

The Survival Files

Starr's Civil War Percussion Revolvers

by Jeff Goodson and Philip Boulton



The only known set of engraved and silver plated Starr Model 1858 Army Revolvers of .44 caliber known to exist. FROM THE COLLECTION OF FRANK GRAVES

The Survival Files examines the survival rates of antique American firearms. It is based on data collected by British antique arms expert Philip Boulton, who has recorded over 85,000 serial numbers since 1970. The database includes dozens of U.S. and British percussion revolvers, collected from U.S., U.K. and other international sources. These include museums, auction houses, firearms publications, historical literature, gun catalogues, gun shows, online sales, private collections, and other serial number collectors.

This first *Survival Files* column refines production estimates for the Starr Arms Co.'s three Civil War era percussion revolvers, and quantifies for the first time their known survival rates for both the Civil War years and the decades after.

History of the Guns. The history of arms production by the Starr family dates back to the 1790s when it made swords and other bladed weapons. In the 19th century the trade expanded to include the manufacture of firearms in Middletown, Connecticut. Nathan Starr made about 15,530 Model 1816 flintlock muskets from 1829-1840, and Starr & Son made about 10,020 flintlock rifles under U.S. government contracts of 1823 and 1840 (Flayderman).

Nathan's son Eben continued developing the trade, and in 1856 he was granted the first of eleven firearms patents. In 1858 he delivered a carbine and pepperbox to the U.S. Naval Yard for testing (Schiffers), and a carbine and early 'double-action' .36-caliber revolver for testing to the Washington Arsenal (McAulay). When a U.S. Ordnance



Fig. 1 - The Three Starr Brothers; the .36 double action (bottom), .44 double action (center) and .44 single action (top). Note that except for the change from double to single action around 1863, and the longer barrel length of the single action, the basic configuration of these three models remained largely consistent throughout Starr's production of over 59,000 revolvers.

Department contract for 500 Navy revolvers followed in November 1858, the Starr Arms Company was formed to secure financing and start production.

Production Estimates. The Starr Arms Co. manufactured guns from 1858-1865, at factories in Binghamton and

Yonkers, New York. The company was dissolved in 1867 as government orders dried up after the Civil War. During its short life, Starr Arms produced some 20,601 percussion carbines, 5,002 cartridge carbines, a few experimental revolving rifles (Flayderman; Sellers & Smith), and about 59,025 percussion revolvers (Table 1).

Starr revolvers included one .36 caliber and two .44 caliber models. The first was the Model 1858 Navy. Made from 1858-1860, the Navy was a 6-shot, double-trigger percussion firearm with a 6-inch round barrel. Both it and Starr's first .44 caliber revolver had a novel 'double action'—actually self-cocking—mechanism that was far advanced for its time (McAulay and others). The third model was a simpler and cheaper .44 caliber single action made at U.S. government insistence about mid-way through the Civil war.

The Boulton database improves on the accuracy of total production estimates for all three models of Starr revolver (Table 1). With a high serial number in the database of 3092, the Navy had by far the lowest production at an estimated 3,100. Starr made the double action Army from late 1861 to mid-1863 (McAulay), and the single action Army from 1863-1865. The Boulton data indicate that the .44s were numbered sequentially and in their own serial number range. The lowest recorded serial number is 21, the highest number for the double action Army is 23138, and the lowest number for the single action Army is 23140 (Table 1). Based on highest recorded serial numbers, we estimate total production at 23,140 for the double action Army and 32,785 for the single action Army.

Survival Rates: Overview. At 59,025 revolvers, Starr was the third largest producer of Civil War handguns after Colt and Remington. That many can be found today at gun shows, auctions and dealer websites reflects both this very high production total and supply and demand. The least common is the Starr Navy, not surprising given its limited production. But the most commonly encountered is the double action Army, even though nearly ten thousand more single action Army revolvers were made. The reasons for this lie in the history of the guns.

Surviving the Civil War: The .36 Navy. The Starr Navy is one of the most under-researched of all U.S. percussion firearms, and also one of the scarcer surviving models of Union Civil War handguns. The U.S. Navy's only order for it was one hundred revolvers in October 1861. Sixty went to the New York Navy Yard and forty to the Washington Navy Yard. The latter were destined for the steamer *Pensacola*, but were rejected because of cylinder problems and returned to Starr. The sixty sent to New York were accepted and apparently saw sea service. This is the only documented U.S. Navy procurement of the gun that was completed; by 1863 the Navy was buying only Whitney and Remington .36-caliber revolvers (McAulay).



Fig.2 - Closeup of the double trigger on the Starr .36 double action (SN 2619). Of about 3100 made, only 144 survivors of this model had been recorded as of November 2018.

Another 1,902 Starr Navy revolvers were procured by the U.S. Ordnance Department in 1861-62. The first authenticated issue was to the 7th New York Regiment of the National Guard in 1861 (Walter). In 1862, 700 were issued to the 2nd Ohio Cavalry which operated in Kansas, Missouri and the Indian Territories. The disposition of the rest is unknown.

Altogether, 1,962 Starr Navy revolvers were procured by the U.S. government for use in the Civil War (Table 2). The balance of production, about 1,140 guns, was made 'for the trade.' Most of these also likely saw action in the war, either procured by state militias or bought by individual soldiers.

A postwar government inventory of guns on hand lists twelve .36-caliber Starr revolvers at the New York Navy Yard, and fifteen at the Philadelphia Navy Yard as of December 1, 1866. Another 599 were sold by the U.S. government after the war—193 guns in 1871 from the Leavenworth Arsenal, and 406 guns in 1901 from the New York Arsenal (McAulay). The known survival of 626 guns out of 1,962 originally procured gives a minimum Civil War survival rate for the U.S. government Starr Navy of about 32% (Table 2).

Surviving the Civil War: The .44 Army. From January 1862-December 1864, the U.S. Ordnance Department bought 46,052 of the 55,925 Starr Army revolvers produced (Table 2)—21,050 double action and 25,002 single action (McAuley). That leaves about 9,873 that were sold to the trade. The Union Army guns were issued to dozens of cavalry and infantry units in Arkansas, California, Colorado, Illinois, Indiana, Iowa, Kentucky, Michigan, Missouri, New Hampshire, New York, Ohio, Pennsylvania, Tennessee, Vermont and Wisconsin. Some were also shipped to western outposts, including Fort Churchill, Nevada and Fort Lyon, Colorado (McAulay).

U.S. government sale of 29,563 Starr Army revolvers from October 1865-June 1901 (McAulay) generates a minimum Civil War survival rate of about 64% (Table 2).

Table 1
Survival Statistics as of November 2018
Starr Percussion Revolvers

GUN MANUFACTURER:		Starr Arms Company					Colt
GUN MODEL:		.36 DA	.44 DA	.44 SA	.44 Total	All Models	Walker
SURVIVAL DATA (November 2018)							
Total Recorded SNs		144	1294	944	2238	2382	218
Highest Recorded SN		3,092	23,138	55,918			
Lowest Recorded SN		3	21	23,140			
Total Estimated Production (TEP)		3,100	23,140	32,785	55,925	59,025	1,100
KNOWN SURVIVAL RATE (KSR)(%)		4.65	5.59	2.88	4.00	4.04	19.82
DATA STABILITY (November 2018)							
# Recorded, 11/2015-11/2018 (Starr revolvers)		20	152	107	259	279	
# Recorded/Yr (Avg. over 3 yrs)		6.67	50.67	35.67	86.33	93.00	
%/year increase (over base year)		5.38	4.44	4.26	4.36	4.42	
# Recorded, 11/2008-11/2018 (Boulton Walker Data)							10
# Recorded/Yr (Avg. over 10 yrs)							1.00
%/year increase (over base year)							0.48
# Recorded, 1984-2018 (Salzer Walker Data)							24
# Recorded Per Year (Avg. over 34 yrs)							0.71
%/year increase (over base year)							0.38

Sources: All base numbers from Philip Boulton databases except as noted.

Numbers in **Red**: Significance of these data are discussed in the text.

Serial Numbering: .36 SNs are numbered in own series; .44 DA and SA's are numbered in a single series, sequentially. Note hard transition of .44 DA/.44 SA numbering at about **SN 23,140**. Isolated outlier SNs without confidence not included.

Known Survival Rate (KSR): Calculated as total SNs recorded x 100/total estimated production (TEP).

Data Stability: Data indicate how fast SNs are added to a database, and therefore how stable the known survival rate is when calculated. Data for Starrs are Nov. 2015-Nov. 2018 (3 years). Colt Walker data included for comparison. Boulton Walker data are for Nov. 2008-Nov. 2018 (10 years) with 218 current known survivors. Salzer Walker data are 24 added 1984-2018 (34 years) with 'about 212' current known survivors.

Stability Metrics: Metric 1: Average number of SNs recorded/year during period of increase. Metric 2: % increase/year. Calculated as average number of SNs recorded/year during period of increase x 100/Number of SNs at start of period (base year). Period of increase = 3 years for Starrs; 10 years for Walker (Boulton data); 34 years for Walker (Salzer data).

Comparative Survival and Stability Rates: Note very high survival rate (**19.82%**) and very high stability rate (**0.38-0.48%/year**) for the Colt Walker relative to the low survival rates (**2.88-5.59**) and moderate stability rates (**4.26-5.38%**) for the three Starrs.



Fig. 3. - Starr .44 double action #99, one of the lowest surviving serial numbers of about 23,140 made. The known survival rate of this model as of November 2018 was only about 5.6%

Not included in this are post-Civil War state militia stores of Starr Army revolvers in Vermont (485 guns), Pennsylvania (780 guns) and elsewhere.

Why did the U.S. government's Starr Army survive the Civil War at twice the rate of the Starr Navy (64% vs 32%)? A big factor was early retirement from service, since they were 'not a great success with the troops.' One officer famously wrote that "The man who sold these pistols to the government and the contractor who bought them ought to be hanged as traitors" (Edwards).

Performance reports from the 8th, 11th and 12th Kentucky Cavalry found the Army subject to breakdown, and modern gunsmiths cite two major problems that cause the Starr Army

to fail. First, they were ‘made from very fragile materials. Starr apparently used steel castings for many large components, which required less machine work but tended to be full of impurities and voids leaving flaws within the alloy.’ Second is the thinness of the cylinder wall, ‘with many .44 Starr cylinders showing signs of enlarging, cracking and bursting’ (Chicoine).

Because of the unpopularity of the gun, especially relative to Colt and Remington .44s, large numbers of Starr .44s went into storage as the war progressed. These included 3,132 as of the end of December 1862; 11,947 as of early July 1864; and 16,772 as of early November 1864 (McAulay). This early retirement accounts for the fact that many of those that survived the Civil War were in very good condition. Most were later sold off wholesale to Bannerman’s and, directly or indirectly, to overseas buyers.

Table 2
Civil War Survival Statistics
Starr Percussion Revolvers

Statistic	Model				
	.36 DA	.44 DA	.44 SA	.44 Total	All Models
Total Estimated Production (TEP)	3,100	23,140	32,785	55,925	59,025
Total US Government Procurement Through 1865	1,962	21,050	25,002	46,052	48,014
Known Post-War Inventory/Disposal	626			29,563	
<i>Percent Surviving USG Civil War Use (minimum)</i>	31.91%			64.19%	51.15%

Sources: TEP data derived from Philip Boulton databases. Sources for other data as discussed in text.

Current Known Survival Rates. In spite of very high Civil War survival rates, Starr’s percussion revolvers didn’t fare so well later. Only 144 surviving examples of the Starr Navy were recorded in the Boulton database as of November 2018, giving a known survival rate of just 4.7% (Table 1). Similarly, the rate of the .44 double action is about 5.6% and that of the .44 single action just 2.9%. As comparison, the known survival rate of the Colt-Whitneyville Walker is about 19.8%.

The number of known survivors is a floating ‘baseline’ that increases as new serial numbers are recorded. One indicator of how well the data reflect true survivorship is how fast the baseline grows. Over the last three years, new Starr serial numbers were recorded in the Boulton database at an average of 93 (4.4%) per year. As comparison, this is about ten times the rate of increase (0.4-0.5%) for the highly stable Walker (Table 1). The rate of increase for the Starr revolvers is relatively modest, however, given the very large total production of the guns (59,025).

Where are the Rest? So where are the rest of the Starr revolvers that survived the Civil War? While the data show that many have simply not been recorded, the relatively modest rate at which new ones are located suggests that most have been lost.

Many went west after the Civil War. As one historian put it, ‘In the roaring railroad towns, firearms dealers disposed of Colt’s Frontier Model .45’s and Starr’s Navy Revolvers by the carload lot’ (Beebe). An unknown number were converted to cartridge, and used for many years after the war. Outlaw Bill Chadwell, for example, had a converted .44 Starr on him when he was killed robbing the Northfield Bank with the James and Younger gangs in 1876 (Souter).

Fire, flood and other natural disasters also took a toll. But

the biggest sources of loss were probably overseas conflicts in the late 19th century; metal drives during the two World Wars; wholesale destruction of guns in Germany after those wars; and gun destruction in government ‘buy-backs’, confiscation and destruction programs in the last thirty years.

The biggest single loss was probably associated with a massive shipment of Starr revolvers to the French Republic in 1870 for the Franco-Prussian War (1870-1871). Some 20,000 surplus Starr Army revolvers, along with 20,000 Remington revolvers, were part of that transaction. The U.S. government sold them to Austin Baldwin & Co., acting as a straw buyer for E. Remington & Sons (Schiffers). French authorities reported that ‘most’ were SA .44s (McAulay). ‘Many hundreds’ of additional Starr revolvers went to Germany (Pegler).

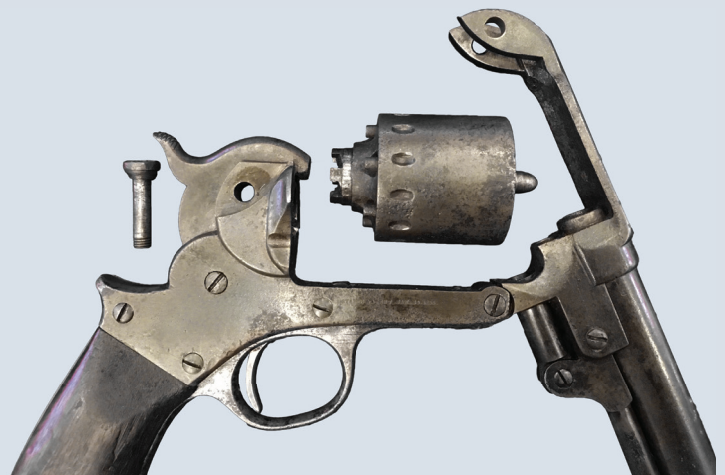


Fig. 4. - This gun, SN 23202, is one of the first 100 Starr .44 single action’s manufactured out of over 32,000 made. Although Starr revolvers were not a favorite of soldiers during the Civil War, all three models were easily disassembled and reloaded.

The Franco-Prussian war was especially bloody given its short duration. In addition to 250,000 civilian deaths, over 183,000 soldiers were killed, 232,000 were wounded, and 484,000 went missing or captured. The rate of firearm loss must have been proportionally large. After the war, many surviving Starr revolvers found their way to other conflicts. Most of those that stayed in Germany were likely destroyed by allied forces at the end of World Wars I and II.

Many Starr revolvers also ended up in England, where they proved very popular (Pegler). An unknown number of those that survived were among the circa 165,000 guns lost in mandatory UK 'buy-back' and destruction programs after 1996. England isn't the only country to recently destroy guns *en masse*. Australia has destroyed some 700,000 guns since 1996, many thousands were lost in Canadian and U.S. gun 'buy-back' programs, and an estimated 1.1 million guns were destroyed in Brazil alone from 2003-2009.

Upshots. The Boulton database refines production estimates for all three models of Starr percussion revolvers, and quantifies for the first time known survival rates for both the Civil War years and the decades since. These guns had very high rates of Civil War survival at 32% for the Starr Navy, and 64% for the two Army models. Current known survival rates, conversely, are low at just 2.9%-5.6%. These rates are growing at a relatively modest 4.3-5.4% per year.

Broader comparison of known survival rates for these three Starr Civil War models will require analysis of data on other U.S. percussion revolvers—something we hope to report on in future editions of *The Survival Files*.

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Acknowledgments

Special thanks to Frank Graves, Dick Salzer, Bill Thielen, Al Duquette and Chris Hale for their review of earlier drafts of this article.

