington: U. S. Government Printing Office, 1890), II, 612-613. Hereafter cited as Ordnance Papers.

the army--and probably no department was quite as unprepared as the Ordnance Bureau. Colonel Craig, a seventy-year-old veteran who had commanded the Bureau for over a decade, had been pushing along in his minor problems and was doing reasonably well. He had been temporarily relieved of his post in late 1860, probably because of friction with Secretary of War John B. Floyd, and was ordered to make an extensive tour of the Government arsenals and armories. Captain William Maynadier had been placed temporarily at the head of the Bureau and had done a creditable job.³ Craig, however, was reinstated by Secretary Joseph Holt, who took over as head of the War Department after Floyd resigned under pressure in the last two months of the Buchanan Administration.⁴ It was obvious that Craig was not the man to lead a wartime Ordnance Bureau. A more vigorous and more efficient chief had to be chosen.

The selection of a new Chief of Ordnance was not a difficult one. The man in line, both by virtue of seniority and long, honest, and efficient service, was Lieutenant-Colonel James W. Ripley, an officer with a most admirable record. Ripley was born December 10, 1794 in Windham County, Connecticut, and received his education there.⁵ He was appointed as a cadet to the United States Military Academy at West Point, New York,

³A. Howard Meneely, The War Department, 1861: A Study in Mobilization and Administration, (New York: Columbia University Press, 1928), 48.

⁴Ibid.

⁵George W. Cullum, Biographical Register of the Officers and Graduates of the U. S. Military Academy, (New York: Houghton, Mifflin, and Company, 1891), I, 1920. Hereafter cited as Register U. S. M. A. This work originally appeared in two volumes dating to 1890. Since that time it has passed through various editorships with additional volumes appearing as supplements each ten years.

May 8, 1813. Due to the war with England he was graduated and commissioned a second lieutenant in the corps of Artillery, June 1, 1814, and ordered to duty.⁶

Ripley then served two tours of duty in Florida. The first, in 1817 and 1818, was with General Andrew Jackson in the Indian war, while the second was with Colonel James Gadsden in surveying the Indian reservations. In the later task he did the work so well that he was commended by both his chief and by the Territorial Governor, William Pope Duval.⁷

When in 1832 trouble developed with South Carolina over the nullification of the tariff, President Jackson decided to strengthen the fortresses at Charleston. Captain Ripley was ordered to Fort Moultrie to prepare for its defense. The work done was creditable, and "his gentlemanly deportment won . . . esteem and respect" in Charleston.⁸ "Captain Ripley," stated General Winfield Scott, then in command at Charleston, "has no superior in the middle ranks of the army, either in general intelligence, zeal, or good conduct. . . ."⁹

Ripley was transferred from Artillery to the Ordnance Corps, May 30, 1833, and was put in charge of the arsenal at Kennebec, Maine, his first ordnance command. In 1835, although still commanding the arsenal at Kennebec, he became Inspector of Cannon and on May 7, 1838 was promoted to major. His superiors apparently were well satisfied with Major Ripley's

⁶Ibid., I., 119-120.

⁷Ibid., I, 120.

⁸Poinsett to Jackson, April 5, 1833, Register U. S. M. A., I, 120.

⁹Scott to Secretary of War Lewis Cass, April 15, 1833, Register U. S. M. A., I, 120-121.

work at Kennebec and as Inspector of Cannon, for on April 16, 1841 he was appointed superintendent at the United States Armory at Springfield, Massachusetts.¹⁰

At the time of Ripley's appointment the armory was "in a very imperfect condition."¹¹ The workmen made a habit of drunkenness and rowdy horseplay during the work day. The civilian superintendent's authority had been too weak to stop such activities. Ripley immediately cut wages. When trouble followed he closed the armory for repair and retooling, but when he reopened it the trouble-makers were not rehired. Many local citizens attacked Ripley but to no avail; the superintendent, very much in character, was firm, and the storm subsided.¹²

Ripley next instituted rigid rules at the armory. No newspapers, tobacco, liquor, or unnecessary talk during the work day was to be allowed. If a part became damaged for any reason while in the charge of an employee, he had to pay the complete price of the part. Books were carefully kept even to the "minutest detail," and all production, large or small, and employee's records could be shown in some "column or table."¹³

The transformation of the Springfield Armory under Ripley was truly remarkable. New machinery was installed, the area was landscaped and

¹⁰Register U. S. M. A., I, 121.

¹¹Jacob Abbot, "The Springfield Armory," Harpers Monthly, V (July, 1852), 160. Hereafter cited as Abbott, "Springfield Armory".

¹²Robert V. Bruce, Lincoln and the Tools of War, (New York: Bobbs-Merrill, 1956, 23.) Hereafter cited as Bruce.

¹³Abbott, "The Springfield Armory," 161.

fenced, and all unnecessary lanes were closed.¹⁴ Not the least of Ripley's accomplishments was the reduced cost of production. Prior to his superintendency a musket cost \$17.50 to make; before the end of his term in 1854 the cost had fallen to \$8.75.¹⁵ When Ripley left, the armory had improved in value, appearance and efficiency.

Upon leaving this post at Springfield, Ripley was paid the highest honor by the townspeople and the employees of the armory, who presented him with a service plate in appreciation of "that manly independence and freedom of action" which, to them, characterized Ripley. With his departure from Springfield, after over thirteen years there, Ripley "ended the best and stormiest years of his life. . . . Springfield Armory is truly Ripley's monument."¹⁶

After Springfield he moved to command the Watertown Arsenal, but was there only from January 1 to March 29, 1855, when he became, by order of Jefferson Davis, Secretary of War, Chief of Ordnance of the Pacific Department. On September 20, 1857 he became Inspector of Arsenals, a position for which he was well qualified. He was detailed on June 23, 1860, by Secretary of War John B. Floyd, to go abroad, first to Japan and then to Europe.¹⁷

While in transit to Europe Ripley heard of the rebellion of the Southern states, and immediately returned to the United States. As he

¹⁴ Abbott, "The Springfield Armory," 146; Register U. S. M. A., I, 119.

¹⁴ Abbott, "The Springfield Armory," 146; Register U. S. M. A., I, 119.

¹⁵ Abbott, "The Springfield Armory," 161.

¹⁶ Register U. S. M. A., I, 121.

¹⁷ Ibid.

stepped from the gangplank of the Persia he was greeted by a friend who remarked, "Your country needs you." "It may have me," replied the Colonel, somewhat over-dramatically, "and every drop of blood in me."¹⁸ Ripley immediately moved to the Capital and checked in at the Willard Hotel, April 20, 1861, probably to be on hand in the likely event that the Bureau chief, Colonel Craig, would be removed. The Secretary of War, Simon Cameron, had consulted General Scott, the ranking army officer, as to Craig's status, and both agreed that Craig was not suited to head a war-time bureau. Further, Scott pointed out, the senior ordnance staff member was close at hand, and was a most capable officer. Cameron complied with the request of the General-in-Chief, and on the pretext of Craig's illness, a minor ailment for which he had taken a few days rest,¹⁹ ordered Ripley to take charge of the Bureau "during the feeble health of its chief. . . ."²⁰ The following day, April 24, Ripley, ramrod-straight, white-haired, and fierce-eyed,²¹ climbed the stairs and entered the dark musty hall of the Winder Building to assume his new duties. Indeed, he must have felt some pride, even for a humble man. This was the position he had earned with forty-seven years of faithful and efficient service.

Ripley has since been called an incompetent. He was not. He had

¹⁸Ibid.

¹⁹Bruce, 29.

²⁰Special Orders, No. 115, Adjutant-General's Office, Washington, April 23, 1861, The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies, 70 vols. (128 books in the U. S. serial set), (Washington: Government Printing Office, 1880-1901), iii, I, 102, Hereafter cited as Official Records.

²¹Bruce, 14, 23.

nothing in his past to indicate that he lacked the qualities to head an important military bureau. Quite the contrary; he had moved with the utmost dispatch and efficiency in every responsible position he had thus far held. The first years of war would not destroy his record. Ripley, as so many other high ranking army officers, past and present, was bound by tradition--tradition based partly on past experience and proven techniques, but more on personal and military pride. Furthermore, Ripley stepped into the office of Chief of Ordnance at a difficult time and, all things considered, did a reasonably good job for the first year of war.

The Ordnance Bureau, Riply discovered, was too small to handle the needs of a large army. The Bureau had been authorized, by the act of April 5, 1832, only fourteen officers.²² By another act of Congress, July 5, 1838, the President might increase the number of officers in the corps by as much as twenty-two.²³ On October 1, 1844, the number had risen to thirty-four,²⁴ and by the close of the Mexican War it stood only at thirty-six.²⁵ During this conflict Congress authorized the President to add, at his own discretion, eight officers when he "deem^{ed} it expedient"²⁶ From that time to the Civil War the Ordnance Bureau was never at full officer strength, and the last annual register of the army before the

²²United States Statutes at Large, IV, 504.

²³Stat. L., V, 258.

²⁴Colonel George Talcott, Chief of Ordnance, to J. A. Black, Chairman of the Select Committee on the Bill to Regulate the Pay of the Army, December 14, 1844, Ordnance Papers, I, 523-524.

²⁵Annual Report of the Chief of Ordnance, 1844, Talcott. Hereafter cited as A. R. C. O., Ordnance Papers, I, 249.

²⁶Stat. L., IX, 186.

war listed only forty-one officers in the corps.²⁷

When war came in 1861 some of the most capable ordnance officers, such as Oliver O. Howard and Jesse Reno, took field commands. The officers who replaced them, although giving the utmost effort, were inexperienced in dealing with ordnance. The Bureau staff of officers was not expanded sufficiently to allow it to meet its problems. Ripley pointed out just two months after taking charge of the Bureau that he had only forty-five officers, just nine more than the Bureau had had during the Mexican War, and that while many more were needed, an additional nine were absolutely necessary.²⁸ Congress, early in August, allowed the Ordnance Corps eight more officers,²⁹ but as of June 30, 1862 the Ordnance Bureau still had only forty-five.³⁰ Only a few days before that date General Ripley³¹ had informed Secretary of War Edwin M. Stanton of the situation and requested thirty additional officers.³² Relief did not come, however, until the war was more than half over and the engagement at Gettysburg was in its second day, when nineteen officers were added to the corps.³³

²⁷"Register of the Army," Annual Report of the Secretary of War, Floyd, Executive Documents, No. 54, p. 8, 36th Congress, 2d Session, (1860-1861), V.

²⁸Ripley to Cameron, June 24, 1861, Official Records, iii, I, 292.

²⁹Stat. L., XII, 287.

³⁰A. R. C. O., 1862, Ripley Ordnance Papers, III, 444.

³¹Ripley was breveted to Brigadier General in June and assumed the regular rank August 3, 1861. Register U. S. M. A., I, 119.

³²Ripley to Stanton, June 23, 1862, Ordnance Papers, III, 449-450.

³³Stat. L., XII, 473.

The same situation existed with the enlisted men and was even worse with the Ordnance Office clerks. Because of these deficiencies, the Bureau fell far in arrears on records and on its work in general, General George D. Ramsay, who replaced Ripley as Chief of Ordnance, reported in 1863 that the clerks numbered only thirty-six, and that this figure should be increased to one hundred and thirty. Even then it would take a year to bring the paper work up to the proper date.³⁴ Over and above these barriers there also existed a lack of facilities for storage and distribution, particularly in the area of New York City.³⁵ Even the efforts of the efficient Captain William Maynadier were not enough to keep the department from falling behind. The bureau was mired in red tape and inefficiency. Craig had been a bureaucrat--he loved it. Ripley believed in the "proper channel"--he was the victim of it.

The real problem of the Bureau, that of supplying arms of all types, was staggering. Four days after the firing upon Fort Sumter, the United States did not have a single heavy rifle in its arsenals. Ripley ordered the conversion of smooth-bore cannon and the purchase of several Parrott guns, which were particularly strong rifled artillery pieces. This was done quickly enough so that these pieces saw action in the first major engagement of the war at Bull Run, in July of 1861.³⁶ The problem of heavy ordnance, however, is not herein discussed since the principal interest of this paper is small arms, particularly shoulder arms.

³⁴A. R. C. O., 1863, Ramsay, Ordnance Papers, III, 455.

³⁵A. R. C. O., 1862, Ripley, Ordnance Papers, III, 444.

³⁶Register U. S. M. A., I, 122.

The demand for small arms placed an equally heavy burden upon the Bureau. An analysis of purchase and production figures for the first eight months of the war reveals the shortage of domestically manufactured small arms. On April 12, 1861 the United States had on hand in those armories and arsenals which would remain in Union hands 437,433 rifles and muskets and 4,076 carbines.³⁷ Most of these, however, were technically obsolete, since only a very few were .58 calibre Springfield Models 1855 and 1861. Indeed, the majority of the weapons on hand were the unrifled .69 calibre muskets. Most of the remainder were of the .54 calibre rifle musket.³⁸ It should be noted that the smooth-bore .69's were weapons of the same type and calibre, differing only in lock, as the British "Brown Bess" musket adopted by that nation in the early eighteenth century and used in the Revolutionary War. It was this type of weapon upon which the tactics of the Civil War were based.

The Armory at Harper's Ferry was lost early in the war, leaving only the one at Springfield, which had a total annual capacity of about 20,000 arms. Arms had to be purchased from somewhere, so contracts were let for that purpose. Fraud was almost the rule rather than the exception among the contractors who purchased second-hand arms.³⁹ The governors were clamoring for arms to be put into the hands of the state volunteers as they were mustered into national service. The speed with which troops

³⁷A. R. C. O., 1862, Ripley, Ordnance Papers, III, 446.

³⁸See A. R. C. O., Ordnance Papers, II for 1859 and 1860; III, for 1862. There is no report for the year ending June 30, 1861.

³⁹See Report of the Commissioner on Small-Arms Contracts, Official Records, iii, II, 188-195.

could be mustered depended, to a large extent, upon how fast weapons could be supplied them. Many states added to the confusion by appointing their own purchasing agents. The obsolete refuse of the Continental armies poured into the United States and was placed in the hands of American volunteers.⁴⁰ These notorious weapons were generally smooth-bore, and many were unsound and even dangerous, but arms--any arms--had to be put into the hands of the troops at once. Many of the weapons were so poorly made or so worn that standard ammunition could not be supplied even to weapons supposedly of the same calibre. One officer complained that weapons sent to him listed as .69 calibre varied from .58 to .72, and had to be reclassified. Further, he stated, one-fifth were unserviceable.⁴¹ However, not all foreign arms were of inferior construction or pattern. During the period from the firing on Fort Sumter in April of 1861 until June 30, 1862, 116,740 British Enfield rifles, which were equal to the Springfield, entered the country.⁴² In fact, many soldiers preferred them to the Springfield, although no real difference existed between them.⁴³

The full expansion of American arms manufactories was slow, due partly to the fact that the war was expected to be short and therefore the

⁴⁰Louis Philippe Albert d'Orleans (Comte de Paris), History of the Civil War in America, (4 volumes, Philadelphia: Joseph H. Coates, 1875), I, 300.

⁴¹George B. Wright, Quartermaster General of Ohio, to P. H. Watson, Assistant Secretary of War, October 20, 1862, Official Records, III, II, 695.

⁴²A. R. C. O., 1862, Ripley, Ordnance Papers, III, 446.

⁴³Fred Albert Shannon, The Organization and Administration of the Union Army, 2 vols. (Cleveland: Arthur H. Clark, 1928), I, 113.

expansion of the armament factories would not be needed. Great production, it was felt, would lead to great surplus. If the nature of the war had escaped the Union generals in the field, it had also escaped those supplying them. However, the early defeat at Bull Run in July of 1861 caused the military leaders to realize that the war might be longer than anticipated. Therefore, it might be necessary to produce more arms than had been previously thought.

By the latter part of 1862 great improvement had been made in the facilities for providing the army with the tools of its trade. This is not to say that all the problems were solved, but advancement both in public and private armories had been made. Of the arms purchased or fabricated for the army from April 12 to December 31, 1861, only 14,380 of the total of 236,157, or only about 6.1 per cent, had been manufactured in the United States.⁴⁴ For the period from April 12, 1861, to June 30, 1862, the number of arms manufactured in the United States was 171,808 of a total acquisition of 909,736,⁴⁵ or about 18.8 per cent of the whole. This means that from January 1 to June 30, 1862 the United States manufactured 157,428 of a total of 673,477, or 23.4 per cent, a production increase of elevenfold over the first eight months of the war. Of this number, seventy per cent, or 109,810, were fabricated at the United States Armory at Springfield.⁴⁶ By late 1861 most observers would have had to

⁴⁴Report of the Chief of Ordnance, Ripley, on the purchase of arms to December 31, 1861, (February 20, 1862). Executive Documents, No. 67, p8, 37th Congress, 2d Session (1861-1862), V (part 1).

⁴⁵A. R. C. O., 1862, Ripley, Ordnance Papers, III, 446.

⁴⁶Ibid.

agree with the Illinois Governor, Richard Yates, that the troops were "miserably armed."⁴⁷ By late 1862 the situation had much improved.

Perhaps the advancement can best be seen in the words of the Chief of Ordnance, General Ripley himself, when he summed up the expansion in his annual report for the year ending in 1862. He wrote:

[We] have advanced our productive capacity from 22,000 stands of arms, the annual production of both National armories before that of Harper's Ferry was destroyed, to at least 200,000, and from the first of January next probably 24,000 per annum [month?] from the single armory at Springfield, in the State of Massachusetts, making a product of one month equal to the former product of both armories for a whole year. Besides this source of supply, there are now in operation, and engaged in furnishing the Government, private manufactories of arms, which will probably turn out in the next six months 220,440 stands of arms of the different kinds requisite for cavalry and foot troops, and with a present capacity equal to supplying thereafter at a rate of 350,000 muskets and rifles, and 115,000 other small arms per annum, making a total productive capacity of upwards of 700,000 annually. The measures which have been adopted by and through this Department will enable it in a short time to replace every arm in service, not of the first class, by one of the best quality and kind, and to place in store enough arms of the same description to meet the probable losses and damages from all causes. They have already resulted in restricting our purchases of foreign arms to those of the first class, and enabling us to fix fair limits to prices, and effectually suppress all attempts at speculation and extortion.⁴⁸

Enough progress was made to allow Edwin M. Stanton, Secretary of War, to limit contracts and revoke licenses for the purchase of arms early in 1862,⁴⁹ although the principal reason for Stanton's restricting contracts was probably the fraud and corruption which had taken place in these transactions. The contracts for domestic arms were being fulfilled

⁴⁷ Yates to Cameron, December 12, 1861, Official Records, iii, I, 740.

⁴⁸ A. R. C. O., 1862, Ripley, Ordnance Papers, III, 442-443.

⁴⁹ Order, Secretary of War Stanton, January 29, 1862, Official Records, iii, I, 869-870.

and the crisis in ordnance was passing by late 1862. The supply of arms, although still doled out by first, second, and third class, was such that the War Department could offer an exchange of arms for those considered unsatisfactory,⁵⁰ and the Adjutant-General's Office could inform the governors in advance of their requisition that arrangements for arms had been made and could ask them how many were wanted.⁵¹ In early November General N. P. Banks, then on duty collecting troops for a southern expedition, notified Stanton from Albany that he needed "six to eight thousand good rifled muskets."⁵² The following day Stanton informed Banks that "An adequate supply of arms will be immediately forwarded," and that his "authority to procure them is unlimited."⁵³ A few days later Adjutant-General Lorenzo Thomas asked, from Harrisburg, for details concerning the arming of a newly drafted regiment.⁵⁴ The Secretary replied on the same day that "Arms will be forwarded as soon as you report what number will be required. . . ."⁵⁵

It cannot be denied that the Ordnance Bureau made progress under

⁵⁰Watson to Wright, October 19, 1862, Official Records, iii, II, 673.

⁵¹General G. P. Buckingham, Assistant Adjutant-General, to Israel Washburn, Governor of Maine, October 1, 1862, Official Records, iii, II, 640.

⁵²Banks to Stanton, November 1, 1862, Official Records, iii, II, 713.

⁵³Stanton to Banks, November 2, 1862, Official Records, iii, II, 715.

⁵⁴Thomas to Stanton, November 10, 1862, Official Records, iii, II, 760-761.

⁵⁵Stanton to Thomas, November 10, 1862, Official Records, iii, II, 761.

General Ripley during the first year of the war. He was highly criticized, particularly by the governors of the states, for inefficiency, an unjust accusation, considering the circumstances. Each governor felt that he was being discriminated against for the number of class one arms, when in fact these arms were doled out as near to a proportion of enlistments as possible. Certain inequalities in issue did occur, but with the size of Ripley's staff such things were bound to happen. Ripley was intensely disliked by the corruptionists, whose action against him knew no bounds. Ripley, however, maintained his personal integrity and the integrity of his department against fraud and corruption at a time when such sterling action was greatly needed. During the House investigation of the contracting for and the purchasing of arms, Representative Abraham B. Olin of New York paid Ripley the highest compliment when, from the floor of the House, he said:

I undertake to say that, amid this widespread corruption, and the hordes of sharpers and brokers, and ex-members of Congress and bankers, and stock-jobbers and blood-suckers, who gather instinctively around the Secretary of War for the purpose of plundering this Government and robbing the people, this old man, General Ripley, stood up like an old Roman, a pillar of virtue amid a widespread desert of corruption. He was a rock and a breakwater against a torrent of fraud. I wish to God the Government was full of such men.⁵⁶

The difficult problem of supply was met with dispatch. It is unfortunate that Ripley did not rise to the occasion on other matters--namely breech-loading and repeating small arms for the infantry.

⁵⁶Register U. S. M. A., I, 122-123.

CHAPTER II

AN EXISTING BODY OF PREJUDICE

The officers who resisted the change to the breech-loading arm during the Civil War might be excused had the arms with which they were dealing been something new and revolutionary. They were not. One has to look back more than four decades before 1861 to find the first American military breech-loading arm. This weapon had faced the same problem that its successors would face forty years later--the attitude of a conservative officer corps.

The first American military breech-loading arm was a rifle invented by William H. Hall and patented in May of 1811.¹ The ignition system was, of course, the flintlock type, but the method of loading was quite different from the common musket. The weapon could take either cartridge or loose ammunition, and the loading procedure was simple. To the front of the trigger guard was a lever which, when pulled directly to the rear, allowed a short section of the barrel to pivot in a counter-clockwise manner. This tilted section of the barrel, the breech, served as the chamber, which was then charged. The section was then pushed back in line with the barrel, where it was locked securely. The priming was as in all convention flintlock weapons.

Hall's weapon was first submitted to the military in 1813. At that time the Secretary of War, John Armstrong, ordered some of the rifles

¹George Bomford, Colonel of Ordnance, to Secretary of War James Barbour, January 31, 1827, Ordnance Papers, I, 150.

for future tests, but apparently no action resulted. Again in 1817 for future tests, but apparently no action resulted. Again in 1816 the weapon was presented for inspection. The preliminary trials were such that, in January of 1817, the Government placed an order for one hundred, which were delivered within the year.² The first test, held at Greenleaf's Point in late 1818 and early 1819, was significant in that the officers were immediately impressed with the arm. The Hall was fired over seven thousand times with no difficulty developing. The inspection board felt that this was at least equal to the usage of fourteen or fifteen campaigns. In his report Colonel Nathan Towson, president of the board, stated:

The advantages of these guns over the common ones now in use are, the celerity and ease with which they may be loaded in all situations. It is of great consequence in the rifle; the difficulty of loading is the greatest objection to its more general introduction into service; second, greater accuracy and less recoil (in the musket;) third, less weight (in the rifle).³

On March 19, 1819, the Government agreed to pay Hall a royalty for the rights to manufacture the weapon at the national armory at Harper's Ferry. Hall was to receive \$1000, with the Government to produce not more than a thousand arms.⁴ In May the armory was tooled, and production of the new arm began--the first military weapon with interchangeable parts manufactured in the national armories.

It was not until July of 1826 that the arms reached the troops for

²Ibid., 151-152.

³Report of the Board of Officers (Hall's rifle) as quoted by Bomford to Barbour, January 31, 1827, Ordnance Papers, I, 159.

⁴The Hall Contract, March 19, 1819, as quoted by Bomford to Barbour, Ordnance Papers, I, 152.

further tests, when at that time, two companies at Fortress Monroe received them.⁵ Finding the Hall to be more than twice as effective as either the rifle or the musket, the Board of Officers at Fortress Monroe stated in December, 1826:

In reporting its opinion of the general utility of Hall's rifle, the staff of the school expresses its perfect conviction of the superiority of this arm over every other kind of small arm now in use; and this opinion has been formed after . . . contrasting them in various ways with the common rifle and musket, in all which trial their great and general superiority has been manifest.⁶

To these words of praise concerning the Hall rifle Colonel George Bomford, of Ordnance, added his own:

The convenience, safety, and celerity with which these are loaded and fired, and the accuracy and effect of their fire, and the durability of the arms, have been most effectually tested, and have proved not inferior in any of these respects to the common arms, but generally superior in all of them, and particularly so in all that relates to celerity and effect.⁷

The army appeared to have found an all-purpose weapon. It could be loaded rapidly and would thus eliminate the need for the smooth-bore musket. No special rifle would be needed, since the Hall itself was a rifle.

Some officers, including Colonel Bomford, seemed to consider the Hall rifle for general adoption. When asked, in 1836, by James I. McKay of the Committee on Military Affairs, how many of these rifles would be produced in the next twenty years, Bomford answered that at the present

⁵Bomford to Barbour, January 31, 1827, Ordnance Papers, I, 150.

⁶Report of the Board of Officers at Fortress Monroe, December, 1826, as quoted by Bomford to Barbour, January 31, 1827, Ordnance Papers, I, 159.

⁷Bomford to Barbour, January 31, 1827, Ordnance Papers, I, 152.

rate of 3,000 per year at the national armory and 1,000 by private armories, it would be 80,000, but if they were generally adopted, "as its great advantages fully justify," it would be 820,000. Bomford's sentiments about general adoption came out again when he noted:

. . . in all trials and comparisons with other fire-arms, to which it has been submitted, whether by private or official persons, it has invariably maintained its superiority over all other fire-arms; and in short, there is no longer any doubt of its being the best small-arm now known.

Bomford was not unaware of the prejudice against any drastic change in the military arm, for in the same communication he added:

Yet it might be hazardous to introduce so great a change into the principal weapon of the country, (though in all human reason it would be accompanied with signal advantages), its adoption, therefore, it is believed, should be gradual.

This gradual adoption would mean that the Hall would take up about one-fourth of the production of military shoulder arms or about 205,000 for the twenty-year period.⁸

Bomford and the other officers who held his view on the Hall rifles were not, however, strong enough to turn back the tide against the breech-loading piece. Despite the high praise given it by the testing boards and the head of the Ordnance Bureau, the Hall rifle's proponents were fighting a futile battle. They faced a hostile group of conservative military officers. It is somewhat surprising that the Hall, which would be ideal in loading for mounted men, met the most resistance from the United States Dragoons.⁹

⁸Bomford to James I. McKay, of the Committee on Military Affairs, February 8, 1836, Ordnance Papers, I, 303, 305.

⁹Colonel George Talcott, Chief of Ordnance, to Secretary of War John

Other inventors of breech-loading weapons were also trying to place their arms in the service, but for the most part they made no permanent impression upon the military leaders. For example, in 1834 Captain Alfred Mordecai, in Europe, informed Bomford that "a Mr. Robert, in Paris, has invented a fusil of great ingenuity, to load at the breech. . . ." Mordecai claimed that it had fired 393 times in three-quarters of an hour, and 25,000 rounds without need for repair. He asked for money and authority to purchase two of them for the purpose of tests, but although his request was granted,¹⁰ nothing more was heard of Robert's fusil.

Pressure against the breech-loading arm, particularly by the Dragoon officers involved in the Indian campaign in Florida, was even stronger by 1840, when the question of the Hall rifle came to a head. Because of this pressure Secretary of War Joel Poinsett inquired of George Talcott, the Chief of Ordnance, as to the past view of the Bureau that the Hall was superior to all other military weapons. Talcott replied that the Department's views was "unchanged" since it was based on trials and reports. He was also careful to point out the advantages of the Hall in loading on horseback.¹¹ Nevertheless, Poinsett included in his annual report a statement based on the money already invested in arms and on the threat to national safety by the adoption of new inventions without tried experiment:

. . . has induced me, generally, to discontinue their introduction into the service. I fear that every attempt to increase

C. Spencer, March 22, 1842, Ordnance Papers, I, 335-336. See Chapter I page 25.

¹⁰Bomford to Lewis Cass, Secretary of War, April 1, 1834, Ordnance Papers, I, 273.

¹¹Talcott to Poinsett, January 25, 1840, Ordnance Papers, I, 373.

the rapidity of firing, such as facilitating the loading by opening the breech, or by multiplying the chambers of the gun, will fail as they have hitherto done, after involving the government in great expense.¹²

The use of the Hall smooth-bore carbine in Florida and complaints against that weapon as being inferior and dangerous led to a letter of inquiry from Senator William S. Archer of Virginia. He wanted to know if there was considerable rust and wear at the joint between the chamber and the barrel, and if this wear produced all of the evils claimed. Talcott answered, "No." Archer then asked if a great deal of firing caused a wearing at the joint. Talcott again answered, "No." Archer further wanted information concerning the use of the Hall rifle in Florida and of the danger in using them. Talcott replied that "the dragoons are armed with carbines which have failed in the stocks, but without any hazard to the soldier."¹³ Only a few days preceding this definite answer Talcott had informed the Secretary of War that Hall's invention was "still considered a valuable one."¹⁴

The effort to save the Hall from being discarded was futile, and production of the arm was discontinued shortly after Hall's death in 1842. The officers who had led the attack against the Hall rifles and carbines had thus won their fight by 1841. They had been greatly aided by the fact that the weapons had not always functioned as they should

¹²Report of the Secretary of War, Senate Documents, No. 1, p. 21, 26th Congress, 2d Session (1840-1841), I.

¹³Talcott to Secretary of War John C. Spencer, May 13, 1842, Ordinance Papers, I, 442-443.

¹⁴Talcott to Secretary of War William Wilkins, Jan. 14, 1845, Ordinance Papers, II, 3.

have. The Dragoons complained that the Hall would not fire consistently. This was true, no doubt, because the cartridge was not driven home with a rod, and because the carbine was carried muzzle down, which separated the components of the unrammed cartridge even further.¹⁵ This difficulty, however, could have been easily rectified by the addition of a short ramrod attached to the weapon by a chain. Moreover, the garrison soldier tended to polish his weapon until it shone, using harsh abrasives which cut away at the metal.¹⁶ On the Hall this would remove the face of the chamber, thus allowing gas to escape and making firing unpleasant. Chief of Ordnance Talcott pointed out that the First Dragoons had been "armed with carbines of this model [Hall's]" and they had received the most unqualified approbation." The reasons for the change in this opinion, he thought, were that no attempt was made to keep the arms in good condition or to instruct the soldiers in their use. These are the most logical reason, because the arm, despite the claims of the dragoons, was simple and had little to go wrong. Talcott further stated:

. . . if my honor and life were at stake and depended on the use of firearms, I would sooner take one of these carbines than any other weapon.¹⁷

His explanation fell upon deaf ears.

Although the Hall was the most important of the breech-loading arms during the period 1820 to 1850, it was not the only one to face the scorn of the officers opposed to weapons of this type. In 1838 the Jenks gun,

¹⁵Official Report of Colonel George Croghan, Fort Des Moines, October 26, 1836, Francis Paul Prucha (ed.), Army Life on the Western Frontier, (Norman: University of Oklahoma Press, 1958), 97.

¹⁶Ibid.

¹⁷Talcott to Secretary of War William Wilkins, January 14, 1845, Ordnance Papers, II, 3.

another breech-loading arm, was submitted to a board of officers for tests. The weapon was fired 4,500 times and performed well. Then, to determine the life of the arm, it was fired another 10,313, when the nipple split. This total of 14,813 was considered the life of the gun. The board reported that "it is well adapted to and capable of performing all the requirements of the service . . . /but/ . . . that in common with all other arms loading at the breech the machinery necessary to its operation is objectional."¹⁸

In 1841 Jenks and Colt carbines were taken by Captain Edwin Sumner of the First Dragoons to Florida "with no prejudice for or against either of them" Sumner reported that the "Colt's carbine will not do for military purposes . . . ," but he felt that the Jenks, with minor alterations "would be by far the best piece we have ever had." The "minor alteration" which Captain Sumner suggested was the institution of a "whole barrel," which, of course, would change these weapons from breech-loading to muzzle-loading arms. "No time of any consequence is saved," said Sumner, "by loading at the breech." This "unprejudiced" Dragoon went on to say that breech-loaders were "more liable to accident . . . and . . . eventually these 'broken back' guns will be pronounced imperfect and disregarded altogether. Guns loading at the muzzle can be fired more rapidly; and . . . /they are/ infinitely better in all respects."¹⁹ Sumner was not alone in this view. Major T. T. Fauntleroy of the Second Dragoons refused to take these carbines into the field because

¹⁸ Ibid., 5.

¹⁹ Ibid.

his men were ignorant of their use, while Captain Enoch Steen, Company E, First Dragoons, said that the Jenks were "not worth the store room they occupy."²⁰

The attitudes of the military were apparent to all, even to the officers themselves. In 1842 Chief of Ordnance Talcott, in speaking of the testing of the Jenks carbine in Florida, informed the Secretary of War: "A prejudice against all arms loading at the breech is prevalent among the officers, and especially the Dragoons."²¹ In late 1848 Talcott, in reply to a letter from William W. Hubbell, a Philadelphia arms inventor, said: "As breech-loading arms have fallen into disrepute of late years, I do not consider it probable that those of your construction will be found an exception whenever trial is made."²²

Talcott, although not always agreeing with the opinion of the majority of the army officers, did not see any great advantage to an increase in fire power. In 1848 he expressed the opinion that repeating weapons, with the possible exception of "the double barrel gun, which for the general purposes of service appears to be a sufficient extension of the repeating principle," were of no value.²³ In 1852 Colonel H. K. Craig, Talcott's successor, revealed the same opinion: "Rapidity of fire . . . may well be regarded as of doubtful utility," and might even injure without coolness of the men in the ranks.²⁴ Perhaps in the final analysis the

²⁰Ibid., 6.

²¹Talcott to Spencer, March 22, 1842, Ordnance Papers, I, 335-336.

²²Talcott to Hubbell, December 26, 1848, Ordnance Papers, II, 258.

²³Talcott to Secretary of War William L. Marcy, April 5, 1848, Ordnance Papers, II, 220-221.

²⁴A. R. C. O., 1852, Craig, Ordnance Papers, II, 500.

tactical concepts of the period, as much as anything, defeated the breech-loading arm.²⁵

In 1848 a new breech-loader, invented by Christian Sharp, who had worked with Hall at Harper's Ferry, began to change the minds of many.²⁶ This, in contrast to the Hall, was not a "broken back" weapon, but opened the breech from the rear by means of a downward thrust of the trigger guard; this action dropped the breech-block out of line with the chamber and barrel. Talcott spoke of ". . . its superiority over all other breech-loading arms which have come to my notice. . . ," and was of the opinion that it was suitable for the public service. Upon Talcott's recommendation two hundred were purchased for future tests.²⁷

The new Chief of Ordnance, Craig, was not of the same opinion. He included the Sharps when he said that the tests were "in condemnation of all breech-loading arms." He seemed in complete agreement with Colonel David E. Twiggs of the Second Dragoons who refused in advance to accept any patented breech-loading arms. Craig placed a good deal of faith in Captain Summer's report of 1841 that breech-loaders were "more liable to accidents." Yet, in the same communication, Craig defended the Musketoons, short, light muzzle-loading carbines designed for cavalry use, as being good arms despite some "slight shortcomings." These shortcomings were that their ramrod swivels broke off easily; they were inaccurate over fifty yards; they were less powerful; and one-third failed when they were

²⁵See page 2, note.

²⁶Winston O. Smith, The Sharps Rifle, (New York: William Morrow, 1943), 4, 16.

²⁷Talcott to Secretary of War Charles M. Conrad, December 17, 1850, Ordnance Papers, II, 360.

first fired.²⁸

It may be partially because of the Sharps rifle that Congress, on August 5, 1854, appropriated \$90,000 "for the purchase of the best breech-loading rifles."²⁹ Preliminary tests of several breech-loaders lasted from 1854 until early 1857, at which time a board was convened to make more extensive tests of the breech-loaders. The board passed favorably on several, including one invented by Ambrose E. Burnside and one invented by George W. Morse, but it approved particularly the Burnside carbine. These favorable reports were given from West Point under the dates of March 6 and August 17, 1857, but the board added:

In submitting this opinion the board feels it their duty to state that they have seen nothing in these trials to lead them to think that a breech-loading arm has yet been invented which is suited to replace the muzzle-loading gun for foot troops. On the contrary, they have seen much to impress them with an opinion unfavorable to the use of a breech-loading arm for general military purposes.³⁰

Craig apparently concurred with the opinion of the board, for in October of the same year he informed Secretary of War John B. Floyd that it would be unwise to purchase the Burnside patent. Furthermore, he stated, the national armories should be confined "to the manufacture of arms of the established model, which are known to be good and serviceable."³¹

After this series of tests Craig, on October 24, 1857, refused to

²⁸Craig to Adjutant-General Roger Jones, July 12, 1851, Ordnance Papers, II, 361-362.

²⁹Stat. L., X, 579.

³⁰General S. V. Benet, Chief of Ordnance, to Secretary of War William W. Belknap, March 6, 1875, Ordnance Papers, IV, 919.

³¹Craig to Floyd, October 22, 1857, Ordnance Papers, II, 616-617.

test any more breech-loading arms, although he had earlier admitted that improvement was still going on.³² Realizing the impossibility of analyzing the attitude of the entire United States Army through one man's opinion, it is still a reasonable assumption that the average officer generally agreed with Craig. The opinion of the Ordnance Bureau almost always reflected the views of the regular army on the question of weapons. If Craig did not here express the prevailing opinion of the officers, they at least gave no sign of disagreement.

During 1858 Craig showed some signs of relenting, admitting that breech-loading carbines were valuable to mounted troops, but still making no concessions as far as the infantry was concerned.³³ During that year, many of the troops of the United States had been armed with Sharp's and Burnside's breech-loading carbines. It must have been the performance of these weapons that caused Craig to change his mind, since there had been little change in the weapons themselves. The breech-loader made even more progress in September, 1858, when the Government agreed to pay Morse a royalty to convert some of the arms in the national arsenals to his plan which used the metallic cartridge.³⁴

In his annual report of 1859 Craig showed an even more significant change. He wrote:

With the best breech-loading arm, one skillful man would be equal to two, probably three, armed with the ordinary muzzle-loading gun. True policy requires that steps should be taken to introduce these arms gradually into our service, and to this end

³²Craig to Floyd, October 24, 1857, Ordnance Papers, II, 618.

³³Craig to Floyd, June 5, 1858, Ordnance Papers, II, 642.

³⁴Benet to Belknap, March 5, 1875, Ordnance Papers, IV, 920.

preparation ought to be made for their manufacture at the public arsenals.³⁵

In his report of 1860 he revealed a further change in attitude. He now felt that the breech-loaders are "by far the most efficient arms ever put into the hands of intelligent men," and that light troops should be armed with them immediately. He went even further by saying:

I hold it to be an inhuman economy which sends a soldier into the field, where his life is constantly in danger, without furnishing him with the best (not the most expensive) arms that are or can be made as certainly as the percussion cap has superseded the flint and steel, so surely will the breech-loading gun drive out of use those that load at the muzzle.³⁶

These statements are significant not only in that they represent a change in attitude toward a particular type of weapon, but also in that they indicate, however slightly, a realization of the importance of an increase in fire power.

The Morse conversions had been produced in only limited numbers when Congress, under the leadership of Senator Jefferson Davis, restricted the Government from producing any more arms for which royalties must be paid.³⁷ Apparently, Craig changed his mind for this reason and because of the introduction of the 1861 Springfield rifle musket.³⁸ The situation may also partly reflect the old military prejudice against patented arms manufactured by private armorers. Craig gave a strong indication of his view when in February, 1861, he praised the new Springfield and

³⁵A. R. C. O., 1859, Craig, Ordnance Papers, II, 672.

³⁶A. R. C. O., 1860, Craig, Ordnance Papers, II, 691-692.

³⁷Stat. L., XI, 335.

³⁸The terms "rifled musket" and "rifle musket" were used by the officers of the period as synonymous.

stated that repeating rifles were not desirable for infantry. "The musket and rifle of the present model . . . are unsurpassed for military purposes," he continued, "and the repeating arm should be restricted to the . . . pistol."³⁹

The selection of James W. Ripley in 1861 to head the Ordnance Bureau brought the breech-loader perhaps its most formidable enemy. Ripley opposed the weapon from the start, stating that of the various arms, "some . . . were . . . unfit for use as military weapons, and none as good as the U. S. musket" Ripley was greatly worried about the introduction of many different types and calibres of small arms. "This evil," he stated, "can only be stopped by positively refusing to answer any requisition for or propositions to sell new and untried arms" He went even further: "The U. S. muskets as now made have no superior arms in the world."⁴⁰ The view of Ripley and many other army officers was given in 1862 by one of his defenders, Abraham Olin of New York, from the floor of the House. Olin, who had been in almost daily contact with the General, said:

The remark has been frequently made that his preference is for the old arm of the service, the old Springfield smooth-bore musket, and that he has not listened with patience to every new invention presented to him. I undertake to say that if you will listen to the experience of the best-informed military men in the Army, the almost concurrent judgment of those men will be that the old smooth-bore Springfield musket is the best arm now in the service, either domestic or foreign, and that is the opinion of General Ripley. I have heard him avow it frequently and assign his reasons for it, and I have heard

³⁹Craig to Secretary of War Joseph Holt, February 6, 1861, Ordnance Papers, IV, 842.

⁴⁰Ripley, Notes on Contracts, June 11, 1861, Official Records, iii, II, 264.

the most accomplished men in your Army avow the same opinion, and for the obvious reason that until a man is so familiarized with the rifled musket, and so skilled in its use as to keep it in order, the Springfield rifle musket is often found to be a far inferior arm to the smooth-bore musket.⁴¹

The question might here be asked as to how different the rifled musket was from the smooth-bore. The only difference was that the former had grooves inside its barrel.

Some of Ripley's attachment to the smooth-bore was probably from conviction, although some must surely have been based on rationalization. Many officers favored the smooth-bore because the "buck and ball" load (i.e., one .69 calibre ball and three buck shot) could be used to advantage. Also, the bayonet could be used as well on the musket as on the rifle; and the opinion common among the officers was that the bayonet, in the final analysis, was the determining factor in war. It is difficult to reconcile this view with Civil War experience; from a medical analysis of some 263,142² casualty cases during the war, only 906 wounds were done by a sabre or bayonet, and only 52 of those resulted in death.⁴² But that was in the future. Ripley's rationalizing was probably based on his having only smooth-bores to issue since he was present at Springfield when the 1855 rifled musket was designed. At that time he had been quite proud of the weapon, and believed it to be the finest in the world.⁴³

To Ripley breech-loading arms should be ignored, since they had no military value and had many things wrong with them. Speaking of the

⁴¹Congressional Globe, 37th Congress, 2d Session, April 29, 1862, p. 1870.

⁴²George A. Otis, Assistant Surgeon, to General C. H. Crane, January 7, 1878, Ordnance Papers, III, 100-101.

⁴³Register U. S. M. A., I, 120.

Henry and Spencer repeating carbines and rifles, he objected to the weight, the need of special ammunition, the danger of the cartridges being marred, the danger of the fulminate priming in shipping, the danger of the spiral spring weakening, and the danger of a round exploding in the arm. But he most particularly objected to the multiplication of the types of arms. "I do not discover," wrote Ripley, "any important advantage of these arms" The Government was already on contract for 73,000 breech-loaders, and any more, he felt, would be needless expense.⁴⁴ The only concession Ripley ever made on the question of the breech-loader was that it did have advantages for the cavalry. His opinion of the Henry and Spencer rifles was the opinion upon which he would stand for the rest of his time as head of the Ordnance Bureau.

The figures on arms purchases early in the war reveal the strength of Ripley's position. Of the 236,157 rifles procured between April 12 and December 31, 1861, only 2,676 were of the breech-loading type. This constitutes only 1.13% of the total. For the same period, the purchase of breech-loading carbines, which even Ripley admitted to be the best weapon for the cavalry, amounted to only 6,645, or 46.14%, of the 14,380 acquired.⁴⁵ Thus of all shoulder arms purchased during the period, only 3.52% were breech-loaders.⁴⁶

⁴⁴Ripley to Secretary of War Simon Cameron, December 9, 1861, Official Records, iii, I, 733-734.

⁴⁵Executive Document, No. 67, p. 7, 37th Congress, 2d Session (1861-1862), V (part 1).

⁴⁶This shortage is no doubt due in part to the limited production of arms of this type; yet on one occasion Ripley turned down a contract for 10,000 Smith breech-loading carbines on the ground that they were cavalry weapons. Ripley to Thomas A. Scott, Assistant Secretary of War August 17,

It is obvious that Ripley was blocking the new weapons from service. He stoutly held this position against inventors, officers, enlisted men, public opinion, Congress, and even the President.⁴⁷ As might be expected, like any old soldier who had outgrown his usefulness he would eventually be driven from power.

1862, Official Records, iii, I, 423. This is odd, considering the fact that less than half of the carbines purchased for service to that date were of the breech-loading variety.

⁴⁷For further elaboration see Chapter III.

CHAPTER III

WAR AND CHANGING OPINION

The Civil War was the last war of any magnitude in which the muzzle-loading gun was used as general issue. Whatever virtues these weapons may once have had were completely overshadowed by the time of the conflict. The muzzle-loaders were inconvenient and slow to load, with the manual procedure in the case of the rifle musket consisting of nine separate operations and fifteen motions. Even the well-trained soldier could load and fire no more than three or four rounds per minute.¹ In loading one of these weapons it was necessary to hold the piece in a vertical position so as to minimize the amount of powder which would cling to the interior of the barrel and would cause poor performance. To do this it was necessary, of course, to stand, thus exposing oneself to the enemy's fire. As would be expected, many accidents occurred during loading, particularly in the heat of battle. A soldier might fail to tear the cartridge before inserting it into the barrel. He might ram the cartridge with the bullet down, or insert the ball without the powder. When firing several rounds from the same position, he would stick the ramrod in the ground to have it readily available for loading the cartridge and would then perhaps move on without it. At times the ramrod was not withdrawn from the barrel, and when the weapon was fired the rod was shot beyond retrieving.

¹William A. Ganoe, The History of the United States Army, (New York: D. Appleton-Century, 1943), 237.

Many times the soldier would load a round without having fired the one in the weapon.² This was, perhaps, the most common of all mistakes. A report after the engagement at Gettysburg stated that:

Among twenty-four thousand loaded muskets picked up at random on the field of battle, one-fourth only were properly loaded; twelve thousand contained each a double charge, and the other fourth from three to ten charges; in some there were six balls to a single charge of powder; others contained six cartridges; one on top of the other without having been opened; a few more, twenty-three complete charges regularly inserted; and finally in the barrel of a single musket were found confusedly jumbled together twenty-two balls, sixty-two bech-shot, with a proportionate quantity of powder.³

Any one of the previously mentioned mistakes would make the muzzle-loader useless for the remainder of the day, leaving the trooper with a weapon somewhat less effective than the spears of Alexander the Great's soldiers. In the case of a double charge the weapon might be dangerous to the shooter, since the single ignited powder charge might not have sufficient power to drive the other loads out of the barrel. This would cause a build-up of the expanding gases in the weapon and might result in the bursting of the barrel or chamber. Other accidents could be even more vicious. If the soldier capped the piece before inserting the cartridge, the weapon might discharge with disastrous consequences.

Despite the obvious superiority of the breech-loading weapons over the common muskets and rifles, procurement of these weapons was not an easy matter. Perhaps the best example of the difficulty in acquiring breech-loaders is the case of Colonel Hiram Berdan's United States

²Ibid., 237-38.

³Ibid., 228.

Sharpshooters.

Berdan had in June of 1861, been given permission to raise a special force of marksmen.⁴ Having promised the men breech-loading and heavy telescopic-sighted rifles, he wrote General Ripley requesting the Ordnance chief's cooperation in obtaining these weapons. Ripley informed Berdan that his men would be armed with U. S. Model 1861 Springfields. Ripley no doubt felt that he was saving the Sharpshooters from their own foolishness. Berdan seemed to accept Ripley's position, but in early September he again agitated for breech-loading rifles.⁵ His men had been asked their preference, and they had chosen the Model 1859 Sharps.⁶ These actions of Colonel Berdan caused animosity between himself and Ripley. The Chief of Ordnance was making an all-out effort to stop military purchase of these "newfangled gimcrackers", as Ripley referred to all breech-loading arms--at least, insofar as possible.⁷

In September President Abraham Lincoln visited the camp of the Sharpshooters. While there he was entertained by demonstrations of marksmanship and was favorably impressed with what he saw. As he prepared to leave he said to Berdan: "Colonel, come down tomorrow and I'll give you the order for the breech-loaders."⁸

⁴Lieutenant Colonel Schuyler Hamilton to Berdan, June 17, 1861, Official Records, iii, II, 270.

⁵Bruce, 109.

⁶Ibid., 111.

⁷Ibid., 112.

⁸Charles Stevens, Berdan's United States Sharpshooters in the Army of the Potomac. (St: Paul, Price McGill., 1892), 10-11.

Even pressure from the President did not force Ripley to issue Berdan the weapons for which he had asked. The greenclad Sharpshooters were becoming impatient, and in December Company A informed their Congressmen of the situation and asked for help. The Congressmen passed the request on to the War Department. The Assistant Secretary of War, Thomas Scott, who also disliked Berdan and who held the same point of view concerning weapons as Ripley, replied: "They will be provided with first class Harpers Ferry rifles--& new pattern Springfield Rifles."⁹ Despite the recommendations of the President, Ripley continued to find excuses for not issuing the weapons, and the Sharps did not reach Berdan's troops in any quantity until June of 1862.¹⁰

There were, of course, other examples of resistance to breech-loading arms. Ripley during mid-1861 refused to order the 25,000 Marsh carbines that were available to the Government for purchase. Lincoln forced him to accept. Ripley then added a clause for cancellation of the contract if the arms were not delivered by the due date. Lincoln, however, overruled the General's qualification.¹¹ In November, 1861 General George B. McClellan, commanding the Army of the Potomac, asked Ripley for some Colt revolving rifles. He received none, for the Chief of Ordnance was accountable only to the Secretary of War and not to the commanders in the field.¹²

The arguments used against the breech-loader could be called "stock,"

⁹Bruce, 112.

¹⁰Stevens, Sharpshooters, 163.

¹¹Bruce, 108.

¹²Ibid., 112.

for no matter under what conditions a discussion of the weapon occurred, the opposition to them included most of the following points:

1. When armed with breech-loaders the troops wasted ammunition.
2. These weapons were less effective because the fire was not aimed.
3. There was greater complexity to this type of arm, therefore more opportunity for failure in the mechanism.
4. The weapons, as a rule, called for ammunition differing from the standard .58 calibre.
5. Parts were not available for such weapons in case one of them became damaged.
6. Metallic cartridges weighed more than standard .58 calibre musket paper cartridge.
7. The weapons were not practical in the light of current tactics.

A closer examination of the facts and circumstances surrounding the breech-loader-muzzle-loader controversy reveals a fallacy in all of the before-mentioned arguments. The first of the seven points is so illogical as to be absurd, it would be as sensible to argue for sending one man into the field rather than ten, since ten would waste ten times as much ammunition. The second point is probably just as illogical as the first, but most military leaders of the period, including U. S. Grant¹³ and Robert E. Lee¹⁴, adhered to the principle. It can be argued that unaimed fire would more likely result from the tension of the soldier apprehensive about the time it would take him to recharge his weapon after he

¹³See the elaborate and unrealistic defense of Grant's position in Kenneth P. Williams, Lincoln Finds a General, (4 volumes, New York: Macmillan Company, 1950-1956), II, 782-785.

¹⁴Donald A. McDougall, "The Federal Ordnance Bureau, 1861-1865," (Unpublished Ph. D. dissertation, University of California, 1951), 69.

had fired the round. Concerning point three, it must be admitted that breech-loaders by their very nature, must have more moving parts than the muzzle-loading muskets. However, these moving parts, the breech-block and the trigger guard or lever, were not delicate. In fact, because there was no danger of double loading, the weapons were less likely to become inoperative during the course of a fire fight. The fourth and fifth complaints that the weapon did not fire standard ammunition, and that if the weapons became damaged, parts were not available for their repair, appear to present a sound argument. But examining the character of governmental purchases explodes this objection. The United States purchased every kind of arm from the multi-calibre Austrian muskets to common sporting rifles,¹⁵ which varied so much that the adjutant general had to ask Ripley for a list of types, makes, and calibres of weapons in governmental arsenals and in the field.¹⁶ The issuing of breech-loading weapons would have added only minutely to the hodge-podge already in the possession of the Government. The fifth point was the objection to the extra weight of metallic cartridges necessary in most of these weapons. However, when the .58 calibre cartridge for the muzzle-loading gun was compared to the metallic cartridges for the various breech-loaders, there was only a slight difference in weight, and that in favor of the metallic cartridges.¹⁷ The last of the arguments listed is perhaps the poorest of the group. Officers who thought in this way were really looking at the

¹⁵Purchases, Official Records, iii, II, 855.

¹⁶General Order No. 167, October 24, 1862, Official Records, iii, II, 685.

¹⁷Donald A. McDougall, "The Federal Ordnance Bureau," 66, footnote.

situation in reverse order. Weapons should not be based upon tactics, but rather tactics should be based upon the most advanced weapons available.

The advantages of the breech-loader over the common rifle or musket can be seen in contemporary comments of soldiers and experts in the field of firearms. One of Berdan's Sharpshooters wrote:

. . . being armed with breech-loaders they could lie low, and without changing position reload and fire ten shots a minute. . . . "The superiority of the breech-loaders over muzzle-loaders was plainly manifest."¹⁸

The same soldier also stated that breech-loaders were superior "in point of safety. . . .I never knew," he went on, "of an accident occurring by premature discharge of a Sharps rifle"19

Another example came in a skirmish at Rappahannock Station in August of 1862, when some Sharpshooters opened fire on Confederate cavalry as they charged from a wooded area. The fire from the breech-loaders was so effective that the "cavalry at once jumped their horses and escaped through the cornfield,"²⁰

The yeoman work done at Gettysburg by the United States Sharpshooters armed with Sharps rifles proved beyond doubt, if any doubt existed in the minds of the troops by the middle of 1863, the superiority of their weapon. On the second day of the battle General James Longstreet, commanding part of the Confederate forces, hurled his corps at the Union defenses with the purpose of taking key federal positions, notably "Little Round Top". Had he succeeded he would have cut the United States' defenses into two

¹⁸Steven, U. S. Sharpshooters, 119.

¹⁹Ibid., 236.

²⁰Ibid., 167.

parts, and the Army of Northern Virginia would have carried the day. To take these key positions, the Southerners must first sweep over the "Peach Orchard." Only three hundred men, a good portion of whom were Sharpshooters, defended the orchard against Longstreet's corps of 30,000 men. As the grey lines swept onward, the defenders opened a devastating fire from the "reliable breech-loaders . . . /which threw/ them into confusion" This temporarily held up the Confederate attack and gave the Union forces time to fortify their weak positions.²¹

Longstreet later reported that this action had delayed him forty minutes. Had he had five minutes more, he went on, he would have split the Federal lines. Longstreet also stated that his losses were so heavy that, even with his reserves, he could not take the Union positions. One Sharpshooter who had been taken prisoner gave an account of what he saw.

We started for the rear, and passed through where Longstreet's men had halted. It is impossible for me to describe the slaughter we had made in their ranks. In all my past service, it beat all I had ever seen for the number engaged and for so short a time. They were piled in heaps and across each other. When I got to where the surgeons were dressing the wounded, I found hundreds of wounded men there. The doctor would hardly believe that there were so few of us fighting them, thought we had a corps, as he said he never saw lead fly so thick in his life as it was in those woods.²²

Had the Sharpshooters been armed with the ordinary rifled muskets the outcome of the battle at Gettysburg would, in all likelihood, have been quite different.

The standard arguments against the ordinary breech-loaders were magnified with new objections added in the case of the repeating rifles. Critics

²¹Ibid., 300-312.

²²Ibid., 310-311.

objected to the weight and the danger of the cartridges in the magazine of the arm itself. The Colt revolving rifle had a bad reputation, in that earlier models on occasion discharged more than one round at a time, with possible serious injury to the shooter. Further, the cylinder was not fitted closely enough to prevent a circle of flame shooting sideways from the gap between the barrel and the chamber. This, of course, could cause a powder burn to the shooter. There were also complaints that the Colt rifle was inaccurate.

While the first two of these objections were true of the earlier models, most difficulties had been worked out by the time of the Civil War. Some burning gas still escaped from the mouth of the cylinder, but an ordinary army shirt would furnish ample protection. As to the other matters mentioned, the Colts performed without incident. "With the latest pattern Colt's", wrote expert H. W. S. Cleveland in 1862, "we have never known an instance of premature firing of either of the chambers."²³ The United States Sharpshooters, before receiving their Sharps rifles, had been armed with Colts and like most other soldiers had a certain amount of fear because of the Colt's reputation. However, in a skirmish at Falmouth in April of 1862 their opinion changed.

The revolving chambers of the Colts were soon heated up, and right there a most favorable opportunity was presented to test the heretofore doubtful arms; and the boys were compelled to admit that they were not so bad after all, having done good work with them.²⁴

Cleveland and his rifle club tested the Colt rifle for accuracy, and

²³H. W. S. Cleveland, "Rifle Clubs", Atlantic Monthly, X (September, 1862), 306.

²⁴Ibid.

reported that it was good enough for military purposes or hunting -- "for anything, in short, but gambling or fancy work."²⁵ Despite his high praise, Cleveland went on to say:

We are well aware that rapid firing itself is an evil, and that a common complaint with officers is that the men will not take time enough in aiming to insure efficiency.²⁶

Thus the rather common opinion of the army officers was by this time corrupting the views of many people who should have known better. This was a long step in the wrong direction.

Repeating rifles other than the Colt received tests early in the war. The Henry rifle was tested by a board of naval officers, and the results were amazing. The weapon fired one hundred and twenty times, including loading, in five minutes and forty seconds. The board reported that no fouling occurred and that the action worked well throughout the test.²⁷ Another Naval board reported similar findings on the Spence rifle. After tests of this weapon in June of 1861, Captain John A. Dahlgren reported:

The mechanism is compact and strong. The piece was fired five hundred times in succession; partly divided between two mornings. There was but one failure to fire, supposed to be due to the absence of fulminate. In every other instance the operation was complete. The mechanism was not cleaned, and yet worked throughout as at first. Not the least foulness on the outside, and very little within. The least time of firing seven rounds was ten seconds.²⁸

²⁵Ibid.

²⁶Ibid.

²⁷Harold F. Williamson, Winchester: The Gun that Won the West, (Washington: The Sportsman's Press, 1952), 33.

²⁸Charles B. Norton and W. J. Valentine, Report on the Munitions of War, (Washington: Government Printing Office, 1868), 20, found in

Again in November the board turned in a favorable report. The repeaters were thus winning friends.²⁹

Their greatest champions, however, became the men who used or saw them used in combat. One needed only look at the results of General James H. Wilson in Tennessee or of General Philip Sheridan in the East to see the value of the repeating rifle. Aside from these, numerous examples exist of persons armed with repeating rifles successfully defending themselves against greater numerical odds.³⁰

Despite the test results and the combat record of breech-loading and repeating rifles, almost no positive action was taken for their procurement for foot soldiers during Ripley's administration of the Ordnance Bureau. Berdan had attempted to get Spencer rifles for his Sharpshooters, but Ripley, using "proper channels", managed to foul him in "red tape".³¹ While Ripley was personally blocking advances, in so doing he was making many enemies. The governors had from the first disliked him; Berdan had learned to dislike him; and Stanton had more than once threatened to relieve him from his post.³² Finally, on September 15, 1863, Secretary Stanton placed Ripley on the retired list with the note of his "having

Reports of the United States Commissioners to the Paris Universal Exposition, (Washington: Government Printing Office, 1870), V.

²⁹Ibid.

³⁰Richard O'Connor, Sheridan the Inevitable, (New York: Bobbs - Merrill, 1953); James H. Wilson, Under the Old Flag, (New York: D. Appleton and Company, 1912).

³¹Bruce, 261.

³²William E. Doster, Lincoln and Episodes of the Civil War, (New York: G. P. Putnam's Sons, 1915), 119.

been borne on the army register for more than 45 years."³³

The new Chief of the Ordnance Bureau was George D. Ramsay, another old soldier who had won a reputation for his efficient management at the Springfield Armory.³⁴ As senior officer he was, as Ripley had been before him, the logical choice to head the Bureau. Ramsay was, however, another stone in the road of progress. His conservatism and reluctance to adjust was shown in his handling of heavy ordnance.³⁵

Despite this conservatism, Ramsay admitted that the breech-loaders using metallic cartridges were superior to the muzzle-loading guns. The copper cartridges, he wrote, gave "Perfect security against injury by water and the absence of all necessity for caps. . . which is of the highest importance in marches and exposure in the field. . . ."³⁶ Ramsay also stated that the breech-loading gun had been proven superior in the field and in tests by Major Alexander B. Dyer.³⁷ The Ordnance Chief went on to point out that the Bureau was making rapid strides in putting these weapons into the hands of the troops. He reported on April 5, 1864, that during the next six months 90,000 of the 110,000 on contract would be delivered to the government. This would be "A supply which will arm all the new regiments and keep up current wants." The General then recommended the gradual withdrawal of all the linen and paper cartridge

³³Register U. S. M. A., I, 119.

³⁴Bruce, 89-98.

³⁵McDougall, "The Federal Ordnance Bureau", 176. McDougall gives the example that Ramsay preferred wrought iron to steel cannon.

³⁶Ramsay to Stanton, April 5, 1864, Ordnance Papers, IV, 882-884.

³⁷Ramsay to Stanton, January 19, 1864, Ordnance Papers, IV, 880-881.

guns in service.³⁸ Watson, the Assistant Secretary of War, replied: "I cheerfully approve. . . [your recommendations] as conducive to the best interests of the service. . . ."39

In the same communication Ramsay spoke in favor of an even more revolutionary advance in military small arms:

The repeating arms are the greatest favorite with the army. . . . the demand for them is constant and for large quantities. It seems as if ~~no soldier who has seen them used could be satisfied with any other.~~⁴⁰

The Ordnance Chief then gave his recommendation for the best of the repeating rifles.

Spencer's is at the same time the cheapest, most durable, and most efficient of any of these arms. [It will] . . . throw eight shots in continuous succession, a quality . . . by means of which bodies of our troops have been enabled at various times to completely rout superior numbers of the enemy. . . . [The] Spencer Company should be encouraged to produce as many as possible.⁴¹

In August Ramsay reported that during the first eight months of 1864 there were delivered to the government 20,182 Spencer carbines, 11,470 Spencer rifles, and 2,000 Henry rifles; a total of 33,652 repeaters. It is interesting to note that by this time rifles, the arms of foot soldiers, were being purchased in quantity. He also reported that 78,000 repeaters were on order. Ramsay also stated that 15,051 single shot breech-loaders had been delivered during the same period, and that 89,950 more were on order.⁴²

³⁸Watson to Ramsay, April 7, 1864, Ordnance Papers, IV, 884.

³⁹Ramsay to Stanton, April 5, 1864, Ordnance Papers, IV, 882-884.

⁴⁰Ibid.

⁴¹Ibid.

⁴²Ramsay to Stanton, August 17, 1864, Ordnance Papers, IV, 890.

Ramsay's advanced thinking concerning the use of breech-loading and repeating small arms did not extend to other fields; on September 12, 1864, he, too, was placed on the retired list. The new Chief of Ordnance was A. B. Dyer, a much younger man than either of the two previous chiefs. Dyer, needless to say, was appointed over the heads of several officers who were his senior.

Dyer too was sold on the breech-loading arms, for shortly after entering into his duties at the head of the Bureau he wrote:

The experience of the war has shown that breech-loading arms are greatly superior to muzzle-loaders for infantry as well as for cavalry, and that measures should immediately be taken to substitute a suitable breech-loading musket in place of the rifle musket which is now manufactured at the National Armory and by private contractors for this Department.⁴³

Dyer also stressed the importance of assembling a board of officers to select the best breech-loading and repeating arms for the army.⁴⁴

The advantages of the repeating weapons were seen by many. The commissioners to the Paris Exposition of 1867 included in their report a statement of the superiority of the Spencer repeating rifle:

This rifle is both a breech-loader and a repeater. . . . An ordinarily skilled marksman can discharge the seven loads in twelve seconds, while a platoon of soldiers can fire, with good aim, at the rate of once /per man/ every three seconds. When the seven charges are fired the magazine can be refilled in about half the time required to ram and cap the single charge of the muzzle-loading musket.⁴⁵

It is of great importance to know how this rifle stood the wear and tear of actual warfare. Some valuable statistics on this point, if not already obtained, could be collected

⁴³Dyer to Stanton, December 5, 1864, Ordnance Papers, IV, 893-894.

⁴⁴Ibid.

⁴⁵Norton and Valentine, Munitions of War, 19.

from the officers commanding the several corps that used the weapon, for the advantages of the Spencer and other magazine arms, in the hands of men accustomed to their use, cannot be ignored. Men armed with such guns, and trained to hold their charges in reserve, are not likely ever to cross bayonets with an attacking column, or shrink before any charge of cavalry. The confidence which a reserve of seven rounds inspires would give great steadiness to troops, and prevent the demoralization which often follows a volley when men have to reload in the face of superior numbers advancing to the charge.⁴⁶

Dyer ordered, in late 1865, 5000 muskets altered to the breech-loading plan of E. S. Allin, head armorer at the Springfield armory.⁴⁷ This, however was several months after the war had ended. Great advancement was made in military thinking on small arms during the war, but regression soon followed. Although it did adopt a breech-loading single shot arm, the army again fell into its usual lethargy, and a repeating rifle was not adopted for general issue in the United States service until 1892.⁴⁸

⁴⁶ Ibid., 21.

⁴⁷ Dyer to Stanton, October 21, 1865, Ordnance Papers, IV, 897-898.

⁴⁸ James E. Hicks, Notes on United States Ordnance, (2 volumes, Mount Vernon, N. Y.: James E. Hicks, 1946), I, 10, 107-109.

CHAPTER IV

CONCLUSION

Because of the limited scope of this study it should be pointed out not all of the difficulty in the controversy concerning the value of advancement in the field of military small arms revolved about the military itself. Congress, and the Secretaries of War played a major role and must share a portion of the guilt. Secretary of War Joel Poinsett had opposed the introduction of new arms, fearing the sacrifice of economy. Senator Jefferson Davis opposed the manufacture of patented arms at the national armories. The Congresses and Secretaries of War who followed the Civil War took a similar view, severely restricting the military in both size and appropriations. This, of course, was a reasonable action since there was no real need for a large military establishment and small detachments could easily handle the Indian problems on the western frontier. More seriously, again American military technology fell in arrears, with lessons learned in the Civil War soon forgotten thus the bright sword forged in the heat of that bloody conflict was allowed to rust in the scabbard.

The philosophy of the public, including that of the veterans of the struggle, was unchanged. It was felt that the volunteer system was the proper one with which Americans might fight a war. Only during war time were such things as military ordnance considered to be of any great importance. These views were expressed in John A. Logan's The Volunteer

Logan favored the military because it might possibly

Soldier of America.¹ Logan feared the military because it might possibly go beyond the reach of Congress. The volunteers, he felt, would answer the call if the Nation was in peril.

With all of this in mind, it is still impossible to excuse the military for its actions in the matter of small arms. Most officers resisted the advancement from the muzzle-loader to the breech-loader at every available opportunity. Even the "two great captains" of the war saw no particular advantage to the new weapons, and indeed, saw many disadvantages. All of this, however, does not solve the mystery of military action in the resistance to the breech-loading arm. Nor does it enter into certain basic problems of the military. Although the reasons for their actions overlap, some attempt must be made to organize and compartmentalize the analysis.

The major difficulties I have divided into three divisions. First is the rigidity of the military structure. The army is not the only organization so afflicted, but it is one in which the soil is exceedingly fertile for the germination of this social virus. Great advancement in the army was automatic, but in succession. However, if one caused a good deal of trouble, promotions would stop. The army generally operated by a sort of "Golden Rule"; that is, "Do not criticize superior officers, lest in turn you be criticized when advanced to the same position." Naturally, one would not offer too many suggestions, for this might imply incompetency in the superior officers who had previously failed to think of such things. Stagnation and anti-intellectualism was the natural result.

Second is the lack of imagination, with the case of the Hall rifles

John A. Logan, The Volunteer Soldier of America, Chicago: R. S. 1887, passim.

and carbines serving as a good example. No alterations of any importance were performed upon this weapon, yet the addition of a short ramrod attached by a chain would have served to drive the cartridge home and insure firing under all circumstances. The receiver itself could have been modified by adding a hood to protect the shooter from escaping gas, and a foolproof locking system could have been easily devised for the weapon.

Perhaps the greatest failure in the military thinking of the period was the inability to see the real relationship between the tactics and weapons. The military, by its every action, insisted that the weapons were based upon tactics. If a new type of weapon did not fit into the methods of executing an attack or defense, then it was to be disregarded. This was the basic concept of the officers before and during most of the Civil War. The musket appeared to be good enough for military purposes in the light of prevailing tactics. This assumption, given its base, was logical and reasonable, but the base itself was faulty. The most advanced weapons available are the ones which should be used with the tactics adapted to them.

The third reason is the conservatism and hard core of tradition which is common to all military groups. This traditionalism is not actually rational and is therefore impossible to analyze. It comes from a variety and combination of things, including the previously mentioned rigidity of the military structure, personal and professional pride, and routine. The Emperor Napoleon III placed a great deal of stress upon the latter. In his treatise, "Past and Future of Artillery" he pointed out that routine was a great factor in the military--

which, being enamored with old ways, has presented for ages practices that are most stupid. And, not only does routine scrupulously preserve, like some sacred deposit the errors of antiquity, but it actually opposes might and main, the most legitimate and most evident improvement.²

This tradition, no matter what caused it or what form it took, was one of the most important factors which opposed advancement in the field of military small arms.

To return to the Civil War experience; had the breech-loading arms been introduced in quantity between the autumn of 1862 and the battle of Gettysburg in July, 1863, the Confederate army would have met nearly complete destruction at or before it reached its historic "high mark," and the war probably would have been shortened at least one and possibly two years.

Late in the war the opposition to the breech-loader and the repeater was weakened to the point that the army would speak of and plan to adopt both for the service. This situation, however, did not last, and the army, although adopting a breech-loading arm, continued to use single-shot rifles and carbines until the mid 1890's. This resistance resulted from the same forces, although not as strong as those opposed to the Hall, the Jenks, the Sharps, the Spencer, and the Henry rifles. These are the forces that any new military weapon, past or present, must overcome if it is to be accepted.

²Charles B. Norton, American Inventions and Improvements in Breech-Loading Small Arms, Heavy Ordnance, Machine Guns, Magazine Arms, Fixed Ammunition, Pistols, Projectiles, Explosives, and other Munitions of War, including a Chapter on Sporting Arms, (Springfield, Mass.: Chapin & Gould, 1880), 2.

BIBLIOGRAPHY

GENERAL

- Bruce, Robert V., Lincoln and the Tools of War, New York: Bobbs-Merrill, 1956
This is an excellent study of Civil War ordnance problems, advancements in weapons, and President Lincoln's relation to this area of activity. It contains some discussion of all the major advancements in arms during the period.
- Ganoe, William A., The History of the United States Army, New York: D. Appleton-Century, 1943.
The work is a reasonably good delineation of the history of the army, but Colonel Ganoe's conclusions and generalizations are illogical and incoherent.
- Hicks, James E., Notes on United States Ordnance, 1776-1946, 2 volumes, Mount Vernon, New York: James E. Hicks, 1946.
Volume I, concerning small arms, is of some value, but its scope is technical rather than historical.
- Logan, John A., The Volunteer Soldier of America, Chicago: R. S. Peale 1887.
Although admitting the volunteer system of his day had some faults, he felt it better to have the volunteers than a large and politically dangerous regular military establishment. This book reflects much of America's traditional philosophy toward the army.
- Meneely, A. Howard, The War Department, 1861: A Study in Mobilization and Administration, New York: Columbia University Press, 1928.
This is an excellent study of certain aspects of the War Department itself, but lacks details and material necessary to study military opinion and the Ordnance Bureau.
- Norton, Charles B., American Inventions and Improvements in Breech-Loading Small Arms, Heavy Ordnance, Machine Guns, Magazine Arms, Fixed Ammunition, Pistols, Projectiles, Explosives, and other Munitions of War, including a Chapter on Sporting Arms, Springfield: Chapin & Gould, 1880.
This work is technical, and of only slight value.
- O'Connor, Richard, Sheridan the Inevitable, New York: Bobbs-Merrill, 1953.
A reasonable, if somewhat inflated, account of the great cavalry leader. Several places in the work the value of repeating carbines fire-power is shown.

d'Orleans, Louis Philippe Albert (Comte de Paris), History of the Civil War in America, 4 volumes, Philadelphia: Joseph H. Coates, 1875.

This classic contains much information, but is too shallow for studying opinions and administration.

Shannon, Fred Albert, The Organization and Administration of the Union Army, 1861-1865, Cleveland: Arthur H. Clark, 1928.

This study is a good survey of the problems that faced the Union Army throughout the war. The chapter on munitions is valuable, but Dr. Shannon makes some unsound statements that tend to throw a shadow of doubt across the work.

Smith, Winston C., The Sharps Rifle, New York: William Morrow, 1943.

This work is interesting and informative, but of only slight value in a study of the military.

Williams, Kenneth P., Lincoln Finds a General, 4 volumes, 1950-1956, New York: Macmillan, 1950.

Although this is generally a well done study, his discussion of arms and the ideas concerning them are in part absurd.

Williams, Harold F., Winchester: The Gun that Won the West, Washington: Combat Forces Press, 1952.

Chapter IV contains a good discussion of the Henry rifle, but lacks information concerning the relationship between the weapon and the military.

PERIODICALS

Abbott, Jacob, "The Springfield Armory," Harpers Weekly, V (July, 1852), 143-161.

This article contains information on the improvement of techniques and machinery of arms manufacturing at Springfield, Mass., reflecting the progress made under Ripley.

Cleveland, W. H. S., "Rifle Clubs", Atlantic Monthly, X (September, 1852), 303-310.

Some of the weapons of the period are discussed and contemporary opinions are revealed.

BIOGRAPHICAL MATERIAL

Cullum, George W., Biographical Register of the Officers and Graduates of the U. S. Military Academy, New York: Houghton, Mifflin, 1891.

Various supplements to this work have been published at ten-year intervals. It includes a great deal of information concerning its subjects, but General Cullum is not always objective in his evaluations.

PERSONAL ACCOUNTS

Doster, William E., Lincoln and Episodes of the Civil War, New York: G. P. Putnam's Sons, 1915.

This describes Washington as seen by the provost marshal in the era of the Civil War. It is an interesting little book, but one that is of very slight value in any detailed administrative study.

Prucha, Francis Paul, (ed.), Army Life on the Western Frontier, Norman: University of Oklahoma Press, 1958.

This is a brief but excellent book containing some of the reports of Colonel George Croghan. A small amount of information is given concerning the Hall carbine.

Stevens, Charles A., The United States Sharpshooters in the Army of the Potomac, St. Paul: Price McGill, 1892.

Captain Stevens gives a glowing account of battles and camp life. Since the Sharpshooters almost exclusively used the breech-loader the book gives some insight into their value and soldier's opinion concerning them.

Wilson, James Harrison, Under the Old Flag, New York: D. Appleton, 1912.

This is an account of battles and administration by a field commander and Chief of Cavalry who saw the value of breech-loading and repeating arms.

UNPUBLISHED MATERIAL

MacDougall, Donald A., "The Federal Ordnance Bureau, 1861-1865," Unpublished Ph. D. dissertation, University of California, 1951.

This work contains much information not available outside of the United States Archives, but does not deal enough with the struggle of the traditionalists against breech-loaders to be of great value.

GOVERNMENT DOCUMENTS

A Collection of Annual Reports and other Important Papers Relating to the Ordnance Department, 1812-1889, 4 volumes, Washington: U. S. Government Printing Office, 1890.

The Congressional Globe, 37th Congress, 2d Session (1861-1862), XXXII.

Executive Document No. 54, 36th Congress, 2d Session (1860-1861), V.
The Report of the Secretary of War.

Executive Document No. 67, 37th Congress, 2d Session (1861-1862), V,
Part 1. Report of the Chief of Ordnance on the purchase of small arms and small arms contracts from April 12 to December 31, 1861.

Norton, Charles B. and Valentine, W. J., Report on the Munitions of War, Washington: U. S. Government Printing Office, 1868, in Reports of the United States Commissioners to the Paris Universal Exposition, 1867, 6 volumes, Washington: U. S. Government Printing Office, 1870, V.

This work contains discussion of various weapons. The one on the Spencer repeating rifle is the most useful.

Senate Document No. 1, 26th Congress, 2d Session (1840-1841), I, Report of the Secretary of War.

United States Statutes at Large. IV, V, X, XI, XII.

The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies, 70 volumes, Washington: U. S. Government Printing Office, 1880-1901.

VITA

Carl L. Davis

candidate for the degree of

Master of Arts

Thesis: ARMY ORDNANCE AND INERTIA TOWARD A CHANGE IN SMALL ARMS THROUGH
THE CIVIL WAR

Major: History

Biographical:

Personal data: Born in Bartlesville, Oklahoma, August 27, 1934,
the son of Clarence and Beulah Davis.

Education: Attended elementary school in Osage County and
Bartlesville, Oklahoma; graduated from Bartlesville High
School in 1952. Attended Oklahoma State University, 1952-
1954, 1955-1959; receiving the Bachelor of Science degree
in Education in January 1958; and Master of Arts in August,
1959.

Professional Experience: Served one year, 1957-1958, as a
Reader; one year as a Graduate Assistant with the Depart-
ment of History, Oklahoma State University.