

Survival Files #5

History, Rarity and Survival of the Cooper and Metropolitan Percussion Revolvers

By Jeff Goodson and Philip Boulton

The Survival Files series examines the rarity and survival of American percussion revolvers. It is based on the database of British antique arms collector Philip Boulton, who since 1970 has recorded serial numbers on over 85,000 of these guns.

Survival Files #5 examines the rarity and survival of the percussion revolvers made by J.M. Cooper & Company and the Metropolitan Arms Company in the 1860s. We calculate their known survival rates, and a stability index based on the number of new serial numbers added to the Boulton database from October 1, 2017 to September 30, 2020 (Table 1). The stability value is an indication of how fast guns are being added to the database, how many are still 'out there' unrecorded, and how closely the known survival rate approximates the true survival rate of the model (Goodson and Boulton). We also discuss the major factors affecting the survival and rarity of these guns. A rackup of production, stability and survival rate data for 27 revolvers analyzed in Survival Files #1 - #5 is included (Table 2).

Cooper and Metropolitan Arms are unrelated, but they share a common denominator. Along with the Manhattan, Bacon, Massachusetts Arms and Nepperhan firearms companies, in the 1860s they manufactured copies of Colt's highly popular—and still under patent—percussion revolvers. This followed directly on the heels of a devastating fire on February 4, 1864, which reduced the Colt Manufacturing Company in Hartford, Connecticut to a "complete mass of broken, charred remains, with only a portion of the walls up and the engines and boilers destroyed beyond repair" (Nutter).

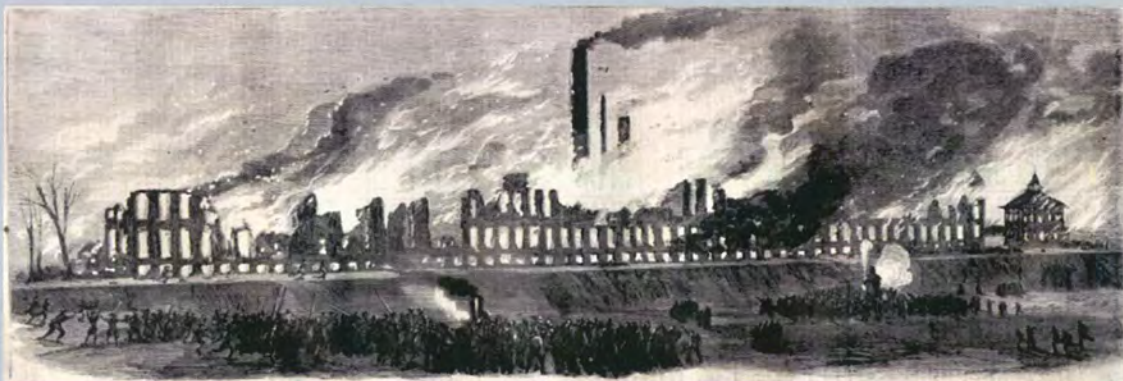


Figure 1 - The Colt Manufacturing Company in Hartford, Connecticut, burning to the ground on February 4, 1864. The fire stopped Colt output dead in its tracks, and set off an immediate scramble to manufacture and sell copies of Colt's highly popular revolvers. Among those who leapt into the breach were J.M. Cooper & Company, and the Metropolitan Arms Company.

Metropolitan correctly bet that with the fire—and in the absence of Samuel Colt, who had died just thirteen months before—Colt wouldn't be as aggressive in pursuing patent infringement cases as they historically had been (Graves). The same is probably also true of Cooper.

Cooper and Metropolitan revolvers were made solely to capitalize on the misfortune of Colt at the height of the Civil War. The end of the war in 1865, the dumping of many thousands of better quality revolvers onto the market, and the rapid eclipse of the percussion era by the rise of metallic cartridge firearms sealed the fate of both companies. Metropolitan's last known annual report is dated June 1866, when it apparently ended production, but the company didn't formally dissolve until about 1920 (Nutter). Cooper hung on until the late 1860s; its machinery and tools were sold at auction in May 1869 (Sellers & Smith).

Neither the Cooper nor Metropolitan revolvers found much of a competitive edge in the American West. Some were advertised for sale into the 1870s, but Schuyler, Hartley & Graham report no shipments west of either maker from 1868-1886 (Houze).

J.M. COOPER & COMPANY

James Marlin Cooper was in the gun business in Pittsburgh as early as 1841. He bought part of the Josiah Ells patents, and started manufacturing revolvers there in the late 1850s. In 1861 he formed the firm of Cooper & Livesy, and in 1862 he formed J.M. Cooper & Co. In 1864, after the Colt factory fire, Cooper moved to Philadelphia where he made both .31 and .36 caliber revolvers.

The Cooper was one of just four American double action revolvers used in the Civil War. The others were the Pettengill, Starr and Remington Rider. Double action revolvers weren't popular during the war, possibly because of accuracy issues resulting from the heavier trigger pull and because of a prevailing belief that single action revolvers were sturdier and more reliable. Nonetheless, Cooper pocket and navy revolvers both saw action in the war (King).

After the Civil War, Cooper revolvers saw limited availability in the west. They were advertised by Trumpler & Dabbs of Little Rock in late 1868, William Beck of Portland in mid-1869, and Benjamin Kittredge of Cincinnati as late as 1876 (Garvaglia and Worman).

THE COOPER PITTSBURGH REVOLVERS

Two models of pocket revolver were made in Pittsburgh from about 1859-1864 (Table 1). Both are .31 caliber, double action, 5-shot guns that very closely resemble the Colt Model 1849 pocket revolver. Both were made in 4", 5" and 6" barrel lengths.

The Boulton database contains serial number data only on the 2nd Model Pittsburgh revolvers, which are distinguished from the rare 1st Model principally by having iron instead of brass grip straps. The database differentiates between the 1st and 2nd variations of the 2nd Model based on manufacturer and patent markings. The 1st Variation (7A-021) has 1851, 1854 and 1859 patent dates, and the 2nd Variation (71-022) includes an 1860 patent date (Flayderman).

Cooper 2nd Model 1st Variation Pocket Revolver.

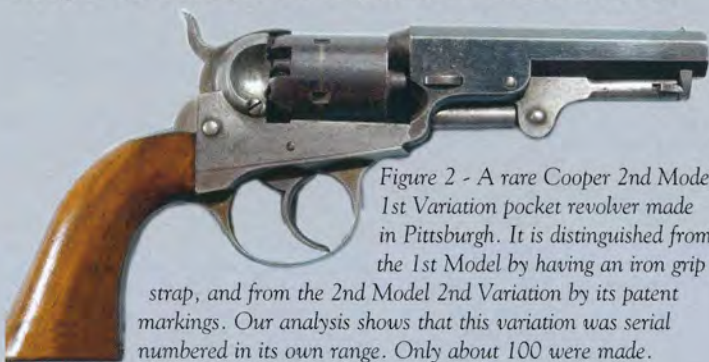


Figure 2 - A rare Cooper 2nd Model 1st Variation pocket revolver made in Pittsburgh. It is distinguished from the 1st Model by having an iron grip strap, and from the 2nd Model 2nd Variation by its patent markings. Our analysis shows that this variation was serial numbered in its own range. Only about 100 were made.

The Boulton database records a total of nine specimens of the 1st Variation, with barrel lengths in the following proportions: 4" (~33%), 5" (~22%) and 6" (~44%). Serial numbers range from 7-100 (Table 1). This generates a known survival rate (KSR) of 9.0%. In the absence of numbers above 100, we concur with the reported total production estimate of 100, serial numbered from one on up. No specimens new to the database were identified in the three years from October 2017 through September 2020. This generates a stability index of 0.0%, indicating that almost all surviving specimens have been recorded. The known survival rate is approaching the true survival rate, and is unlikely to increase significantly above 9.0% in the future.

The biggest factor affecting the survival and rarity of the 1st Variation is its very limited production of just 100 guns, as well as the probable use of some of those in the Civil War.

Cooper 2nd Model 2nd Variation Pocket Revolver.



Figure 3- The scarce Cooper 2nd Model 2nd Variation is distinguished from the 1st Variation mainly by the presence of an 1860 patent date. Our analysis finds that this variant was numbered in its own serial number range, and that about 900 were made.

The Boulton database has 66 recorded specimens of the 2nd Model 2nd Variation revolver. Data on 62 of them show production of three barrel lengths in the following proportions: 4" (~48%), 5" (~37%) and 6" (~15%).

S/N 12, recently sold at auction. These three duplicates make clear that the 2nd Variation was numbered in *its own range*, rather than co-numbered with the 1st Variation in a single serial range of 1-900 (Sellers & Smith; Flayderman). With a high S/N of 892 in the Boulton database, we conclude that the 2nd Variation is serial numbered from 1-900 with a TEP of 900 (Table 1).

Except for one outlier (#1045), serial numbers range from 7-892. Two (S/N 7 and S/N 67) are duplicate serial numbers also recorded on 1st Variation guns. An additional duplicate specimen,

Boulton data generate a known survival rate (KSR) of 7.3%. Six specimens new to the database were identified in the three years from October 2017-September 2020. This generates a stability index of 3.33%, indicating that a significant number of specimens remain to be recorded (Table 2). The KSR is growing, slowly, and it is likely to increase only modestly above 7.3%.

The biggest factors affecting the survival and rarity of the 2nd Model/2nd Variation are its low production of just 900 guns, and its known use in the Civil War.

THE COOPER PHILADELPHIA REVOLVERS

J.M. Cooper made five models of percussion revolver in Philadelphia from about 1864-1869 (Table 1). Three were .31 caliber, double action pocket guns (7A-023, -024 and -025), and the other two were .36 caliber, double-action navy guns (7A-026 and -027). Among the Philadelphia revolvers, the Boulton database distinguishes only between .31 caliber pocket and .36 caliber revolvers.

Historical references on this model, including both Sellers & Smith and Flayderman, state that all five models were serial numbered together with total production for all five estimated at about 15,000. The Boulton database contains 663 specimens of Cooper Philadelphia revolvers—390 pocket (S/N 7-14959), and 273 navy (S/N 8-14916). Among these are six duplicate numbers which occur on both a pocket and a navy gun: 383, 577, 851, 1929, 3151 and 4743. Two other high numbers, in the 4000 and 5000 range, may also represent duplicates.

The presence of these duplicates raises the question of whether these two models were indeed numbered together with a total production of about 15,000, or whether they were numbered separately with a total production of about 30,000—or something in between. For that reason, we decline here to either adopt existing production estimates or propose an alternate estimate for the Cooper pocket and navy revolvers. We therefore cannot calculate a known survival rate (KSR) for these guns at this time. It remains possible nonetheless to calculate stability indices for the two, as discussed below. Resolution of this issue must await additional data or production information on J.M. Cooper operations.

No total production level has to our knowledge ever been *separately* estimated for either of Cooper's Philadelphia models. Under the hypothesis that they are numbered in a single range of 15,000 guns, however, there are sufficient data in the Boulton database to statistically estimate production of each. The 663 specimens in the Boulton database consist of 390 pocket guns (58.8% of the total) and 273 navy guns (41.2%). Applying these ratios to a total production of 15,000, and rounding off to the nearest 50, generates production estimates of about 8,800 pocket and 6,200 navy revolvers.

Cooper Philadelphia Pocket Revolvers.



Figures 4a & 4b - Cooper Philadelphia Pocket revolver. This is the relatively common 2nd Model, in 5-shot configuration with a brass backstrap. SN 3029. JW GOODSON COLLECTION.

Cooper made three models of .31 caliber pocket revolver in Philadelphia. The 1st Model, which falls in the serial range of about 1-400, is distinguished by the absence of a nipple shield. Most have iron grip straps. The 2nd Model, in the serial number range of about 400-11000, has a nipple shield and brass grip straps. All but about the first 100 of these have the cylinder bolt on the left side of the frame. The 3rd Model, in the serial number range of about 11000-15000, has a larger, navy-size cylinder that accommodates six instead of five shots.

All three models of Philadelphia pocket revolver are treated together in the Boulton database because some specimens could not be consistently and accurately distinguished by model without hands-on inspection. Boulton data on 355 specimens show production of the three barrel lengths in the following proportions: 4" (~68%), 5" (~24%) and 6" (~9%).

Cooper's Philadelphia pocket revolvers are common, with over 8,800 made. Without a firm TEP, however, no known survival rate (KSR) can be calculated. In the previous three years, 46 new specimens were added to the database. This generates a stability index of 4.46% (Table 1), indicating that many specimens remain to be recorded (Table 2).

Many of these guns likely saw service during the last two years of the Civil War. Schiffers describes the gun as:

'An excellent revolver—well machined, with a smooth action that allowed the shooter his choice of single or double action. It was surprisingly accurate, fouled little, and incorporated an interesting device that prevented a spent cap from falling into the action...It had only three weaknesses: the earlier model held only five rounds, there was no half-cock position, and the Colt-type sights did not allow aiming when firing double action.'

Cooper Philadelphia Navy Revolvers.



Figure 5 - The Cooper Navy revolver, made in Philadelphia. This gun, S/N 5641 with a 6" barrel, is one of the finest surviving examples known. FRANK GRAVES COLLECTION.

All Cooper navy revolvers were made in Philadelphia. They are .36 caliber with rebated cylinders, and all but a handful had octagon barrels (Sellers). Two models are distinguished. Confusingly, Flayderman's only photograph of a Cooper navy refers to the pictured gun as both a 1st Model (7A-026) and a 2nd Model (7A-027). Photographs of the rare 1st Model Cooper navy can be seen in Sellers & Smith (page 51) and Thalheimer (page 70).

We believe that the length of the cylinder and barrel cone are the best way to differentiate Cooper's two navy models. The 1st Model (~S/N 1-400) has a short cylinder and longer barrel cone, while the 2nd Model (~S/N 400-15000) has a longer cylinder and shorter barrel cone. Variations are known. Importantly, the barrel/cylinder geometry of the 2nd Model makes interchangeability of major parts with the Cooper Philadelphia pocket revolver impossible.

Statistically, both models are treated together in the Boulton database because some specimens could not be consistently and accurately distinguished by model without hands-on inspection. Boulton data on 263 specimens show production of the three barrel lengths in the following proportions: 4" (~60%), 5" (~20%) and 6" (~20%).

These guns were common, with over 6,000 made, but no total production estimate or known survival rate are estimated for the model. In the previous three years, 24 new specimens were added to the database generating a stability index of 3.21%. This indicates that there remain a significant number of specimens yet to be recorded. Many of the early guns likely saw service during the last two years of the Civil War.

THE METROPOLITAN ARMS COMPANY

The Metropolitan Arms Co. was founded in New York City on February 24, 1863—less than three weeks after the Colt factory fire. The Certificate of Formation lists William J. Syms, Samuel R. Syms and three others as trustees. The two Syms brothers had been partners with Orison Blunt in the firm of Blunt & Syms, which started making firearms around 1837. That company ended production in 1856 when Blunt became an Alderman in New York City (Nutter).

Nutter sums up the motivation behind Metropolitan's creation: "a strong and pressing need for a supply of firearms, of the Colt patterns, in substantial quantities as quickly as possible". For several reasons, including the fact that they were made in an old Blunt & Syms gun factory at the corner of White and Centre streets in New York City, Orison Blunt is believed to have been the motivating force behind the creation of Metropolitan.

METROPOLITAN REVOLVERS

Our analysis of the Boulton database indicates that Metropolitan made just two production models of percussion revolver from 1864-1866. One, referred to here as the Metropolitan 1851 Navy Model (7A-063 to -065), was a .36 caliber copy of Colt's Model 1851 Navy revolver (5B-050 to -063). The other, referred to here as the Metropolitan Model 1862 Police (7A-067 to -069), was a fluted .36 caliber copy of Colt's Model 1862 Police revolver (5B-103 to -107). Both are very similar to their Colt counterparts.

Both are considered secondary U.S. Martial handguns, despite the fact that there are no known U.S. contracts (Flayderman). The 1851 Navy Model made up 70% of Metropolitan's total production of about 9,050 guns, and the fluted Police Model the other 30%. Each model is numbered in its own range; Metropolitan started the numbering of each at 1100. Before discussing this rather interesting phenomenon, we'll first address two "no model" Metropolitan's revolvers.



Figure 6 - Two of the most exceptional examples known of the Metropolitan 1851 Navy (S/N 1632) and Metropolitan Police (S/N 2108), shown in profile. Neither gun has ever been fired. Frank Graves Collection.



Figure 7 - Bottom view of the same two guns, showing the narrower width of the Police Model. Frank Graves Collection.

The Metropolitan “Model” 1861 Navy. The historical literature discusses a very rare third Metropolitan (7A-066), which was a copy of the Colt Model 1861 Navy (5B-097 to -102). Waldo Nutter first identified the existence of these guns in 1967. It is a .36 caliber 6-shot percussion revolver with a round cylinder and a 7½” round barrel. It differs from Metropolitan’s 1851 Navy by having a round barrel, and from the Colt’s 1861 Navy in having a pivot-type loading lever rather than the Colt rack and pinion lever (Flayderman).

Nutter originally estimated total production of this “model” at less than 100 but more than 25, based on just two known serial numbers (S/N 2325 and S/N 2350). He qualified this, however, by saying:

“Because of the possibility of intermingled numbers between the octagon barrel and round barrel (guns), the number of Navy pistols manufactured with round barrels may have been either less or more than twenty-five. It would be most difficult to make a reasonably sound estimate of the actual number of guns produced. However, it is our firm opinion that more than two guns were manufactured”.

In retrospect, Nutter guessed wrong on this. After 53 years, the only two serial numbers in the Boulton database are the same two identified by Nutter. We therefore doubt that this “model” ever went into production, even for a very limited run of just 25 guns as Nutter originally hypothesized. Certainly there were never 25 revolvers of this model numbered in sequence; the Boulton database contains a Metropolitan 1851 Navy with the serial number 2336, which falls directly in between the only two recorded specimens of the 1861 Navy. We believe these guns are prototypes, and do not treat them further here.

The Myth of the “Metropolitan Army”. There was speculation in the 1960s and early 1970s that Metropolitan may have produced a few prototype knockoffs of the Colt Model 1860 Army revolver. Nutter wrote in 1967 that *“it is possible that Metropolitan made prototypes of still a fourth model in a pistol of .44 caliber, similar to Colt’s Army or Holster pistol, but we have not been able to locate an example of this type.”*

Frank Sellers furthered this idea in his 1973 description of a mostly unmarked gun (S/N 3) at the top of page 129 of *The William M. Locke Collection*. Sellers wrote that several elements of the gun *“indicate that it may have been made by the Metropolitan Arms Company rather than Colt. This has been thought for many years to be a prototype of the Colt Model 1860 full fluted Army, but shows many difference that indicate that it...might not be a Colt product.”*

The Colt vs. Metropolitan Arms debate over these very rare guns percolated along for 50 years inside the antique firearms community. Finally, in his epic 2017 book *The Colt Model 1860 Army Revolver*, author and researcher Charles Pate definitively settled the issue. He identifies eight “no-patent Colt New Model Army revolvers,” serial numbered 1 through 8, as well as an unnumbered example that was at one time in the Connecticut State Museum. Pate confirmed for this article, based on his personal inspection of the specimen, that S/N 3 is the exact same gun as the one pictured on page 129 of the Locke Collection.

In a lengthy and well-documented account, Pate tells the fascinating story behind these early Colt guns—including how and why they came to be produced by Colt, and their historical context in the evolution of the Colt 1860 Army. Interested readers are referred to Pate’s book for detailed forensics on them. For our purposes, however, Pate’s research definitively ends a half century of conjecture over whether Metropolitan ever produced an Army-sized revolver.

Metropolitan Model 1851 Navy.

The Model 1851 Navy, a direct knockoff of the Colt Model 1851 Navy, is a .36 caliber 6-shot percussion revolver with a round cylinder and a 7½” octagon barrel. Three types are distinguished. The 1st Model (7A-063) occurs up to about serial number 1799, and bears no markings except for the serial number. The 2nd, or H.E. Dimick Model Navy (7A-064), consists of about 300 First Model guns sold to the H.E. Dimick firm of St. Louis. About 100 of these are marked on the barrel. The 3rd, or Standard Model Navy (7A-065), ranges from about serial number 1800 to the end of production. The barrels are marked with the Metropolitan name, and the cylinders bear a Battle of New Orleans roll scene.

Serial Numbering and Total Production Estimates. The serial numbering for this model is peculiar in specifics, but not unique in intent. In 1967, Nutter wrote that Metropolitan numbered their guns from 1100 on up, probably to increase sales. He wrote that the highest known serial number at that time was 7100, yielding a total estimated production (TEP) of 6,000 after the first 1100 ‘phantom’ numbers are subtracted. Flayderman’s final edition (2007) kept Nutter’s high serial number of 7100, but gave the TEP at 6,063—apparently adding the first 63 early production guns to Nutter’s production estimate.

The Boulton database of 260 Metropolitan navy revolvers sheds additional light on the first 100 production guns. The range of guns in the database is 6-7402, extending the high range by about 300 guns. The database includes two high-end outliers (#8386 and #9746), used in the totals but excluded from high number consideration. Two serial numbers between the previously reported high of 7100 and our new high of 7402, S/N 7144 and S/N 7342, validate 7402 as a new high and

not simply an outlier. The new high of 7402 argues for an increase in total production, which we now estimate at about 6,300 (~7400 - 1100 phantom numbers).

Numbering of the First 100 Guns. Boulton database numbers make clear that the first 100 guns started around S/N 1 and went up from there. At some point, when Metropolitan decided to add 1100 to the serial numbers, it began simply stamping "11" in front of existing two-digit serial numbers. Nutter puts this transition at about S/N 50. Sellers and Smith put it at S/N 64, which is the first gun with a slightly shorter loading lever and cylinder serial number that reads from the left side. Flayderman agrees with Sellers & Smith.

Boulton data lead us to conclude differently. Not including one prototype, 14 of the 260 serial numbers in the database are 'first 100' guns. A few show double stamping, with "11" added as described by Sellers & Smith. In sequential order, with those database serial numbers *not* showing an "11" highlighted in 6, 11, 17, 19, 28, 1132, 1151, 1152, 1164, 1174, 1177, 1190, 1191, 93

We believe S/N 93 to be anomalous, and of questionable identity. It is included only on the basis of a short listing in the August 1965 *Gun Report* describing it as "Serial No. 93 Dimick (?) Navy..." with some broken and replaced parts. Excluding S/N 93, these data indicate that "11" was systematically added to serial numbers starting between S/N 28 and S/N 32.

The Dimick Revolver Serial Range. Graves cites a reported range for the H.E. Dimick revolvers of about 1174-1621, but notes that they are not sequential and 'there will probably be other numbers that are outside of this range.' Boulton data validate Graves' conjecture. There are 21 Dimick guns in the Boulton database (excluding #93), ranging from 1132-1748. This extends the range reported by Graves on both the high and low ends.

The low of 1132—the 32nd gun made—indicates that Dimick was a *very* early buyer of these guns. The fact that S/N 32 may also be the first number with the 11 added to it may not be coincidental. It suggests, rather, that very early sales to Dimick may have precipitated the "plus 11" numbering scheme, rather than the changed design of the loading lever at around S/N 63 as previously thought.

Rarity and Survival. With a total estimated production of about 6,300, the Metropolitan '51 navy is quite common even though it was only in production from 1864-1866. The known survival rate (KSR) is only about 4.1%, but we expect it to increase significantly. Specimens were added to the database at a rapid rate of about 4.68% per year during the three-year period ending September 30, 2020 (Table 1), indicating that a large number of specimens still remain to be recorded (Table 2).

A number of the early production Metropolitan navy revolvers saw service in the last two years of the Civil War via personal purchase (King). Among the 300 H.E. Dimick guns, some were apparently provided to Captain C.E. Lancaster's Iowa company of rifle scouts attached to Col. J.W. Birge's brigade in the Western Division of the Union army (Worman).

After the Civil War, the Metropolitan Navy competed with large numbers of better quality percussion revolvers, including Colts and Remingtons, that were dumped onto the market. In addition, as the decade progressed towards expiration of the Rollin White patent in November 1869, the rapid evolution of cartridge technology made this and other percussion revolvers increasingly obsolete.

Metropolitan Model 1862 Police. Confusingly, this model was referred to by Nutter as the Metropolitan Pocket Pistol in spite of the fact that Metropolitan produced no guns in .31 caliber. What we refer to as the Model 1862 Police is a .36 caliber 5-shot percussion revolver with a half-fluted cylinder and round barrel. The gun differs from the Colt Model 1862 Police by having a pivot-lever rather than the creeping ratchet- or rack and pinion-type assembly used on the Colt. There are three variations (7A-067, -068 and -069), differentiated on the basis of markings or lack thereof. The proportion of barrel lengths for 159 specimens is: 4½" (~60%), 5½" (~25%) and 6½" (~15%).

Like its predecessor the Metropolitan Navy, serial numbering began at 1100. Flayderman gives total estimated production (TEP) for the model at about 2,750, based on a serial number range of about 1100-3850. Boulton database numbers range from 1101-3843, with 1101 replacing the previously reported low of 1106 reported by Nutter in 1967. Based on the high serial number of 3843, we concur with the historically reported TEP of about 2,750 (3843 - 1100 phantom numbers = 2,743 rounded to the nearest 50).

Survival and Rarity. The Boulton data generate a known survival rate of about 6.1%. During the three year period ending September 30, 2020, eleven new specimens were entered into the database generating a stability index of about 2.34%. This index value is quite low; it indicates that the KSR is growing only slowly, and there remain relatively few specimens to be recorded (Table 2).

With a total estimated production of 2,750 guns, the Metropolitan Police is relatively scarce. Some early guns no doubt served during the last year or two of the Civil War, but after the war it was competing with large numbers of better quality

percussion revolvers. As with the Metropolitan Navy, it became quickly obsolete with the rapid evolution of cartridge technology.

FINDINGS AND REVISIONS OF HISTORICAL CONCLUSIONS

Survival Files #5 reviews production data, calculates survival rates, estimates the level of unrecorded guns, and examines rarity factors for four models of percussion revolver made by J.M. Cooper and three models made by the Metropolitan Arms Company. Data on barrel lengths are reported for five models. A summary of production, stability and survival rate data for 27 models of percussion revolver discussed in the first five editions of *The Survival Files* has been compiled (Table 2), clearly showing how these models can be categorized on the basis of stability index values—and what that means.

Cooper Pittsburgh Revolvers: Contrary to previous reports, Boulton data show that the two variations of the 2nd Model revolver were each numbered in their own range, and that total production for the 2nd variation was about 900 vs. 800 as previously reported. The 1st Variation KSR is 9.0%, with a stability index of 0.0%. Almost all surviving specimens of this variation are recorded, and the KSR is unlikely to rise significantly. The 2nd Variation KSR is 7.3%, with a stability index of 3.33%. The KSR will grow moderately, as the significant number of remaining specimens are found and recorded. The biggest factors affecting the rarity and survival of these guns is very limited production, and known or probable use in the Civil War.

Cooper Philadelphia Pocket and Navy Revolvers: Because of at least six duplicate serial numbers, we can neither confirm nor rebut long-standing assertions that the Cooper Philadelphia pocket and navy models are numbered together with a TEP of about 15,000. KSR values are therefore calculated for neither model. The stability index of the pocket model is 4.46%, with many specimens still to be recorded. The stability index of the navy model is 3.21%, with a significant number of specimens also still to be recorded. Both models are common, and saw service during the last two years of the Civil War.

Metropolitan “Model” 1861 Navy Revolver: The Boulton database includes only the same two serial numbers recorded in 1967 when these guns were first identified. Based on the lack of additional specimens in the last 53 years, and the fact of a Metropolitan Model 1851 number (S/N 2336) falling between the two recorded 1861 numbers, we conclude that these two guns were isolated prototypes and not a production model.

Metropolitan “Army” Revolver: Speculation since the 1960s that Metropolitan made at least one prototype .44 caliber Colt Army revolver has been resolved. The subject guns have been documented by Charles Pate to be “no-patent Colt New Model Army revolvers,” ending this long-running controversy (Pate).

Metropolitan Model 1851 Navy: Our data establish a new high serial number of 7402, and an increase in the production estimate from Flayderman’s 6,063 to about 6,300. Data show that the number “11” was added to the first 100 production guns between S/N 28 and S/N 32. We extend the H.E. Dimick range (Graves) on both the high and low ends, with a new range of 1132-1748. The very early shipment to Dimick of S/N 32—which may also be the first number with “11” added to it—suggest that this numbering scheme may have been precipitated by very early sales to Dimick rather than by revolver design changes. The survival rate of this model is just 4.1%, but its high stability index of 4.68% indicates that there remain many specimens to be recorded. This model is common, but saw action in the last two years of the Civil War.

Metropolitan Model 1862 Police: We concur with the reported TEP of 2,750 guns for this model, and report a new low of S/N 1101. The known survival rate is 6.1%, and the stability index of 2.34% indicates that relatively few specimens remain to be recorded. This model is fairly scarce, and saw action in the last two years of the Civil War.

Appeal to Collectors

Collectors are encouraged to send serial numbers on Cooper and Metropolitan revolvers to Phil Boulton at philboultoncps@hotmail.com. We are especially interested in data on:

- All Cooper Philadelphia pocket and navy revolvers;
- 3rd Model Cooper Philadelphia pocket revolvers with 6-shot cylinders; and
- Metropolitan 1851 revolvers with serial numbers under 1200.

Questions about this article, including on methodology, can be sent to Jeff Goodson at jwgoodson@yahoo.com.

**Table 1
Production and Survival Data
Cooper and Metropolitan Arms Percussion Revolvers**

| | J.M. Cooper Co. | | | | Metropolitan Arms Co. | | | |
|--|--------------------------------|--------------------------------|----------------------|---------------------|-------------------------------------|-----------------|--------------------|--|
| | Pittsburgh | | Philadelphia | | Copies of Colt Percussion Revolvers | | | |
| | 2nd Model Pocket 1st Variation | 2nd Model Pocket 2nd Variation | Philadelphia Pockets | Philadelphia Navy's | Model 1851 Navy | Model 1861 Navy | Model 1862 Police | |
| Model: | 7A-021 | 7A-022 | 7A-023, -024, -025 | 7A-026, -027 | 7A-063, -064, -065 | 7A-066 | 7A-067, -068, -069 | |
| Flayderman ID: | ~1859-1864 | ~1859-1864 | 1864-1869 | 1964-1869 | ~1864-1866 | ~1864-1865 | ~1864-1866 | |
| Years of Manufacture: | .31 | .31 | .31 | .36 | .36 | .36 | .36 | |
| Caliber: | | | | | | | | |
| SURVIVAL DATA (as of September 30, 2020) | | | | | | | | |
| Total Estimated Production (TEP): | 100 | 900 | | | ~6,300 | | ~2,750 | |
| Total Recorded in Database: | 9 | 66 | 390 | 273 | 260 | 2 | 168 | |
| Highest SN in Database: | 100 | 892 | 14959 | 14916 | 7402 | 2350 | 3843 | |
| Lowest SN in Database: | 7 | 7 | 7 | 8 | 6 | 2325 | 1101 | |
| Known Survival Rate (KSR): | 9.00% | 7.33% | | | 4.13% | | 6.11% | |
| DATA STABILITY (as of September 30, 2020) | | | | | | | | |
| # Recorded: October 1, 2017-September 30, 2020: | 0 | 6 | 46 | 24 | 32 | 0 | 11 | |
| Avg. #/yr Recorded (last 3 years): | 0.00 | 2.00 | 15.33 | 8.00 | 10.67 | 0.00 | 3.67 | |
| Stability Index (%/year increase over base year): | 0.00% | 3.33% | 4.46% | 3.21% | 4.68% | 0.00% | 2.34% | |

Red Cells: Key data, referenced in "NOTES" below and/or in text.

Shaded Cells: Not applicable or data not available. KSR not calculated due to uncertain TEP data; Stability Index not calculated due to limited data collection period or other data collection issues. See text for discussion by model.

Data Sources: All base numbers are from the Philip Boulton Database except some TEP data.

Total Estimated Production (TEP): All TEP data are from Flayderman (9th edition) with four exceptions: (1) Cooper Pittsburgh 2nd Model 2nd Variation: two duplicate serial numbers (#7 and #67) with the 2nd Model 1st Variation plus a third known number under 100 indicate that this model was numbered in its own range, 1-~900, rather than numbered together as stated by Flayderman. (2) Cooper Philadelphia Pocket and Navy Models: The historical literature has these two models serial numbered together with a total TEP of ~15,000. Sufficient data exist in the Boulton database (640 guns) to statistically estimate the pocket vs. navy TEPs, rounded off to the nearest 50, at 8,800 for the three Pocket models and 6,200 for the two Navy models. Six serial numbers are duplicated between the two models, however, suggesting that the models could be numbered in parallel (see text). No total production is therefore estimated until additional data are available. (3) Metropolitan Model 1851 Navy: Based on a high S/N of 7402, we calculate TEP at (7402)-(1100) = ~6,300 (rounded) vs. Flayderman's TEP of 6,063. See text for details, including effect of known Model 1861 Navy guns on this calculation. (4) Metropolitan Model 1861 Navy: Only two S/N known, and we know of no new specimens coming to light since 1967. We therefore consider this to be a non-production "model," and decline to estimate either total production or a survival rate (see text).

Lowest SN in Database: Does not include unnumbered prototypes.

Known Survival Rate (KSR): Number recorded in the database x 100/TEP.

Stability Index: = (Average number recorded/year over previous 3 years) x 100/(Total recorded at start of period). Data do not include prototypes, unnumbered guns or guns with mixed serial numbers.

NOTES:

Cooper 2nd Model 1st Variation Pittsburgh Pocket: Barrel Lengths (9 specimens): 3 x 4" (33.3%), 2 x 5" (22.2%), 4 x 6" (44.4%).

Cooper 2nd Model 2nd Variation Pittsburgh Pocket: Database includes one high S/N considered an outlier (#1045), but included in the totals. Barrel Lengths (62 specimens): 30 x 4" (48.4%); 23 x 5" (37.1%); 9 x 6" (14.5%).

Cooper Philadelphia Pockets: Includes all three models together, which could not be consistently distinguished. There is no duplication of serial numbers and we assume that the chambers were mixed throughout the range. One specimen unidentified by caliber. Barrel Lengths (355 specimens): 240 x 4" (67.6%); 85 x 5" (23.9%); 30 x 6" (8.5%).

Cooper Philadelphia Navy's: Includes both models, which could not be consistently distinguished. Database includes one unnumbered prototype. Barrel Lengths (263 specimens): 158 x 4" (60.1%); 52 x 5" (19.8%); 53 x 6" (20.2%).

Metropolitan Model 1851 Navy: Serial numbered in its own range, 1100-~7400, but including the very rare Metro Model 1861 Navy guns. One prototype number outliers (S/N 8386 and 9746) are included in the database total, but not as high serial numbers. Metropolitan began serial numbers at 1100 (Sellers & Smith). Some of first 100 guns were double-stamped to add "11" in front of the number (see text).

Metropolitan "Model" 1861 Navy: Both guns in database are within the narrow serial number range reported by Flayderman (~2300-2350). See text.

Metropolitan Police Model: Serial numbered in its own range, 1100-~3,850. One prototype ("S") in database. Metropolitan also began serial numbers at 1100 for this model (Sellers & Smith).

S/N 1101 is a new low recorded survivor. Barrel Lengths (159 specimens): 95 x 4.5" (59.7%); 40 x 5.5" (25.2%); 24 x 6.5" (15.1%).

Table 2
Production, Stability and Survival Rate Data
American Percussion Revolvers
Data from The Survival Files #1-#5

| Model | Stability Index (%) | Total Estimated Production (TEP) | Known Survival Rate (KSR) | Interpretation |
|--------------------------------------|---------------------|----------------------------------|---------------------------|--|
| .45 National (Teatfire) | 0.00 | 25 | 32.00% | |
| .36 Savage & North 1st/1st Variation | 0.00 | 10 | 10.00% | |
| .36 Savage & North 1st/2nd Variation | 0.00 | 250 | 8.80% | All are Low to Ultra-Low Production Models |
| .36 Savage & North 2nd Model Navy | 0.00 | 100 | 9.00% | Known Survival Rate (KSR) is Growing Very Slowly |
| .36 Savage & North 3rd Model Navy | 0.00 | 100 | 5.00% | KSR is Approaching the True Survival Rate |
| .36 Savage & North 4th Model Navy | 0.00 | 50 | 12.00% | Very Few Remain to be Recorded |
| .31 Cooper Pittsburgh 2nd/1st | 0.00 | 100 | 9.00% | High to Very High Collector Demand |
| .44 Colt Walker | 0.38 | 1,100 | 19.82% | |
| .28 Whitney New Model "Root" | 1.76 | 1,950 | 2.05% | |
| .31 Pettengill | 1.81 | 180 | 21.67% | Known Survival Rate (KSR) is Growing Slowly |
| .34 Pettengill | 1.85 | 900 | 6.51% | Relatively Few Remain to be Recorded |
| .44 Freeman Army | 2.12 | 2,000 | 12.55% | |
| .36 Metropolitan 1862 Police | 2.34 | 2,750 | 6.11% | |
| .36 Cooper Philadelphia Navy | 3.21 | 6,250+ | no data | |
| .31 Cooper Pittsburgh 2nd/2nd | 3.33 | 900 | 7.33% | Known Survival Rate (KSR) is Growing Modestly |
| .31 Whitney Pocket Model | 3.55 | 32,500 | 1.24% | A Significant Number Remain to be Recorded |
| .36 Whitney Navy & Eagle Co. | 4.11 | 35,500 | 2.65% | |
| .44 Single Action Starr | 4.26 | 32,785 | 2.88% | |
| .44 Double Action Starr | 4.44 | 23,140 | 5.59% | |
| .31 Cooper Philadelphia Pocket | 4.46 | 8,750+ | no data | Mostly Higher to Very High Production Models |
| .36 Metropolitan 1851 Navy | 4.68 | 6,300 | 4.13% | Known Survival Rate (KSR) is Growing Rapidly |
| .44 Rogers & Spencer | 4.86 | 5,800 | 15.86% | KSR Well Below True Survival Rate |
| .44 Pettengill | 5.04 | 3,300 | 6.00% | Many Remain to be Recorded |
| .36 Alsop Navy | 5.13 | 500 | 9.00% | |
| .36 Double Action Starr | 5.38 | 3,100 | 4.65% | |
| .31 Alsop Pocket | 5.96 | 300 | 11.00% | |
| .36 Savage Navy | 6.36 | 20,000 | 2.84% | |

Known Survival Rate (KSR) = Number recorded in Boulton database x 100/Total Estimated Production (TEP)

Stability Index = Average number recorded per year over recent three year period x (100)/Total recorded at start of period

file: SF#5 Table 2 Data Rackup (1/8/2021)

References

- Flayderman, Norman;** *Guide to Antique American Firearms*, 9th edition; Gun Digest Books; 2007.
- Garavaglia, Louis A. and Charles G. Worman;** *Firearms of the American West, 1866-1894*; University of New Mexico Press; 1985.
- Gardner, Col. Robert E.;** *Small Arms Makers*; Crown Publishers, New York; 1963.
- Goodson, Jeff and Philip Boulton;** *The Survival Files; A Note on the Statistics and Serial Number Databases*; The Texas Gun Collector; Fall 2019.
- Graves, Frank;** *The Metropolitan Arms Company of New York*; Arms Heritage; June 2013.
- Houze, Herbert G.;** *Arming the West; Schuler, Hartley & Graham's Arms Shipments to the American Frontier, 1868-1886*; Mowbray Publishing, Woonsocket, RI; 2008.
- King, Dr. Steven;** *An American War: Weapons of the North & South*; Privately published; 2019.
- Nutter, Waldo E.;** *Metropolitan Arms Co. New-York*; The Gun Report; August 1967 (Part 1) and September 1967 (Part 2).
- Pate, Charles W.;** *The Colt Model 1860 Army Revolver*; Andrew Mowbray, Inc., Woonsocket, R.I.; 2017.
- Schiffers, Peter;** *Civil War Revolvers; Myth vs. Reality*; Andrew Mowbray Inc., Woonsocket, R.I. 2013.
- Sellers, Frank M.;** *The William M. Locke Collection*; Antique Armory, Inc.; 1973.
- Sellers, Frank M. and Samuel E. Smith;** *American Percussion Revolvers*; Museum Restoration Service; 1971.
- Thalheimer, Roland;** *Percussion Revolvers of the United States*; Von Hoffman Press, St. Louis, Missouri; 1970.
- Worman, Charles G.;** *Gunsmoke and Saddle Leather; Firearms in the Nineteenth-Century American West*; Univ. of New Mexico Press, Albuquerque; 2005.

Acknowledgments

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