

MISSING IN ACTION: THE MODEL 1870 SHARPS TRIAL CARBINE

by Jeff Goodson

In May 1871, the U.S. Ordnance Department ordered the Springfield Armory to send 308 Sharps carbines to five military stations for field trials. The Augusta Arsenal, Benicia Arsenal, San Antonio Arsenal and Omaha Ordnance Depot each received 56; Leavenworth Arsenal received 84.¹ For the next twenty years, Ordnance referred to these as the “Model 1870,” “trial,” “experimental” or “pattern 1870” carbines.²

The carbines arrived in the field between June and August of 1871. Fifteen were held back at the arsenals or regimental headquarters, and the other 293 were issued to cavalry companies from eight regiments (Table 1). Over the next three years they went through trial under fire, during Reconstruction in the southeast and at the height of the Indian wars in the trans-Mississippi west. They were accounted for monthly until June 1874, when the last of them were replaced with the new Springfield trapdoor carbine. Of the 308 fabricated, 225 survived the field trials, 42 were broken, 26 were lost, stolen or captured and 15 were never issued.

One of the biggest mysteries to arms historians is what happened to the 308 Sharps trial carbines after they were retired in 1874. None are in any of today’s well known private antique gun collections,³ nor in the major armory and arsenal collections. Nor is there a single example in any of the major museum collections. This includes the Smithsonian, where the War Department transferred large numbers of arms from the Ordnance Office museum when it closed in 1903.⁴ Moreover, except for two reported sightings in California in the 1970s – likely of the same gun—there has never been a single photograph or confirmed sighting of one in modern times.

For decades Sharps collectors have looked for the Sharps trial carbine to no avail. Over time the gun has become legendary, taking on the status of a unicorn among those who ponder the fate of rare old guns. But even among the rarest of old guns, the 1870 Sharps trial carbine stands out. Partly because of the cachet of the

Sharps name; partly because of the role they played in the famous field trials at the height of the Indian wars; and partly because there are virtually no records of what happened to them. Mostly, however, they captivate the attention of arms collectors because there’s not a single known surviving example.

Today, two burning questions remain: What happened to the 308 Sharps trial carbines, and what exactly did they look like? This investigation documents what we know – and what we don’t know – about the Model 1870 Sharps carbine. It focuses on the field trials, including attrition during their three years of service, on the fate of the carbines after the trials, and on the contentious debate about the actual configuration of the phantom gun.

PART 1 - BACKGROUND

The Ordnance Department bought 397,865 American carbines during the Civil War. As of June 1866, it still had 213,956 on hand, either in storage or issued to the troops. For financial reasons, the Army started modifying large numbers of surplus Spencer and Sharps carbines for use in protecting the westward expansion until a new generation of arms could be developed. The selection of the two models wasn’t arbitrary. In addition to still having over 56,000 Spencer carbines and over 31,000 Sharps carbines on hand, these were rated the best among the twenty different makes of carbine that Ordnance procured during the war.⁵

Two major technological changes in small arms drove how Ordnance armed the cavalry after the Civil War. The first was from muzzleloader to breechloader. Breechloaders enabled soldiers to lay down a much heavier volume of fire, and reload from either the prone position or while mounted. The value of the breechloader was clearly demonstrated along the Bozeman Trail in 1867 at both the Wagon Box and Hayfield fights.⁶ The second technological change was the self-contained metallic cartridge. Although the first practical metallic cartridges were developed in the 1850s, when the Civil War broke out in 1861 no American carbine

Table 1
Model 1870 Sharps Trial Carbines
Number Originally Issued in 1871 and Receiving Units

Regiment	Initial Arsenal/Depot ("Station")	Issued to Arsenal/Depot	No. Held Back	# Issued to Companies	Trials Companies
1st Cavalry	Benicia Arsenal	56	6	50	A, I
2nd Cavalry	Omaha Ordnance Depot	56	1	55	C,E
3rd Cavalry				14*	D,F
4th Cavalry	San Antonio Arsenal	56	1	28	K
9th Cavalry				27	E,L
6th Cavalry	Leavenworth Arsenal	84	7	49	D,E
8th Cavalry				28	H
7th Cavalry	Augusta Arsenal	56	0	56	F,K,L
Totals:	5 Arsenals/Depots	308	15	293	15
Source:	Farrington, Dusan P. <i>Arming & Equipping the U.S. Cavalry 1865-1902</i> . 2004. Table 2.4, pp. 84-88.				
Notes:	(*) The 3rd Cavalry received 14 carbines from the 2nd Cavalry during the trial period. This was the only inter-regimental transfer of Sharps trial carbines.				

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in Union hands fired them. By the end of the war they were used in eleven of the twenty carbines that were purchased by Ordnance. The Army completed this transition from 1867 to 1869, converting over 31,000 Civil War Sharps percussion carbines to fire the .50-70 metallic cartridge.⁷

The transition period ended with the 1871 field trials, when the actions of four carbines and rifles – the Springfield trapdoor, Remington rolling block, Sharps drop block and Ward-Burton bolt actions – were tested by troops in the field. After Ordnance selected the trapdoor action in 1873, the new Model 1873 trapdoor carbine gradually replaced both the Sharps and Spencer (Table 2).

The U.S. Cavalry: 1871-1874

The Army changed rapidly after the Civil War, adapting to the challenges of western settlement. These primarily focused on the Indian wars, which effectively ended with the battle of Wounded Knee in December 1890. During the trials period of 1871-1874, the Army protected against Indian depredations as the flood of emigrants moved west. This included protection for evolving trans-continental transportation and communications infrastructure, as well as the emigrants themselves and sanctioned mapping and exploration parties. Cavalry units helped during the start of the Western Range Wars (~1873-1920) and the Colfax County War (1873-1888), and the Army deployed troops in support of post-Civil War Reconstruction until it ended in 1876. This included three companies of the 7th Cavalry, which carried Sharps trial carbines in the Carolinas and Louisiana from 1871-1873.

U.S. Army Organization

As Army units and settlers moved west, “the Army adapted its organization to reflect the anticipated threat to settlers, cities and railroads.”⁸ In 1871 Army headquarters were located in Washington, D.C. General William Sherman moved the headquarters to St. Louis in 1874 to better direct operations on the frontier, but that only lasted until 1876 when they were returned to Washington. From 1871-1874 the Army’s field organization consisted of four divisions and fourteen departments. In 1871 the five Ordnance stations where the trial carbines were issued were part of the following Departments:⁹

Omaha Ordnance Depot: Department of the Platte
San Antonio Arsenal: Department of Texas
Benicia Arsenal: Department of California

U.S. Army Strength

The Army rapidly downsized at the end of the Civil War, from a total force including officers and soldiers of 1,000,692. Congress authorized a strength of 54,302 for the regular Army in the Act of July 1866; that was cut in 1869 to 45,000, and it was further reduced until the end of Reconstruction in 1876.¹⁰ Total authorized Army strength during the trial years was between 28,000 and 30,000.¹¹

Structure and Manpower of the Cavalry

In August 1861, all three types of mounted regiments then in the U.S. service – the Dragoons, Mounted Rifles and Cavalry – were reorganized into a single mounted arm of the U.S. Army, the U.S. Cavalry. The 1st and 2nd Dragoons were designated the 1st and 2nd Cavalry; the Mounted Rifles were designated the 3rd Cavalry; the 1st and 2nd Cavalry were designated as the 4th and 5th Cavalry; and the 3rd Cavalry, newly created by President Lincoln in May 1861, was designated the 6th Cavalry.¹² By Act of Congress in 1866, the 7th, 8th, 9th and 10th Cavalry regiments were established (Figure 1). These ten regiments remained in place for the rest of the 19th century.¹³



Figure 1. The U.S. 10th Cavalry, in full charge at Ft. Nebraska. Nebraska Historical Society.

Cavalry companies made up about 20% of all company-sized organizations in the Army,¹⁴ but about 34% of the total manpower.¹⁵ This large percentage reflected the pivot from infantry to cavalry

Augusta Arsenal: Department of the South
Leavenworth Arsenal: Department of the Missouri

Table 2
U.S. Army Carbine Transition
Carbines Reported Issued by Ordnance from FYs 1872-1880

Fiscal Year	Spencer	Sharps	Springfield	Hotchkiss	Total
1872	1,047	3,182			4,229
1873	423	3,427			3,850
1874	89	1,995	4,823		6,907
1875	0	243	3,790		4,033
1876	0	30	1,212		1,242
1877	0	578	3,995		4,573
1878	0	243	805		1,048
1879	0	20	2,177	201	2,398
1880	0	0	6,670	302	6,972
Source:	All data are from Chief of Ordnance Annual Reports, FYs 1872-1880.				
Notes:	1873: No Model 1873 Springfield carbines were manufactured until early FY 1874.				

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units for frontier duty and the Indian wars. Each regiment consisted of three squadrons of four companies; each company was authorized four officers, 15 NCOs and 72 privates for a total of 91 men. The regiment was commanded by a colonel. Authorized regimental strength in 1876 for the ten cavalry regiments was 1,138; actual regimental strength averaged about 904.¹⁶

Indian Scouts

The 1866 Act of Congress authorized a Corps of Indian Scouts, comprising 1,000 Indians who could be enlisted in the service. Apportioned to the various commands in the Indian country, they were used in varying numbers for about fifty years.¹⁷ Among the best known during the trial period was the detachment of Seminole-Negro Indian Scouts at Ft. Clark, Texas, who earned four Medals of Honor from 1874-1875 (Figure 2).



Figure 2. Seminole-Negro Indian Scouts out of Ft. Clark, Texas. Two of the men in this photo earned the Congressional Medal of Honor for rescuing an officer during an Indian attack.

Carbines in the Service in the 1870s

At the start of the trials, Ordnance was arming most cavalry troops with Model 1865 repeating Spencer carbines and converted Model 1868 single shot Sharps carbines that fired the .50-70 and .50-55 metallic cartridge. Some other Civil War-era carbines were also still in service. Most of the 2nd Cavalry in Colorado and Kansas carried .54 caliber Starr carbines from mid-1866 to mid-1867, and two companies of the 1st Cavalry in Nevada and Arizona had .50 caliber Maynard carbines. Volunteer units were also equipped with Civil War-era carbines. The 1st Nevada and 11th Ohio carried some rimfire Joslyn carbines as well as Sharps and Spencer carbines; Ordnance issued 1,000 Smith and 35 Burnside carbines to the Territory of Dakota from 1869-1870; and 210 Spencer carbines were sent to Nebraska and 250 to Arizona in 1870.¹⁸

Phaseout of the Spencer Carbine

Spencer rifles and carbines (Figure 3) flooded onto the frontier in the late 1860s, with both troops and civilian emigrants.¹⁹ It was popular among soldiers because of its high rate of fire, and it remained a primary U.S. cavalry carbine until the early 1870s.²⁰ Its relatively short range of around 200 yards, however, was a significant drawback. It was sufficient for combat in the forests of the east, but fighting on the plains required a longer-range weapon.²¹ *“To the Ordnance officer of the early 1870s, the Spencer’s drawback was its short rimfire cartridge; although the gun could have been converted to handle centerfire ammunition, it could not be altered to take cartridges as long as the .50-70.”*²²



Figure 3. Warm Springs Scout (right) holding a Spencer Carbine in California in 1873 during the Modoc War. National Archives.

The durability of the Spencer was also an issue. In October 1869 Major Schofield reported from Camp Supply (Indian Territory) that *“I am inspecting troops of Cavalry armed with the Spencer carbine, and find them, after a few months use, more than half unserviceable. The officers are asking for a more simple, stronger, more accurate and effective arm.”*²³ The last major military role for the Spencer was in the summer of 1873, when a large number of cavalry under General David S. Stanley conducted an escort mission with Northern Pacific railroad surveyors along the Yellowstone River.²⁴ In July 1873 Spencer carbines were issued to the Tonkawa Scouts at Fort Griffin, Texas,²⁵ but no Spencer carbines were issued to regular U.S. Army cavalry after 1874. The decline in the Army’s use of the Spencer carbine is reflected in the annual data on issuance reported by the Chief of Ordnance from 1872-1880 (Table 2).

Transition to the Model 1868 Sharps Carbine

In 1867 the Springfield Armory began converting over 31,000 Sharps carbines from the .52 caliber percussion system that fired linen cartridges to a .50 caliber carbine that fired a metallic cartridge (Figure 4). Contracted out to Sharps, the work was started in 1867 and completed in 1869. The Model 1868 Sharps conversion carbine came into increasing favor with the military. The Chief of Ordnance reported in 1869 that *“the altered Sharp’s carbine gives great satisfaction, and is preferred by some of the cavalry regiments to the Spencer. In some respects – particularly in the ammunition – it is decidedly superior to the Spencer carbine.”*²⁶ Ordnance stopped issuing Spencer carbines after 1874, but continued issuing Sharps carbines in small numbers until 1879 (Table 2).

The Sharps, however, wasn’t universally liked. In Texas the Army widely employed Seminole, Lipan Apache and Tonkawa Indian scouts during the 1870s, providing horses, arms and equipment as needed.²⁷ They were armed with carbines, and among the Tonkawa the weapon of choice was the Spencer or Winchester carbine. Although not a recipient of any of the four trials carbine models, in September 1873 Lt. R.H. Pratt of the 10th Cavalry stationed at Ft. Griffin, Texas reported that

*“The (Tonkawa) scouts under my charge are very much dissatisfied with the proposed exchange of their Spencer carbines for the Sharps, which is an arm they have a great dislike for. They have each proposed to supply themselves with a Winchester rifle or carbine, provided they can be furnished with ammunition, and that they will dispense with the use of a government arm.”*²⁸



Figure 4. Studio photo of 10th Cavalry Buffalo Soldier with Model 1868 Sharps Carbine, circa 1870.

the Krag-Jorgensen carbine, several variants of the trapdoor carbine were produced. They continued to serve volunteer units until long after that, including in the Spanish-American War and the Philippine Insurrection. State militias were still using them in June 1900, including the 1st and 2nd Kansas Regiments, and they weren't completely removed from service until the early 20th century when the Krag was replaced by the Model 1903 Springfield.³⁰

End of the Decade: Enter the Hotchkiss

At the end of the 1870s, the Army began experimenting with a new magazine gun. The Winchester-Springfield Hotchkiss magazine carbine had a bolt action and was jointly produced by Winchester and the Springfield Armory. Some of them – 201 in 1879, and 302 in 1880 – were issued to field troops (Table 2). But the single shot Springfield carbine would continue to be the primary shoulder arm of the cavalry until the early 1890s, when the Army finally adopted the bolt action Krag.

PART II - THE FIELD TRIALS

The Boards

Four major Army boards were involved in the lead-up to the 1870 trials. The Laidley Board convened in January 1865 to test and recommend a breechloader for the service, and a repeater magazine or magazine carbine. After testing more than 65 weapons, it recommended only the Peabody for further study.³¹ The Hancock Board convened in January 1866 to recommend a form and caliber for the best cavalry carbine. It tested 27 breechloading carbines; in June 1866 it concluded that the Spencer was the best service gun, that the best cartridge was the .45 caliber, and that infantry and cavalry weapons should use the same cartridge.³² In addition, it resulted in adoption of the Springfield Model 1866 trapdoor rifle musket for the infantry.³³ This was significant because the new trapdoor action would be selected at the end of the 1870 field trials as the best action for both carbines and rifles.

While the Sharps conversions did well in these trials, they lost out to the Remington, Laidley and Peabody single shot carbines. *“In the main, however, the board was less than enthusiastic about adopting any new carbines, and as a result the Spencer remained the more or less official arm for mounted troops...”*³⁴ The troops, however, weren't entirely happy with either the Spencer or Sharps at the time.³⁵ In December 1869, General Sherman wrote to General Dyer that *“Many of our cavalry officers on the plains thought the present Springfield Musket, simply cut down to the length of the Spencer Carbine, would be a better and safer arm than either the Sharps or Spencer in general use.”*³⁶

In August 1869, Ordnance ordered that a board convene to *“examine and report on the best small arms for the use of the Army.”*³⁷ This was known as the Schofield Board for Major General John Schofield who presided over it, and as the St. Louis Ordnance Board for the arsenal at which they met.³⁸ The Board tested 41 rifles and eight carbines, emphasizing the performance of the actions of the guns. On June 10, 1870, the Schofield Board reported that it was *“...unanimously and decidedly of the opinion that the Remington is the best system for the Army of the United States.”*

Chief of Ordnance Dyer, however, disagreed. He recommended that a thousand rifles and three hundred carbines *“be prepared according to each of the three systems”*—the Springfield trapdoor, Remington rolling block, and Sharps drop block—*“and issued for comparative trial in service...”*. He further recommended that

Introduction of the Springfield Carbine

As soon as Ordnance made a final decision to move forward with the trapdoor action in the spring of 1873, Springfield Armory started making rifles and carbines for the field troops (Figure 5). Between mid-1874 and mid-1875 they made about 12,000 rifles and 3,700 trapdoor carbines. Delivery of carbines to the field was uneven. The 7th Cavalry received them early, but the 5th Cavalry in Arizona still had only half of its allotment a year later and the 1st and 3rd Cavalries were still using a significant number of .50 caliber Springfield trial carbines in mid-1875.²⁹



Figure 5. Sgt. Ben July, Seminole-Negro Indian Scout assigned to Ft. Clark, Texas, with Springfield trapdoor carbine.

Over the next twenty years, until it was replaced in 1894 by

“companies of cavalry (have) an equal number of carbines of each system – monthly reports on the comparative merits of which to be made regularly to this Bureau by company commanders during a period of not less than twelve months after their first introduction into the service...”. Dyer’s recommendations were approved by the Secretary of War on July 16th.³⁹ A fourth carbine, the bolt action Ward-Burton, was added nearly a year later.

In June 1872, while the field trials were still ongoing, Congress approved appropriations to manufacture small arms with the proviso that “no part of this appropriation shall be expended until a breech-loading system for muskets and carbines shall have been adopted...”.⁴⁰ To meet this restriction, General Dyer proposed that performance reports from the field go to a board of officers which would select one for general issue. The new Terry Board, led by Brigadier General Alfred Terry, convened in New York City in September 1872.

By March 1873, based on the results of 22 months of field trials, the Terry Board reported that 84 field commanders had preferred the Springfield, ten the Remington, one the Sharps, and none the Ward-Burton.⁴¹ The overwhelming field support for the trapdoor marked the de facto end of the formal trials; on May 5, 1873, the Board recommended that the Springfield breechloading system be adopted and chambered in .45-70. Adoption of the new system gave the rifle an effective range of about 600 yards. This far exceeded the Winchester range of about 200 yards,⁴² making the new trapdoor much better adapted to warfare on the plains from the perspective of range.

The Trials

The Ordnance Department was administratively located under the Secretary of War in Washington, D.C. during the trial period. Several important jurisdictional changes, however, affected the subordinate units which tested the carbines. Three companies of the 7th Cavalry relocated from the southeastern U.S. to the Dakota Territory; Leavenworth Arsenal transferred its primary arsenal responsibilities to Rock Island Arsenal; the new Ft. Union Arsenal was established in New Mexico; Sharps trial carbines were transferred between companies and in one case they were transferred to a different regiment. These and other changes affecting what happened to the 308 Sharps trial carbines during the trials are discussed in the sections below.

Number of Trial Carbines Fabricated

On August 19, 1870, Chief of Ordnance Dyer wrote Col. Benton at Springfield Armory to acknowledge receipt of the samples sent to him of the Springfield, Remington and Sharps rifles. He ordered the manufacture of 1,000 of each as muskets and 300 of each as carbines.⁴³ The number of carbines finally fabricated was 341 Springfield’s, 313 Remington’s, and 308 Sharps.⁴⁴ These were completed from April to May 1871.⁴⁵ The 317 Ward-Burton carbines were fabricated by Springfield in late 1871⁴⁶ and issued to the field in 1872. Twenty additional Springfield carbines were specially manufactured in 1872 for sale to twenty officers provisioned out of the San Antonio Arsenal, but these were not part of the trials.

Shipment and Delivery

Planning for distribution of the trial carbines started in the spring of 1871, as the guns were being finished. On March 7th, Ordnance instructed the Chief Ordnance Officer of the Department of

the Platte that he “was to confer with the department commanding officer to designate the companies to receive the arms. Each company was to turn in their old arms and to use the new ones exclusively.”⁴⁷ This pre-distribution order notwithstanding, from the 3rd quarter of 1871 on there were Model 1868 Sharps carbines simultaneously issued to many of the same companies that were issued Sharps trial carbines. The number of test companies, and the number of Model 1868 carbines issued to them, increased dramatically starting in the 2nd quarter of 1872.⁴⁸

The Springfield, Remington and Sharps carbines were ordered shipped out on May 6, 1871, but were actually shipped between May 8th and May 20th (see Part IV).⁴⁹ A total of 308 of each were distributed as follows:

Ordnance Station	Number Delivered	Number Held Back
Augusta Arsenal:	56	0
San Antonio Arsenal:	56	1
Leavenworth Arsenal:	84	7
Omaha Ordnance Depot:	56	1
Benicia Arsenal:	56	6
Totals:	308	15

All were delivered between June and August 1871. Fifteen in total were held back at the Leavenworth, San Antonio and Benicia Arsenals, at the Omaha Ordnance Depot or at the headquarters of the receiving regiments. None of those shipped to the Augusta Arsenal were held back. The other 293 were issued to the trials companies (Table 1).

Reporting

In an Ordnance circular dated March 10, 1871, the Department specified the field reporting requirements for the trial carbines.⁵⁰ Companies were to report, monthly, the following information:

- Number, kind and caliber of the arms in company;
- Number of each kind rendered unserviceable;
- Number and names of parts broken or unserviceable;
- Suggested modifications or improvements;
- Number and kinds of cartridges fired and number of failures; and
- Preference for use in the military service.

In a March 7, 1871 letter to the Department of the Platte, Ordnance stated that “You will not fail to impress upon the officers to whom they are issued the importance of making to this office monthly reports...These reports should be made in detail and with great care.”⁵¹

Trial Duration

Ordnance decided to go forward with the Springfield trapdoor based on field reports submitted from May 1871 to March 1873 – a period of 22 months.⁵² One reason may have been the urgency in starting the manufacturing process, but another was that the stated preference from the field was overwhelmingly in support of the trapdoor and there was no reason to delay the decision. Trial carbines remained in the hands of the field troops, and they continued to be reported on monthly, until replaced with the new Model 1873 trapdoor carbines. The Sharps trial carbines were still in the hands of some companies through the 2nd quarter of 1874,

about 36 months, and the Remington and Ward-Burton carbines were retained by some units until the 3rd quarter of 1875, about 50 months. The Springfield trial carbines were ordered retained in service even after the Model 1873 carbines were issued.⁵³

Distribution of the Sharps Trial Carbines

The five Ordnance stations that received the trial carbines were widely distributed geographically, and were faced with somewhat different military challenges. Almost all of the receiving regiments were stationed west of the Mississippi River throughout the trials. The one exception was the 7th Cavalry, Companies F, K and L, which were initially stationed in South Carolina and New Orleans before transferring to the Dakota Territory in the 2nd quarter of 1873.

In 1872 the Army's field administration was divided into four divisions: the Division of the Atlantic, the Missouri, the Pacific and the South. The Division of the Atlantic was mainly occupied with enforcing Reconstruction, administration of some former Confederate states after Reconstruction and coastal security along the Atlantic and Great Lakes. No Sharps trial carbines were issued to that Division. The Division of the South was mainly occupied with maintaining security in the former Confederate states during Reconstruction.⁵⁴ It received 56 Sharps carbines through the Augusta Arsenal.

Most of the Indian fighting was occurring in the circa 2.5 million square miles between the Mississippi River and the Pacific Ocean. This region of the western United States was roughly divided administratively into two Divisions by the Rocky Mountains. The Division of the Missouri covered the eastern part of the region, including all states and territories west of the Mississippi River, north of the Rio Grande border with Mexico, and east of Idaho, Nevada and Arizona. Three of the five Ordnance stations that received Sharps trial carbines were in this Division: Leavenworth, Omaha and San Antonio.⁵⁵

The Omaha Ordnance Depot covered what is today Iowa, Nebraska, Wyoming and Utah; it received 56 Sharps carbines. The San An-

tonio Arsenal covered most of Texas and also received 56 carbines. The Leavenworth Arsenal covered what is today Illinois, Missouri, Kansas, Oklahoma, Colorado, New Mexico and the extreme upper panhandle of Texas; it received 84 carbines. The Division of the Pacific covered most of the United States west of the Rocky Mountains. It included what is today Oregon, California, Nevada, Washington, Idaho, New Mexico west of the 110th meridian and Arizona. Arms for the Pacific Division were supplied out of the Benicia Arsenal in California, which received 56 Sharps carbines.

From these five Ordnance stations the Sharps trial carbines were initially distributed to eight regiments and eleven companies. By the end of reporting on the Sharps in the 2nd quarter of 1874, they had been in the hands of fifteen companies (Table 1). In two cases, the 7th Cavalry and 9th Cavalry, some Sharps carbines originally assigned to them were reassigned to different companies in the same regiment while the trials were ongoing. In a third case, fourteen carbines assigned to the 2nd Cavalry were reassigned to the 3rd Cavalry (Table 3). At Benicia Arsenal in 1872, some issued to the 1st Cavalry were ordered reassigned to the 5th Cavalry after the arrival of their Ward-Burton carbines, but they apparently never transferred since they never showed up with the 5th Cavalry in the data.⁵⁶

Other Carbines Issued with the Sharps Trial Carbines

Companies didn't serve with the Sharps trial carbines alone; many served with three or, later, all four trial carbines, and most eventually used Sharps Model 1868 carbines to supplement their supply since actual company strength required about 70-90 carbines per company. Quarterly data reported by Farrington include the number of each trial carbine and the number of Model 1868 Sharps issued. Through June 1874, six of the eight regiments and twelve of the fifteen companies that were assigned Sharps trial carbines *simultaneously* carried Sharps Model 1868 carbines – typically far more of the Model 1868 as the trials progressed. *This makes clear that it was necessary for troops to readily distinguish*

Table 3
Model 1870 Sharps Trial Carbines
Number Reported by Regiment, Company and Quarter

Regiment	Original Arsenal/Depot	Company	Q3/1871	Q4/1871	Q1/1872	Q2/1872	Q3/1872	Q4/1872	Q1/1873	Q2/1873	Q3/1873	Q4/1873	Q1/1874	Q2/1874	Q3/1874
1st Cavalry	Benicia	A	25	25	25	25	25	25	25	24	36	36	33	33	
		I	25	24	24	24	20	20	38	33	25	58			
2nd Cavalry	Omaha	C	28	27	26	18	18	16	16	16	16	16	13	13	
		E	27	27	26	25	16	16	16	16	16	16	13	13	
3rd Cavalry	Omaha	D					7	7	7	7	7	7			
		F				7	7	7	7	7	7	7			
4th Cavalry	San Antonio	K	28	28	26	26	24	21	19	18	32	32	15		
6th Cavalry	Leavenworth	detachment	30												
		D		25	24	19	20								
		E		24	24	23	21	20	18	18	18	18	18	18	
		F	24												
7th Cavalry	Augusta	L					1								
		F		28	28	21	21	21	20	15	14			14	
		K	28	28	28	21	21	18	18	24	24	22	21	20	
8th Cavalry	Leavenworth	L				14	14	14	14	12	12	12	12	12	
		H	28		27	28	26	24	24	22	25	25	21	38	
9th Cavalry	San Antonio	E					7	7	7	7	7	7	7	7	
		L	27	27	27	27	20	19	17	13	18	29	44	36	
Source:			Farrington, Dusan P. <i>Arming & Equipping the U.S. Cavalry 1865-1902</i> . 2004. Table 2.4, pp. 84-88.												
Notes:			<p>Gray Cells: No reporting. See text.</p> <p>Yellow Cells: Anomalous data, primarily due to commingling of Model 1868 and Model 1870 Sharps carbines in the counts. See text.</p> <p>Blue Cells: Last quarter that data for each Company are considered reliable. See text.</p> <p>Green Cell: Last quarter considered in Ordnance Dept. decision to move forward with the Springfield trapdoor carbine.</p>												

between the two Sharps carbine models in the field. Cavalry companies that were issued both Model 1868 and Model 1870 Sharps carbines were:

Regiment	Companies
2nd Cavalry	C, E
3rd Cavalry	D, F
4th Cavalry	K
6th Cavalry	D, E, F
7th Cavalry	F, K, L
9th Cavalry	E

Data Anomalies and Limitations

Three significant data limitations were encountered during this analysis of the field trials. First, the field data presented in Ordnance Memoranda, Issue No. 15 is in summary form. A transmittal letter of these data to the Terry Board on May 18, 1873 stated that the field data:

“...has been reduced to a standard common to the different arms, a comparison between which would otherwise, from their varied numbers and times of service, have been impracticable. The irregular and defective rendering of the monthly reports, in some instances, has doubtless affected more or less the accuracy of the conclusions to be derived from them, but still, this error being a common one, it is believed that the comparisons indicated are in the main trustworthy.”⁵⁷

The actual number of monthly reports submitted on the trials rifles and carbines was 810 for the Remington, 814 for the Springfield, 584 for the Sharps and 334 for the Ward-Burton.⁵⁸ A total of 313 monthly reports were submitted on the four carbine models alone.⁵⁹ But Ordnance Memo 15 data are so fragmentary that data from 13 companies are only reported from a single date – usually August or September of 1872. It’s impossible to track either the Sharps or any of the other trial guns from the data published there, something that helps explain fragmentary data reported on the trials by McAulay⁶⁰ and others.

Farrington compiled complete quarterly data in detail in his Table 2.4, *“Trials Carbines Reported in Issue Abstracted from the Quarterly Statements, 1871-1876, Class VII, Small Arms”*.⁶¹ Partial compilation of the data based on the quarterly returns has been reported elsewhere,⁶² but because Farrington’s is the most complete – and perhaps the *only* complete – quarterly accounting that has been published, the tracking and analysis in this study is based on his reporting of the data.

The second major data limitation is that the trials companies stopped reporting Sharps carbines on hand at different quarters. The earliest was Company D of the 6th Cavalry, which stopped reporting after the 3rd quarter of 1872. The last, a year and nine months later, were the 7th, 8th and 9th Cavalries, which stopped after the 2nd quarter of 1874 (Table 3). This means that the attrition and attrition rates calculated for the companies and regiments are not strictly comparable. Also, the estimate of 225 field carbines surviving the trials may be low, since the lack of reporting by some companies before the 2nd quarter of 1874 doesn’t necessarily mean that the carbines weren’t still in service and suffering attrition in those months; it may simply mean that they weren’t counted.

The third major data limitation is that after Ordnance made the decision to go forward with the Springfield trapdoor action in the 1st quarter of 1873, a number of anomalous high counts start showing up in the data (Table 3). These all occur in the later quarters, but only with certain regiments and companies:

Regiment	Companies
1st Cavalry:	A, I
3rd Cavalry:	F
4th Cavalry:	K
7th Cavalry:	K
8th Cavalry:	H
9th Cavalry:	L

There are two possible explanations for this. First is either issuance of new carbines held back, or re-issuance of repaired carbines, to a trial company during the trial period. When repairs required to fix a broken carbine couldn’t be carried out in the field, the gun was sent to the Regimental Armorer. A subset of those repaired carbines may then have been returned to the trials company for use. They would not have shown up on the monthly count while they were being repaired, but they would have shown up after they were returned to service. Or, the company may have simply been issued new Sharps carbines that were originally held back. This may have occurred in two cases where the numbers reported are increases from previous quarters but still below the original number issued to the trial company. The timing and number of the increases are:

7th Cavalry: Company K (Q2/1873: six carbines)

8th Cavalry: Company H (Q3/1873: three carbines)

Both of these companies were provisioned out of Leavenworth Arsenal. The data indicate that two Sharps carbines were held back at Leavenworth Arsenal, and five at the regimental headquarters, at the time of issuance (see below).

Most of the data anomalies, however, are much larger and almost certainly reflect commingling of Model 1868 Sharps conversion carbines and Model 1870 Sharps trial carbines as they were counted in the field. Evidence for this is twofold. First, the data show that there were very few Model 1868 Sharps carbines with the trials companies at the start of the trials. Only one company had them in the first reporting quarter, two in the second quarter and one in the third. That started to change in the 2nd quarter of 1872, when the trials companies started carrying an increasing number of Model 1868 Sharps.⁶³

As the number of trial companies carrying both models grew, the possibility of commingling in the counts increased even though the guns must have been readily distinguishable in the field. An isolated report of 61 Sharps carbines on hand with Company F of the 3rd Cavalry in the 3rd quarter of 1873 demonstrates this (Table 3). Company F reported no Model 1870 Sharps on-hand at the end of the 2nd quarter, and fifty Model 1868 Sharps carbines on hand. In the 3rd quarter it reported 61 Model 1870 Sharps – clearly an error, since that was more than the 56 total that were originally sent to the Omaha Ordnance Depot – and zero Model 1868 Sharps.

This very strongly indicates that they were commingling the two models in the count, especially since it’s a pattern that occurred in six companies and five regiments at about the same time. Exam-

ination of the raw data on Model 1868 Sharps carbines indicates that commingling of the two Sharps models likely accounts for the anomalous high numbers in the following cases:

1st Cavalry:	Company A (Q3/1873-Q2/1874) Company I (Q1/1873-Q4/1873)
3rd Cavalry:	Company F (Q3/1873)
4th Cavalry:	Company K (Q3/1873-Q4/1873)
8th Cavalry:	Company H (Q2/1874)
9th Cavalry:	Company L (Q3/1873-Q2/1874)

During these later quarters, the decision had already been made on the Springfield trapdoor; manufacturing was progressing apace and the first Model 1873 Springfield carbines were starting to ship out to the field to replace the trial carbines. Emphasis on the monthly trial reports likely declined after this, and the number of reports filed started dropping.

Augusta Arsenal

In 1871, when the field trials began, Augusta Arsenal in Georgia was in the Department of the South under the Military Division of the South. This merged in 1876 after Reconstruction into the Military Division of the Atlantic. The Arsenal's area of responsibility changed over time, but during the trials it would have issued arms to troops in South Carolina, North Carolina (after November 1, 1871), Georgia, Florida, Mississippi and those portions of Kentucky and Tennessee east of the Tennessee River.⁶⁴

All 56 Model 1870 Sharps trial carbines were issued to the 7th Cavalry on June 13, 1871.⁶⁵ Companies F, K and L were detached to the Department of the South at the start of the trials, and they were transferred to the 7th Cavalry headquarters at Ft. Abraham Lincoln in the Dakota Territory in the 2nd and 3rd quarters of 1873. This was part of the Department of Dakota; the departmental headquarters, located at St. Paul, Minnesota, was responsible for Minnesota, North Dakota and parts of South Dakota and Montana.⁶⁶

Companies F, K and L took their Sharps trial carbines with them when they transferred, and continued to report on the number on hand from the Dakotas. Their arms would have been supplied at this time out of the Ft. Abraham Lincoln Ordnance Depot, created in 1873. Indian engagements with Companies F, K and L while stationed in the northwest occurred, *inter alia*, on the Yellowstone Expedition under Gen. Custer in August 1873, and near Ft. Abraham Lincoln in Dakota Territory in April 1874.⁶⁷

7th Cavalry, Company F

The 56 Sharps trial carbines that went to Augusta Arsenal were initially issued to Companies F and K. Company F was issued 28 carbines in June 1871 in Louisville, Kentucky.⁶⁸ It transferred seven to Company L in early 1872 when Company L joined it in South Carolina. In the 2nd quarter of 1873, Company F was located at Camp Muddy Creek in Dakota Territory. It was based at Ft. Lincoln throughout the rest of the trial period. Company F last reported 14 Sharps trial carbines on hand in the 2nd quarter of 1874; it had a net attrition of seven guns and an attrition rate of 25.0% over their first two years of field service (Table 4).

7th Cavalry, Company K

In March 1871 Company K relocated from Kansas to Yorkville, South Carolina as part of the federal campaign to enforce federal Reconstruction policies under the Enforcement Acts.⁶⁹ It was issued 28 Sharps trial carbines in June 1871 while stationed at Yorkville,⁷⁰ and transferred seven of them to Company L of the 7th Cavalry in 1872. The Company transferred to Dakota Territory in early 1873, reporting from Camp Sturgis, "the field" and Ft. Rice. Company K's last reliable report was 18 Sharps trial carbines on hand in the 1st quarter of 1873; it had a net attrition of three guns and an attrition rate of 10.7% over their first year and nine months of field service (Table 4).

Figure 6. Augusta Arsenal, in Georgia, received 56 Sharps trial carbines in 1871. These were issued to Companies F, K and L of the 7th Cavalry Regiment, which were initially stationed in the southeast before transferring to the Dakota Territory in 1873.



Table 4
Sharps Model 1870 Trial Carbines
Last Reported Locations, Ordnance Stations in 1901, and Attrition

Last Reported Post	Regiment/ Company	Last Report: Quarter/Year	Regimental Headquarters in June 1874	Regimental Arsenal/Depot in June 1874	Arsenal/Depot in 1901	Number				
						Number Issued	Accounted For	Missing in Action	Company Attrition (%)	Regimental Attrition (%)
Benicia Barracks, California Camp Halleck, Nevada	1st/A 1st/I	Q2/1874 Q4/1873	Benicia Barracks, CA	Benicia Arsenal, CA	Benicia Arsenal	25 25	-24 -20	1 -5	4.0 20.0	12.0
Camp Canby, Loupe River, Nebraska Ft. Laramie, Wyoming Territory	2nd/C 2nd/E	Q2/1873 Q1/1874	Ft. Laramie, WY	Omaha Quartermaster Depot	Ft. Crook, NE	28 27	16 13	-5 7	17.9 25.9	21.8
Camp on Laramie River, Wyoming Territory Ft. McPherson, Nebraska	3rd/D 3rd/F	Q3/1873 Q3/1873	Ft. D.A. Russell, WY	Omaha Quartermaster Depot	Ft. Crook, NE	7 7	7 7	0 0	0.0 0.0	0.0
Ft. Clark, Texas	4th/K	Q1/1874	Ft. Richardson, TX	San Antonio Arsenal	San Antonio Arsenal	28	-15	-13	46.4	46.4
Ft. Wallace, Kansas Ft. Gibson, Indian Territory	6th/D 6th/H	Q3/1872 Q1/1874	Ft. Sill, I.T.	Ft. Leavenworth Ordnance Depot	Rock Island Arsenal	25 24	20 18	5 6	20.0 25.0	22.4
Camp Muddy Creek, Dakota Territory Ft. Rice, Dakota Territory Ft. Abraham Lincoln, Dakota Territory	7th/F 7th/K 7th/L	Q2/1874 Q2/1874 Q2/1874	Ft. Abraham Lincoln, D.T.	Ft. Abraham Lincoln Ordnance Depot	Ft. Meade, SD	28 28 14	14 18 12	-7 -3 2	25.0 10.7 14.3	17.1
Ft. McRae, New Mexico	8th/H	Q2/1874	Ft. Union, NM	Ft. Union Arsenal, NM	Ft. Riley, KS	28	-21	-7	25.0	25.0
Ft. Concho, Texas Ringgold Barracks, Texas	9th/E 9th/I	Q2/1874 Q2/1874	Ft. Davis, TX	San Antonio Arsenal	San Antonio Arsenal	7 27	7 -13	0 -7	0.0 25.9	20.6
Totals and Averages:						293	225	-68	23.2	23.2

Source: Farrington, Dusan P. *Arming & Equipping the U.S. Cavalry 1865-1902*. 2004; Table 2.4, pp. 84-88.

Notes: Regimental Supply Posts: Leavenworth Arsenal transferred to Rock Island Arsenal in 1872-1874, but an arsenal depot was maintained at Ft. Leavenworth.
 Ft. Abraham Lincoln Ordnance Depot was responsible for the troops stationed at the fort, including the 7th Cavalry, starting in 1873.
 Data do not include any Sharps carbines that were originally held back and may have still been located at the Arsenal/Depot at the time shown.
Last Reported Post: List includes 9 forts, 2 barracks, and 4 camps in ten states and territories.
Regiment/Company: Includes all units assigned Model 1870 Sharps during the trial period.
Last Report: Last quarter data are reported. Different from last quarter data are reliable. See Table 3 and text.
Quarter/Year: Last quarter the Company reported Model 1870 Sharps "on hand". Last reports were spread over six quarters: Q3/1872 (6th/D) to Q2/1874 (1st/A, 7th/L, 8th/H, 9th/E and 9th/L).
Number Issued: 308 shipped; difference (15 carbines) is number originally held back at the Arsenals and Ordnance Depot. Numbers shown account for intra- and inter-regimental transfer of carbines.
Number Accounted For: Estimated number using last reliable "on hand" data from Table 3. Note variability in last quarter reported (Column 3). See text.
Missing in Action: Column D - Column E, taking into account intra- and inter-regimental transfers. Does not include 15 Sharps carbines originally held back.
Highlighted Attrition Numbers: Cells with red numbers are attrition rates greater than the average of 23.2% attrition.

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7th Cavalry, Company L

In the 2nd quarter of 1872, Company K was joined in South Carolina by Company L of the 7th Cavalry. The data show that seven Sharps carbines from Company K, and seven from company F in Louisville, Kentucky, were transferred to Company L at that time; these were retained by Company L through the rest of their period of field use. Company L reported from Jackson Barracks in Louisiana and New Orleans in the 4th quarter of 1872 and the 1st quarter of 1873, respectively. Major Army actions reported from there included preventing a coup by Democrats in New Orleans after the Louisiana state gubernatorial election in 1872.⁷¹

During the 2nd quarter of 1873, Company L transferred to the Dakota territory and reported from the Little Heart River. It then moved to Ft. Lincoln where it remained through the end of reporting on the Sharps carbines. Company L last reliably reported twelve Sharps trial carbines on hand in the 2nd quarter of 1874; it had a net attrition of two guns and an attrition rate of 14.3% over two years and three months of field service (Table 4).

A Note on 7th Cavalry attrition

The attrition of Sharps carbines more than doubled after the three receiving companies transferred to the Dakota Territory. Ten were unaccounted for during the twelve quarters between first issuance in 1871 and the last "on-hand" report in 1874. Of these ten, three were unaccounted for in the first six quarters during duty in South Carolina, Kentucky and New Orleans. The other seven were unaccounted for in the last six quarters, after all three companies had transferred to Dakota Territory to engage with the Indian wars.

Omaha Ordnance Depot

During the trial period, the Omaha Ordnance Depot was under the Military Division of the Missouri and attached to the headquarters for the Department of the Platte in Omaha, Nebraska. It was part of Omaha Barracks, established in 1868, which was renamed

Fort Omaha in 1878. This Department was responsible for the central plains from the Mississippi River on the east to Utah on the west. It covered Iowa, Nebraska, Wyoming, Utah and portions of the Dakotas and Montana. It also "contained the Union Pacific Railroad from Omaha to Salt Lake City; the overland mail route from North Platte, via Denver, to Salt Lake City; the overland emigrant roads between the same points, and the route to Montana known as the Powder River route."⁷²

During the 1860s the Department was primarily occupied with providing security for construction of the transcontinental Union Pacific Railroad, and enabling hundreds of thousands of settlers crossing the country on the Bozeman, California and Oregon trails to safely pass through its territory.⁷³ With completion of the Union Pacific in May 1869, use of the trails dropped off dramatically as the primary mode of transportation of emigrants to the west shifted to rail. While the Bozeman Trail was closed entirely by the 1868 Fort Laramie Treaty, local and regional use of the other trails continued to a limited degree.

The cavalry regiments supplied out of the Department of the Platte during the trial period provided security for the Union Pacific Railroad, telegraph lines, mail routes, stages, freighters, survey parties, exploration and scouting expeditions and pioneer settlements. They maintained peace on the Indian reservations, and "fought the Indian wars necessary to bring peace to the western frontier."⁷⁴ Major actions included the Stanley Expedition along the Yellowstone River to the Big Horn River (1873); movement of three companies of the 7th Cavalry from the Department of the South to the Dakota Territory (1873) and the Black Hills reconnaissance (1874).⁷⁵

Omaha Depot received 56 of each of the four models of trial carbines. The Sharps trial carbines were initially issued on June 20, 1871 to Companies C and E of the 2nd Cavalry, with one held back at the Arsenal (Tables 1 and 3). In 1872, seven Sharps carbines from each company were transferred to Companies D and F of the 3rd Cavalry (Table 3).

Figure 7. Fort Omaha, in Nebraska, site of the Omaha Ordnance Depot. Called Omaha Barracks until 1878, it received 56 Sharps trial carbines in 1871. This Ordnance Depot was a central supplying station for Army units in the upper plains, from the Mississippi River on the east to Utah on the west. Sharps trial carbines were issued out of here to Companies C and E of the 2nd Cavalry, and Companies D and F of the 3rd Cavalry.



2nd Cavalry, Company C

Company C was issued 28 Sharps trial carbines. It transferred seven to the 3rd Cavalry in the 2nd quarter of 1872. There was slow attrition of the remaining guns. Company C last reported sixteen carbines on hand in the 2nd quarter of 1873; it had a net attrition of five guns and an attrition rate of 17.9% over two years of field service (Table 4).

2nd Cavalry, Company E

Company E was issued 27 carbines, and transferred seven to the 3rd Cavalry in the 3rd quarter of 1872. It also saw slow attrition. Company E last reported thirteen carbines on hand in the 1st quarter of 1874; it had a net attrition of seven guns and an attrition rate of 25.9% over two years and nine months of field service (Table 4).

3rd Cavalry, Company D

Company D received seven carbines in the 3rd quarter of 1872 from Company E of the 2nd Cavalry, and retained all of them through its final report in the 3rd quarter of 1873. This was tied for the lowest attrition rate of 0.0% over fifteen months of field service (Table 4).

3rd Cavalry, Company F

Company F also received seven carbines, in the 2nd quarter of 1872 from Company C of the 2nd Cavalry. The last reliable report of numbers on hand from Company F was in the 1st quarter of 1873, when it still had all seven. It also had a 0.0% attrition rate, over the first year of field service (Table 4).

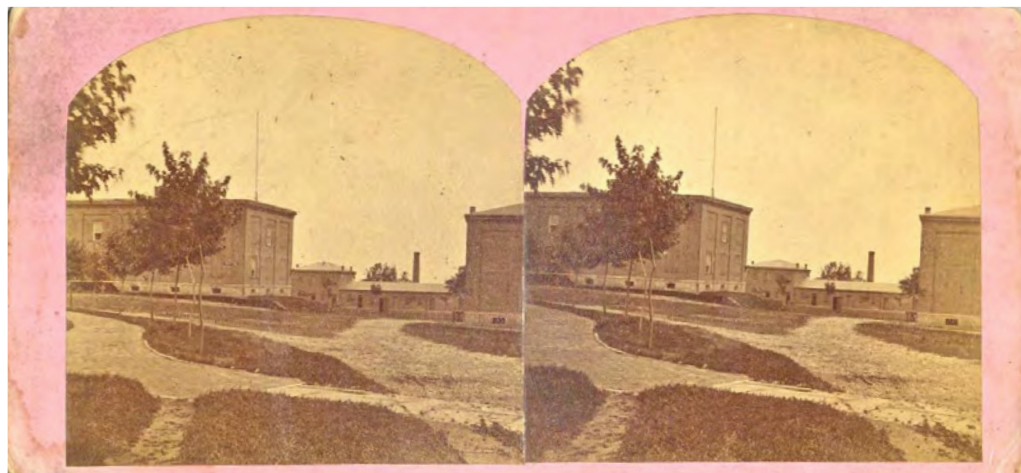
Leavenworth Arsenal

The Leavenworth Arsenal in Kansas was part of the Department of the Missouri, one of four Departments that made up the Military Division of the Missouri. It included what are today the states of Kansas, Missouri, Colorado, New Mexico and parts of Texas and Oklahoma.⁷⁶ Its headquarters were at Ft. Leavenworth, Kansas. Between 1872 and 1874, Leavenworth Arsenal's functions were transferred to the Rock Island Arsenal in Illinois although an Ordnance Depot remained there until at least 1890.⁷⁷

The Department of the Missouri was one of the most deeply engaged in Indian uprisings during the trial period, especially against the Sioux, Cheyenne, Comanche and Kiowa. The regiments supplied out of Leavenworth were among those that "carried the brunt of the Indian conflicts." They also offered protection for the summer emigrant wagon trains and other travelers who were crossing the plains; they designed, planned and organized military campaigns; and they coordinated with other agencies including the Bureau of Indian Affairs that operated the Indian reservation system.⁷⁸ Notable Indian engagements with the 8th Cavalry, Company H, occurred at Sierra San Mater, New Mexico in September 1873 and with the 6th Cavalry at Buffalo Creek, Indian Territory in June 1874.⁷⁹

Leavenworth Arsenal received 84 Sharps trial carbines instead of the 56 supplied to the other Ordnance stations. The data indicate that two were held back at the arsenal. Twenty-eight were issued to the 8th Cavalry at Ft. Union, New Mexico (Figure 9, Table 4).⁸⁰ The other 54 were issued to the 6th Cavalry in the third quarter of 1871. Thirty of these were reported by a detachment

Figure 8. Leavenworth Arsenal, in Kansas, received 84 Sharps trial carbines in 1871. In the early 1870s it transferred most of its arsenal responsibilities to Rock Island Arsenal, but remained an arsenal depot for a number of years. It supplied Army units in what are today Kansas, Missouri, Colorado, New Mexico and parts of Texas and Oklahoma, including Companies D and E of the 6th Cavalry and Company H of the 8th Cavalry.



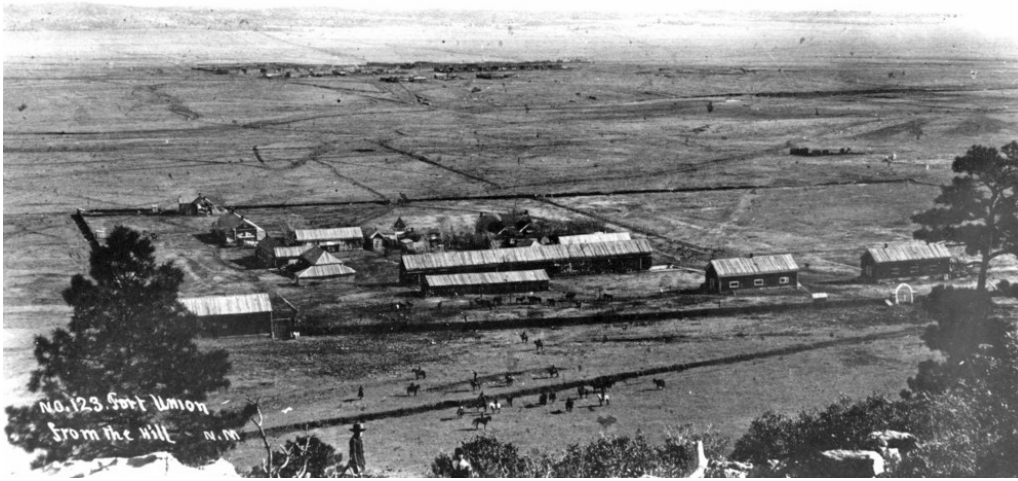


Figure 9. Fort Union Arsenal, in New Mexico, received 28 of the 84 Sharps trial carbines that were shipped to Leavenworth Arsenal in 1871.

that was heading west from Ft. Leavenworth to “near Ft. Hays,” and the other 24 were already at Ft. Hays in the hands of Company F. In the 4th quarter of 1871, 25 of the 6th Cavalry carbines were reported on hand by Company D from Ft. Wallace in western Kansas, and 24 were reported on hand by Company E in Limestone, Kansas. The data indicate that the other five were held back at the 6th Cavalry Regimental Headquarters (Table 3) – the only known occurrence of this during the trials.⁸¹

6th Cavalry, Company D

Company D was stationed at Ft. Wallace, Kansas through the 3rd quarter of 1872. There was no further reporting from the Company on the trial carbines from any location after that. It last reported twenty Sharps trial carbines on hand in the 3rd quarter of 1872, a net attrition of five guns and an attrition rate of 20.0% over one year of field service (Table 4).

6th Cavalry, Company E

Company E originally received 24 Sharps carbines in the 4th quarter of 1871. It moved to Ft. Scott, Kansas and reported from there until the 4th quarter of 1872 when it relocated back to Limestone, Kansas. It remained at Limestone until moving to Ft. Gibson in the 2nd quarter of 1873. The Company remained at Ft. Gibson through the end of the field trials. It last reported 18 Sharps trial carbines on hand in the 1st quarter of 1874, a net attrition of six guns and an attrition rate of 25.0% over two and a half years of field service (Table 4). There was one anomaly in the 6th Cavalry data, a single Sharps trial carbine that was reported by Company L in the 3rd Quarter of 1872.

8th Cavalry, Company H

The 8th Cavalry was assigned 28 Sharps Model 1870 trial carbines, receiving them on August 5, 1871 at Ft. Union, New Mexico. There’s no record of the Company reporting for the next (4th) quarter of 1871, but it reported 27 on hand from Ft. Craig, New Mexico in the 1st quarter of 1872. It was reassigned to Tularosa, New Mexico in the 2nd quarter of 1872, reporting its original issue of 28 carbines. It remained in Tularosa until the 3rd quarter of 1872, when it was reassigned for the rest of the trial period to Ft. McRae, New Mexico. Company H last reliably reported 21 Sharps trial carbines on hand in the 1st quarter of 1874; it had a net attrition of seven guns and an attrition rate of 25.0% over the first two years and nine months of field service (Table 4).

San Antonio Arsenal

During the field trials, the San Antonio Arsenal was part of the Department of Texas within the Military Division of the Missouri. The Department was established in 1870 after Texas was readmitted to the Union.⁸² The San Antonio Arsenal supplied arms to troops in all of Texas except the extreme north of the panhandle. It “served as a central supply point for arms and ammunition for the U.S. Army...In its early days it supplied the Department of Texas during the campaigns against the Indians on the frontier, and made minor repairs to arms and equipment...”⁸³ Fifty-five of the 56 Sharps trials carbines sent to San Antonio Arsenal were issued to the 4th and 9th Cavalries; these are separately tracked in Table 5. The 56th carbine was presumably held back at the Arsenal. The carbines were issued to both regiments on August 5, 1871, along with Remington and Springfield trial carbines.

4th Cavalry, Company K

The 4th Cavalry received 28 Sharps trial carbines at Ft. Richardson in north Texas. The Regiment transferred in the 2nd quarter of 1873, reporting after that from Ft. Clark (Figure 11) near the Rio Grande border with Mexico (Table 5). Company K last reliably reported fifteen Sharps trial carbines on hand in the 1st quarter of 1874. It had a net attrition of thirteen guns or 46.4% over the first two years of field service (Table 4). This was far higher than for any other regiment, and twice as high as the average attrition rate of 23.2%.

Throughout the trials, in addition to Reconstruction duties, the 4th was heavily engaged with Comanche, Kiowa, Apache, Cheyenne and other tribes while under the command of the famous Indian fighter, Colonel Ranald Mackenzie. Smith documents 33 Army combat actions in Texas from July 1, 1871 to June 30, 1874.⁸⁴ Major actions included the search for Kiowa chiefs Satanta and Sattank (1871); a battle between Mackenzie and the Comanche along the North Fork of the Red River (1872); the Mackenzie raid into Mexico against the Lipan Apache and Kickapoo (1873); the battle of Adobe Walls in the panhandle (1874); the outbreak of the Red River war on the southern plains (1874); the fight along Washita Creek in the panhandle against Comanche and Kiowa (1874); ongoing skirmishing in the panhandle (1874); the fight between Mackenzie and the Comanches at Tule Canyon (1874) and the Battle of Palo Duro Canyon (1874).⁸⁵ Other Indian engagements with the 4th Cavalry included two on the Brazos River in October 1871, and one with Company K at Lost Creek, Texas in May 1872.⁸⁶ The most famous engagement occurred in August 1874, the month

Figure 10. San Antonio Arsenal, in Texas, received 56 Sharps trial carbines in 1871. It supplied the 4th and 9th Cavalry Regiments in Texas, including Company K of the 4th Cavalry under the famous Indian fighter Col. Ranald Mackenzie. The Sharps trial carbines suffered an attrition rate under Company K that was double the average, and higher than any other unit receiving Sharps trial carbines.



Figure 11. Fort Clark, Texas. This large fort garrisoned and provisioned a number of small posts in south, central and west Texas during the trials. It was the headquarters for Col. Ranald Mackenzie's 4th Cavalry Regiment.



after the 4th stopped accounting for its Sharps carbines, when it played a decisive role in the Red River War by helping defeat the Comanche at the Battle of Palo Duro Canyon.⁸⁷

The 4th Cavalry and the Mackenzie Raid

Not all of the major Indian engagements that occupied the 4th and 9th Cavalry regiments in Texas at this time involved companies that were testing the Sharps trial carbines. Of particular note is the Mackenzie raid into Mexico in May 1873, the arms of which were meticulously documented at the time. Company K, the only 4th Cavalry company that was testing the Sharps, was not along on that raid because it was "too far distant from the scene of the action." Company E of the 4th Cavalry, however, which did participate, carried five Ward-Burton trial carbines.⁸⁸ This is interesting because Company E is not listed as a trials company *at any time*

during the trials for any of the four trial carbine models. This must therefore have been a short-term assignment of those guns out of Fort Clark for this particular raid.

9th Cavalry, Company L

Company L of the 9th Cavalry Buffalo Soldiers received 27 Sharps trial carbines at Ft. Duncan, Texas, located in the southern border town of Eagle Pass. The Company transferred seven carbines to Company E in 1872, and retained the other twenty. They relocated to Ft. McIntosh, Texas, in the border town of Laredo, in 1872 and to Ringgold Barracks, also on the Mexican border, in 1873. Except for a short reassignment to the border town of Edinburg, Texas, Company L remained at Ringgold Barracks until it last reported on the Sharps trial carbines in 1874 (Table 5). Company L last reliably reported thirteen Sharps trial carbines on hand

Figure 12. Fort Concho, Texas. Headquarters for the 9th Cavalry, Company E Buffalo Soldiers during part of the trials. Located at the confluence of the North and South Concho Rivers, it was located on both the Butterfield Overland Mail Route that ran east-west and the Goodnight-Loving cattle trail that ran north-south from Texas up to Wyoming.



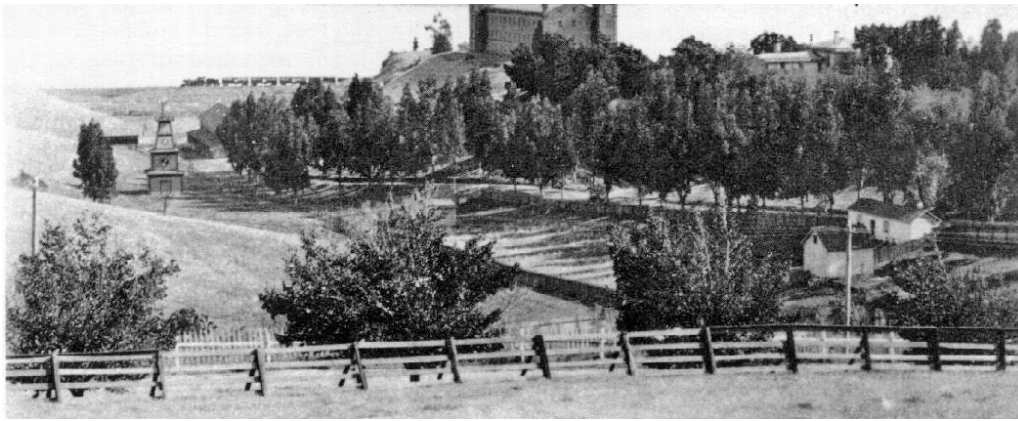


Figure 13. Benicia Arsenal near San Francisco in the later 1800s. Responsible for much of the United States west of the Rockies, it received 56 Sharps trial carbines in 1871. They were assigned to Companies A and I of the 1st Cavalry, which saw extensive action against the Apache in Arizona and other groups in Nevada.

in the 2nd quarter of 1873; it had a net attrition of seven guns and an attrition rate of 25.9% over the first two years of field service (Table 4).

9th Cavalry, Company E

Company E of the 9th Cavalry, also posted at Ft. Clark, received seven Sharps trial carbines from Company L of the 9th in the 3rd quarter of 1872. The next quarter they were reporting from Ft. Concho (Figure 12) where they remained until the end of the trials. They were involved in building the fort, patrolling and scouting and escorting cattle herds and wagon trains on the San Antonio-El Paso Road.⁸⁹ All seven of the Sharps trial carbines issued to Company E were accounted for at the end of their service in the 2nd quarter of 1874, for a net attrition rate of 0.0% over two years of field service (Table 4).

This ties Companies D and F of the 3rd Cavalry for the lowest attrition of any trials company, and is interesting given the location and role of Ft. Concho at the time. The Fort is located in central Texas at the confluence of the north and south Concho rivers in what is today San Angelo. It was built along both the Butterfield

Overland Mail Route that ran east-west and the Goodnight-Loving cattle trail that ran north-south from Texas through New Mexico and Colorado up to Wyoming. During the trial years, troops out of Ft. Concho were heavily involved in protecting frontier settlements, patrolling and mapping west Texas, controlling Indian depredations and suppressing illegal trade by the *Comancheros*.

Benicia Arsenal

During the trial period, the Benicia Arsenal was located near San Francisco. It was part of the Department of California under the Military Division of the Pacific. This military division was engaged with multiple Indian uprisings, including with the Apache in Arizona, the Modoc in northern California and the Nez Perce, Paiute and other tribes. It also dealt with labor disputes and coastal fortifications.⁹⁰ Major Army actions reported from the Department of California during the trial period include the Wheeler geological survey in Arizona and Nevada (1871-1879); Lt. Col. George Crook's opening of a campaign against the Apache in Arizona (1872-1873) and the Modoc War (1872).⁹¹ Other Indian engagements with the 1st Cavalry, Company A, occurred at Sycamore Canyon, Arizona (May 1872); on Bill Williams' Mountain, Arizo-

Table 5
Sharps Model 1870 Carbines
Movement and Attrition of the Sharps 1870 Trial Carbines Issued in Texas

Post (1)	Reporting Location in Texas	Regiment Company	Carbines on Hand by Quarter and Year													
			1871		1872				1873				1874			
			3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd (6)	
Fort Richardson (2)	Jack County (Jacksboro); north Texas	4th K	28	28	26	26	24	21	19							
Camp on Elena Creek	Unknown site in Texas	4th K								18						
Fort Clark	Kinney County, at Bracketville	4th K										32	32	15		
		9th E														
Fort Duncan (3)	On the Rio Grande near Eagle Pass in Maverick Co.	9th L	27	27	27	27	7	7								
Fort McIntosh	On the Rio Grande at Laredo	9th L					20	19								
Ft. Concho	San Angelo	9th E							7	7	7	7	7	7		
Ringgold Barracks	On the Rio Grande at Rio Grande City	9th L							17	13	18			44	36	
Edinburg	On the Rio Grande at Edinburg	9th L														
Total On Hand With Trial Companies (8):			55	55	53	53	51	47	43	38						

Source: Farrington, Dusan P. *Arming & Equipping the U.S. Cavalry 1865-1902*. 2004; Table 2.4, pp. 84-88.
 Notes: (1) All locations provisioned by the San Antonio Arsenal.
 (2) HQ of Col. Ranald Mackenzie's 4th Cavalry in Texas in August 1871 when the carbines arrived (Farrington p. 83).
 (3) In August 1871, 27 Sharps carbines went to Co. L of the 9th Cavalry under Capt. Edward S. Meyer.
 (4) Red Cells: Anomalous high counts likely reflect commingling count of Sharps Model 1868 and Sharps Model 1870 carbines. Data not used in totals. See text.
 (5) Green cell possibly reflects increase from return of repaired carbines from Ft. Clark to Company L of the 9th Cavalry. See text.
 (6) Q3/1874: No Sharps trial carbines reported on hand by any Company. Reflects replacement by Model 1873 trapdoor. 45-70 carbines by June 30, 1874.
 (7) Blue cells: Last data considered by ORD before making decision to go forward with the Springfield trapdoor.
 (8) Impossible to specify total after Q2/1873 due to inaccurate counts in those quarters (red cells). See text.

na (June 1872); at Squaw Peak, Arizona (September 1872); at Hell Canyon, Arizona (February 1873) and at the Santa Maria River, Arizona (May 1873). One notable engagement with Company I occurred near Fossil Creek, Arizona.⁹²

1871.⁹³ Data indicate that the other six were held back at either the Arsenal or at regimental headquarters. The fifty carbines issued to the 1st Cavalry were evenly split between Company A and Company I. Both were initially located at Camp McDowell, Arizona Territory in the 3rd quarter of 1871. The numbers on hand reported by Company A after the 2nd quarter of 1873, and by Company I after the 4th quarter of 1872, were likely comingled counts of Sharps carbines and are not factored into estimates of attrition.

Special Order No. 134 is known from the Headquarters, Military Division of the Pacific, dated July 28, 1872 (Figure 14).⁹⁴ It ordered, *inter alia*, transfer of “7 Sharps Carbines” as well as Remington and Springfield trial carbines from Company A and Company I of the 1st Cavalry to Company A of the 5th Cavalry. The carbines never appear in reports from any company in the 5th Cavalry, however, nor do the numbers reported for Companies A and I reflect a transfer of carbines at this time.

1st Cavalry, Company A

Company A relocated from Camp McDowell to Ft. Whipple in Arizona Territory in early 1872. They then relocated to Benicia Barracks in the 2nd quarter of 1873, and remained there until the end of service in the 2nd quarter of 1874. Company A last reliably reported 24 Sharps trial carbines on hand in the 2nd quarter of 1873; it had a net attrition of one gun and an attrition rate of just 4.0% over the first two years of field service (Table 4). *Of special note, ten Sharps trial carbines in unserviceable condition were sold out of Ft. Whipple in May 1877, three years after they were retired from service.*⁹⁵ These guns may have been left behind when Company A transferred from Ft. Whipple to Benicia Barracks, since the transfer occurred at the time the decision was made to adopt the trapdoor and orders were issued to retire the other three trial carbines.

1st Cavalry, Company I

Company I relocated from Camp McDowell to Camp Verde, Arizona Territory in the 4th quarter of 1871. They remained there until the 2nd quarter of 1873 when they were also reassigned to Benicia Barracks. They were then relocated to Camp Halleck, Nevada around the 4th quarter of 1873. Company I last reliably reported twenty Sharps trial carbines on hand in the 4th quarter of 1872; it had a net attrition of five guns and an attrition rate of 20.0% over the first eighteen months of field service (Table 4).

End of the Field Trials

The original field trials were envisioned by General Dyer to last just twelve months,⁹⁶ but they actually lasted almost two years. By the end of 1872, it was clear that the trial company field commanders overwhelmingly supported the Springfield trapdoor.⁹⁷ The trials effectively ended in March 1873 with the last field reports considered by the Terry Board in making their decision.⁹⁸

While the 1873 Ordnance decision established the way forward, it wasn't the end of field service for any of the four Model 1870 trials carbines; all continued to serve for at least another year. The Sharps carbines were retired the earliest, last reported on hand by seven companies of four regiments in the 2nd quarter of 1874 (Table 3). In chronological order, the last quarter that the four models were reported “on-hand” by trials companies were:

- Sharps: 2nd Quarter, 1874 (1st, 7th, 8th, 9th Cavalry)
- Remington: 3rd Quarter, 1875 (9th Cavalry)
- Ward-Burton: 3rd Quarter 1875 (9th Cavalry)
- Springfield: 1st Quarter, 1876 (7th Cavalry)

Headquarters Military Division of the Pacific,

San Francisco, Cal., July 28, 1872.

SPECIAL ORDERS }
No. 134. }

I. Companies “A,” and “I,” 1st Cavalry, and Company “C,” 5th Cavalry, are designated to receive the fifty-six Ward Burton B. L. Carbines, Calibre 50, Experimental, sent to Benicia Arsenal for issue. These Carbines will be issued as follows:

- 18 to Company “A,” 1st Cavalry, Fort Whipple.
- 18 to Company “I,” 1st Cavalry, Camp Verde.
- 20 to Company “A,” 5th Cavalry, Camp Verde.

Company “A,” 1st Cavalry, will turn over from the Experimental Arms heretofore issued to it, to Company “A,” 5th Cavalry,

- 7 Sharps Carbines,
- 11 Remington Carbines,
- 8 Springfield Carbines.

Company “I,” 1st Cavalry, will turn over from the Experimental Arms heretofore issued to it, to Company “A,” 5th Cavalry,

- 7 Sharps Carbines,
- 8 Remington Carbines.
- 11 Springfield Carbines.

The Company Commanders will send to the Chief of Ordnance monthly reports upon the comparative merit &c., of these arms, for which purpose proper blanks will be supplied by the commanding officer at Benicia Arsenal.

II. Companies “C,” “D,” “F,” “G,” “H,” “K,” “L,” and “M,” 1st Cavalry, and Companies “B,” “G,” “I,” “L,” 5th Cavalry, are designated to receive the thousand Remington single barreled pistols, recommended for trial by a Board of officers convened by the War Department, and sent to Benicia Arsenal for issue.

The Company Commanders will send to the Chief of Ordnance monthly reports upon the merits of these pistols, for which purpose proper blanks will be supplied by the commanding officer, Benicia Arsenal.

III. Companies “D,” “L,” and “M,” 1st Cavalry, and Companies “K,” “L,” “M,” 5th Cavalry, are designated to receive the five hundred sets of Cavalry Equipments, and the five hundred sets of Cavalry Accoutrements, modified, recommended for trial by a Board of officers convened by the War Department, and sent to Benicia Arsenal for issue.

The Company Commanders will send to the Chief of Ordnance monthly reports upon the merits of these Equipments and Accoutrements, for which purpose proper blanks will be supplied by the commanding officer, Benicia Arsenal.

BY ORDER OF MAJOR-GENERAL SCHOFIELD:

J. C. KELTON,

Assistant Adjutant General.

OFFICIAL:

William Lewis

Aide-de-Camp.

Figure 14. Benicia Arsenal Special Order No. 134. This Order covers the redistribution of 1870 trial carbines upon arrival of the Ward-Burton carbines in July 1872. It is the only known copy of arsenal orders for the distribution of the 1870 trial carbines in the field. Courtesy of Ken McPheeters.

Fifty of the 56 Model 1870 Sharps trial carbines that were shipped to Benicia Arsenal, along with Remington and Springfield trial carbines, were reported issued to the 1st Cavalry in July

Table 6
Sharps Model 1870 Trial Carbines
Missing in Action--Geographical Details

Regiment/Company	Quarter Lost	No. Missing	Company Transfer From	Company Transfer To
1st Cavalry, Co. A	Q2/1873	1	Ft. Whipple, Arizona Territory	Benicia Barracks, California
1st Cavalry, Co. I	Q4/1871	1	Camp McDowell, Arizona Territory	Camp Verde, Arizona Territory
	Q3/1872	4	Camp Verde, Arizona Territory	
2nd Cavalry, Co. C	Q4/1871	1	Camp "Casserion", Nebraska	Sidney Barracks, Nebraska
	Q1/1872	1	Sidney Barracks, Nebraska	
	Q2/1872	1	Sidney Barracks, Nebraska	Camp on Red Willow Creek, Nebraska
	Q4/1872	2	Camp on Red Willow Creek, Nebraska	Omaha Barracks, Nebraska
2nd Cavalry, Co. E	Q1/1872	1	Ft. McPherson, Nebraska	Ft. Laramie, Wyoming Territory
	Q2/1872	1	Ft. Laramie, Wyoming Territory	Camp near Ft. Laramie, Wyoming Territory
	Q3/1872	2	Camp near Ft. Laramie, Wyoming Territory	
	Q4/1873	3	Ft. Laramie, Wyoming Territory	
3rd Cavalry, Co. D				
3rd Cavalry, Co. F				
4th Cavalry, Co. K	Q1/1872	2	Ft. Richardson, Texas	
	Q3/1872	2	Ft. Richardson, Texas	
	Q4/1872	3	Ft. Richardson, Texas	
	Q1/1873	2	Ft. Richardson, Texas	
	Q2/1873	1	Ft. Richardson, Texas	Camp on Elem (sic) Creek
	Q2/1873-Q1/1874	3	Camp on Elem (sic) Creek	Ft. Clark, Texas
6th Cavalry, Co. D	Q1/1872	1	Ft. Wallace, Kansas	
	Q2/1872	4	Ft. Wallace, Kansas	
6th Cavalry, Co. E	Q2/1872	1	Ft. Scott, Kansas	
	Q3/1872	2	Ft. Scott, Kansas	
	Q4/1872	1	Ft. Scott, Kansas	Limestone, Kansas
	Q1/1873	2	Limestone, Kansas	
7th Cavalry, Co. F	Q1/1873	1	Louisville, Kentucky	
	Q2/1873	5	Louisville, Kentucky	Camp Muddy Creek, Dakota Territory
	Q3/1873	1	Camp Muddy Creek, Dakota Territory	Ft. Lincoln, Dakota Territory
7th Cavalry, Co. K	Q4/1872	3	Yorkville, South Carolina	
7th Cavalry, Co. L	Q2/1873	2	New Orleans, Louisiana	Little Heart River, Dakota Territory
8th Cavalry, Co. H	Q3/1871-Q1/1872	1	Ft. Union, New Mexico	Ft. Craig, New Mexico
	Q1/1872-Q3/1872	1	Tularosa, New Mexico	
	Q4/1872	2	Tularosa, New Mexico	Ft. McRae, New Mexico
	Q2/1873	2	Ft. McRae, New Mexico	
	Q2/1873-Q1/1874	1	Ft. McRae, New Mexico	
9th Cavalry, Co. E		0		
9th Cavalry, Co. L	Q4/1872	1	Ft. McIntosh, Texas	
	Q1/1873	2	Ft. McIntosh, Texas	Ringgold Barracks, Texas
	Q2/1873	4	Ringgold Barracks, Texas	
Total:		68		
Source:	Farrington, Dusan P. <i>Arming & Equipping the U.S. Cavalry 1865-1902</i> . 2004; Table 2.4, pp. 84-88.			
Notes:	26 of 68 (38.2%) of all losses occurred during transfer between posts. 42 (61.8%) of all losses occurred while stationed at post.			

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Once the decision was made, the Springfield Armory immediately started fabricating new Model 1873 trapdoor rifles and carbines and issuing them to troops in the field. The first carbines arrived in late 1873 and early 1874. Over the next twenty years, Springfield would make over 60,000 trapdoor carbines.⁹⁹

PART III - ATTRITION DURING THE FIELD TRIALS

Attrition is defined here as carbines that became “unaccounted for” after issuance to the trial companies. While *every* trial carbine on hand during the month had to be accounted for in *every* monthly report by the trial company commanders – whether still on hand

or not – the terms “unaccounted for” and “attrition” as used here refer to carbines that were lost, stolen, captured or broken during the current reporting month and therefore no longer on hand at the end of that month.

Attrition of the Sharps trial carbines over three years of field service during the height of the Plains Indian wars was significant. Estimated attrition by regiment, company, last reported post, regimental headquarters and arsenal or supply depot are shown in Table 4. Of the 293 Sharps carbines originally assigned to the trials companies in August 1871, only 225 were still accounted for in June 1874. That’s attrition of 68 carbines, a total attrition rate of 23.2% over three years.

Because both the number of Sharps carbines received and the reporting periods of the trial carbines in service varied significantly, percentages are better indicators of differential attrition than the absolute number of guns. The lowest attrition, of 0.0%, occurred with Companies D and F of the 3rd Cavalry and Company E of the 9th Cavalry. The highest attrition, of thirteen carbines out of 28 issued to them (46.4%), occurred with Company K of the 4th Cavalry under Colonel Ranald Mackenzie.

Four Sources of Attrition

There were four sources of attrition for the Sharps carbines during the field trials. They were either lost, captured or stolen, or they were broken and returned for repair. Of the 68 carbines that were unaccounted for at the end of their service, Ordnance trial data¹⁰⁰ indicate that 26 or 38% were lost, stolen or captured during the transit of trial companies from one post to another. The rest, 42 or 62%, fell out of the monthly count while the companies were at their home post. Not coincidentally, this is the same number of carbines that were broken during service. Data on when and where the 68 carbines were dropped from the trial company rolls are shown in Table 6. The four sources of attrition are examined individually below.

Lost Carbines

This source of attrition covers guns that were lost or abandoned while in service. No data is available to quantify the number of Sharps trial carbines that were truly lost; they are grouped together here as part of the attrition of 26 (38%) in the category of lost, sto-

len and captured guns. Of note, however, weapons weren’t only lost by the trials companies during this period. In early 1874, for example, when nine Colt and five Remington revolvers were lost between Ft. Whipple and Benicia Arsenal, the cost of the guns was eventually collected from transporters. And in the 1st quarter of 1874, two Sharps carbines lost during transit from Springfield Armory to Benicia Arsenal were held to be the responsibility of the Chicago, Burlington & Quincy Railroad Co.¹⁰¹

Captured Carbines

This source of attrition covers guns that were captured by hostiles (Figure 15). While it primarily applies to Indian engagements, guns may also have been captured in conflicts with *Comancheros*, southern sympathizers after the Civil War or renegades. No data are available to quantify the number of Sharps trial carbines lost to capture. These losses are also grouped together here as part of the attrition of 26 (38%) carbines in the category of lost, stolen and captured guns.

Stolen Carbines

The biggest source of stolen carbines generally was from desertion. Desertion rates were extremely high during the Indian Wars, and as during the Civil War almost all deserters absconded with their side arms for protection and/or sale.¹⁰² Chun writes that about a third of all enlistments from 1867-1891 ended in desertion – a total of 88,475. The Assistant Adjutant General for the War Department reported that the 2nd, 7th and 8th Cavalry regiments had over 450 deserters *each* in 1868, a rate of over 50%. Rates overall averaged between 25% and 40% per year during the Plains Indian wars, far higher than the average desertion rate of 14.8% during the Civil War.¹⁰³

One chronicler of Col. Ranald Mackenzie and the 4th Cavalry in Texas, including Company K which carried 28 Sharps trial carbines at the time, was Capt. R.G. Carter. In his book *On the Border with Mackenzie*,¹⁰⁴ he devotes an entire chapter to tracking down and capturing ten regimental deserters who absconded with their carbines to sell on the local market. How many of the 26 unaccounted for Sharps trial carbines were stolen by deserters isn’t documented, but it was likely a more significant source of attrition than either capture or loss.

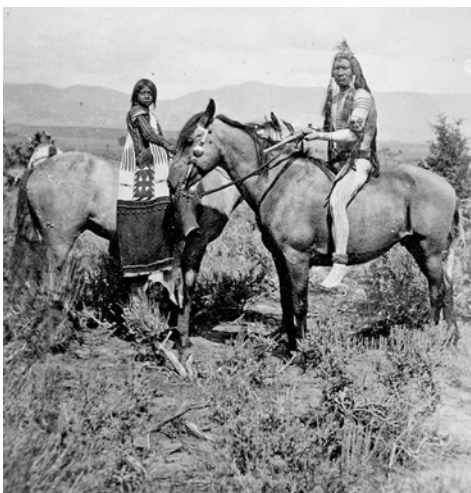


Figure 15. Ute warrior in northwestern Utah in 1874. Note unidentified carbine (left, National Archives). Oglala Sioux at Pine Ridge, South Dakota in 1891 (right). Note Springfield trapdoor carbine in right hand (National Archives).

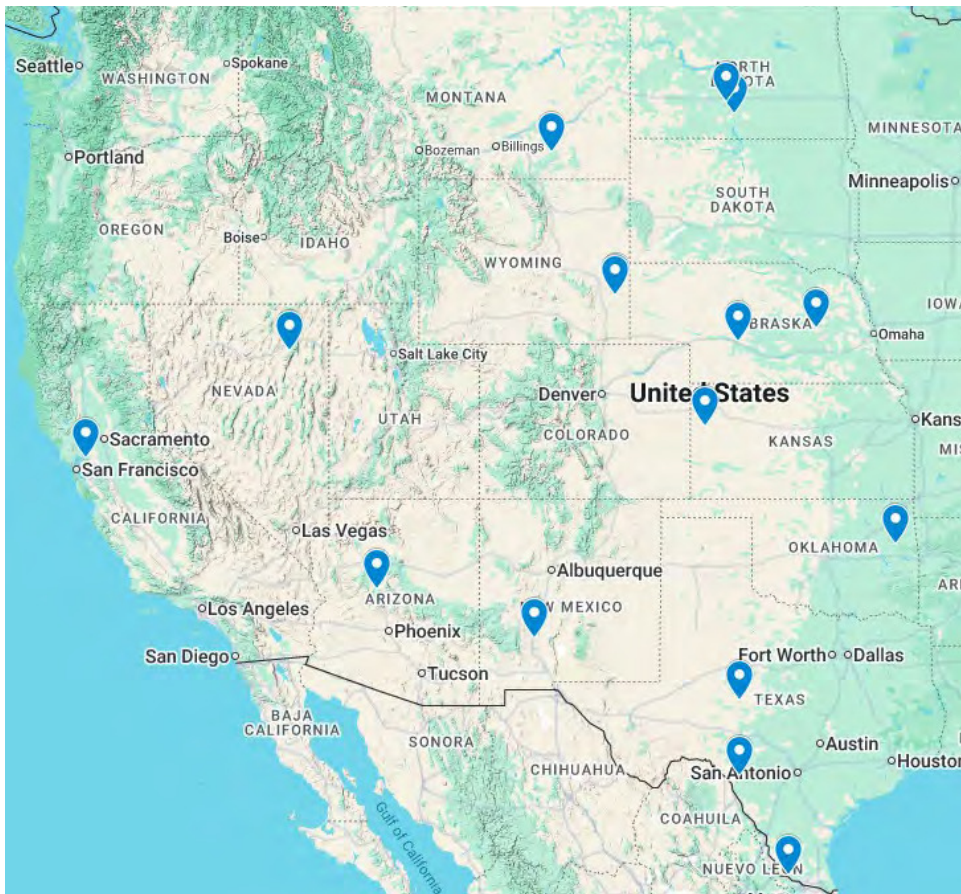


Figure 16. Location of the Sharps trials carbines when they were retired in 1874 and replaced with the new Model 1873 trapdoor carbines. Most – but not all – would then be returned to Regimental Headquarters and from there to the nearest arsenal or Ordnance Depot.

Broken Carbines

This source of attrition accounts for 42 Sharps trial carbines.¹⁰⁵ Field complaints about the carbine were harsh. They included complaints about recoil, the failure of the extractor to adequately eject the shells,¹⁰⁶ fouling of the breech, problems with the lever bar after extended use, inaccurate sighting, a soft front sight and difficulty in loading while mounted.¹⁰⁷ Broken Sharps trial carbines that couldn't be fixed in the field were returned to the Regimental Armorer for repair, and then on to the nearest arsenal if the repairs couldn't be done there. Broken carbines were no longer "on hand" at the next reporting date, although some repaired guns may have been reissued back to trial companies. No record has been located that this actually occurred, but the data suggest that a few may have been returned to Co. K of the 7th Cavalry and Company H of the 8th Cavalry in 1873 (Table 3).

Forty-two Model 1870 Sharps carbines were reported broken through March 1873,¹⁰⁸ which is 14.3% of the 293 carbines issued to the trials companies and 68.9% of the 61 carbines that were unaccounted for *at that point in the trials*. This is significantly lower than the 24.8% of Model 1868 Sharps carbines that required repair as reported by the Commander of the St. Louis Arsenal in 1872,¹⁰⁹ suggesting that the Model 1870 was a more durable weapon than the Model 1868 conversion. The breakages reported for these 42 trial Sharps were:

Stocks:	10
Tumbler Screws:	8
Mainsprings:	5
Lever Spring:	5

Sear Springs:	4
Breech Straps:	3
Firing Pin:	2
Ejector Spring:	1
Lock Plate:	1
Lock:	1
Tumbler:	1
Rear Sights:	1
Total Reported:	42

Stocks, if they were musket stocks like all of the other trial carbines and rifles (see Section V), would have required replacement by Springfield Armory unless replacement stocks had been supplied to the arsenals. Since sales data suggest that no trial carbines of any model were returned to Springfield for repair (see Section IV), these may have remained in unserviceable condition in regional arsenals or regional headquarters until disposed of.

Unaccounted for vs. Permanently Lost Carbines

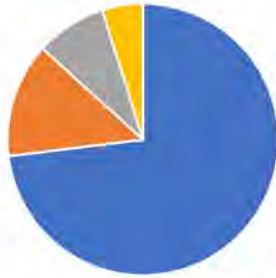
Not all of the 68 "unaccounted for" Sharps trial carbines were permanently lost. Only those that were buried in a riverbed, for example, or were broken down for parts, or were sold for scrap, or were buried or disposed of offshore as unsellable surplus at the forts and arsenals, were permanently lost and forever unavailable to arms historians. The rest are survivors that have simply been relocated – to an Indian reservation, perhaps, or to south of the border by *Comancheros*, or into the hands of the ranchers, hunters, miners, emigrants and others who bought and used them after the end of the trials.

Locations of Sharps Carbines at the End of the Trials

At the end of the trials, the actual locations of the companies that reported them were scattered throughout the trans-Mississippi west. These last reported locations, plus Ft. Whipple in Arizona Territory where ten were apparently stored until sold in 1877, are shown in Figure 16.

PART IV - FATE OF THE CARBINES AFTER THE TRIALS

Fate of the 308 Sharps Trial Carbines as of June 30, 1874



■ Accounted For ■ Broken ■ Lost, Captured & Stolen ■ Held Back

At the time of the last reports in June 1874, there were 225 Sharps trial carbines in the hands of the trials companies at fifteen known locations in California, Nevada, Nebraska, Texas, New Mexico, Kansas, Wyoming Territory, Indian Territory and Dakota Territory (Table 4). In addition, there were fifteen that are not known to have ever been issued, and 42 that were broken and/or repaired. This makes 282 known survivors of the trials – not including the 26 that were lost, stolen or captured.

Instructions to the Field

So what happened to these carbines after the trials were over? On May 24, 1873, Chief of Ordnance Dyer was told that ‘*The Secretary of War had directed that all units armed with the experimental rifles and carbines were to requisition the new Springfield arms and turn in the experimental weapons (Remington, Sharps and Ward-Burton only) to their nearest arsenal;*’ they were to keep their Springfield trial carbines.¹¹⁰ On May 28th, Dyer wrote the Commanding Officer at Springfield that ‘*the Secretary of War had approved the Terry Board’s recommendation to adopt the .45 caliber Springfield breech-loading gun, and that Springfield was to begin manufacturing rifles and carbines to the extent of the appropriation*’.¹¹¹ The new trapdoor carbines started arriving in the field in late 1873 and early 1874; the Sharps trial carbines continued to be reported on through June 1874 when their replacement would have been complete.

Location of the Sharps Trial Carbines in June 1874

While Ordnance policy was to turn in their trial carbines to the nearest arsenal, the trial companies would have actually turned them in to their respective regimental headquarters. The regimental headquarters of the eight companies that were still in possession of the 225 Sharps trial carbines in June 1874 were the Benicia Barracks (44 carbines; Figure 13 above); Ft. Laramie, Wyoming (29 carbines; Figure 18); Ft. D.A. Russell, Wyoming (14 carbines; Figure 17); Ft. Richardson, Texas (15 carbines; Figure 19); Ft. Sill, Indian Territory (38 carbines; Figure 20); Ft. Lincoln, Dakota

Territory (44 carbines; Figure 21); Ft. Union, New Mexico (21 carbines; Figure 9); and Ft. Davis, Texas (20 carbines; Figure 22). These and the nearest arsenals or Ordnance depots in 1874 and 1901 are shown in Table 4.

These numbers may be slightly high, because they don’t account for any attrition at the companies that stopped reporting before June 1874 but may have continued using the carbines in the field. There were, in addition, the fifteen Sharps carbines that were held back at the arsenals or regimental headquarters at first issuance, assuming those were not later issued to the troops, for a total of 240 carbines on hand, plus 42 that were broken and/or repaired during service. *All* of these 282 were located in the trans-Mississippi west, and they all passed out of U.S. Army hands between 1874 and 1901 (see below).

Ordnance Disposal Procedures

As the property of the Ordnance Department, obsolete guns were disposed of through destruction, transfers and sales. Disposal of arms, serviceable and unserviceable, only occurred pursuant to Ordnance Department policy. Ordnance policies governing their disposition were amended from time to time pursuant to Congressional legislation and through Ordnance memoranda, circulars and orders.

Army Policy: Repair, Break Down or Destroy

An early Army policy, Ordnance Circular No. 52, was issued at the height of the Civil War (November 12, 1863) and included instructions on managing and disposing of unserviceable arms.¹¹² This was later amended, but three basic precepts appear to have remained as part of Army policy:

- Guns that are “entirely worn out” are to be *dropped* (i.e., removed from the unit’s property accounts);
- If guns are repairable, but not by the Regimental Armorer, they are to be sent to the nearest Ordnance Depot for repair; and
- Worn out guns with some serviceable parts are to be broken up at the nearest Depot.

Circular No. 52 was amended in 1864 to include all surplus stores, whether serviceable or not,¹¹³ and Congressional legislation in June 1874 and March 1875 amended the procedures for unserviceable stores. Implementing instructions in 1877 recognized the time required for advertising disposal of guns in auction sales, and that serviceable guns could be sold to officers and authorized exploration or surveying expeditions.

Repairs

The location of repairs is important to tracking what happened to the 42 Sharps trial carbines that were broken during service. Springfield was constantly repairing firearms, and reporting on that work in the Chief of Ordnance annual reports to the Secretary of War. The Springfield reports, however, were very general on this point.¹¹⁴ Since no record has turned up of any 1870 trial carbines ever being returned to Springfield for repair, and since the only known sales of trial carbines from Springfield Armory were three single new or serviceable trapdoors to officers (see below), all repairs of Sharps trial carbines are believed to have taken place either at regimental headquarters or at the nearest arsenal or depot.



Figure 17. Fort D.A. Russell, Wyoming, in the late 1800s. In June 1874, as Regimental Headquarters it would have received 14 Sharps trial carbines that were retired from Companies D and F of the 3rd Cavalry.



Figure 18. Fort Laramie, Wyoming, as it looks today. In June 1874, as Regimental Headquarters it would have received 29 Sharps trial carbines that were retired from Companies C and E of the 2nd Cavalry.



Figure 19. Fort Richardson, Texas. In June 1874, as Regimental Headquarters it would have received 15 Sharps trial carbines that were retired from Company K of the 4th Cavalry.



Figure 20. Historic ruins at Fort Sill, Oklahoma. In June 1874, as Regimental Headquarters it would have received 38 Sharps trial carbines that were retired from Companies D and E of the 6th Cavalry.



Figure 21. Fort Abraham Lincoln, Dakota Territory, in the 1870s. In June 1874, as Regimental Headquarters it would have received 20 Sharps trial carbines that were retired from Companies F, K and L of the 7th Cavalry.



Figure 22. Fort Davis, in far west Texas, where 20 Sharps trial carbines retired from Companies E and I of the 9th Cavalry were on hand in June 1874.

Regimental Retention After the Trials

Once the Sharps trial carbines were replaced with Model 1873 Springfield carbines, they were sent to the company's regimental headquarters. Some obsolete arms were retained by regiments after their service was over. These were sold to officers and exploration and surveying expeditions, issued to soldiers for hunting, issued to scouts (Figure 23) or donated or sold to the many teamsters, packers and other auxiliary personnel who supported Army operations in the field.¹¹⁵ Ordnance sales records show that for at least fifteen years after the end of the trials, many arsenals and forts also sold obsolete arms directly to settlers, miners, commercial arms dealers, other commercial establishments and individual civilians. The authority for each sale was recorded individually at the time.¹¹⁶



Figure 23. Apache scouts drilling with trapdoor carbines and rifles at Ft. Wingate, New Mexico, circa late 1870s (left, National Archives). Warm Springs Indian Scouts in California during the 1872-1873 Modoc War (right). Note that those kneeling, and the standing scout on the right, are carrying Spencer carbines; the standing scout at left is carrying a Sharps carbine. All would have been issued by the 1st Cavalry Regiment that they served under out of Benicia Barracks, California.

Return of Carbines to the Arsenals and Ordnance Depots

At some point after June 1874, and pursuant to instructions from Ordnance, most regimental headquarters forwarded their Sharps trial carbines to the nearest arsenal or depot where they were ultimately sold. We know this because most (59%) of the known sales of the four trial carbines – involving 47% of the number of guns sold – later took place at local arsenals or forts in the trans-Mississippi west (Table 7). In one known case, however, in apparent violation of instructions, ten Sharps trial carbines were retained at Ft. Whipple in Arizona Territory until they were sold in 1877 to a civilian.

Ordnance Department Transfers

The Ordnance Department transferred surplus and obsolete weapons to a broad array of organizations during and after the 1870s. The scope of these transfers was captured in the War and National Defense Act of 1874.¹¹⁷ They included transfers to protect public property, to organizations of honorably discharged soldiers, to schools and State homes for veterans' orphans, to American Legion posts, to State homes for soldiers and sailors, and loans or gifts of condemned or obsolete equipment generally. Transfers reported on annually during the later 1800s went to the militias, the territories and states, American colleges and universities, and federal executive departments. These annually reported transfers are those most likely to have included Sharps Model 1870 trial carbines. The following discussion of each is based on data reported in the Ordnance Annual Reports for 1873-1902.¹¹⁸

Transfers to Executive Departments

A limited number of arms were “issued” annually from 1879 to 1893 to a few federal executive departments – Treasury, State and the Post Office. These were identified in Ordnance Department annual reports from 1879 to 1893. Only Springfield carbines were transferred, however, and in volumes of twenty or less. No Sharps of any model were identified in any of these transfers.

Transfers to colleges and universities

Ordnance Department arms “distributed” to American colleges and universities were reported annually from 1874 until reporting ceased in 1892. The only carbines transferred, however, were 25 Springfield trapdoors in 1891 and 40 in 1892.

Transfers to the Territories and States Bordering Thereon

Issuance of arms to “the territories and states bordering thereon” – different from distributions to the state and territorial militias – was authorized in joint resolutions of Congress starting in 1876. These were reported annually by the Ordnance Department from 1877 to 1886. Carbines were only issued four times: 1,060 Sharps carbines in 1877 (500 to Kansas, 500 to Texas and 60 to Arizona); 200 Spencer carbines in 1877; one thousand Sharps in 1882 (distribution unknown); and 293 Sharps in 1886 (distribution unknown). These Sharps were identified as simply “caliber .50,” which applies to both the Model 1868 and Model 1870 Sharps carbines. They are assumed to have all been Model 1868 conversions since none were marked as either Model 1870, experimental, trial or pattern 1870 carbines.

Transfers to Militias

Of greatest interest with respect to the fate of the 1870 Sharps trial carbines is the annual “distribution” of arms to state and territorial militias. These were partially equipped by Ordnance pursuant to the provisions of the 1808 Militias Act. These are important because any carbines issued to the militias could have been widely scattered geographically. Marcot discusses this with respect to Spencer carbines, noting that:

“These firearms were utilized in a number of ways, varying in use from state to state. Territories such as Colorado and Arizona are known to have sold hundreds of them to settlers on the Western Frontier for self-protection, a necessity, since U.S. Cavalry troopers were few, and outposts far removed from one another. The 1870s, one should remember, were years of hostile Indian raids and frequent attacks from bandits along the Mexican border.”¹¹⁹

Ordnance Department annual reports show that no Sharps trial carbines were ever distributed to either state or territorial militias. A total of 2,044 Sharps carbines were issued to the militias from Fiscal Year (FY) 1871 to FY 1883, including 244 in FY 1873, 1,500 in FY 1874, and 300 in FY 1882. All were marked as “caliber .50,” however; none were marked as Model 1870, experimental, trial or pattern 1870 carbines, and no Sharps carbines at all were issued after FY 1883.

Table 7
Confirmed 1870 Trial Carbine Sales
1873-1900

Model	No. Sold	Sale Date	Location	Condition	Source	Authority	Buyer
Sharps	10	May 26, 1877	Ft. Whipple, A.T.	Unserviceable	ORD Sales Ledger	Approved I&I Report	Mr. Roberts
	3	February 1880	New York Agency	Unserviceable; Broken	1880 Catalogue		
	1	Unknown	Unknown	Unknown	Isolated sales page		
Springfield	4	1873	Benicia Arsenal		1873 Catalogue, Wash., D.C.		
	1	June 9, 1873	Leavenworth Arsenal	Serviceable	ORD Sales Ledger	Para 1416	Officer
	1	January 31, 1873	Springfield Armory	Serviceable	ORD Sales Ledger	Para 1416	Officer
	1	January 31, 1873	Springfield Armory	Serviceable	ORD Sales Ledger	Para 1416	Officer
	1	January 31, 1875	Springfield Armory	New	ORD Sales Ledger	Para 1416	Officer
	1	February 23, 1875	Rock Island Arsenal	Serviceable	ORD Sales Ledger	Para 1416	Officer
	128 Barrels	June 27, 1881	National (Springfield) Armory	Unserviceable	ORD Sales Ledger	June 8, 1881	E. Remington & Sons
	2	February 13, 1883	Benicia Arsenal	Unserviceable	ORD Sales Ledger	February 9, 1883	F. Bannerman
Remington	1	Unknown	Unknown	Unknown	Isolated sales page		
	2	1873	Leavenworth Arsenal		1873 Catalogue, Wash., D.C.		
	10	1873	Omaha Depot		1873 Catalogue, Wash., D.C.		
	2	1873	San Antonio Arsenal		1873 Catalogue, Wash., D.C.		
Ward-Burton	2	February 1880	New York Agency	Unserviceable; Rusty and Worn	1880 Catalogue		
	50 Barrels	June 27, 1881	National (Springfield) Armory	Unserviceable	ORD Sales Ledger	June 8, 1881	E. Remington & Sons
	19	July 7, 1882	New York Arsenal	Unserviceable	ORD Sales Ledger	July 7, 1882	Francis Bannerman
	1	November 17, 1886	Indianapolis Arsenal	Unserviceable	ORD Sales Ledger	Sec'ty of War 10/16/1885	Francis Bannerman
	2	November 4, 1889	Benicia Arsenal	Unserviceable	ORD Sales Ledger	COO 10/16 & 23/1889	Francis Bannerman
	12	October 12, 1900	New York Arsenal		Hull email Dec. 3, 2025		Hartley & Graham
Sources:	(1) RG 156, Entry 124, Vols. 4-7. (2) US Ordnance Office. Catalogue of Ordnance and Ordnance Stores...Washington. (1880). End Note 123. (3) 1873 Catalogue of Ordnance Stores for which Sealed Proposals will be Received. Washington. (1873). Hull email to author of December 3, 2025. (4) Isolated sales page, source unknown. Jack Lewis collection. (undated). (5) Hartley & Graham purchases at New York Arsenal sales of October 12, 1900. Hull email to author of December 3, 2025.						
Notes:	Issued trial carbines only. Does not include 20 Springfield carbines sold to officers in San Antonio in 1872, newly manufactured for them by Springfield. "Unknown": Two sales from isolated sales page out of Jack Lewis collection, original source unknown. Ten Remington carbines sold at Omaha Depot in 1873 are assumed to be trial carbines due to location of sale (Hull email to author of December 3, 2025). Para 1416: Paragraph 1416 in U.S. Army Regulations authorizing the sale of arms to officers.						

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Ordnance Department Sales

Most obsolete guns in the late 19th century were disposed of by sale, either directly or through auction. These include “new,” “serviceable,” “cleaned and repaired” and “unserviceable” carbines, as well as guns and gun parts that were sold in bulk or as scrap. The War and National Defense Act of 1874 also authorized the sale of obsolete small arms to patriotic organizations; sale of useless ordnance material; sale to “designers” (term in original); sale of obsolete ordnance for public parks; sale of individual pieces of armament; sale of ordnance property to Navy and Marine Corps officers, and sale of ordnance stores to Red Cross and civilian employees of the Army. In examining the evidence for sales of the Sharps trial carbines, it’s instructive to look more broadly at the sale of all four of the trial carbines (Table 7).

The Liquidation Period: 1873-1901

Springfield sent around 1,232 Springfield, Sharps, Remington and Ward-Burton trial carbines to the field in 1871 and 1872. All four of the 1870 trial carbines would have been sold between 1873, when they started being replaced by the new Model 1873 trapdoor, and 1901 when most Ordnance inventory of obsolete carbines was cleared through sale at auction.¹²⁰

At the turn of the century, nearly half of all the carbines in storage as of 1866 were still in storage. In 1901, the government made a (concerted) effort to clear their inventory of these obsolete arms. By years end, over 90,000 carbines had been disposed of. Two thirds of the entire year’s sales occurred in June when over 62,000 carbines were sold from the New York Agency...By the end of 1901, the arsenals had nearly sold out of their inventory of carbines. The next few years would see continued sales of a few small quantities of arms...”

The 1901 sales occurred from five Ordnance stations and 28 sea-coast and gulf fortifications.¹²¹ The FY 1902 sales were reported from “various Ordnance establishments and other military posts,” which would have been among the 25 arsenals and 48 Ordnance Depots that were operating in 1901.¹²² McAulay shows sales of Sharps carbines from two of those, the New York Agency in June 1901 and the Benicia Arsenal in December 1901, none of which were identified as Model 1870 carbines:

New York Agency: 3,127 Sharps .52 cal. to Marcus Hartley Co.
745 Sharps .50 cal. to Marcus Hartley Co.
109 Sharps .50 cal. to Francis Bannerman

Benicia Arsenal: 972 Sharps carbines .50/70 to Sears Roebuck Co.
547 Sharps carbines .50/70 to Francis Bannerman
2,489 Sharps Carbines .52 cal. to Francis Bannerman

Further support for bookending the sales period at 1873 and 1901 lies with Ordnance Department price lists of ordnance stores, which started at the end of the Civil War. The lists for 1873, 1877 and 1891 include the prices of parts for all of the 1870 trial carbines *except* the Sharps, as well as for the entire guns. By the 1904 price list, the only carbine listed was the Model 1899 Krag. That continued through subsequent price lists in 1908, 1910, 1913, 1916 and 1917.¹²³ *This confirms that the trial carbines were still available for sale in 1891, but had been disposed of by 1904, either by local sale or in the Ordnance sell-off of 1901.*

Trial Carbine Sales Records

The records of trial carbine sales are extremely fragmentary. They’re found for the 1873 to 1890 period in Ordnance sales ledgers,¹²⁴ in two catalogues of Ordnance sales, one in 1873 and one in 1880, that are not reflected in those ledgers, and in a single isolated and unidentified sales sheet listing a sale of one Sharps and

one Springfield trial carbine. Of the circa 1,232 trial carbines sent to the field, sales of just 76 (6.2%) can be documented as of this writing (Table 7). That leaves the fate of about 94% of the four trial carbines unknown. Documented sales include 14 Sharps, 12 Springfield, 16 Remington and 34 Ward-Burton trial carbines. Six important upshots are revealed by these data, all of them related to the fate of the Sharps and other trial carbines after the trials were over.

- Ten of the seventeen known sales locations (59%) occurred out of Ordnance stations in the trans-Mississippi west. Benicia, Leavenworth, Rock Island and San Antonio arsenals, as well as the Omaha Ordnance Depot and Ft. Whipple, all sold surplus trial carbines directly to the public rather than shipping them to New York (36 carbines) or Indianapolis (1 carbine) for sale. *This confirms that most of the trial carbines were sold after service out of local or regional arsenals, depots or forts.*
- While just 25% of the lots were sold out of either the New York Arsenal (31) or the New York Agency (5) – which served as a clearinghouse for sales of ordnance stores located in smaller Ordnance stations around the United States – these included almost half of all of the carbines sold. These 36 carbines were sold in four different lots, in 1880, 1882 and 1900. Thirty-one were Ward-Burton carbines sold by two lots at the New York Arsenal (Figure 24). One other carbine, also a Ward-Burton, was sold out of Indianapolis Arsenal in 1886. *This confirms that some trial carbines were shipped east for sale by at least one arsenal that received them after the end of the trials.*
- One sale – of ten Sharps trial carbines – took place at Ft. Whipple in Arizona Territory in 1877. This was three years after the guns were last accounted for in the 2nd quarter of 1874. *This confirms that not all carbines were returned to the nearest arsenal after retirement as instructed; some were retained for years at smaller military posts, and sold directly to the public from there.*
- Springfield Armory sold three trapdoor carbines, one new and two in serviceable condition, to officers in 1873 and 1875. The only other confirmed sales from Springfield were 128 trapdoor barrels and 50 Ward-Burton barrels in June 1881. *This suggests that broken trial carbines, including the Sharps, were retained by the Regimental Armorers or arsenals, not returned to Springfield for repair.*
- Five carbines in total were sold to officers. These were all in new or serviceable condition, and sold from Leavenworth Arsenal (1), Rock Island Arsenal (1) and Springfield Armory (3). Twenty officers in San Antonio were also individually sold Model 1870 trapdoor carbines in 1872, but these weren't trial guns; they were separately manufactured by Springfield specifically for those officers. *This, along with the fact that all of the other known sales were of unserviceable carbines, suggests that some or all of the 15 new carbines originally held back may have been sold to officers.*
- All sales except the five carbines sold to officers were of carbines in broken, rusty and/or unserviceable condition that were sold to civilians. *This confirms that some trial carbines were either shipped east for sale by at least one arsenal that received them after the end of the trials, or they were sold for the western arsenal by the New York Agency or New York Arsenal on an "as is, where is" basis.*

Sharps Trial Carbine Sales

Of the circa 240 Sharps trial carbines that were accounted for in 1874, plus the 42 that had been returned by the trial companies for repair, there are just three known documented sales (Table 7). The first was sale of ten from Ft. Whipple in Arizona Territory on May 26, 1877 (Figure 25). These guns were listed as “unserviceable,” and sold to a Mr. Roberts:¹²⁵

10 Carbines, Sharps, pat (pattern) 1870

The second sale was via sealed bid at the New York Arsenal on February 11, 1880.¹²⁶ This lot of three carbines was listed as “broken and unserviceable” and described as:

3 Sharps, experimental, model 1870, caliber .50

The third sale is from an unknown source, but is consistent in format with other sales records from the period:¹²⁷

1 Small Arm, Sharps, B.L. carbine, 1870

These thirteen carbines constitute just 4.2% of the 308 that were fabricated by Springfield and sent to the field in 1871.



Figure 24. The New York Arsenal, where three Sharps trial carbines sold at auction in 1880 in broken and unserviceable condition.



Figure 25. Fort Whipple, Arizona, where ten Sharps trial carbines sold to a civilian in May 1877 in unserviceable condition. This is the only documented case so far where the Sharps trial carbines were held at the fort after retirement and sold from there, instead of being sent to the Regimental Headquarters and on to the nearest arsenal. It's possible that some of the Sharps trial carbines sold here may have found their way south of the Rio Grande.

Condition

Of the 282 Sharps carbines known in the hands of the arsenals, no more than fifteen were in new, unissued condition. Forty-two were broken and/or repaired, and 225 were in heavily used or unserviceable condition after three years of fighting the Indian wars.



Figure 26. Model 1868 Sharps carbine converted to a hunting rifle in the 1870s. Many Civil War Sharps carbines were converted by removing the saddle bar and ring, and replacing the carbine barrel with a heavy octagon barrel and a new rear sight. No such Model 1870 conversions have – so far – been identified. Rock Island Auctions.

The Foreign Market

Marcot and Paxton write¹²⁸ that except for the three broken and unserviceable Sharps trial carbines sold at the New York Agency in 1880 – the only sales they were aware of at the time they were writing, “Speculation has it that the bulk of the remaining Springfield-Sharps Model 1870 Trials Carbines were eventually sold at other government surplus auctions in the months and years that followed, and these may have been shipped to another country in the 1880s.”

A number of foreign wars took place between 1874 and 1901 in which one or both sides may have received surplus U.S. carbines, especially south of the Rio Grande. So it’s possible that some Sharps trial carbines may have gotten swept up at auction by buyers and packaged with other carbines for overseas sale. It seems unlikely, however, that many were. These were .50-70 caliber guns, dribbling out of arsenals in some of the most remote parts of the American west over a period of years in lots of very low numbers. They were in poor condition after three years in service; all thirteen of those known sold were in broken and/or unserviceable condition. It’s unlikely these would have been high priority acquisition targets for wholesale suppliers of arms to military forces overseas. What’s much more likely, and what the data in Table 7 suggest, is that the Sharps trial carbines were sold out of the local Ordnance stations, mostly in broken or unserviceable condition, in small numbers, into local or regional markets. It’s possible that some of these, however, especially those sold in Arizona, New Mexico and Texas, may have found their way into Mexico.

The Domestic Market for Cheap Guns

Military arms found a large market in rural America as the country opened up to settlement after the Civil War. Carbines were used by emigrants, settlers, trackers, scouts, packers, farmers, ranchers, miners, merchants, hunters, explorers, engineers, law enforcement and security officers and many others. The enormous demand for cheap guns in rural America at this time may be underappreciated by arms historians. Between 1870 and 1900, the American population doubled from about 38 million to 76 million people. Over the same period, even as the rural population dropped from about 74% to 60% of the total, the actual number of rural inhabitants rose from about 29 million to 46 million.¹²⁹ Among the rural population, cheap guns were in very high demand—especially given the economic depression of the 1870s (1873 to about 1879). In addition to civilians who bought surplus guns for themselves, commercial gun dealers were buying them up to repair and modify for resale to the local market. This market was easily large enough

to have absorbed the surplus trial carbines, including the Sharps carbines that survived the field trials.

Specific to the .50-70, Dickson¹³⁰ writes that:

“One thing the adoption of the .45-70 did was to make the .50-70 rifles readily available as surplus to civilians, resulting in the Springfield and the Sharps becoming a common sight among the buffalo hunters and other frontiersmen. Sears Roebuck was still cataloging them at the turn of the century...On the frontier the ease of repairing the single shot .50-70s compared to the much more complicated new lever-action repeating rifles was a major selling point...More buffalo were killed with .50-70 Trapdoor Springfields than any other rifle, followed by the .50-70 Sharps Carbine.”

Houze documents shipments by Schuyler, Hartley & Graham of .50-70 Sharps carbines to the west as late as April 1883.¹³¹ McPheeters notes that .50-70 ammunition was widely available through the 1880s, and that Watervliet Arsenal made a small number of “Prairie belts” in .50 caliber from about 1876-1879 which would have been used for contract ammunition in either .50-70 or .50-55.¹³²

“These belts would have been issued to civilian employees – trackers, packers, freighters, teamsters – employed by the army who were being issued .50 caliber firearms, presumably including .50 caliber Sharps carbines and/or rifles”.

A niche market for surplus carbines was for used .50 caliber Sharps carbines that were altered for buffalo, big game and market hunters. The slaughter of the buffalo was at its height in the early 1870s and lasted until about 1883. During this period a substantial number of Civil War-era Sharps and Spencer carbines were converted to big game hunting rifles by removing the saddle ring and replacing the barrel with a heavy octagon barrel (Figure 26). Some surplus Model 1870 Sharps carbines may have been converted to either sporters or heavy barreled rifles after 1874, with clear implications for locating them today. No such rifles have so far been identified, but with over 31,000 Model 1868 carbines vs. 308 Model 1870 Sharps carbines, the odds of finding a converted rifle that was fabricated from a Sharps trial carbine are roughly one in a hundred.

PART V - WHAT DOES THE SHARPS TRIAL CARBINE LOOK LIKE?

The decades-long search for the Model 1870 Sharps trial carbine has culminated in four major hypotheses about the actual configuration of the phantom gun. This section discusses fabrication of

the carbine, key communications during its manufacture and issuance to the field, two possible sightings of a Sharps trial carbine in the 1970s, and the pros and cons of each of the four hypotheses regarding what the carbine looks like.

Background



Figure 27. The Springfield Armory in 1905. Springfield fabricated all four models of the trial carbines and rifles.

Fabrication of the Trial Carbines

All four trial carbines were fabricated by Springfield Armory (Figure 27). The Springfield and Ward-Burton carbines were made from scratch. The Remington carbines were also made from scratch, under rights bought from Remington.¹³³ Springfield also fabricated the Model 1870 Sharps carbines, but in the absence of a confirmed photograph or specimen the details of that fabrication and the nature and extent of the differences between the Model 1870 and the Model 1868 Sharps conversion carbines remain unsettled.

Fabrication of the Springfield, Remington and Sharps carbines started after July 1, 1870¹³⁴ and they were completed from April to May of 1871. The Model 1871 Ward-Burton carbines were completed later. The final numbers produced were 341 Springfield trapdoors, 313 Remington rolling blocks, 308 Sharps drop blocks and 317 Ward-Burton bolt action carbines.¹³⁵ Springfield sold excess trial barrels in June 1881, including 128 trapdoor and 50 Ward-Burton carbine barrels.¹³⁶ No record has been located of any sale of surplus Model 1870 Sharps or Remington carbine barrels.

Key Communications

Hull notes that the first half of 1871 “*was a very busy time at the Armory, with fabrication of 10,000 Remington Navy Model 1870 rifles underway. Also, thousands of muskets were being made and refurbished for sale during the rush to dispose of obsolete arms during the Franco-Prussian War. Yet by March 4, 1871, the Remington, Sharps and Springfield Model 1870 experimental rifles were completed.*”¹³⁷ Key communication benchmarks related to fabrication of the Sharps carbine and its issuance to the field in 1870 and 1871 include:

June 18, 1870. ‘*Lt. Col. Callender sent the sample arms that the St. Louis Trial Board had selected to the Ordnance Office, including the Springfield, Sharps and Remington carbines.*’¹³⁸

August 16, 1870. Springfield Commander Benton writes Chief of Ordnance (COO) Dyer regarding the rifles that “*The only alteration made in the Sharps arm is to put an anti-friction roller in the point of the lever spring. This change I understand received the approval of the Superintendent of the (Sharps) Company—Mr. Lawrence and I think will be found to be a great improvement.*”¹³⁹

August 19, 1870. Dyer sends a letter to Benton stating, “*I have received the samples of Springfield, Remington and Sharps muskets recently sent me for examination, and they appear to be satisfactory. You will please make for issue one thousand of each as muskets and three hundred of each as carbines.*” The carbines were to be packed in boxes containing nine carbines, three of each type.¹⁴⁰

September 2, 1870. After Sharps requested information from Springfield about the fabrication, Dyer writes Benton to close off any notion that any future purchases would be forthcoming (Hull 2026 telcom). “*(T)he government will not put new Sharps muskets or carbines in the hands of troops...250 muskets and 250 carbines are presently being prepared at Springfield Armory.*”¹⁴¹

September 12, 1870. Dyer writes Benton that “*You will, therefore, prepare the Sharps Carbines and Muskets as previously instructed...*”¹⁴²

January 19, 1871. While Springfield “*decided to use about a thousand unaltered Civil War era Sharps receivers to modify into 1870 Trials rifles,*” Benton writes Dyer on January 19th that he “*could alter as many as 3,800 Sharps Model 1868 cartridge conversion carbines to rifles at a cost of \$7.00 each.*”¹⁴³

May 2, 1871. Dyer orders Springfield Armory to issue the experimental M1870 Springfield, Remington and Sharps carbines to Benicia Arsenal, San Antonio Arsenal and the Omaha Depot (56 of each type), and to Leavenworth Arsenal (84 of each type). The ordnance officers were also notified.¹⁴⁴

May 6, 1871. Dyer writes Benton, “*Please report when the experimental carbines (Remington, Sharps and Springfield) will be ready for issue. They should be issued as soon as possible.*”¹⁴⁵

May 8, 1871. Benton responds that “*In response to your letter of 6th inst., I have to report that the experimental carbines were issued today.*”¹⁴⁶

May 22, 1871. Benton reports that the last of the experimental carbines were issued to distribution points in the field.¹⁴⁷

May 27, 1871. Ordnance issues instructions to the field on the distribution of experimental arms.¹⁴⁸

Distinguishing Between the Model 1870 and Model 1868 Sharps

A critical point, as discussed earlier, is that the Model 1870 had to be readily distinguishable from the Sharps Model 1868 conversion in the field. Fifteen companies from eight regiments tested it for three years, and twelve of those (80%) companies were simultaneously issued Model 1868 carbines. Since they had to report on the number of Model 1870 carbines on hand each month, and also on issues such as performance and breakage, they must have been able to *readily distinguish* between them. Moreover, from the time that the guns were manufactured, and through all three known sales (1873, 1877 and 1880), Ordnance consistently referred to them as either the “Model 1870,” “experimental,” “trial,” or “pattern 1870” carbine. So, Ordnance clearly and consistently distinguished it as a separate and identifiable model throughout its period of service and beyond.

Two Sightings in California

A controversial sighting of a Sharps trial carbine is reported to have occurred in California in the 1970s. Marcot and Paxton wrote that “a knowledgeable Springfield collector vividly recalled seeing one in a private collection in San Diego,” and described it as:¹⁴⁹

“...having a Springfield-type heavier wood stock and a longer forearm than that of a factory-made Sharps carbine. He stated that the receiver did not have any governmental marking (such as the Model 1870 markings on Springfield-Remington M1870 Trials Carbines), and the carbine barrel had a single barrel band held by a spring-loaded retainer on the right side (not on the bottom, as is typical on Sharps factory carbines)...He said that it had a vivid ESA inspector’s cartouche (Springfield Armory Master Armorer Erskine S. Allin) on the side of the stock”.

Some arms historians have questioned the credibility of this description of the gun. Of note, however, is the report of a second sighting – also in California and also in the 1970s – that is considered to likely be the same gun.¹⁵⁰

Four Hypotheses on Configuration

Four major hypotheses have been put forward in recent decades regarding the configuration of the Sharps trial carbine. They are that the carbine (1) looks like the Model 1868 conversion carbine; (2) it looks like SN 251 and the recently discovered SN 88 carbines; (3) it looks like a carbine version of the Type II Sharps trial rifle; or (4) it looks like the other three trial carbine models – the Springfield, Remington and Ward-Burton.

Hypothesis #1: It Looks Like the Model 1868 Carbine

Hypothesis #1 is that the two models of Sharps carbines were essentially identical, i.e., that Springfield simply used 308 of the 31,000 Model 1868 carbines that had been converted to .50-70 metallic cartridge after the Civil War and issued those to the field. An important proponent of this hypothesis was apparently George Moller, who

“...offered this explanation for the lack of any confirmed Sharps trials carbines: They were never made. He opines that the 300 Sharps ‘breech systems’ intended for the carbine manufacture at Springfield Armory were instead used for the Type II Model 1870 Springfield-Sharps Rifle, and the carbine trials were conducted with .50-70 Sharps carbines already on hand.”¹⁵¹

In a similar vein, Marcot et al. write of the Sharps trial carbine that “None, as far as it is known, are in any of today’s well known antique gun collections. The reason for this may be that none of the...carbines were marked as trials guns. Therefore, they may be mis-identified as one of the tens of thousands of Sharps carbine conversions” made in the 1860s.¹⁵²

One piece of evidence supporting this is Gen. Dyer’s statement on September 2, 1870, that “The government will not put new Sharps...carbines in the hands of troops.”¹⁵³ Another is the lack of a confirmed specimen of the Model 1870 after decades of diligent search. A third consists of the Ordnance Department price lists discussed earlier. The four Model 1870 trials rifles, and three of the four Model 1870 trial carbines, are clearly and individually listed as “Experimental” in those lists. But *there is no price sheet for the Model 1870 Sharps carbine*; instead, the lists give prices

for the “Sharps Carbine/Caliber .50/(Model 1868, altered for Metallic Cartridge).” This continued through the last price list showing the trial guns in 1891.

Hypothesis #1 would most easily explain why a specimen hasn’t yet surfaced: because the differences between the two are so slight that the surviving Sharps trial carbines simply haven’t been identified among the many thousands of surviving conversion Sharps carbines in circulation. The recent discovery at a Gettysburg Civil War show of the very first known example of one of the Model 1868 Sharps carbines converted at Springfield is a good example. That carbine, one of just twelve converted at the Armory in the spring of 1868,¹⁵⁴ had probably been looked at a hundred times by arms collectors without any of them noticing the lack of the telltale DFC cartouche on the stock and the presence of a very rare LCA (Lucius C. Allin) cartouche on the wrist.¹⁵⁵ The gun had been hiding in plain sight for over 150 years.

Arguing against Hypothesis #1 is that the Model 1870 and Model 1868 Sharps carbines had to be readily distinguishable in the field. Second, Hull believes that Springfield used the Model 1868 locks for the trial carbines, and if the only difference between the two models was the lever spring with an anti-friction roller – something that’s difficult to discern without dismantling the gun – then they would have effectively looked identical unless otherwise marked.¹⁵⁶ Third, four characteristics from one of the 1970s sightings – the heavier wood stock, longer forearm, single barrel band with the retainer spring on the right side of the forearm, and ESA inspector’s cartouche on the left wrist – are inconsistent with Hypothesis #1. Proponents counter that a relatively minor difference, such as the rear sight, would have been sufficient for cavalrymen to distinguish the guns in the field,¹⁵⁷ and that the description based on the 1970s sighting in California is unreliable.

Hypothesis #2: It Looks Like Sharps Carbines Nos. 88 and 251

Marcot and Paxton published photos of a Sharps carbine then in the David Carter Collection, serial number 251, and raised the question of whether this “mystery carbine” could be one of the Model 1870 trial guns.¹⁵⁸ They pointed to several “positive features” in discussing that possibility, including:

- A Sharps Model 1874 receiver, not a modified Model 1868 receiver;
- The receiver came from Sharps in the white;
- Serial numbered with the same type and size stamps as on the Type II Sharps trial rifle;
- Blued barrel with “S, L.W, and J.L.P” initials;
- The bottom front of the forearm wood is stamped J.L.P.;
- A 22” barrel with three lands and grooves – typical of Springfield rifling; and
- A Lawrence patent, not Springfield pattern, rear sight.

A second example (serial number 88), almost identical to serial number 251 but more worn, was found recently by a long-time Sharps collector. Those who think that serial numbers 88 and 251 may be Model 1870 Sharps trial carbines point to the following:

- Serial numbers 88 and 251 are serial numbered in a separate series, highly unusual since Sharps long arms had been numbered sequentially since about 1851. Both have serial numbers under 308, the number of Sharps trial carbines fabricated. And the

Type II Model 1870 Sharps rifles, made at the same time and place, are also serialized in their own range from 1-300;¹⁵⁹

- The Model 1874 actions, made in 1869,³³ are the same as used on the Sharps Type II trial rifles. Unmarked except for patent markings, they're in the white; and
- They have Springfield three land and groove rifling.

The arguments against Hypothesis #2 are threefold. First, Hull writes that serial number 251 (serial number 88 hadn't turned up yet) is one of the rare carbines from 1869 that Sharps called "Metallic Cartridge" arms.¹⁶⁰

"An unknown element of this story is what number of the new Sharps 1869 Metallic Cartridge Rifles and Carbines, with their unique serial number range, were made in 1869...Only one 1869 Metallic Cartridge Carbine (serial number 251) is known today. In Sharps' records there are no recorded rifle sales and only one recorded carbine sale, number 235, sold on August 13, 1878; it was among nine other carbines numbered in the 15xxxx range."

Hull writes that these guns are part of a unique serial number run, they have a thin lock plate, and they have a lever spring with an anti-friction roller – all of which distinguish them from the Model 1869 Sharps carbine.¹⁶¹ The serial numbers go no higher than 314, and 250 were used in making the Model 1870 rifles. Three (serial numbers 88, 235 and 251) are known carbines, leaving 61 of unknown configuration – not enough for use on the 308 Sharps trials carbines.

Second, serial numbers 88 and 251 are entirely different from the other three trial carbines. The only features they have in common with them (Table 8) are a 22" round barrel, Springfield rifling, and the front sight. This is inconsistent with the intent of the Schofield and Terry boards to focus on the performance of the actions (see below), as demonstrated by Springfield's fabrication of all other elements of the other three trial carbines consistently.

Third – and perhaps most compelling – is the argument that Ordnance would never have knowingly issued to the U.S. Cavalry at the height of the Indian wars a carbine without a saddle ring. As Marcot et al. wrote regarding the fate of the rare Model 1859 Sharps Navy carbine, *"The carbines would not have been sent to Federal Cavalry troops because of lack of a sling ring."*¹⁶² They further recount¹⁶³ that

"On January 17, 1871, the Commanding Officer of the Fort Union Arsenal, New Mexico Territory, complained that 190 of the Model 1868 Sharps carbines did not have the much-needed cavalry sling ring bars or sling rings. Springfield Armory Commander Colonel Benton replied on January 30th that these carbines were originally ordered by the U.S. Navy, and were made with sling swivels on the butt stock, not with cavalry-style carbine sling rings...Benton stated that he did not know how surplus Navy carbines entered the Army Ordnance system."

This occurred during fabrication of the trial carbines, and there has never been any indication that Springfield intended to make the Sharps trial carbine without a saddle bar and ring. If further evidence were needed on this point, there's no mention in any of the Ordnance Memo No. 15 field reports regarding an absence of saddle rings, an issue that would certainly have arisen in the field had troops fighting the Indian wars been issued carbines without them.

Hypothesis #3: It Looks Like a Carbine Version of the Type II Sharps Trial Rifle

In their new book on Sharps firearms, Marcot et al. state that *"there are no fully authenticated Springfield-Sharps Model 1870 Trials Carbines known, and written records of the carbine's characteristics cannot be located. Should a verified example be found, it would have the following characteristics"*.¹⁶⁴

- Sharps Model 1874 receiver;
- No Sharps marking on the receiver or lock plate;
- Serial numbered with the same type and size stamps as used on the Springfield-Sharps Type II rifles;
- Type II lever and a lever spring with an anti-friction roller;
- A 22" Springfield barrel with three lands and grooves, with no Sharps barrel address;
- A Springfield "trapdoor" style rear barrel sight;
- Chambered for the .50-55-430 Govt. (1-3/4") carbine centerfire cartridge.

These characteristics largely track those of the Type II Sharps trial rifle. That the anti-friction roller was applied to the Sharps carbines is evidenced by the approval of Dyer on August 19, 1870, of this element in the rifles. Hull further concluded from his recent analysis of the receivers that *"all the Springfield-Sharps Model 1870 rifles and carbines have a Model 1868 conversion lever; (and) have a lever spring with an anti-friction roller."* He notes, however, that he found nothing in the Sharps records that validates the sale of the so-called "Model 1874 receivers" at this time, and that the 250 known Model 1874 receivers were all used on the Type II Model 1870 Sharps rifles. Instead, he agrees with others like Hosmer and Farrington (see below) that the Sharps trial carbines used Model 1868 conversion receivers.¹⁶⁵

With respect to powder charge, all of the carbines were chambered in .50-70 even though they could also chamber the .50-55 cartridge. Complaints about the kick of the carbine with the .50-70 cartridge, however, were a recurring issue in the field reports. On November 28, 1871, Gen. Dyer instructed the Frankford Arsenal to conduct experiments to determine the proper charge of powder and lead for the experimental carbines. He said the musket cartridge was objected to as being too heavy for the lighter carbine, but *"as the Carbines are chambered for the musket cartridge, you may find that the length of the cartridge should not be reduced."*¹⁶⁶ On January 4, 1872, Dyer ordered Frankford Arsenal to make 250,000 carbine cartridges of the same length case as the musket cartridge, powder 55 grains, ellipsoidal bullet of 430 grains. Paper boxes to be marked "U.S. Carbine Cartridges."¹⁶⁷

Hypothesis #4: It Looks Like the Other Three Trial Carbines

The focus of the 1870 field trials was the performance of the four actions of the trial guns – the trapdoor, rolling block, drop block, and bolt actions. The Schofield Board made this clear in Ordnance Memorandum No. 11, stating that:

*"Our investigations have been limited to the determination of the relative merits of the various SYSTEMS (sic) of breech-loading small arms, without regard to questions of caliber, rifling, ammunition, etc. The main elements of excellence considered are: strength, durability, and simplicity of breech mechanism; ease, certainty, and rapidity of firing; and security against injury to arms, or accidents from use in the hands of troops."*¹⁶⁸

Table 8
Model 1870 Trial Carbines--Hypothesis #4

Characteristic	Springfield Trapdoor	Remington Rolling Block	Ward-Burton Bolt Action	Sharps Drop Block (Hypothesis #4)	Sources/Notes
Barrel	New, 22" Round, Springfield barrel	New, 22" Round, Springfield barrel	New, 22" Round, Springfield barrel	New, 22" Round, Springfield barrel	Examination of examples in hand; Hull notes "new" since cut for Springfield rather than Sharps rear sight (2025).
Rifling	Springfield 3 lands & grooves	Springfield 3 lands & grooves	Springfield 3 lands & grooves	Springfield 3 lands & grooves	Examination of examples in hand
Cartridge(s)	.50-70/.50-55	.50-70/.50-55	.50-70/.50-55	.50-70/.50-55	Hosmer (2006); RG 156, E13, p. 200
Serial Number	None	None	None	Model 1868 receivers already numbered on upper tang; same number may be restamped on side of barrel (without the "C" prefix)	Examination of examples in hand. Sharps per Hosmer (2006) p. 173. Consistency with Sharps trial rifle Type I.
Rear Sight	U.S. Model 1868 calibrated to 2/3/5/7 (hundred) yards	U.S. Model 1868 calibrated to 2/3/5/7 (hundred) yards	U.S. Model 1868 calibrated to 2/3/5/7 (hundred) yards	U.S. Model 1868 calibrated to 2/3/5/700 yards.	Examination of examples in hand. Sharps : Hosmer (2006).
Buttstock	Musket Style	Musket Style	Musket Style	Musket Style	Examination of examples in hand. Sharps : "Springfield type heavier wood stock" (Sharps Vol. II, p. 45)
Butt Plate	U.S. Model 1863 Rifle-Musket Type	U.S. Model 1863 Rifle-Musket Type	U.S. Model 1863 Rifle-Musket Type	U.S. Model 1863 Rifle-Musket Type	Examination of examples in hand. Lewis (2026). Hosmer (2006) pp. 91, 143, 176, 199
Buttplate Tang Marking Forward of Screw	Springfield US	Springfield U.S.	Springfield US	Springfield "U.S."	Examination of examples in hand. Sharps : Both Type I and Type II Sharps M1870 rifles carry the U.S. mark on the buttplate tang (Hosmer p. 176; Vince Rausch and Jack Lewis collections), although at least one example of a Type II exists without the U.S.
"US Springfield" Marked Receiver	Yes (right side of receiver); with American eagle	Yes (right side of receiver). U.S./Springfield/1870; with American eagle.	Yes (left side of receiver); with American eagle.	No. Assumes Model 1868 casehardened receivers used.	Examination of samples in hand. Sharps : (1) Vol. II, p. 45--1970s sighting report of no markings. (2) Examination of Type I rifle in Vince Rausch collection; examination of photos of Type II rifle (SN #256) from ex-Jack Lewis collection. (3) Hull (2024).
Forearm	Single stock; no separate forearm. Rounded; no nose cap.	11-3/4". No nose cap. Tapered to a tip. "Longer than usual" (Farrington p. 82). "Noticeably different and longer than Remington made forearms" (Floyderman p. 590).	Single stock; no separate forearm.	"Longer than usual...Of the style assembled with the Springfield/Remington trial carbine" (Farrington p. 82). "Noticeably longer than the original Sharps item" (Hosmer p.178).	Examination of examples in hand. Sharps : Farrington; Floyderman (2007); Hosmer (2006); 1970s sighting reported by Marcot et al. (Vol. II, p. 45). Note: Longer forearm would be required to accommodate longer barrel band spring and move it from the bottom to the right side of the forearm.
Dated	Yes (1870)	Yes (1870)	Yes (1871)	No. Assumes Model 1868 casehardened receivers used.	Examination of examples in hand. Sharps : Duguette (2026).
ESA Cartouche	Yes	Yes. Left wrist.	Yes	Yes; "in oval on left wrist" (Hosmer p. 175).	Examination of examples in hand. Sharps : Hosmer. ESA cartouche is on both Type I and Type II rifles.
Saddle Ring Bar	-2-7/8" long	-2-7/8" long	-2-7/8" long	-2-7/8" long	Examination of examples in hand
Saddle Ring	-1" Diameter	-1" Diameter	-1" Diameter	-1" Diameter	Examination of examples in hand
Barrel Band	"U" on right side	"U" on right side	"U" on right side	"U" on right side	Examination of examples in hand
Barrel Band Spring	Yes; right side	Yes; right side	Yes; right side	Yes; right side	Examination of examples in hand
Front Sight	Pinned blade (brass) in trapezoidal block	Pinned blade in trapezoidal block	Pinned blade (steel) in trapezoidal block	Pinned blade in trapezoidal block	Examination of examples in hand

Sources: (1) Floyderman, Norm. *Floyderman's Guide to Antique American Firearms...And their Values*. 9th edition. (2007). (2) Hosmer, Richard A. *The .50- and .50-Caliber rifles & Carbines of the Springfield Army, 1865-1872*. (2006). (3) Hull, Edward. Email regarding absence of Springfield markings on M1870 Sharps rifles. (4) Hull, Edward. Email regarding likely configuration of Model 1870 Sharps. (2025). (5) Lewis, Jack. Personal communications. (2026). Marcot and Paxton. *Sharps Firearms*, Vol. II. (2017). Pp. 45-47.

Notes: Sharps Model 1870 in **bold red**. Characteristics predicted by Hypothesis #4 (see text).



Figure 28. The Springfield, Remington and Ward-Burton trial carbines (top to bottom), right profile (top photo) and left profile (bottom photo). Jeff Goodson Collection. (Photos by Amy Cortee-Cox).



Figure 29. The receivers of the Springfield trapdoor, Remington rolling block, and Ward-Burton bolt action carbines (top to bottom; photo by Amy Cortee-Cox).

Likewise, the Terry Board stated that:

*“The object in view...has been to present concisely the distinctive features of the different systems of breech-loading small-arms... (and show) the consecutive operations of the parts in performance of their several functions, during the opening, closing, and locking of the breech, firing the charge, and removing the empty cartridge shells...Questions regarding the caliber, accuracy of fire, and mounting of small-arms, are irrelevant to those involved in these discussions...”*¹⁶⁹

Examination of the other three trial carbines (Figure 28) confirms that Springfield fabricated the trial carbines with the intent of making all parts—to the extent possible given the inherent variability in the design of their actions (Figure 29)—identical in every one of fourteen respects (Table 8). Hypothesis #4 holds that Springfield’s fabrication of the Sharps trial carbine was consistent with the fabrication of the other three in all fourteen of these characteristics (Table 8, Column 5). The only differences are the presence of a serial number, and the lack of a date and Springfield markings (Figure 30) on the Sharps – all characteristics that are associated with use of casehardened – in this case Model 1868 Sharps – receivers.

Several senior arms historians agree with Hypothesis #4. Hull thinks Springfield used stock on hand for the receivers of the Sharps trial carbines: *“The Sharps records show no sales and the Ordnance office records show no purchases of Sharps receivers in the 1870-71 time period. The assumption is that Springfield used receivers or carbines on hand to alter to the Model 1870;”* he further notes that *“there is no hint in correspondence that the Sharps was to be different.”*¹⁷⁰ Hosmer states that



Figure 30. The Model 1870 Springfield and Remington trial carbines were marked “1870” (above left). The Model 1871 Ward-Burton carbine was marked “1871.” If the Model 1870 Sharps carbines were made with Model 1868 receivers, they probably would not be dated since they were already casehardened. All four trial carbines were fabricated by Springfield Armory (above right), and the Springfield, Remington and Ward-Burton carbines all carry Springfield markings on their receivers like this 1870 trapdoor carbine. If the Model 1870 Sharps carbines were made with Model 1868 receivers, they probably would not carry Springfield markings since they were already casehardened. (photos by Amy Cortee-Cox)



Figure 31. Springfield fabricated all of the Springfield, Remington and Ward-Burton carbines – as well as all of the trial rifles, including the Sharps – with musket-style buttstocks (top left). These were likely leftover inventory, still on hand at the Armory. These trial carbines all have U.S. Springfield Model 1863 Rifle-Musket Type buttplates that had "U.S."-marked tangs that use the Springfield "U.S." style. These were also likely leftover inventory, still on hand at the Armory. (top right). The trial carbines all had identical barrel band springs on the right side of the forearm, marked "U", as well as forearms of almost equal length (bottom left photo). If the Sharps trial carbine follows this pattern (Hypothesis #4 – see text), the forearm should be about 1-3/4" longer than on Model 1868 Sharps carbines to accommodate the longer spring and relocation of the spring from the bottom of the gun – the typical location on Sharps carbines – to the right side of the forearm. The Springfield, Remington and Ward-Burton trial carbines all have U.S. Springfield Model 1868 carbine rear sights calibrated to 2/3/5/700 yards (bottom center photo). The saddle ring bars (bottom right photo) of the Springfield, Remington and Ward-Burton trial carbines are all 2-7/8" long, and the rings are 1" in diameter. (photos by Amy Cortee-Cox)

*"The...carbines were made up from salvaged Sharps 'new Model 1863' percussion actions, which included receiver and lock, and were fitted with new stocks (Figure 31), forends, furniture, breech-blocks, extractor systems...and barrels...All parts but the actions were manufactured at the Springfield Armory."*¹⁷¹

Farrington agrees:¹⁷²

"They are described as being produced with percussion conversion actions, as the M1868...with a Springfield musket type buttstock and a forend of a longer variety than normal Sharps production (of the style assembled with the Springfield/Remington trial carbine). The trial Sharps was also fitted with the Springfield rear sight as with the Remington. There being large numbers of M1868 Sharps conversions in issue, the modified forend and rear sight of the trials carbine probably caused little comment amongst troops, who were familiar with the weapon as its function otherwise was identical."

McChristian also agrees:¹⁷³

"These caliber .50/55 carbines, like the rifles, were assembled at Springfield Army using only percussion Sharps actions (bearing their original markings) converted to centerfire ammunition. The remainder of the parts were new Springfield manufacture, including a new 22-inch barrel. Two distinguishing features were a Springfield-type butt plate stamped "U.S." and a longer fore-end resembling that of the 1870 Springfield carbine. The rear sight also was of the Model 1870 Springfield type. The receiver and butt plate were color case-hardened, and all other parts were finished bright."

Hypothesis #4 is fully consistent with the description of the first 1970s California sighting of the carbine. Four of the characteristics cited – the heavier wood stock, longer forearm, ESA cartouche, and single barrel band with the retainer spring on the right side of the forearm – are features that are shared with all three of the other 1870 trial carbines (Table 8). Also, the absence of a date or Springfield markings on the receiver is consistent with use of a Model 1868 receiver since die-stamping is impracticable after casehardening.

In summary, Hypothesis #4 holds that the best current evidence on configuration includes (1) the statement of Dyer that *"the government will not put new Sharps...carbines in the hands of troops"*; (2) the statements by the Schofield and Terry boards that their interest focused only on performance of the actions; (3) the conformity of the other three models of trial carbine in sharing fourteen characteristics; (4) the two 1970s sightings and one description of a sighted Sharps trial carbine in San Diego; and (5) research published by Ed Hull in 2025 on the Sharps Model 1870 Experimental rifles. Proponents argue that collectively these point to the Sharps trial carbine looking almost exactly like the other three Model 1870 carbines except for the action, and having the following characteristics:

- A new Springfield 22" round barrel;
- Springfield three land and groove rifling;
- A U.S. Model 1868 rear sight calibrated to 2/3/5/700 yards (bottom center, Figure 31);

- Chambered in .50-70 Govt., but able to chamber the .50-55 cartridge;
- A Sharps Model 1868 conversion receiver with thick lockplate and lever;
- A lever spring with an anti-friction roller;
- No date or “Springfield” markings on the receiver;
- A musket-style buttstock (upper left, Figure 31);
- A U.S. Model 1863 rifle-musket type buttplate (top right, Figure 31);
- Springfield-font “U.S.” on the upper buttplate tang (top right, Figure 31);
- A right-side barrel band spring, rather than bottom spring like other Sharps (bottom left, Figure 31);
- A longer than usual forearm by 1 3/4 inches to accommodate a slightly longer right-side retainer spring;
- “U” on the right side of the barrel band (bottom left, Figure 31);
- A Civil War Sharps serial number on the upper tang;
- A possible matching serial number on the barrel like the Type I Sharps rifle, minus the “C”;
- An ESA cartouche on the left wrist;
- A 2-7/8” saddle ring bar, with a 1” diameter saddle ring (bottom right, Figure 31); and
- A pinned blade in trapezoidal block front sight.

Arguments against Hypothesis #4 are threefold. First is that the description from the 1970s sighting in California is unreliable. Second is that the differences with the Model 1868 Sharps conversions according to Hypothesis #4 are so significant that if this were the correct configuration, one of them would have been identified by now. And third is that a relatively minor characteristic – like a different rear sight – could have been sufficient for troops to readily differentiate them in the field, but still leave them “hiding in plain sight” today.

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