

MORSE-MUZZY MILITARY-CONFIGURED CARBINES

by Don Dietrich

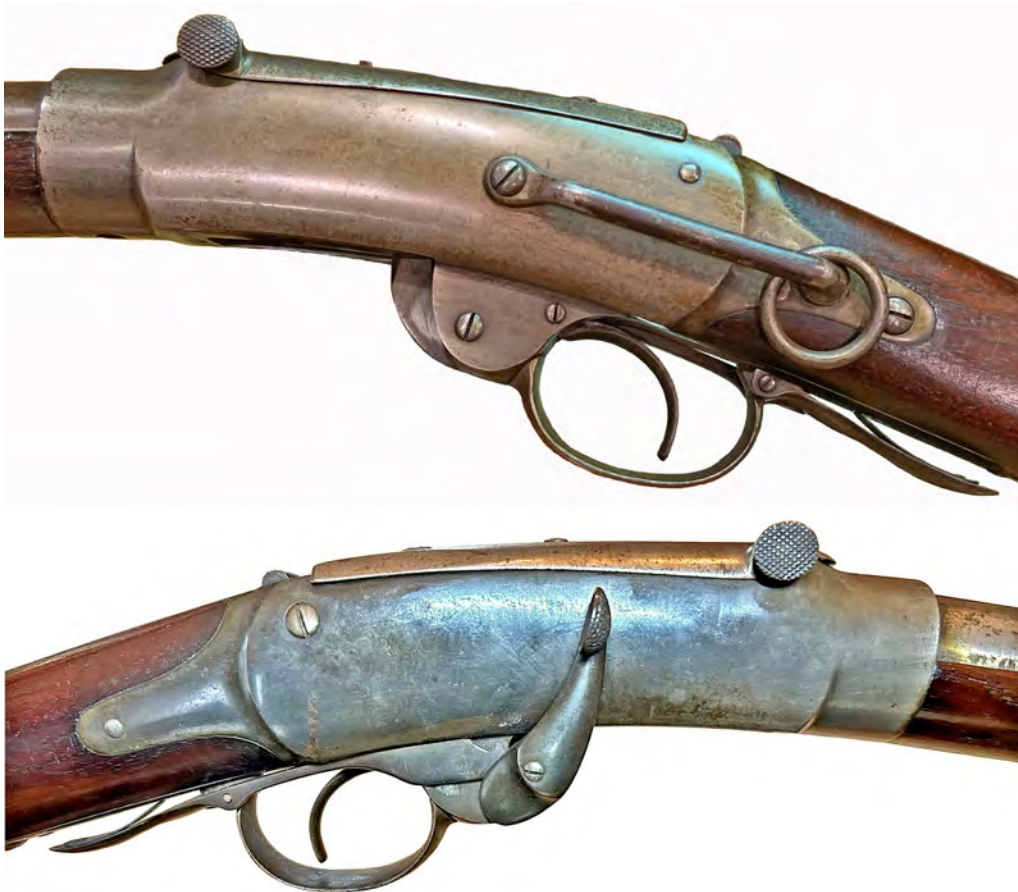


Figure 1. The receiver of a complete Morse-Muzzy military-configured carbine, serial number 54. (Author's collection).

Dr. Robert Seigler's 2017 book *The Best Gun in the World*¹ greatly expanded our understanding of the inventive genius of George Woodward Morse and the history of the development of his firearms. Jeff Goodson's Fall 2023 *American Society of Arms Collectors Bulletin* article "Rare American Carbines: The Morse-Muzzy"² further expanded our knowledge with his in-depth analysis of surviving examples of the Morse civilian and military firearms manufactured by Nathan Mills Muzzy in 1857 through 1859. Goodson's article continued a compilation and expanded the list of known survivors of the Morse patent, Muzzy-manufactured firearms started by Seigler and highlighted observed differences. This article supplements the Goodson article, specifically adding details about the four known military-style Morse-Muzzy carbines. These military style carbines were all made while Muzzy was manufacturing 100 cased sets of Morse-patent firearms for commercial sales. This article adds information based on a detailed examination that was not available when Goodson wrote his *Bulletin* article. It is worthwhile providing more details about these currently known military-style carbines because of the importance of Morse's inventions in the development of military firearms.

Nathan Mills Muzzy is closely associated with George Morse. It was Muzzy who manufactured all the production guns based on Morse's patents before the Civil War. This article provides additional and biographical information about Muzzy never previously published.

This article also adds additional biographical information about Virgil Stockbridge, one of George Morse's strongest supporters and advocates. Stockbridge was one of the three chief firearms examiners in the U.S. Patent Office, and a firearms expert that testified in support of Morse's lawsuits against Winchester and the U.S. government. It was Stockbridge who listed all the characteristics of the Morse system used in Morse-Muzzy firearms and highlighted the real advances in and importance to the development of all modern firearms that were started by the Morse breech-loading system.

The Morse-Muzzy was not the first metallic cartridge centerfire breechloader ever tested by the U.S. military. That distinction is a Morse patented gun built by Daniel Searles of Louisiana before Muzzy's guns were produced. Searles built a prototype rifle based on the same Morse patent that was tested, using Morse patent ammunition at the U.S. arsenal in Washington, D.C. in March 1857. That one-off trial was carried out pursuant to the direction of Secretary of War John B. Floyd, rather than what would have been expected, by the Army Ordnance. The same or another Searles-built Morse gun was tested a few months later, by Army Ordnance in August-September 1857, during West Point breechloader trials.

A Morse-Muzzy carbine however was the first metallic centerfire breechloader ever purchased and evaluated in the field by the U.S. military. That occurred in 1858 during the "Utah War" peace

expedition from April to June 1858. A Morse-Muzzy carbine in military configuration was carried on a 1000-mile trip to Utah by the famous Texan and, at the time, a U.S. Marshal, Benjamin McCulloch. That carbine had been purchased by order of Secretary of War Floyd from Morse specifically for that purpose in 1858 for \$125.³

About two years after Nathan Muzzy's production of Morse-Muzzy firearms began, but before all had been completed, muskets and rifles altered at national armories to incorporate Morse patents became the first centerfire arms ever manufactured for the U.S. Army.⁴

Background

The Morse-patent cased sets and military carbines manufactured by Nathan Mills Muzzy were the first production run with what later became recognized as the "The first modern firearm cartridge system in the world."⁵ As such, their production can be said to have been a pivotal point in the history of manufacturing modern firearms. The word 'system' is important and used to clarify that, while several others had previously used *elements* of the Morse system, no one before George Morse brought it all together. The importance of the Morse invention was made clear in testimony by firearms experts during a series of lawsuits in the 1870s brought by Morse to extend his patents and recover royalty payments from

the Winchester Firearms Company and the U.S. government. Both had infringed on his patents. The premise that his system is "the first modern firearm cartridge system in the world"⁵ is expressed in the findings of the Congressional Committee investigating Morse's claims in 1876. Strong testimony and support for Morse's claims during the Congressional investigation were provided by one particularly well-qualified expert on the topic at the time, Virgil Stockbridge.

Professional background and qualifications of Virgil Stockbridge to testify about Morse's military firearms patent claims.

A good definition of a "pivotal development" in a technology is a development that leads to long-lasting changes, impacting most of its field, and is later recognized, looking back to its occurrence, to have been a turning point noticeable at the time and with after-effects, including being a catalyst for further change. (thanks to ChatGPT for input to that definition). Recognizing and explaining pivotal development in firearms history is enhanced by appreciating the perspective of contemporary expert observers who, with "mud on their boots" recognized the problems that the pivotal development overcame. Virgil Demetrius Stockbridge (1837-1916), perhaps more than any other contemporary, recognized Morse's design as a pivotal development. Stockbridge had

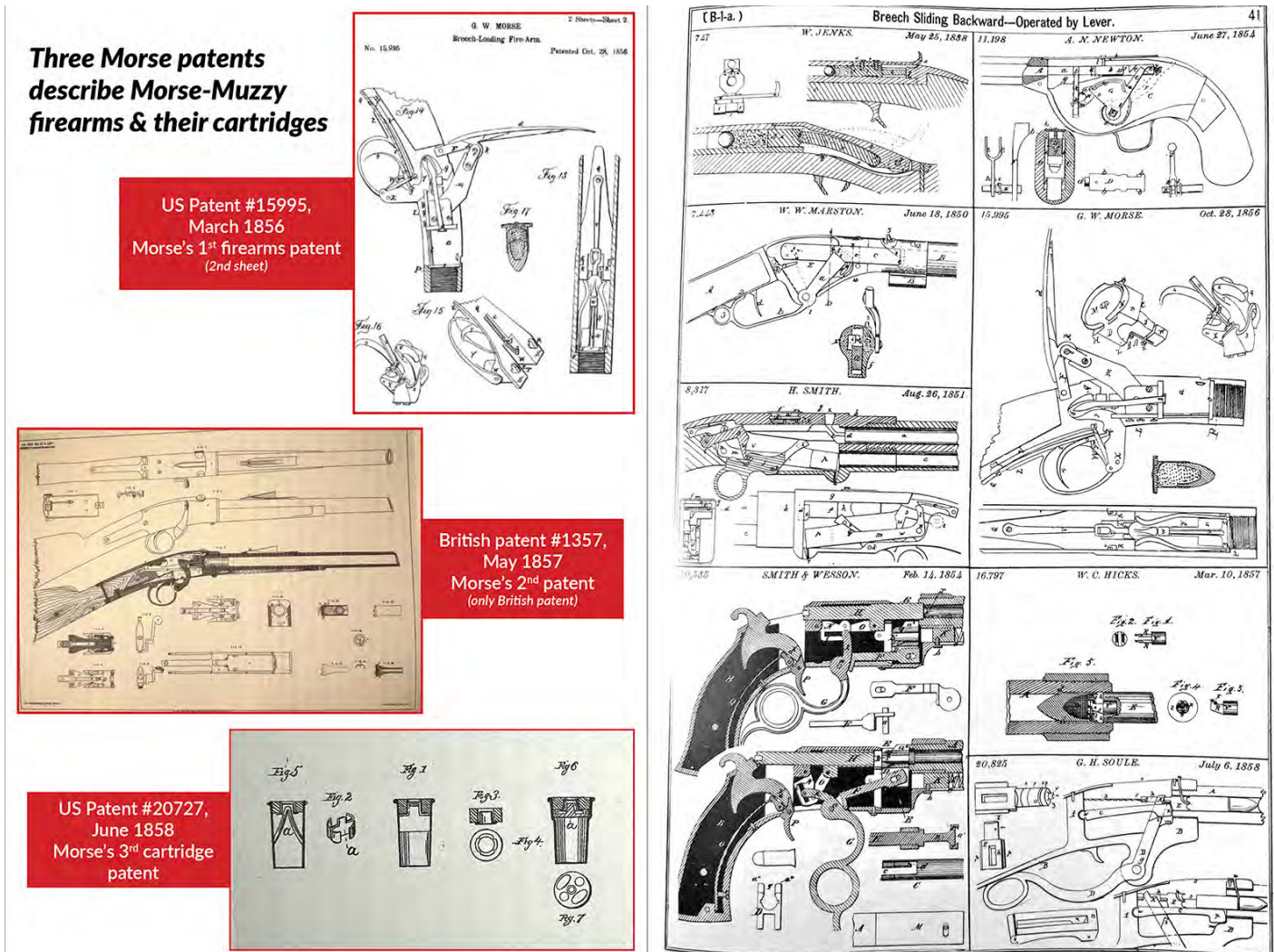


Figure 2. The three Morse patents upon which were based Nathan Mills Muzzy production of his carbines including the first, #15995, (left) and the page from Virgil Stockbridge's 1874 book of 780 breechloading patents that displays Stockbridge's drawings of Morse's first patent.¹³



Figure 3. The key components of the Morse cartridges built based on Morse's Patent #20727 illustrated using photographs, X-ray and a side-view cut-out. These illustrations show the details of a Morse patent centerfire cartridge including the three key components (1) a centered primer surrounded by a gutta-percha or similar washer in the base of the cartridge case, (2) a cup-and-anvil to hold the centered primer when it is stuck by the firing pin, and (3) a flange at the base of the cartridge enabling the engagement of "nippers" on the face of the bolt in the automatic extraction.

an exceptional set of qualifications to be able to analyze and testify to the history of breech-loading firearms development and the importance of George Morse's inventions. He was born and raised in Byron, Maine as one of seven children of a farmer named John Stockbridge. In 1855, at age 18, he was a resident and probably an instructor or, possibly, an instructor's aid at The Boston Farm School. That school had been established in 1833 by a group of Boston philanthropists to create a home and school for at-risk boys (principally orphans or boys with single parents). The school's aim was to instruct young men in "*agriculture, gardening, or other useful occupations as would contribute to their maintenance and tend to form in them habits of industry and order.*"⁶ Two years later, on September 16th 1857, Virgil Stockbridge graduated from a teacher's college, The State Normal College in Massachusetts. After graduation he worked as a teacher for three years. He is described in 1860 as being a teacher in a "common school" in Marshfield, the county seat of Webster County, Missouri.⁷

During the Civil War, Stockbridge served for three years after enlisting on January 14, 1862 as a First Lieutenant in Company G of the 2nd D.C. Infantry.⁸ He was made a firearms instructor during his service.⁹ That makes sense given his college education in the field of teaching and his three years' experience as a teacher before the war. After the Civil War he became an Examiner of the class "Firearms" in the U.S. Patent Office, an office he held from 1868 until 1875. While working as an examiner for the Patent Office, he also continued his education. He graduated with a law degree from Georgetown College at age 38 in June of 1875.¹⁰ Soon after his graduation, President Grant appointed him to the Board of Examiners-in-Chief at the Patent Office on September 1, 1875. He served as one of the three members of that Board for almost five years until June 15, 1880.¹¹ While serving on that Board he testified to Congress in support of Morse's claims for patent extensions and royalty payments in 1876.¹²

In 1874, two years before Morse brought a patent infringement lawsuit against the U.S. government, Stockbridge published his book, *Digest of Patents Relating to Breech-loading and Magazine Small Arms, (Except Revolvers) Granted in the United States from 1836 to 1873, inclusive.*¹³ His book summarizes 780 United

States patents including patent drawings issued for the period of 20 years before and 17 years after George Morse was awarded his first breech-loading firearm patent in 1856. That patent, 15995, shown in Figure 2, is the basis for the design of the Morse firearms sets and military carbines Nathan Mills Muzzy manufactured in 1857-1859. Stockbridge's extraordinary book and the breadth of knowledge of breechloading firearms patents that it demonstrates gives his testimony in the Morse patent lawsuits a great deal of credibility. Details of Morse's cartridge system from Patent #20727 are presented in Figure 3.

Why was Stockbridge so impressed by the improvements the Morse patents brought to military firearms, and in particular carbines?

The earliest breech-loading firearms suffered from several deficiencies. In the early to mid-1850s those deficiencies led most U.S. Army officers, fully supported by Secretary of War Jefferson Davis, to be unconvinced of the advantages of breechloading. Jefferson Davis was particularly averse. In 1860, while still a U.S. Senator, he had inserted a clause to restrict the purchase of any patent arms without specific Congressional approval.¹⁴ During the early 1850s, when Jefferson Davis was Secretary of War, at least some officers did recognize advantages of breechloading for cavalry but none for infantry. "*A Board of officers met at the Washington Arsenal in 1854 to consider purchasing the most effective existing breechloader designs for further field testing, but Secretary of War Jefferson Davis ordered the Board to consider only carbines for use by the cavalry.*"¹⁵ At the time of the Board, most Army officers still preferred muzzle loading firearms even for cavalry use. As a demonstration of that, during the years before 1859 the Army manufactured 10,846 muzzle-loading arms for cavalry use: 5,798 muzzle-loading smoothbore Model 1847 cavalry musketoons, 1,026 muzzle-loading Model 1855 rifled carbines, and 4,022 muzzle-loading Model 1855 rifled pistol-carbines. During the same period, the Army purchased only 6,430 breech-loading carbines for cavalry use, probably most of which were not issued.¹⁶

The key characteristics of the system that George Morse designed and patented in 1856-1857 and Nathan Mills Muzzy manu-

factured in 1857-1859 were enumerated in detail by Virgil Stockbridge in 1876.¹⁷ The essence of Stockbridge's opinion can be summarized as seven characteristics:

1. Metallic, expandable cartridge (using "obduration" to seal the breech)
2. Centerfire cartridge
3. Reloadable cartridge case
4. Automatic extractor
5. Cup & anvil in the base to hold the primer.
6. The receiver has an internal mechanism which makes it movable to the barrel.
7. Combines a movable breech block with a firing pin, hence capable of automatic extraction.

Virgil Stockbridge characterized Morse's invention of his system as a pivotal event in firearms design history when he reported in 1876 on the patents of George Morse:¹⁸

"Morse invented all the essential features of the modern breech-loading system of firearms, in use in all parts of the world."

"There is not a practical military small arm in the world which is not made upon his plan."

The 1876 U.S. Congressional Committee on Patents agreed with Stockbridge. The 1876 Committee on Patents also agreed: *"the conclusion is irresistible that Morse is, indeed, the real inventor of the new system, which has turned our American workshops into armories for all the nations of the earth...."*¹⁹

Despite Stockbridge's support and testimony, Morse lost his request for a patent extension and all claims for royalties for over 140,000 guns produced by U.S. arsenals. Attorneys for the Federal government stated the real reason, which was political, not technical. George Morse had sided with the Confederacy during the Civil War and had manufactured his patent carbines for the state of South Carolina. The government attorneys arguing before the U.S. Supreme Court said: *"When he (Morse) went out of the Union, designing and scheming against its life, he abandoned all claims to its patents and their values."*²⁰

Stockbridge's opinions about the importance of Morse's inventions for military firearms did not change after the 1876 Congressional investigation ended. He testified again in 1888 that military guns like the U.S. Springfield breech-loading rifle and Winchester and indeed all modern centerfire arms were based on Morse's concepts of the loose breech block.²¹

Stockbridge testified that the first automatic extractor was Morse's.

A substantial portion of Virgil Stockbridge's description of Morse's *key breakthroughs* during his 1876 testimony concerned Morse's *automatic extractor*, including:

"Morse's extractor was the first to withdraw the cartridge, fired or not, from the gun.

Morse's extractor was the first in this country to demonstrate how to withdraw with certainty a cartridge from its seat in the barrel.

*Morse was the first to provide a practical means of any kind for mechanically inserting and withdrawing a cartridge entirely from its seat."*²²

Stockbridge later wrote about the cartridge extractor: *"Cartridge retractors (extractors) had been known and used prior to the granting of this patent, but none in my knowledge having the quality of yielding so as to ride over the flange of the cartridge as in this case. Substantially the same kind of retractor as shown and claimed in this case is now used in combination with nearly all of the modern patterns of Breech Loaders where breech plugs or closers operated reciprocally in a line with the base of the barrel. The retractor in combination with its operating parts may therefore be considered the distinctive important feature of this invention."*²³

The Morse cartridge extraction design is shown in Figure 4. Note the two "nippers" that help deliver a cartridge into the chamber, then retract the spent case by riding over the flange on the case bottom and dropping the spent cartridge case for another. It is likely that Stockbridge put particular emphasis on the importance of automatic extraction because of witnessing the frustration – and danger in conditions of combat – created by severe extraction problems among metallic cartridge breechloading firearms commonly used by Federal cavalry troops during early Civil War years. As a trained and experienced teacher, Stockbridge must have been empathetic to the actual experience of soldiers issued with new breechloaders.



Figure 4. Morse cartridge extractors (author's collection, serial number 54).

The importance of automatic extraction for military firearms is demonstrated by the tools used by Civil War cavalry soldiers for Burnside and Gallagher carbines, which were two of the most common Civil War breechloaders. Tens of thousands of Burnside and Gallagher carbines were issued to the Federal cavalry during the war. There were severe problems with spent cartridge extraction with both of those carbines. In the case of the Burnside, the patent claimed that the “bulge” at the top of the cartridge case would enable a soldier to remove the spent cartridge from the breech block with his fingers. A soldier’s real combat experience was often contrary. Hot, spent cartridge cases tended to get “stuck” in the breech block. A soldier in combat that was eager to quickly reload had to figure out how to extract the spent cartridge case without burning his fingers and often did so by using a “stack” of previously fired cartridges, which today can be found left on battlefields,²⁴ see Figure 5 for an example. Similarly, Gallagher carbines were not liked by soldiers primarily due to difficulty removing the cartridge casing from the barrel after firing.²⁵ A special tool was issued to accompany Gallagher carbines for the soldier to use to extract the spent cartridge case.

Figure 5 illustrates the Gallagher tool and an example of the “stacked cases” method used by inventive soldiers to extract spent Burnside cartridges. Using a Gallagher tool required the soldier to use one hand to hold his carbine and the other hand to hold the tool. After pulling out a spent cartridge case, the soldier had to return the tool to his pocket or cartridge case before reloading. Under conditions of combat, many if not most were lost, and today these are rare tools; most of the examples in collections were recovered as relics on battlefields, where they had been lost. Considering these real battlefield experiences, Virgil Stockbridge was particularly impressed with the “nippers” and other features of Morse’s automatic extraction system and gave particular emphasis to its importance in his military firearms patent infringement testimony when George Morse sued the U.S. government in the 1870s.

The importance of the centerfire cartridge as a key element of Morse’s system.

The first rimfire cartridge offered in 1857 was .22 caliber designed by Smith & Wesson and used in their first revolvers. Larger, military-caliber rimfire cartridges were soon designed and manu-

factured. Larger rimfire cartridges were widely used during the Civil War with breechloading carbines, including Spencer, Henry, Sharps & Hankins, Ballard and Wesson. Compared to centerfire cartridges, rimfire cartridges were then and still are limited to relatively weak loads of powder and comparatively lightweight bullets. These limitations result from the construction of the rimfire cartridge and from the action of the priming mixture. Compared to centerfire, rimfire cartridges must be made of thinner metal or the firing pin cannot indent the head and explode the primer. The thin wall of the cartridge limits the pressure allowed by the powder charge and consequently the weight of the bullet. If too much powder is used in the charge, there is a danger that the cartridge case will burst, especially at the folded rim, when it is fired, and that the primer flash, passing laterally across the rear of the powder charge, will not ignite a load sufficiently large to consume all the powder before the bullet leaves the cartridge case. These limitations are obviated by the design of the centerfire cartridge.²⁶

Known Morse-Muzzy firearms

There are 20 Morse firearms, complete or in part, many still in original cased sets of Morse firearms manufactured by Nathan Muzzy now known in private and public collections. These are all listed in the table in Appendix A, which is an updated version of the similar table in Goodson’s article.²⁷ Sixteen of the survivors are civilian firearms originally included (and some still included) as part of cased sets. Serial numbers are stamped inside the receivers and sometimes, but not always, on barrels. Each cased set originally included a carbine barrel, a rifle barrel and a shotgun barrel that could each be attached to the set’s receiver and butt stock.

Four of the survivors are carbines (or parts of carbines) and have military characteristics. They differ from civilian carbines as shown in Table 1. All but one, SN 60, that is found today as part of a set, were likely never part of a cased set. The carbine that is serial number 60 has the same characteristics as the other military-style carbines but may well have been married with a cased civilian set including rifle and shotgun barrels at some later date. Table 1 lists the key characteristics that define the difference between civilian carbines and military-style carbines.

Table 2 compares the key characteristics of the four known military-style Morse-Muzzy carbines, serial number 41, serial number



Figure 5. Left - Gallagher carbine extraction “wrench” tool the soldier had to carry with him in his pocket or cartridge box to order to extract a spent cartridge by the hand not holding his carbine (author’s collection). Right - Burnside carbine extraction ad-hoc “tool”: five and ten spent cartridge cases stacked together as an ad-hoc extractors by inventive soldiers (example of ten in author’s collection, formerly in the Dean Thomas collection).

47, serial number 54 and serial number 60. Within the array of 20 known survivors of Muzzy made Morse firearms there are no duplicates of serial numbers. It is unlikely that the military carbines were serial numbered in a new range. The military-style carbine serial numbers, relatively close together, suggest that the carbines were made as a group by Muzzy sometime probably in 1858, roughly at the mid-point of production.

The military-style receiver, serial number 47, shown in Figure 6 has no other components associated with it, and may have been made without them. It has what appears to be a second sling bar mounted at the front of the frame. It would not fit as a substitute for the sling bar further back on the frame, in the normal position; it's about 1/10th of an inch shorter and has a slightly smaller front screw hole. Its position is close to the center of gravity of the complete carbine we have, serial number 54. There is no obvious benefit for it being on a military carbine.

CIVILIAN CARBINES	MILITARY-STYLE CARBINES
no sling bar/ring	sling bar/ring (or 2 screw holes for them, SN 60)
Muzzy marking on barrel and offer the frame	no Muzzy markings anywhere
Engraved receiver	no engraving
<p>The contract was for 100 cased civilian sets</p> <p>The 16 serial numbers of civilian guns we know of today range from 4 to 103, including two in the middle of the military range (SN 46 & SN 55)</p>	<p>Four serial numbers known all in the middle of the range (41, 47, 54, 60)</p> <ul style="list-style-type: none"> • SN 41 is just a receiver & carbine barrel (replaced butt stock & butt plate) • SN 47 is only a receiver • SN 54 is a complete carbine • SN 60 is part of a civilian cased set (probably a replaced butt stock & butt plate)



Figure 6. Left and right views of a Military Style Receiver, serial number 47 (author's collection, formerly in the Judge Robert Holter and Andy Lustyik collections).

Compared to the three other military-style carbines with higher serial numbers, the receiver for serial number 41 is relatively crudely made and has several other notable differences. As seen in Figure 7, its side cocking hammer is longer, and it has no checkering on either its cocking hammer or breech release finger "ears". Not seen in the figure is the sling bar on the left side of the receiver, it is thinner than other military carbines. In this military receiver there is a screw end under the left frame tang where the rear of the additional sling bar is installed. It protrudes about 1/10th of an inch below the inside surface. The buttstock and butt plate of serial number 54 has the same design as the buttstocks and butt

Table 1. Comparison of characteristics of the four known military-style Morse-Muzzy carbines/parts of carbines to the known civilian-style Morse-Muzzy carbines.

Table 2. Comparisons among military configured carbines.

	SN 41	SN 47	SN 54	SN 60
COMPONENTS	Original receiver & carbine barrel (Modern, replaced butt stock)	Receiver only	Complete gun	Receiver & Carbine Barrel (Probably replaced butt stock)
SIDE COCKING HAMMER	3.2"	2.4"	2.3"	2.3"
FINGER END OF COCKING HAMMER & BREECH FINGER "EARS"	Smooth (as were the early Searles guns)	Checked	Checked	Checked
SECOND SLING BAR	No	Yes	No	No
FRONT SIGHT	Probably replaced pinched blade	N/A	Brass Blade	Probably replaced pinched blade
REAR SIGHT	Missing	N/A	3-leaf, distances not marked, shallow notches	3-leaf, distances marked "3" & "5", deeper notches

plates of the civilian cased sets, except for one difference: serial number 54 has a patch box (Figure 8). That patch box is the only one known on Morse-Muzzy buttstocks.



Figure 7. Right side views showing variations in the cocking hammer: serial number 54 (top) has the same size and shape cocking hammer as civilian Morse-Muzzy receivers. Also, like civilian receivers, the end of its hammer and finger buttons are checkered (author's collection); serial number 41 (bottom) has a longer cocking hammer not seen on any other Morse-Muzzy receiver. Its cocking hammer and finger buttons are both without checkering (author's collection, formerly Jim Reid collection).



Figure 8. Patch box on Morse-Muzzy military-configured carbine, serial number 54, closed and open.

There are several unusual features about the serial number 60 carbine. It has a military-style receiver and carbine barrel but is now part of a cased set that includes a shotgun and rifle barrel. Like the two other military-style carbines for which we have barrels, serial number 41 and serial number 54, the carbine barrel for

serial number 60 has no Muzzy markings. However, both the shotgun and rifle barrel in its cased set do have Muzzy markings, as is true of most of the barrels in civilian cased sets for which we have information. Serial number 60 has a receiver that shows it was originally mounted with a sling bar, which is now missing (Figure 9). A sling bar would make it difficult or impossible for the carbine to be placed inside a closed case and would have had to be removed for the carbine to become part of a cased set. It is reasonable to believe that serial number 60's receiver and carbine barrel were added to the rest of the cased set where it now resides after its sling ring was removed. Except for the absence of its sling bar & ring, the receiver of serial number 60 is identical to serial number 54.



Figure 9. Left side of the receiver for carbine, serial number 60, showing holes where a sling bar would have been originally mounted. Photo by John Dietrich, Courtesy of the Museum and Library of the Confederacy, Greenville, South Carolina.

The buttstock and buttplate of serial number 60 both have much different shapes than the buttstocks and buttplates of all the civilian cased sets, which are the same as those of serial number 54 (compare Figure 8 and Figure 10). They are likely replacements. In the military-style receiver, serial number 47, there is a screw end under the left rear frame tang where the rear of the sling bar is installed that protrudes about 0.1 inch below the inside surface. To mount the sling bar, an indentation in the butt stock would have had to be part of a buttstock design. That indentation does in fact exist in the buttstock of serial number 60, showing that the likely replacement buttstock was originally intended to accommodate a sling bar and sling ring. The presence of the right sized indentation suggests that the sling bar and sling ring did exist with the receiver when the replacement buttstock was made but was later removed when serial number 60 was joined with the rest of the cased civilian set where it now resides.



Figure 10. Buttstock and butt plate of military-style carbine, serial number 60, showing atypical characteristics suggesting a later replacement. Photos by John Dietrich, Courtesy of the Museum and Library of the Confederacy, Greenville, South Carolina.

There are two other common features of the known Morse-Muzzy military-style carbines worth mentioning:

- (1) There are rear sights that appear to be original on only two

of the military-style carbines, serial number 54 and serial number 60. Both are three-leaf sights whose sturdy size and design are like the rear sights found on Civil War Joslyn and Gallagher carbines. The civilian Morse firearms made by Muzzy in the cased sets have more delicate “folding ladder” designs, which would be more appropriate for a civilian firearm than a military carbine (Figure 11).



Figure 11. Rear sights on Muzzy made military-configured carbines serial number 60 (top left) and serial number 54 (top right) compared to rear sights on Muzzy made civilian carbine barrels (bottom) such as this one, serial number 86, Ralph Spears collection.

(2) Barrels for three military-style carbines: serial numbers 54, 60 and 41 all are rifled with seven grooves with a left twist. Currently, we have rifling information for only six of the known civilian Morse-Muzzy carbine barrels. Four of these have five grooves, one has three grooves, and one has seven grooves, like the military-style carbines. All have a left twist. Clearly, the rifling arrangement was not standardized by Muzzy. This probably was part of the basis of Morse’s criticisms of the Muzzy quality, but it may have been a result of custom orders. The relative frequency of seven and five grooves is interesting because of the five-groove rifling specifically recorded for the carbines submitted by George Morse to the Army’s West Point Trials of breech-loading carbines in both August 1857 and July 1858. Those trial guns will be described in the next section of this article.

None of the surviving four military-style receivers nor the three military-style carbine barrels that survive are stamped with the maker’s name “Muzzy”. Surviving civilian carbines originally part of cased sets are all stamped “MUZZY & CO.” and/or “MUZZY & CO / WORCESTER.” That stamping is generally on the barrels, but sometimes it’s on the frame above the breech, and sometimes it’s on both the barrels and frame above the breech (Figure 12). Muzzy was well known and apparently respected for

the quality of his barrels during a long career. Numerous antique long arms that are not associated with Morse have a stamping on barrels with his name alone or in partnerships such as “Muzzy & Co.,” or “Hitchcock & Muzzy”, indicating Muzzy’s role manufacturing the barrel. However, other than these Morse-Muzzy civilian receivers made during the years 1857-1859, so far there are no other receivers marked with Muzzy’s name known to the author.



Figure 12. Top: A “MUZZY & CO./WORCESTER” stamping on the frame over the breech in a cased set of Morse-Muzzy civilian firearms, unknown collection. Middle: a “MUZZY & CO./WORCESTER” stamping on the round carbine barrel of serial number 85, Bob Carlson collection. Bottom: a “MUZZY & CO./WORCESTER” stamping on the flat top of a rifle barrel of serial number 86, Ralph Spears collection.

Morse’s name and patent date are stamped on the rear of the breech covers of all civilian and military-configured receivers in two lines: “MORSE’S PATENT / OCT. 20, 1856.” Figure 13 shows the stamping on a civilian receiver (with characteristic civilian receiver engraving) and a military receiver (with characteristic lack of military receiver engraving).

Why would George Morse not have Muzzy’s name stamped anywhere on the military-configured carbines made by Muzzy? There is documentation that George Morse felt that Muzzy’s poor quality was hurting the reputation of his patents. Morse was dissatisfied with both Muzzy’s productivity and quality. His brother Issac wrote in November 1858 that Muzzy’s organization “...do not and cannot carry the manufacture on successfully for want of machinery & means.” “...they have finished only half” (of the 100 guns), and “much of the work has been done in such a manner as not to give satisfaction & in consequence my brother is constantly troubled.”²⁸ Morse himself said, according to Seigler “When the first hundred arms were turned out....they were so inferior in workmanship that parties who had given me orders for them would not accept them, and in point of fact, I did not wish them to go out, fearing that their failure would injure the value of my patents.”²⁹

Today, among surviving Morse-Muzzy firearms sets numerous quality issues are observed. These were described by Goodson in his article.³⁰ It’s reasonable to deduce that the military-style



Figure 13. Top: “Morse’s Patent/Oct. 20 1856” stamping on a civilian receiver (serial number 86, Ralph Spears collection). Bottom: “MORSE’S PATENT / OCT.20 1856” stamping on a military-configured receiver (serial number 54, author’s collection). Note that all known civilian receivers have engraving. None of the known military-configured receivers are engraved.

carbines are not stamped “Muzzy” anywhere to avoid the quality implication and potential harm to military sales of Morse’s patented firearms.

George Morse gave priority to military contracts.

As was the case for most inventors of patent breech loading firearms in the 1850s, Morse sought government contracts. Dr. Seigler explains Morse’s thinking:

“From the beginning, Morse envisioned his new idea as a military firearm.In 1848 the U.S. Army Ordinance Board observed two problems with breechloaders. ‘First, want of solidity of parts most exposed to the action of the charge. Second, liability of the movable parts to become unserviceable by their getting fast from rust or dirt deposited at each discharge, and the escape of the gas through the joints or junction of the different parts.’ In other words, a breechblock joint that was too loose would leak gas when the weapon was fired, and one that was too tight would become unserviceable under strenuous field conditions.”³¹

Morse solved that conundrum expressed by the Ordinance Board with a loose-fitting breech joint that uses the “obduration” provided by a metallic cartridge case. When the cartridge is fired the cartridge case rapidly expands from pressure of the gases to seal the chamber. The expansion provides an effective gas seal of the breech. After the bullet and gases clear the barrel the cartridge case returns to essentially its original size so that it can be extracted. Morse had solved key problems identified by the Army but still had little success in securing Army contracts for carbines.

Despite the rejection of Morse’s carbine submitted to a Board of Officers at the West Point Trials in 1857, Morse was able to demonstrate his carbine in Washington to the new Secretary of War, John B. Floyd. Floyd was favorably impressed and directed that Morse be given a contract, dated March 17, 1858, for 100 military carbines. The Army issued the purchase order for 100 carbines at \$40 each.³² However, Morse failed to make deliveries in 1858. Nathan Muzzy, who had been manufacturing cased sets since as early as the summer of 1857, presumably was to manufacture these carbines also but Muzzy was having difficulty with production as well as quality. Military-style carbines that Floyd ordered in March 1858 were either not delivered, or, if delivered, were not accepted by the Army.

To add to the problems, Morse was still making design changes. As a consequence, Morse only provided a single carbine that the Army accepted in response to their March 1858 order for 100, and that was in November 1859, 20 months after the award of the contract. This carbine was unlike either of the military-style carbines that were tested in 1857 and 1858 or the four Morse-Muzzy military-style carbines that survive. Seigler speculates that it was a prototype and could have been made with a brass frame like the carbines he later made for the Confederacy.³³ This is unlikely. The Confederacy tended to use brass for firearm frames because it was available and good quality iron was scarce. That is not the case for most of the firearms industry in the United States during the 1850s, including the firearms manufacturers in Massachusetts such as Muzzy and his three brothers-in-law.

The single carbine delivered in November 1859 was a different design from those which had been tested by Boards of Officers in 1857 and 1858 (which used the early patent 15,995 design) and

incorporated important design changes. By early 1859, Morse had a new design of the receiver that had been developed by Christian H. Munck, a gunsmith working for Morse in Washington, D.C.³⁴ The “Munck” design was a hybrid combining the sliding block of Morse’s original patent 15,995 with the heavy breech block face used in Morse’s later patent 20,503. That later patent incorporates an improvement to the sliding block that forces the cartridge all the way into the breech chamber. According to Seigler, Morse thought the Munck alteration “*represented the perfection of his breech-loading design.*” The Secretary of War, Floyd, also agreed when he saw the new design, and Floyd proposed that any future Morse arms incorporate the revised design.³⁶

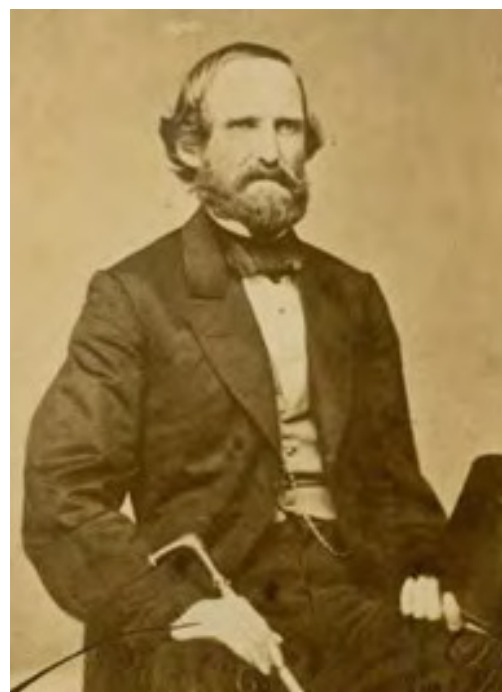
Even before Morse had received his March 1858 contract for 100 new carbines, Morse had made a proposal that was even more interesting to the Secretary of War, John Floyd. Floyd had become interested in converting muzzle-loading arms to breechloaders using the Morse system, and Floyd authorized the purchase for Morse patent conversions to four muzzle-loading rifles and muskets³⁷ on December 14, 1857.³⁸ These guns used the Morse design based on Patent 15,995, the same as the receiver in the Muzzy manufactured cased sets. None of these were delivered. However, a much larger contract to convert as many as 2,000 muzzle-loading rifles and muskets into Morse breechloaders was ordered by Floyd nine months later, in September 1858.³⁹ The full contract for 2,000 was not even close to being completed before available funds were spent. Most, if not all, of the conversions of the muzzle-loading muskets and rifles that were completed on this contract incorporate the Munck hybrid design. The conversions that were all done in 1860 include 57 conversions of muzzle loading Model 1816/22 muskets done at Harpers Ferry, and four conversions of Model 1841 rifles and four conversions of Model 1816/22 muskets shortened into carbines made at the Springfield Armory.

In addition to the contract for 100 carbines in March 1858 that never came to fruition, Morse did sell a single carbine that must have been based on Patent 15,995 to the Army in 1858. Secretary of War Floyd authorized the purchase, and the gun was delivered on April 5th, 1858. This carbine was purchased by Floyd specifical-

ly to be carried by Benjamin McCulloch, then U.S. Marshall for Eastern Texas. McCulloch and U.S. senator-elect Lazarus Powell were sent by President James Buchanan to Utah as peace commissioners to convince Brigham Young to submit to Federal authority and resolve a conflict with the Mormon settlers known today as the “Utah War.” Floyd authorized the Army to reimburse Morse \$125 for the carbine.⁴⁰ Certainly, like the civilian cased sets, McCulloch’s carbine must have been accompanied by cartridges and a full set of reloading tools to accompany it. Bob Holter’s article “The Morse-Muzzy Connection” in the May 2001 *Gun Report*⁴¹ magazine describes in depth the specialized reloading equipment required for the Morse centerfire cartridges. Morse’s cartridge cases were hand-constructed, expensive, and needed specialized reloading tools. McCulloch carried his Morse carbine to Utah. McCulloch and Powell proved to be skilled negotiators during meetings on June 11th-12th with Brigham Young that effectively ended the conflict.⁴²

Benjamin McCulloch was already a Texas hero before he was appointed as a peace commissioner and before he received his Morse carbine. He had been a soldier in the Texas Revolution fighting under Houston at San Jacinto; an Indian- and Mexican-fighting Texas Ranger; a Major General in the Texas militia and thereafter a major in the United States Army during the Mexican–American War, whose heroic actions at Monterey probably saved Zachery Taylor’s army from defeat; the tough sheriff of Sacramento, California during the Gold Rush and a U.S. Marshal. After his return from Utah, he became a famous supporter and investor in work commercializing Morse’s firearms. During the Civil War, McCulloch organized several Texas regiments and was a Brigadier General commanding the right wing of the Confederate attack at the Battle of Pea Ridge in March 1862. He was killed during the battle scouting Federal forward defenses. Sergeant Bailey of the 16th Arkansas infantry brigade reported that McCulloch was carrying a Morse patent rifle 20 minutes before he was killed while scouting ahead by a company of Federal skirmishers during the Battle of Pea Ridge. His Morse rifle was gone, presumably taken by Federals, by the time his Confederate compatriots were first

Figure 14: John B. Floyd, Secretary of War in 1858 (left); Benjamin McCulloch (right), co-leader of the Utah Expedition (April-June 1858) who carried a Morse-Muzzy carbine with him during the expedition on orders from Secretary Floyd. That carbine was the first metallic centerfire breechloader ever purchased and evaluated in the field by the U.S. military. (The image of Floyd is in the author’s collection. The image of McCulloch is on the internet and available on the website of the Texas State Historical Association)



able to reach his body to retrieve it.⁴³

Why do we think Morse hired Muzzy to make his cased sets and early military-style carbines in the first place?

Prior to the contract with Morse, there is no evidence that Muzzy had ever made any complete firearms, never mind making them in quantity. There is no documentation in which Morse explains his thinking in mid-1857 when he hired Muzzy to manufacture the first production run of his patented firearms, so we can only surmise his reasoning. The first point to recognize is that the gunsmith Morse had originally employed was Daniel Searles of Louisiana in late 1855 or early 1856⁴⁴ to make his patent and prototype firearms (and cartridges). Searles made the earliest examples of Morse rifles including the patent model, now on display in the Buffalo Bill Center of the West. However, Searles was already 75 years old in 1857. He may have already had health problems; as he would commit suicide shortly after complaining to his friends of poor health at age 78 in 1860.⁴⁵ Searles had only made firearms in small quantities. Morse probably knew in 1857 that Searles could not manufacture the numbers he needed to be successful. Morse needed a replacement for Searles and hired Nathan Mills Muzzy as early as July 1857.⁴⁶ The question is why? Muzzy had never previously demonstrated any ability to make either complete guns or guns in quantity. He, however, did have much experience in barrel making and had very good contacts.

Before being hired by George Morse in 1857, Muzzy had never publicized a claim to be a gunsmith or a maker of complete firearms, never mind breech-loading firearms. He had advertised himself in numerous *Worcester Directory* listings and other documents dating back to 1845 as a blacksmith, a barrel maker, and an armorer (probably meaning that he had expertise repairing firearms), but never a gunsmith. Today collectors find many firearms with “Muzzy & Co.” or “Hitchcock & Muzzy” or another partnership name on the barrels of long arms made before he was hired by Morse, indicating Muzzy made the barrels.

We don’t have any direct evidence, but we can surmise that Muzzy’s excellent family connections with noted breech-loading firearms inventors and manufacturers may have been a factor in Morse’s thinking. By 1857 he had been married for 12 years and shared five children with the sister of three renowned gunsmiths from Worcester. One can easily imagine that Morse thought that he wanted his patent firearms made by members of the Wesson family in Worcester including Nathan Mills Muzzy (see Appendix B for details). The three brothers of his wife were:

- **Daniel Baird Wesson** (co-founder of Smith & Wesson)
- **Frank Wesson** (inventor of Wesson carbines) In fact, Nathan Mills Muzzy and Frank Wesson were working in the same building in Worcester (the Merrifield Building) at the time Muzzy was making the Morse cased sets and military-style carbines.
- **Edwin Wesson.** Daniel and Frank originally learned gun making from their brother Edwin Wesson, who died in 1849. In 1848 Edwin was a very early manufacturer of innovative breechloading firearms: the Wesson & Leavitt revolver, based on Daniel Leavitt’s 1837 patent. The Wesson & Leavitt revolver innovations include using a convex cylinder and a bevel gear to rotate the cylinder.

We also don’t have any direct evidence, but we can surmise that Nathan Mills Muzzy may have had skills that Morse recognized as

important in the production of reloadable cartridges and especially the associated loading tools. He seems to have been successful in doing so for the 100 cased sets when no one else had done it before him. Judge Robert Holter in his May 2001 article in *The Gun Report* said: “I believe that the Morse Muzzy loading tools contained in the cased sets to be the first ever produced for the loading and reloading of centerfire cartridges.”⁴¹ The fact that Muzzy received a patent in 1889 (at age 67) for a “device for uncapping and recapping cartridge shells” (patent 404,805) suggests that he had distinctive skills in the field. Appendix B includes an illustration of Muzzy’s 1889 patent.

Since at least 1855 Nathan Muzzy had been in business with Dexter Hitchcock in a company named Hitchcock & Muzzy, manufacturers of iron and steel rifle and shotgun barrels.⁴⁷ The Hitchcock & Muzzy Company ceased to exist in 1857.⁴⁸ That company reported to have 16 workmen, and had its address in the Merrifield building at 66 Exchange in Worcester.⁴⁹ Perhaps Muzzy, trying to enter the firearms market, offered Morse an attractive price. If so, Muzzy struggled financially. Initially, still located in the Merrifield Building, Muzzy named his new company “Muzzy and Company”. His partner was William Carey⁵⁰. On March 8, 1858, or shortly later, in the middle of his production of Morse cased sets, production ceased. The company of Nathan Mills Muzzy and his partner William Carey was declared insolvent by a “Judge of Insolvency” in Worcester, and a warrant issued against both of their estates.⁵¹ In August of 1858, real estate Nathan Mills Muzzy owned and had mortgaged to his landlord, William Merrifield, was publicly auctioned off to pay his mortgage to Merrifield.⁵²



Figure 15. Muzzy Barrel and Rifle Manufacturing Company Card of Lowell, Mass. c 1859/1860.

To renew production, Morse was forced to help finance Muzzy to form a new company to complete the manufacture of the cased sets.⁵³ Muzzy renamed his new company the “Muzzy Rifle Barrel and Gun Manufacturing Company”. The com-

pany was no longer in the Merrifield Building. Presumably, Muzzy had been evicted for nonpayment of rent in 1858. The new company was initially located at Exchange, 6 High Street.⁵⁴ However, before the time the 100 cased sets were completed in 1859, the “Muzzy Rifle Barrel and Gun Manufacturing Company”, was re-located in Lowell, Massachusetts and had all of the Muzzy machinery located to Lowell.⁵⁵ Figure 15 shows the 1859 company card that explains the re-organization and relocation of the Company.

Conclusion: Why and when is it likely that the military-style Morse-Muzzy carbines/parts of carbines were produced?

Table 3 shows the characteristics of the two carbines submitted by George Morse for the West Point Army carbine trials of August 1857 and July 1858 (as recorded by the Army) and the three Morse-Muzzy military-style carbines for which we have barrels. The 1857 Army trial carbine differs from all the others in weight and barrel length. Morse’s first recorded trip to Worcester was in July 1857.⁵⁶ No contract with Muzzy was possible before then. No Muzzy-made carbines were available to use in the 1857 West Point Trials. Hence the 1857 Army trials carbine must have been made by Daniel Searles in Baton Rouge.

The carbine used for the July 1858 West Point trials was obviously manufactured by Muzzy. The carbine Morse provided for the 1858 trials had the same barrel length, weight and caliber as military-configured Morse-Muzzy serial number 54, the only known complete surviving Morse-Muzzy carbine. However, the Army reports that the carbine tested had rifling with five grooves, the same as the carbine tested in the August 1857 trials. The military-style carbine serial number 54, and indeed all three of the military-style Morse Muzzy carbine barrels available today, have seven grooves. Although they could have been otherwise similar or even identical, none of these could have been the carbine tested in the trials. The carbine used in the 1858 West Point trials and the carbine carried in the Utah War by Benjamin McCulloch were both probably manufactured by Muzzy before the spring of 1858.

A letter to George Wardner, a businessman and attorney in Windsor, Vermont, dated 26 November 1858, from Morse’s brother, Issac S. Morse, asked if Wardner might consider replac-

ing Muzzy and completing the contract for the cased sets as well as assuming later contracts for Morse patented arms. The letter provides important information about what happened to Nathan Muzzy’s production after his bankruptcy. It confirms that Nathan Mills Muzzy and his partner William Carey were probably forced to cease production at the time or shortly after they went bankrupt in 1858, at least until a new company could be organized. The purpose of the letter is clear. George Morse is seeking another manufacturer. Since the letter dated November 26, 1858, Muzzy has not yet re-started production. The letter also indicates that Muzzy has only finished roughly half of the cased sets. Cased sets with serial numbers much above the middle of the 1 to 100 range of all Muzzy-made guns were probably only manufactured in 1859 after the new “Muzzy Rifle Barrel and Gun Manufacturing Company” was organized and re-started production in Lowell. All four military-style carbines or parts of carbine now known have serial numbers at 60 or below.

In conclusion, it is likely that military-style Morse-Muzzy carbines/parts of carbines serial numbers 41, 47, 54 and 60 were either developmental work in anticipation of the July 1858 trials or were initially intended for the March 16, 1858, Army contract for 100 carbines⁵⁷, or both. Although unmarked with his name, all four of these are obviously made by Muzzy. The differences in number of grooves between these and the July 1858 trials carbine is puzzling but should not be surprising. Muzzy manufactured firearms without consistent features and Morse constantly tinkered with design.

Acknowledgements

The author gratefully acknowledges the extensive assistance of Jeff Goodson and Ralph Spears on this article. The article is a follow-up to our joint display during the September 2024 Denton, Texas ASAC meeting. As noted at the beginning, this article is meant to be a supplement to the Fall 2023 *ASAC Bulletin* article on the whole topic of Morse-Muzzy carbines, civilian and military, published by Goodson as part of his rare American Carbines series. The information in Appendix A was compiled by Goodson and is the basis for the observations about Muzzy-made military-style carbines in this article.

Table 3. Characteristics of the three military-style carbines

	Military Style carbine SN 41	Military style carbine SN 54	Military style carbine SN 60	Recorded August 1857 West Point trials carbine	Recorded July 1858 West Point trials carbine
Weight	N/A (replaced buttstock)	7lbs., 10 oz	N/A (replaced buttstock)	7lbs., 4 oz.	7 lbs., 10 oz.
Barrel length	22"	22"	22"	23.75"	22"
Caliber	.54	.54	.54	.53	.54
# grooves	7	7	7	5	5

Table 3. Characteristics of the three military-style carbines now known compared to West Point Army trials carbines, as recorded by the Army. For the 1857 trials information see Seigler, *The Best Gun in the World*, page 20. For the 1858 trials information see Seigler, page 58.

Appendix A. Known surviving Morse-Muzzy Long Arms

Data compilation by
Jeff Goodson and Don Dietrich.

KEY: Vacant cells indicate no data.
 Shaded cells indicate not applicable.

Serial Number	Surviving Elements	Side-Mounted Cocking Devices	Carbine Barrel Length	Carbine Front Sight	Carbine Rear Sight	Carbine Barrel Rifling	Military Test Carbine Diagnostic Indicators			Notes
							Saddle Ring & Bar	Marked Muzzy & Co.	Engraved Receiver	
4	Unknown									Referenced by Seigler. Privately-owned 1974.
6	Carbine only	Yes	22"	Blade	V-notch folding ladder	7 lands/grooves left twist	No	Yes	Yes	Carbine only Rifled, left twist, .54 caliber. SN 6 was formerly in the Robert Holter Collection, now in the Don Dietrich Collection.
7	Cased set	Yes		Hood	Folding ladder	3 lands/grooves left twist	No	Yes	Yes	Referenced by Seigler. Atlanta History Center. .52 caliber carbine. Also discussed & photographed (pp 297-298) in Jones, where it's attributed to Robert Crenshaw. Rifling data from Jones. This is the only known surviving example with just three lands and grooves.
9	Cased set		25 5/8"	Blade	Adjustable folding combination	Yes	No	Yes	Yes	Referenced by Seigler. Sold at Bonham's June 2006. -.52; .54 caliber carbine. Checkered grip.
11	Cased set		25 5/8"							Referenced by Seigler. .55 caliber carbine (also cited as -.52 caliber). Privately owned in 1961.
20	Carbine only		21 3/4"				No			Referenced by Seigler. At Buffalo Bill Center of the West. .54 caliber centerfire carbine. Cocking lever broken off, left thumb piece missing.
41	Carbine only	Yes	22"	Pinched blade (replacement)	Absent (recent dovetail)	7 lands/grooves left twist	Yes	No	No	Original butt stock missing. Has saddle ring and bar. No "Muzzy & Co." markings. Barrel original. Side mounted cocking-decocking device longer than others observed. Ex-Jim Reid Collection; now in Don Dietrich Collection.
46	Cased set	Yes	22"				No	No	Yes	Referenced by Seigler. .54 caliber carbine. Photos in Hill & Anthony (1978)
47	Receiver Only (with saddle ring)	Yes					Yes		No	Referenced by Seigler (photographed p. 74). Receiver only, no barrels or stock. SN 52 inside receiver. Unique feature of two sling bars, one on the lower forward end of the receiver and another on the left side of the receiver to which a saddle ring is attached. Ex-Andrew Lustylk Collection, Ex-Bob Holter Collection. Now in Don Dietrich Collection.
54	Carbine only	Yes	22"	Blade	3-leaf	7 lands/grooves left twist	Yes	No	No	7 land & groove rifling. Has saddle ring & bar. No "Muzzy & Co." marking. Barrel & receiver serial numbers match. The only surviving carbine known to have a patchbox on right side of stock. Don Dietrich Collection
55	Carbine only	Yes	22"	Blade	Absent (vacant dovetail)	5 lands/grooves left twist	No	Yes	Yes	Has a cut toe. Missing rear sight. Jeff Goodson Collection.
60	Cased set	Yes	22"	Pinched blade (replacement)	3-Leaf	7 lands/grooves left twist	Yes (missing)	No	No	Referenced by Seigler (photographed on p. 31 and plates 3 & 6. Also photographed on Schiffers page 16. Original saddle ring bar missing. Bought in Europe in 2013. Now owned by Museum and Library of Confederate History in Greenville, SC. Carbine -.50 caliber.
66/79	Carbine only	Yes (missing)	22"	Hood	V-notch folding ladder		No	Yes	Yes	.54 caliber carbine. Missing side-mounted cocking device, and thin spring lever that extends from that device to behind the trigger guard. Rear sight unusual. "MD" monogram stamp on buttstock. Sold at RIAC May 2019. See Ian McCallum's presentation on this gun in Forgotten Weapons of April 28, 2019.
85	Cased set	Yes	22"	Hood	V-notch folding ladder	5 lands/grooves left twist	No	Yes	Yes	Muzzy marked .54 caliber rifle & carbine. 31" octagonal barrel; .22 round carbine barrel. Engraved receiver. Appears manufactured without thin spring lever on right side that connects to the side-mounted cocking device. Hooded front sight; "specially made rear barrel sight." Various accoutrements also present, as discussed in Robert Holver's 2001 Gun Report article. Bob Carlson Collection.
86	Cased set	Yes	25 5/8"	Hood	Folding ladder	5 lands/grooves left twist	No	Yes	Yes	Ralph Spears Collection. Carbine is .52 caliber centerfire. Sold October 2010 at Little John's.
87	Unknown									Referenced by Seigler. "Mentioned in a letter in Wray-Morse File 902 at the Atlanta History Center."
91	Cased set									Referenced by Seigler. At the Confederate Memorial Hall in New Orleans. "Reportedly given to Louisiana Representative Sanford as a gift."
94	Cased set	Yes		Hood	Folding ladder	5 lands/grooves left twist	No	Yes	Yes	Referenced by Seigler. At the Atlanta History Center. .52 caliber carbine. Rifling data from Jones. The receiver, stock and three barrels are also pictured in Jones, p. 297.
100	Carbine only	Yes	22"	Hood	Folding ladder		No	Yes	Yes	Located in Maine State Museum.
103	Cased set	Yes	22"	Hood	Folding combination	Yes		Yes	Yes	Referenced by Seigler as "privately owned cased set". Sold at Bonham's June 2006. .54 caliber.
Unknown	Cased set									Referenced by Seigler. "Privately owned." No additional information.
Unknown	Rifle only	Yes						Yes	Yes	Rifled. -.54 caliber centerfire. Sold November 2018 at Amoskeag (Lot 391).
Unknown	Rifle only	Yes						Yes	Yes	Sold by Collectors Firearms (A1 3221).

NOTES:

- What Seigler refers to as the "side-mounted cocking/de-cocking device" (p.27) is called the "side mounted firing lever" by Jones (p.297). Found on all receivers.
- Variation in barrel lengths likely attributable in part to measuring error/failure to include the threads.
- Total Serial Numbers Known: 20:10 cased sets; 7 carbines only; 1 carbone receiver; 2 in unknown configuration (SNs 4 and 87).
- Red Carbiners: Three (SNs 41, 54 and 60). All have saddle ring and bar; unengraved receivers; and no "Muzzy" markings on barrel. Two have leaf rear sights. Isolated unengraved receiver (SN 47) has double saddle ring/bar.

Ralph Spears contributions include the summarization of Stockbridge's extensive testimony into seven key characteristics that make Morse's carbines pivotal in firearms development. He also provided research about the relocation of Muzzy manufacturing of Morse cased sets in 1859 to Lowell, Massachusetts, the bankruptcy of Muzzy and his partner in Worcester in March of 1858, insight into the information in Issac Morse letters in the Ed Hull collection and valuable editing suggestions.

The author is grateful to the staff of the Museum and Library of the Confederacy in Greenville, South Carolina who generously lent the cased set in which military-style Morse-Muzzy carbine SN 60 resides to the author and his brother for detailed examination and photography.

The full story of George Morse's inventions is best told in Dr. Robert Seigler's 2017 book.¹ Judge Robert M. Holder first explored the relationship between George Morse and Nathan Muzzy in his 2001 article in *Gun Report* magazine.³⁸ Dr. Seigler's book and Judge Holder's paper created the author's interest in better understanding the Muzzy-made Morse patent firearms and military-configured carbines.

Appendix B

Biographical sketch of Nathan Mills Muzzy

When doing research on the development of a firearm, it can be helpful to try to get to know the life story of the principals. George Morse's life story has far better researched than that of Nathan Muzzy, and justifiably so: Morse's firearms contributions are far more important. The intent of this Appendix is to document some of Nathan Mills Muzzy's life story --- with a focus on his professional career -- to contribute to understanding the history of the firearms he manufactured for Morse.

Family background and life

Nathan Mills Muzzy was born on June 14th, 1822, in Auburn, Massachusetts. For a man of the 19th century, he led a full life. He lived to be 71 years old and died in Chicago on July 22, 1893.⁵⁸ His father, also named Nathan Muzzy, was born in 1792 and died in 1858. Nathan Mills Muzzy was born to his father's second wife, Nancy Sibley Muzzy, 1797-1875. His mother (maiden name Sibley) married his father in Auburn, Massachusetts on September 12, 1816.⁵⁹ She bore his father 10 children. Nathan Mills Muzzy was the fourth.⁶⁰ Nathan Mills Muzzy's father's first wife, first name Molly, gave his father another 3 children, born between 1799 and 1804 before she died. Including both of his father's wives, Nathan was one of 13 children born to his father.⁶¹

Education

Nathan Mills Muzzy was an educated man. He is recorded as being enrolled in the Leicester Academy, a boarding school, as a 19-year-old high school student in 1840.⁶² Leicester Academy was established as a private academy in Leicester, Massachusetts in 1784.

First marriage and family

Nathan Mills Muzzy married Mary Jane Wesson in Worcester on September 17th, 1845, when he was 23 and she was 21.⁶³ They were married for 24 years, until she died at age 46 in 1869. Mary Jane Wesson was the daughter of Rufus and Betsy Baird Wesson. In the 1850 Worcester census, Rufus Wesson's profes-

sion is recorded as being a farmer, with land worth \$4000. Betsy Baird Wesson was the daughter of Daniel Baird, who served in the American Revolution as a private and sergeant under Captains Crafts and Todd in Colonel Gridley's Massachusetts artillery regiment. Betsy Baird Wesson's father Daniel Baird was born and died in Worcester, Massachusetts.⁶⁴ Mary Jane Wesson was the sister of three famous breech-loading firearm inventors from Worcester: Edwin Wesson, Daniel Wesson and Frank Wesson.

During the first 16 years of their 24-year marriage Mary Jane bore Nathan Mills Muzzy seven children. The first six of them were born in Worcester, Massachusetts:

- Eleanor, born 1846, died in 1871 of typhoid fever, age 25
- Norman, born in 1848, died in 1914 in Connecticut, age 66
- Mary, born in 1850, died in 1868, age 18
- Cornelia, born in 1853, died in 1924 in Worcester at age 71. Cornelia's middle name given to her as a child was Wesson, her mother's maiden name and the last name of her three famous gunsmith uncles: Daniel, Franklin and Edwin Wesson. She married a man named Boydon at age 19 and, as a widow, another man named Pierce in 1910 at age 57. During both marriages she proudly kept Wesson as her middle name as can be seen on her tombstone in the Boydon family plot in Worcester.
- Oscar, born in 1856, died in 1861 at age 4 from diphtheria
- Allen, born in 1860, died in 1861 when only 10 months old.

Nathan Mills Muzzy and his wife Mary Jane had a seventh child, named Ethel, born in 1864 in Windsor, Vermont. Nathan Mills Muzzy lived in Windsor, where he was employed there at Lamson, Goodnow & Yale, a large armory making firearms for the Army during the Civil War. There are other records of his residence in Windsor during those years besides the birth of Ethel. They will be described later in this Appendix. Nathan Mills and Mary Jane's seventh child, Ethel, born in Windsor, lived to be 85 years old and died in 1949 in Springfield, Massachusetts.⁶⁵

Second marriage

Eight years after the death of his first wife Nathan Mills Muzzy married a widow, Sarah (Morse) Simmons on October 8th, 1877, in Chelsea. She was born in Boston on February 15th, 1851. She was 26 and he was 55 when they married. In the registration of this second marriage in 1877, Nathan Mills Muzzy lists his profession as "gunsmith."⁶⁶ They had one child, a daughter, Amelia Jeanette Muzzy, born in November, 1878. Amelia Jeanette Muzzy was the last surviving child of Nathan Mills Muzzy and died in 1954 in San Diego at age 74. Sarah Muzzy moved with Muzzy to Chicago in the 1870s and stayed there after his death in Chicago in 1893. She died there herself on December 5th, 1898 at age 47.⁶⁷

Early Years of Nathan Mills Muzzy's career in Worcester

...before being hired by George Morse in 1857

The first record of Nathan Mills Muzzy after his school days is an entry in "*Marriages Registered in the town of Worcester for the year next preceding May 1, 1846*" which shows he and Mary Jane Wesson were married on September 17th, 1845.⁶⁸ It was recorded that on the date of their marriage, Nathan Mills was 23 years old, born in Auburn, and Mary Jane was 21 years old, born in Worcester. Both their parents lived in Worcester as of 1845.

The youngest son of Rufus and Betsy Wesson was Franklin “Frank” Wesson, born on November 8th, 1828. Presumably he attended his big sister’s wedding in 1845. He would have then been 16 years old. Thirteen years after his sister’s wedding, in 1858, he would be manufacturing innovative breech-loading long arms in the Merrifield Building in Worcester, the same building in which his brother-in-law Nathan would be making Morse-Muzzy fire-arms. By then Franklin Wesson was a 30-year-old experienced gunsmith. Franklin Wesson’s carbines were bought and deployed by the U.S. Ordinance Department and several states during the Civil War. Franklin Wesson listed his profession as “gunsmith” when he himself got married on December 25th, 1854, at age 26.⁶⁹

Nathan Mills Muzzy’s father, Nathan Muzzy, moved from Auburn to Worcester sometime between 1837 and 1844. We know that based on two records:

- 1) The last word we have of him in Auburn is his purchase of a church pew in 1837. According to *“A Historical Sketch of Auburn,” Nathan Muzzy, the father, bought a pew in the Congregational Church at Auburn Center during a pew auction to support its improvements in July 1837.*⁷⁰ Nathan Muzzy, the father, was a religious Congregationalist; his gravestone is inscribed “Deacon Nathan Muzzy.”
- 2) The first listing we have of Nathan Muzzy, the father, in Worcester is in the business directory of 1844, when he is first listed as a blacksmith. In addition to the 1844 *Worcester Directory*, Nathan Mills Muzzy’s father described himself as a blacksmith in 1845, and all the Worcester Directories from 1848 through 1854, the 1850 U.S. census, and the 1855 Massachusetts Census.

Like his father in 1845, Nathan Mills Muzzy also described his profession in 1845 as a “blacksmith” (on his marriage registration). He is NOT listed as having his own business in the 1844, 1845, 1848, 1849 or 1850 Worcester Directories, so, assuming he was working as a blacksmith during those years, he must have worked in someone else’s shop, presumably his father’s.

In the 1850 Census, Nathan Mills Muzzy describes his profession as “armorer,” a change from the “blacksmith” of 1845 marriage records. In the 1851 *Worcester Directory*, he’s listed, for the first time in any Worcester Directory, as having his own business as an “armorer at the address “h 75 Summer.” From then on, he and his father are listed separately.

The combination of listings in the Worcester Directories, the census records and his marriage application suggests that the beginning of Nathan Mills Muzzy’s career was working for and learning the blacksmith trade from his father before his 1845 marriage (at age 23) and probably, even longer, after his marriage for five more years, until he was 28 years old, in 1850. At that point he apparently left his father’s shop to set up his own business with a different profession other than “blacksmith.” His new profession was listed as an “armorer.” He is again listed as an “armorer” living on Summer Street in the 1852 and 1853 editions of the *Worcester Directory*.

The next year, 1854, he is listed in the *Worcester Directory* as being part of a partnership: Hitchcock & Muzzy, with an address on Exchange Street. The other record we have of Nathan Mills Muzzy describing him with his new profession is in his application to become a member of the Morning Star Lodge of the Masons. (Figure 16) He was initiated on October 3rd, 1854, at age 32, and

again describes his profession as “armorer.” He’s also listed as an “armorer” living in Worcester in the 1860 Census.

Name <i>Muzzy, Nathan M.</i>			
Residence <i>Worcester</i>	Occupation <i>armorer</i>	Nativity <i>31</i>	
Lodge <i>Morning Star</i>	Initiated <i>1854-10-3</i>	Passed <i>1854-11-7</i>	Raised <i>1854-12-5</i>
Membership <i>1854-12-5</i>	Dis. Sus. Dis.	Reinstated	Deceased
Remarks:			

Figure 16. “Morning Star Lodge of the Masons” in Worcester registration card for Nathan M. Muzzy, who was initiated on October 3rd, 1854. He listed his profession as “armorer” rather than “blacksmith”.

The 1855 *Worcester Directory* also lists Hitchcock (Dexter) & Muzzy (N.M.) twice, once as manufacturers of “rifle-barrels” in the Merrifield’s building H on 21 Myrtle Street, and separately, with Nathan M. Muzzy (Hitchcock and Muzzy) at 66 Exchange Street, but with no specification of profession. It’s a little odd that the Directory has two listings for Hitchcock and Muzzy as partners at two different addresses. Perhaps they were moving their practice during the year. Father Nathan Muzzy’s father has the same name as his son and is still listed, but separately, in the 1857 *Worcester Directory*. Nathan Muzzy, the father, continues to list his occupation as “blacksmith,” living at 9 Market Street. Nathan M. Muzzy, the son, is again listed as part of a partnership, (Hitchcock & Muzzy & Co.) at a street named Exchange. The professional skills of the partnership are not described in the 1857 directory.

In the December 30th, 1908 obituary of Dexter Hitchcock published in the *Hartford Courant*, the profession of Nathan Mills Muzzy’s partner during these years (1854-1857), was described a “boring and straightening gun barrels.” Dexter Hitchcock died at age 85. The obituary says that he worked during his career in five cities: Hartford, Providence, Worcester, New Haven and Springfield. He never described himself as a gunsmith.

Nathan Mills Muzzy’s father, Nathan Muzzy, passed away on June 23rd, 1858 at age 65. So far no one has had a picture to share of Nathan Mills Muzzy for us to see, but we do have a picture of his father, Nathan Muzzy (Figure 17).

Worcester Daily Spy ads and legal news articles about Nathan Mills Muzzy before and during the Morse-Muzzy production years 1857 and 1858.

The earliest mention of Nathan Mills Muzzy is in the Worcester *Daily Spy* and are advertisements taken out by Hitchcock & Muzzy on November 17th, 1854, and again on January 24th, 1855. In the ads they described their profession as “manufacturers of steel rifle and shotgun barrels.” (Figure 18) and working in Merrifield’s building. In an advertisement taken out later in the 1856 *Worcester, Massachusetts Directory*, Hitchcock & Muzzy are again listed as “manufacturers of iron and steel rifle and shot barrels” working in Merrifield’s building. So apparently the name “Hitchcock & Muzzy” survived at least two years, from 1854 to 1856.⁷¹

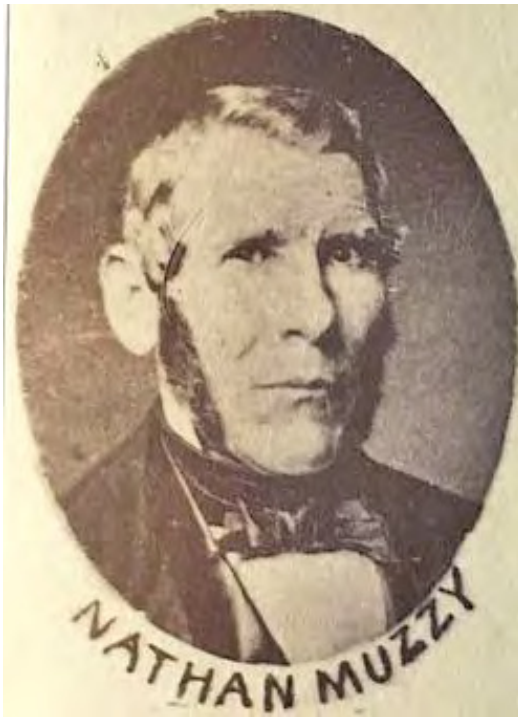


Figure 17. Nathan Muzzy, father of Nathan Mills Muzzy. Photo provided by “Find a Grave” contributor Aaron Bennian of “Historical Americana” in Lancaster, Pennsylvania.

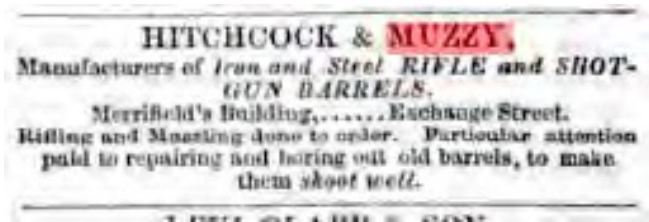


Figure 18. Ad taken out by Hitchcock & Muzzy on November 17th 1854 and again January 24th 1855 in the Worcester *Daily Spy* newspaper. In the ad they describe their profession as “manufacturers of steel rifle and shotgun barrels”, working in Merrifield’s building in Worcester.

As described earlier in this article, from mid/late 1857 through 1859 Nathan Mills Muzzy was working for George Morse to produce 100 Morse-Muzzy cased sets and at least four military-configured carbines/parts of carbines (such as receiver serial number 47). Before and during that period, while living in Worcester, his partnership situation was quite complicated. It was repeatedly changing, he lost Hitchcock as a partner, and he suffered bankruptcy during the years 1856-1859. We can see that by following the pattern over time, as reported in the local newspaper, the Worcester *Daily Spy*. The following changes were published legal announcements:

1. He was in partnership with Moses Stearns & James Paine for some period “up to July 1, 1856.” On July 1, 1856, Stearns left the partnership, and William Lang joined it (Figure 19). That suggests that when Hitchcock & Muzzy was the name of a business Hitchcock may not have been a financial partner as early as July 1856.
2. Six months later his partnership used the name Hitchcock, Muzzy and Co. but apparently didn’t include Hitchcock as a financial partner as of January 20, 1857. Instead, it included

James Paine and William Carey in addition to Nathan Mills Muzzy. That was a change from Paine and Lang as of July 1, 1856, six months earlier. Lang then left and William Cary was his only partner as of January 21, 1857 (Figure 20). William Carey was an experienced gun-maker. He was reported to have been working in Allen & Thurber’s pistol shop as early as June 15th, 1854, almost three years before.⁷²

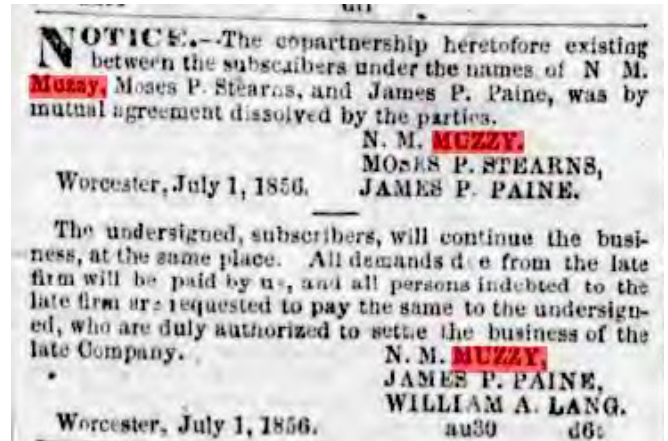


Figure 19. Legal notice in the Worcester *Daily Spy* newspaper, July 1, 1856 in which Muzzy and his partner James Paine change their third partner to William Lang from Moses Stearns. Hitchcock is not mentioned in this announcement, but his name is used as part of the name of the firm six months later, in January 1857.

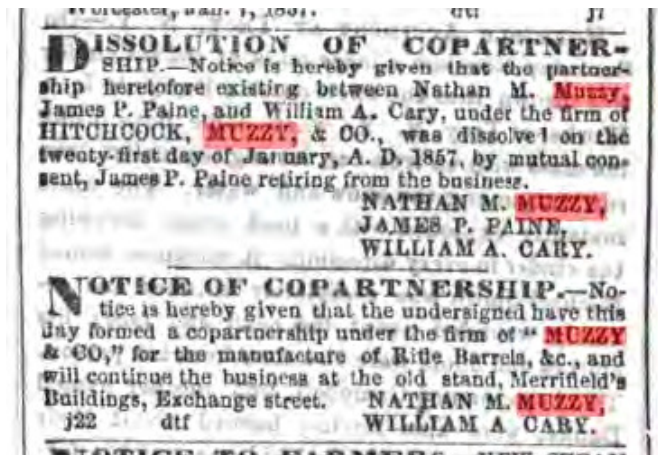


Figure 20. Legal notice in the Worcester *Daily Spy* January 21, 1857, six months after the legal notice in Figure 15. Paine leaves the partnership, joining the array of earlier exits by Hitchcock, Lang and Stearns. Only William Cary is left in partnership with Nathan Mills Muzzy.

3. On March 3, 1858, in the middle of his production of Morse-Muzzy cased sets, and one month before he delivered a Muzzy-made Morse carbine for Benjamin McCulloch at the request of Secretary of War Floyd to carry in the Utah War, Nathan Mills Muzzy and his only remaining partner at that time, William Carey, were described as “machinists” and “insolvent debtors” by a “Judge of Insolvency” in Worcester, and a warrant issued against both of their estates (Figure 21).
4. In August of 1858 real estate Nathan Mills Muzzy owned and had mortgaged to William T. Merrifield, his landlord as of 1854 (see Figure 22) was publicly auctioned off to pay his unpaid

mortgage. It was at about this time that with the financial help of George Morse, and other new investors from Boston and Lowell, that Muzzy moved his equipment and production to Lowell, Massachusetts and changed the name of his firm to "Muzzy Rifle Barrel and Gun Manufacturing Company." That move is described earlier in this article with the company's new business card and is illustrated in Figure 15.

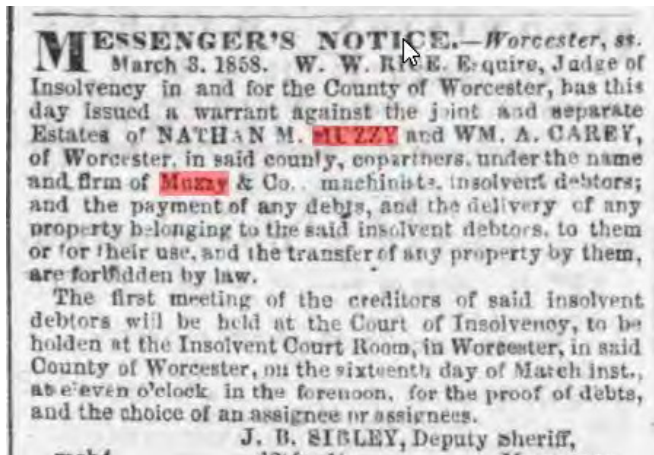


Figure 21. March 8th, 1858 legal notice in the Worcester *Daily Spy*.

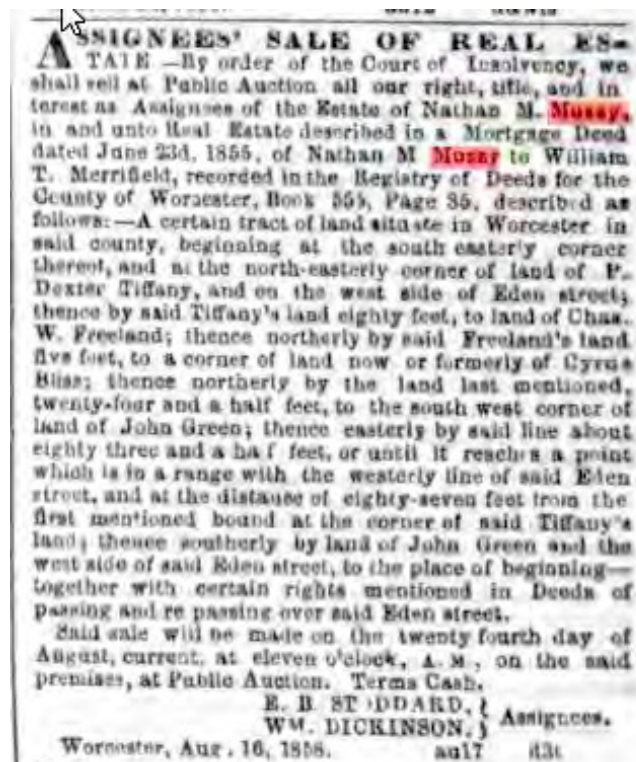


Figure 22. Legal notice in the Worcester *Daily Spy* August 16, 1858, announcing the sale at public auction on August 24th of his real estate to pay back mortgage payments due to his landlord, Merrifield.

In June of 1858, two months after his March 1858 bankruptcy, Nathan Mills Muzzy's father died at age 65. A few months later, in October 1858, Issac Morse, the brother of George Morse, wrote a letter complaining about Nathan Mills Muzzy's poor performance in terms of both quality and timeliness producing Morse-Muzzy cased sets (the letter is in the collection of Ed Hull). As described in the main body of this bulletin article, Muzzy's production was

moved from Worcester to Lowell in 1859 so that he could complete the manufacturing of the 100 cased sets.

In summary: the year 1858 was a very rough year for Nathan Mills Muzzy:

1. He and his only remaining partner, an experienced gun-maker named William Carey, went bankrupt.
2. His business was evicted from the Merrifield building, where he had been working since at least 1854. (The original Merrifield Building had been destroyed by fire in 1854 but had been rebuilt seven months later and re-occupied in 1855.)
3. His real estate was sold at public auction to pay off past mortgage payments to his landlord.
4. His customer Morse was so unhappy with his quality that the name Muzzy was not put on military style carbines.
5. His father died; and,
6. With financial help from Morse and other investors, he moved his business to Lowell, which is about 40 miles from Worcester. In Lowell he was able to complete the 100 cased sets of Morse-Muzzy firearms in 1859.

Worcester Directory & Census listings of Nathan Mills Muzzy in 1859 and 1860

The years 1859 and 1860 were complicated and probably very frustrating for Nathan Mills Muzzy. Although their partnership had been declared insolvent in March of 1858, the 1859 *Worcester Directory* still listed "Muzzy (Nathan M.) & Co (W.A. Carey) rifle barrels &c." at Exchange, 6 High. It seems possible that his business relocation to Lowell in 1858 lasted until he finished the 100 civilian sets for George Morse in late 1859 or 1860, and then he moved back and resumed his partnership with William Carey.

The 1860 U.S. Census, enumerated on June 25th, shows Nathan M. Muzzy, age 38, living with his wife Mary Jane and their first six children in Worcester, the youngest two of whom would pass away in 1861. However, we have a letter from the Muzzy Rifle Barrel and Gun Making Company in Lowell, written to George Warner and describing an intent to acquire machinery, dated June 1st, 1860. That letter suggests that his business in Lowell was then functioning (Figure 23). The 1860 *Worcester Directory* does not list Nathan M. Muzzy at all, but it does list William Carey, armorer, at 27 Portland. The listing for William Carey shows that Nathan Mills Muzzy's partnership with him was over by 1860. It seems likely that Muzzy moved his business to Lowell but kept his family in Worcester. At the end of 1860 Nathan and his wife had six children, one of whom was born in 1860 and two of whom died in 1861, including his wife's last baby, a boy born in 1860.

It is likely that during 1860 Nathan Mills Muzzy attempted to produce 10,000 .69 caliber Morse cartridges, perhaps in Worcester. George Moeller indicated that in 1859 "*The Muzzy Company, located in Worcester, Massachusetts, had contracted with the Ordnance Department to produce 10,000 .69 caliber Morse cartridges, and the musket was sent to them for testing purposes.*"⁷³

Figure 23 shows that Muzzy was at least by name still part of a business in Vermont as late as June 1st, 1860, even though his U.S. Census information, enumerated on June 25th 1860, shows him living in Worcester with his wife and children. The text of the letter on Muzzy Rifle Barrel and Gun Making Company stationary above is as follows: *We have seen no occasion to change our views or purposes in respect to the purchase of the articles of machin-*

THE MUZZY
Rifle Barrel & Gun Manufacturing Comp'y.
LOWELL, MASS.

This Company is composed of an association of Capitalists in Boston, Lowell and Worcester, and is incorporated under the General Incorporation Act of the Commonwealth. They have purchased extensive manufacturing buildings recently erected in the City of Lowell, and have also become the proprietors of the Machinery, Tools and Stock recently operated by Muzzey & Co., of Worcester, in the making of Rifle Barrels, and all other descriptions of Gun Barrels. Mr. Muzzey retains charge of that department of the business, and brings to it the advantages of his long, practical and successful experience as a Barrel Maker, together with some of the best workmen in the country. The company are prepared to execute with promptitude, all orders for Rifle, Shot or Pistol Barrels, of either Cast Steel or Iron. They have every desirable facility for Rifling and Breeching Barrels; for attaching Patent Muzzles and Telescopes to Target Rifle Barrels; and otherwise to fit sporting arms of every description for stocking; or they will put them up, ready for service, in the most workmanlike manner, and in any style of finish which may be desired. Guns will be Repaired in a perfect manner and with prompt dispatch.

Office of the
Muzzy Rifle Barrel and Gun Manufacturing Company.

Lowell June 1st 1859
George Wardner Esq
Windsor Vt.

Sir

We have seen no occasion to change our views or purposes in respect to the purchase of the articles of Machinery for which the prices were agreed upon on yesterday. We shall commit ourselves in a definitive order as soon as we shall receive the concurrence of some absent Directors of our Company, and so soon as we shall receive your ultimatum in respect to the price of the Index Milling Machine.

We remain Sir,
Very respectfully,
Your M^o Obedt,
For the Company J. W. Muzzey

Figure 23. Letter from Issac Morse of the Muzzy Rifle Barrel and Gun Making Company to George Wardner dated June 1, 1859.

ery for which the prices were agreed upon on yesterday. We shall commit ourselves in a definitive order as soon as we receive the concurrence of some absent Directors of our Company and as soon as we shall receive your ultimatum in respect to the price of the Index Milling Machine. We remain sir very respectfully, your most obedient servant etc. for the Company. The letter is signed by an executive of the Company. The new Muzzy company was being financed by Boston capitalists/ investors that have not been identified.

Nathan Mills Muzzy during the Civil War years, 1861 to at least 1864

By 1861, after the start of the Civil War, Nathan Mills Muzzy was employed at the federal armory in Springfield. He's listed in the *Springfield Massachusetts Directory* in 1861 as "emp U S Armory, h Mechanic St." (Figure 24). When the Civil War began in 1861, he changed from being a *business owner* to an *employee* of the Springfield Armory and moved 53 miles from Worcester to Springfield. He must have arrived in Springfield before June 15th, 1861, two months after the start of the Civil War, because the *Springfield Daily Republican* lists him as having a letter left in the Post Office as of that date.

In 1861 he is also listed in the *Worcester Directory*, but he describes his profession as a "machinist" for the first and only time. The new (and unique to 1861) use of the profession description "machinist" by Nathan Mills Muzzy in the 1861 *Worcester Directory* might have been made by him to convince the recruiting staff at the Armory that he was qualified to work for them.

His stay in Springfield was short. By 1862 Muzzy had moved from Springfield to Windsor, Vermont and was employed there working at Lamson, Goodnow & Yale (L.G.&Y.) for at least two years, and as many as five.

- On September 19th, 1862, Nathan Muzzy was assessed for owning "one horse buggy" worth \$90 while a resident of Windsor.⁷⁵
- His July 1863 Civil War draft registration says that he was then living in Windsor, Vermont and working as an employee with the job title "armorer." He registered for the draft in July of 1863, aged 42 (the maximum age was 43). According to the Historical section of the 1905 Windsor City Directory, there was only one armory in Windsor during the Civil War: Lamson, Goodnow & Yale.
- In 1864 his and Mary Jane Wesson Muzzy's seventh child, Ethel, was born in Windsor.

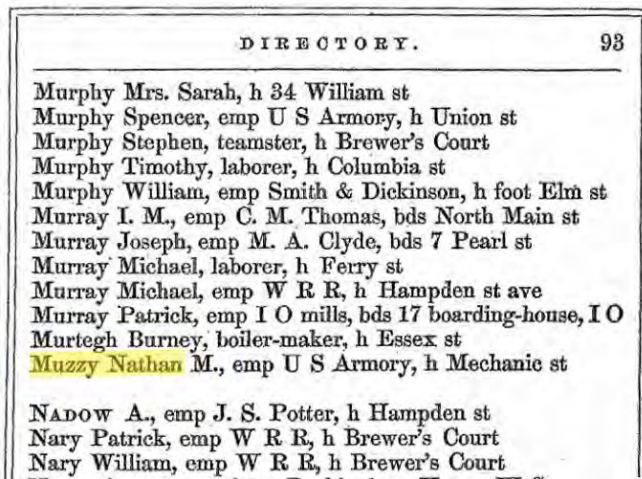


Figure 24. 1861 Springfield, Massachusetts Directory.

In 1862, skilled labor was in short supply. Many skilled craftsmen had been recruited, and from 1863, drafted into the Army. The Lamson, Goodnow & Yale Company were eager to recruit people with Nathan Mills Muzzy's skills during the Civil War, even if they were not local. According to an article by Carrie Brown for the Vermont Historical Society titled "Guns for Billy Yank"⁷⁵

"Experienced gun makers, young machinists, and apprentices were recruited not only from the local community, but from machining centers in New Hampshire and Massachusetts—perhaps even farther away, since Stone's network of colleagues extended at least as far as Connecticut and Rhode Island."

On September 28, 1861, the *Vermont Journal* reported the upswing in activity at the largest factory in Windsor: *"We understand that Lamson, Goodnow & Yale are soon to employ a force of three hundred men in the manufacture of arms, at the Windsor armory, and that as soon as the gas fixtures are put in, the machinery is to run day and night."*

Good quality iron for barrels was difficult to obtain. Many firearms manufacturing companies had to purchase either good quality iron or entire barrels for the rifled muskets contracted by the Army during the Civil War. Many of the first 2,000 barrels of the first Special Model 1861 rifled muskets made by L.G. & Y. failed federal "proofing" of the barrels. LG & Y did not manufacture barrels. They purchased them from England (ref: George Moeller, page 316), manufactured stocks, and other hardware, and then assembled the rifle-muskets. Good quality barrel blanks were eventually sourced from the Monway Iron Works in England that produces high quality 'John Marshall' iron.⁷⁸ It is likely that Nathan Muzzy's experience making rifle barrels as well as being an armorer made him a valuable employee. At this point in time, we don't have any information about Nathan Mills Muzzy's location from 1865 to 1867. It's certainly possible that he continued to live in Windsor during those years.

Nathan Mills Muzzy moves back to Worcester, 1868 - 1872

The 1868 *Worcester Directory* lists Nathan M. Muzzy as a gunsmith, located at the corner of Mason & Chandler. This is the first time Nathan M. Muzzy has publicly identified himself as a gunsmith. It's been ten years since his production of the Morse

Muzzy cased set of firearms. His self-description as a "gunsmith" in Worcester was short-lived, however. In two years he reverted to being identified as a blacksmith. Both the 1870 & 1871 *Worcester Directories* list lists Nathan M. Muzzy as a blacksmith.

The 1872 *Worcester Directory* lists him in a new partnership with another man named Muzzy: Charles A. Muzzy, who is listed in the 1873 and other annual directories as a "blacksmith." Nathan's oldest brother was named Charles, but marriage records show that this blacksmith named Charles A. Muzzy had different parents than Nathan Mills and hence was not his brother. The 1872 *Worcester Directory* lists Muzzy & Co. (Charles A. & Nathan M. Muzzy), blacksmiths, located at the rear of 160 Southbridge. There is also an advertisement on page 365 of the directory (Figure 25) indicting as "horseshoers" and "carriagesmiths" and "general jobbers" as well as blacksmiths.

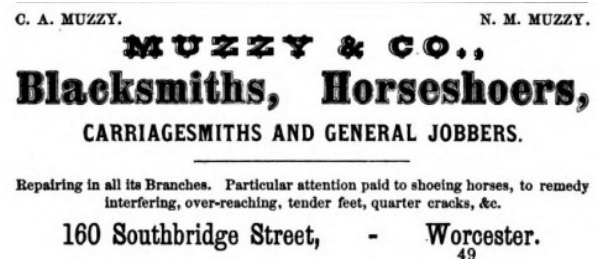


Figure 25. Charles A. Muzzy and Nathan M. Muzzy listing as business partners in the 1872 Worcester Directory.

Nathan Mills Muzzy moves to New Haven, Connecticut in 1873 or 1874 for a few years.

The 1873 *Worcester Directory* does not list either Nathan M. Muzzy or Muzzy & Co. but it does continue to list Charles A. Muzzy as a blacksmith, as did earlier Directories. Nathan M. Muzzy had moved to New Haven in 1873 or early 1874. He is listed in the 1874 *New Haven Directory* as still as a "gunsmith house 71 Gregory." He's also listed in the 1875 Directory, but he has changed his address, "gunsmith 163 Elm, h West Haven". The 1876 *New Haven Directory* is not available. His location in 1876 is unknown.

Nathan Mills Muzzy moves to Chicago by 1877, forms at least one last partnership that lasted two years and lives there until his death in 1893.

The *Chicago City Directory* of 1877 lists Nathan M. Muzzy as a gunsmith located at "80 Vanburen, h. 542 Austin av." This confirms that Muzzy moved from New Haven to Chicago sometime between 1875 and 1877.

The *Database of American Gunmakers*⁷⁹ reports that Nathan Muzzy was in a new partnership as "Muzzy & Trumbull" located at 45 South Canal Street from 1880 to 1882. The 1882 *Chicago City Directory* lists "Muzzy & Trumbull" (Nathan M. Muzzy & George W. Trumbull) as gunsmiths at "45 Canal Street." Two other publications confirm this partnership. Col. Robert Gardner in his book *Small Arms Makers*⁸⁰ also lists Nathan Mills Muzzy in a partnership with Trumbull and located in Chicago. Frank Sellers also reports in his book *American Gunsmiths*⁸¹ that Muzzy was in a partnership with Trumbull as "Muzzy & Trumbull in 1880."

The partnership must have ended by 1885. The *Chicago City Directories* of 1885, 1887, 1889 and 1890 list Nathan M. Muzzy

as a gunsmith, but without Trumbull as a partner.

Nathan Mills Muzzy is issued a United States patent in 1889 at age 67.

Nathan Mills Muzzy continued to invent. In June of 1889 Nathan Mills Muzzy was issued patent 404,855 for a "device for uncapping and recapping cartridge shells" (Figure 26). That he received this patent proves that Nathan Mills Muzzy was knowledgeable and ex-

perienced working with reloadable cartridges, such as first invented by Morse for his cartridges. As mentioned earlier, Bob Holter in his May 2001 article in *The Gun Report* said: "I believe the Morse-Muzzy loading tools contained in the cased sets to be the first ever produced for the loading and reloading of center fire cartridges." This patent was likely a way for Nathan Mills Muzzy to profit from expertise in capping and uncapping reloadable cartridges, and makes sense given his experience in that skill area.

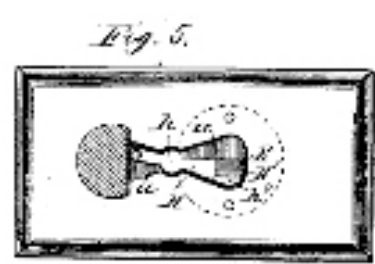
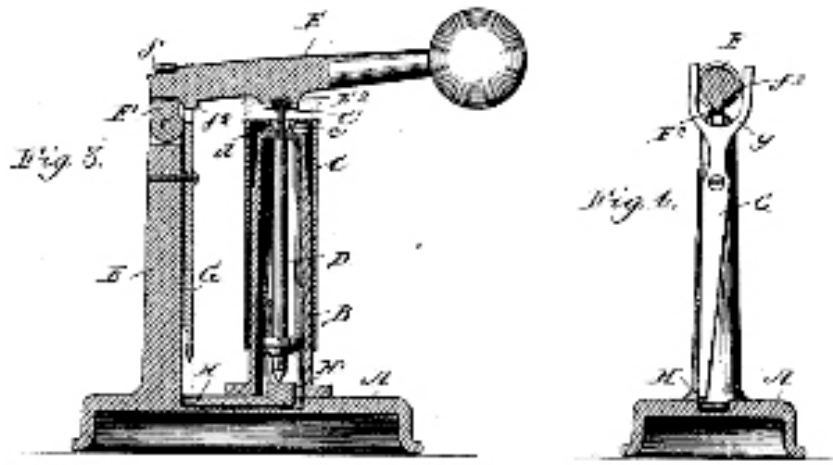
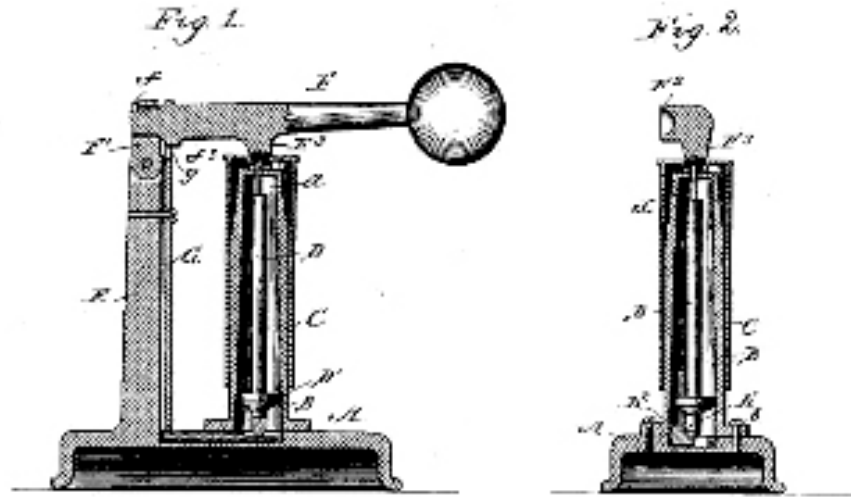
(No Model.)

N. M. MUZZY.

DEVICE FOR UNCAPPING AND RECAPPING CARTRIDGE SHELLS.

No. 404,855.

Patented June 11, 1889.



Witnesses,
N. D. ...
W. C. ...

Inventor,
Nathan M. Muzzy.
 by *Ernie Miller*
 Atty.

Market-st., Room 209.

FOR SALE—CIRCULAR SAW, SHAPER, DRILL table, belting, 340 Dearborn-st. N. M. MUZZY.
MACHINERY FOR SALE—ON ACCOUNT OF RE-

Died in a Drug Store.

M. M. Muzzy, a gunmaker, who had an office at No. 340 Dearborn street, entered a drug store at Van Buren and South Halsted streets, late last night, and sat down in a chair. P. J. Klein, the clerk, noticed him a few minutes later and, thinking he might be ill, spoke to him. Muzzy did not move or respond, and upon examination, Klein saw he was dead. The remains were removed to the county morgue.

MUZZY—The funeral of Nathan M. Muzzy, who died July 22, will be held Sunday, July 30, at 3 p. m., at Trinity Baptist Church on Ohio-st., near the corner of Robey, and from there he will be taken East for burial. All friends are invited.

Figure 27. Muzzy advertisement in the *Chicago Tribune* to sell his equipment (January 22nd, 1893 – top); report of Muzzy’s death (*Inter Ocean Newspaper* on Monday, July 24th, 1893 – center); and announcement of Muzzy funeral (*Inter Ocean Newspaper* on Friday, July 28th, 1893 - bottom).

Nathan Mills Muzzy sells his equipment and passes away in 1893.

On January 22nd, 1893, N. M. Muzzy placed an advertisement in the *Chicago Tribune* to sell his equipment (Figure 27). In July of 1893, Nathan Mills Muzzy passed away peacefully sitting in a chair in a drug store at age 71. The manner of his death was

described in a brief newspaper article in the *Inter Ocean Newspaper* on Monday, July 24th, 1893. His funeral is announced on July 28th in that same newspaper, as well as the *Chicago Tribune*. The funeral took place on July 30th, 1893. His body was shipped from Chicago back home, to Worcester, where he is buried in Hope Cemetery, near his mother, father and many other Muzzy relatives.

Summary of Nathan Mills Muzzy’s career

Nathan Mills Muzzy career spanned about 50 years, from as early as 1841 (the year after his 1840 school enrollment) to 1845 (when we have the first documentation that he was a blacksmith) until January 1893, when he sold his tools. During that roughly 50-year timeframe the only known production of complete guns for which we see any evidence were the Morse-Muzzy firearms made in the first third of his career during the years 1857-1859.

He was first trained as a blacksmith (presumably working for his father), a repairer of guns (armorer), a maker and straightener of barrels, a mechanic, a horse-shoer and—during the Civil War years— an employee of the armories in Springfield and Windsor.

Nathan Mills Muzzy did use the term “gunsmith” to describe himself numerous times in Directories, but that term might have been meant by to include repairing (being an “armorer”) and making gun barrels instead of manufacturing complete guns. If he did make complete guns, he seems to never have followed the common practice of marking the receiver or its lock plate tang before or after his years making the Morse guns.

Nathan Mills Muzzy led a complicated life. He had 12 siblings, two wives, eight children, lived in four states, worked for two armories and had at least seven partners: Dexter Hitchcock, William Carey, Moses Stearns, James Paine, William Lang, Charles Muzzy and George Trumbull.

EndNotes

- ¹ Seigler, Robert S. *The Best Gun in the World: George Woodward Morse and the South Carolina State Military Works*, University of South Carolina Press, 2017.
- ² Goodson, Jeff, “Rare American Carbines: The Morse Muzzy”, *American Society of Arms Collectors Bulletin* 128:14-19. 2023.
- ³ Ibid. p.14; Seigler, 2017. op. cit. pp. 32-34; 50-51.
- ⁴ Seigler, 2017, op. cit. pp 64-66. Morse signed a contract on 13 September 1859 to alter 2,000 US muskets to his patent breechloading system. The muskets were altered at the Harpers Ferry Armory. He was only able to alter 56 before funds authorized by the contract were expended. Additionally, 4 Model 1841 rifles were altered at the Springfield Armory. Springfield Armory also fabricated 4 “carbines”. The carbines, however, were cutdown Model 1816/22 muskets. Moller, George D, *American Military Shoulder Arms*, Vol III, University Of New Mexico Press, 2011, pp. 95-97.
- ⁵ Ibid, pp. 209-210
- ⁶ United States Federal Census 1850 for Virgil D. Stockbridge, Maine-Oxford County-Bryon page 5 found on Ancestry.com; Massachusetts State Census 1855 Suffolk, Boston Ward 02, pages 94-95 found on Ancestry.com under Virgil Demetrius Stockbridge, born Bryon, Maine 1837; Cathleen Stone Island Outward Bound School website: <https://cathleenstoneisland.org/about/our-history>. Cathleen Stone Island Outward Bound School is the current name of what had been The Farm School in 1855.
- ⁷ United States Federal Census 1860, V.D. Stockbridge, age 22, lived in Marshfield, Missouri, and can be found there on Ancestry.com. Stockbridge’s profession is described as “teacher.” He boarded with a local physician, N.H. Hampton and his family.; US Schools Catalogs, 1765-1937 for Virgil D. Stockbridge, Massachusetts-State Normal College-1876 which can be found on Ancestry.com. Page 109 of 185. Stockbridge was a member of “Class #50.” He is described as having taught for three years, but currently (meaning 1876) working as Examiner-in-Chief of the Patent Office.

- ⁸ Registration history of National Homes for Disabled Volunteer Soldiers, 1866-1938, Hampton – Registration of Members 1871-1933 found on Ancestry.com. Stockbridge entered a home for disabled soldiers on February 24, 1914 at age 77, and passed away on November 4, 1915.
- ⁹ Seigler, 2017. op. cit. p. 216
- ¹⁰ *National Republican* edition of June 3, 1875
- ¹¹ The American Association of Patent Judges website lists past members of the Board of Examiners-In-Chief. During Stockbridge’s 5-year tenure there were 3 or 4 members at a time serving under a single Commissioner. See <https://aapj.us/members/>
- ¹² Seigler, 2017, op. cit. pp. 204-214
- ¹³ Stockbridge, V. D. *Digest of Patents Relating to Breech-loading and Magazine Small Arms, (Except Revolvers) Granted in the United States from 1836 to 1873*, inclusive. Washington D.C. 1874.
- ¹⁴ *Ibid*, p. 77
- ¹⁵ *Ibid*, p. 30.
- ¹⁶ This Army breech-loader total includes 3,600 Hall Model 1843 carbines, 1,000 Sharps carbines (Models 1851, 1852 and 1855), 924 Colt pistol carbines, 400 Maynard carbines, 200 Burnside carbines, 200 Greene carbines, 50 Joslyn carbines, 25 Perry carbines, 20 Symmes carbines, 10 Schroeder rifles and 1 Morse carbine. All were percussion ignition. Few, if any, of the Hall, Perry, Schroeder, Symmes and Joslyn carbines were issued to troops. The Army did also issue purchase orders for 170 Merrill, Latrobe, and Thomas and 100 more Morse carbines but only one Morse carbine was delivered. The Navy and Treasury Department did purchase several hundred more breechloaders (200 rifles and 100 Sharps carbines, 60 Maynard carbines, and 50 Perry carbines by the Navy and 200 Maynard carbines by the Treasury Department).
- ¹⁷ Seigler, 2017, op. cit. p. 211
- ¹⁸ *Ibid*, p. 212
- ¹⁹ *Ibid*
- ²⁰ *Ibid*, p. 217. When Morse’s claims were finally argued before the US Supreme Court in 1895, Morse was dead. He had died in 1888.
- ²¹ *Ibid*, p. 211
- ²² *Ibid*.
- ²³ *Ibid*, p 24
- ²⁴ Coates, Earl J., Thomas, Dean S. *Introduction to Civil War Small Arms*, Thomas Publications, Gettysburg, 1990, p. 38
- ²⁵ *Ibid*, p. 40
- ²⁶ Williamson, Harold F., Winchester: *The Gun that Won the West*, A. S. Barnes, 1952. P. 66
- ²⁷ The Table is updated from the table included in Jeff Goodson’s article in the *American Society of Arms Collectors Bulletin* (Goodson, 2023, op. cit. p 129)
- ²⁸ Letter Issac Morse to George Wardner of Windsor, Vermont on November 26, 1858. (Edward Hull collection) This letter, in addition to complaining about the quality of Muzzy manufactured firearms, also indicates that Morse was seeking a new manufacturer.
- ²⁹ Seigler, 2017. op. cit. p. 34
- ³⁰ Goodson, 2023. op. cit. p. pp. 18-19
- ³¹ Seigler, 2017. op. cit. p. 16.
- ³² *Ibid*. p. 50
- ³³ *Ibid*. p. 73.
- ³⁴ Seigler could provide few details about Christian H. Munck. All that is known is that George Morse employed Munck, a gunsmith working in Washington D.C. Munck was listed in the 1860 Census as a 40 years old German born gunsmith. His name is also listed in the *Washington Directory* between 1862 and 1866. (*Ibid.*, p 249). Munck’s hybrid design was never patented.
- ³⁵ *Ibid*, p. 74
- ³⁶ *Ibid*.
- ³⁷ The contract specified a rifle, a musket, a carbine and a pistol. These arms were not to be conversions but new built arms but using Government barrels. Morse requested a .58 caliber “rifle-pistol” barrel, a .58 caliber rifled musket barrel, a .58 cal. Rifle barrel with three grooves, all from the Springfield Armory and a .58 caliber rifle barrel, a 24-inch carbine barrel and three US Model 1842 musket barrels (.69 caliber). Morse received the barrels but was unable to make any of the breechloaders and returned the barrels. (*Ibid*, p 48)

- ³⁸ Ibid.
- ³⁹ Ibid. p 50
- ⁴⁰ Ibid. p 34
- ⁴¹ Holter, Bob “The Morse-Muzzy Connection”. *Gun Report*. Vol. 46:18-23. 2001.
- ⁴² Poll, Richard D., *The Utah War*, Utah History Encyclopedia, 1995 (website <https://historytogo.utah.gov/utah-war/>)
- ⁴³ Cutrer, Thomas W. *Ben McCulloch and the Frontier Military Tradition* University of North Carolina Press. Chapter 15.1993.
- ⁴⁴ Seigler, 2017. op. cit. p. 20
- ⁴⁵ Historical marker in Baton Rouge commemorates Daniel Searles: Here stood the home and shop of Captain Daniel Searles, one of Baton Rouge’s early gunsmiths and knife makers. Searles was a maker of the famed Bowie knife. His name is engraved on a knife made for Rezin Pleasant Bowie for presentation to a prominent local citizen, Captain Henry Waller Fowler, U.S. Dragoons. Searles death and the complaint a few days before about his poor health was reported in his obituary published in the *Baton Rouge Weekly Advocate*, March 21, 1860
- ⁴⁶ Seigler, 2017, op. cit. p. 33
- ⁴⁷ 1855 *Worcester City Directory*
- ⁴⁸ Holter, 2001. op. cit. p. 18
- ⁴⁹ Ibid.
- ⁵⁰ *Worcester Daily Spy* edition of March 8, 1858 reports the joint ownership.
- ⁵¹ Ibid. The article reports the announcement.
- ⁵² *Worcester Daily Spy* edition of August 20, 1858 reports the announcement.
- ⁵³ Seigler, 2017, op. cit. p. 34
- ⁵⁴ The 1859 *Worcester Directory* lists “Muzzy (Nathan M.) & Co (W.A. Carey) rifle barrels &c.” at Exchange, 6 High.
- ⁵⁵ A business card was attached to a letter written on Company stationery with the company letterhead to George Wardner, a businessman and attorney in Windsor, Vermont dated 26 November 1858, from Morse’s brother, Issac S. Morse inquiring if Wardner might consider replacing Muzzy and completing the contract for the cased sets as well as assuming later contracts for Morse patented arms. Interestingly, the letter is on stationery of the Muzzy Rifle Barrel and Gun Manufacturing Company.
- ⁵⁶ Seigler, 2017. op. cit. p. 33
- ⁵⁷ Seigler, 2017. op. cit. p. 50.
- ⁵⁸ Nathan Mills Muzzy died in Chicago on July 22, 1893. For report of Muzzy’s death see *Inter Ocean Newspaper* published in Chicago on Monday, July 24th, 1893 (can be found in Newspapers.com)
- ⁵⁹ *Vital Records of Leichestser Mass*, published by Franklin Rice, 1903, page 187 under “Leicester Marriages.” Can be found as part of Massachusetts, U.S. *Vital Records 1640-1849* via Ancestry.com under the name Nathan Muzzy, born 1792 in Leicester, Massachusetts, residing on September 12, 1816 in Auburn, Massachusetts
- ⁶⁰ *Vital Records of the Town of Auburn to the End of the Year 1850*, published by Franklin Rice 1900, page 42 under “Auburn births.” Can be found as part of *Massachusetts, Compiled Birth, Marriage and Death Records* via Ancestry.com. Nathan Mills Muzzy’s mother gave birth to 10 children in the years 1818 to 1836. He had an older brother, also named Nathan, from his father’s first wife, who was 18 years old when Nathan Mills was born.
- ⁶¹ Ibid, also page 42.
- ⁶² *Catalogue of the Trustees, Instructors & Students of the Leicester Academy for the Term Ending August 12, 1850*. Published in Worcester, 1840. Page 9. Can be as part of High School Student Lists,1821-1923 using Ancestry.com
- ⁶³ *Marriages Registered in the Town of Worcester for the Year Next Preceding May 1, 1846*, page 209. Can be found as part of Massachusetts, U.S. Marriage Records 1840-1915 using a Nathan Muzzy search in Ancestry.com
- ⁶⁴ *Massachusetts Soldiers and Sailors in the War of the Revolution*, Volume 1, page 464. Can be found in Ancestry.com under *Massachusetts, U.S. Soldiers and Sailors in the Revolutionary War; Daniel Baird*
- ⁶⁵ Death records can be found for the Nathan and Mary Jane Muzzy children who passed away before 1915 in *Massachusetts, U.S., Death Records 1841-1915* using Ancestry.com under the child’s name and birth date. There is an obituary for Ethel (Wesson) Ather-ton in “*The Morning Union*” (Springfield, Mass) October 18, 1949. There is a death notice for Norman N. Muzzy in two Connecticut newspapers: *The Day* (New London) and *The Hartford Courant*, both March 4, 1914. Cornelia Wesson Boydon’s tombstone in Worcester Rural Cemetery can be seen using “*Find A Grave*.”

- ⁶⁶ Using Ancestry.com see *Out of Town Marriages registered in the City of Boston for the Year 1877*, page 19246, which can be found under *Births, Marriages and Death, Massachusetts, U.S., Town and Vital Records, 1620-1988*, for *Sarah L. Simmons*, born 1851 and for *Amelia Jeanette Muzzy, born 1878*. Nathan Mills Muzzy was Sarah Simmon's second marriage, as she was his second marriage. Sarah Simmons maiden name was Sarah Morse.
- ⁶⁷ Using Ancestry.com see Sarah Muzzy in the *Cook County, Illinois, U.S., Deaths Index, 1878-1922*. Sarah Muzzy is buried in the Forrest Home Cemetery. The url for her in the Find A Grave Index on Ancestry.com is <https://www.findagrave.com/memorial/174238256/sarah-l.-muzzy>
- ⁶⁸ "*Marriages Registered in the town of Worcester for the year next preceding May 1, 1846*" page 209, found using a search for Nathan Mills Muzzy, born in Auburn, Massachusetts, 1822 in *Massachusetts Marriage Records, 1840-1915* on Ancestry.com

