US Government Made Muskets of the Revolution, 1780-1783

Charles W. Thayer
University of Pennsylvania

Four Philadelphia muskets, 1780-1783: three Continental-made and a M1717 rampart musket altered by Cowell (bottom). Top 3 in standard sequence for these photographs, derived from (top to bottom): Prahl, M1766 Charleville, M1717 rampart musket.

Collectors invariably seek out the first objects of any historical series. Thus collectors of US martial arms have long coveted "Committee of Safety" muskets, as these were produced in 1775-6, clearly the first arms manufactured in the nascent republic. But these muskets are both exceedingly rare and very difficult to identify. They were poorly made, and in small numbers. Heavy usage, before the massive influx of French arms in 1777, left few survivors. And the gunsmiths who made them continued in business after the Revolution, so that a maker-marked gun may post-date the War.

With demand exceeding supply, the "market" has favored increased "supply" by expanding the definition of "Committee of Safety" muskets to include any American-made musket of the period, and also by fakery, usually forged signatures added to old guns. In fact, the term "Committee of Safety" is already an over-generalization, because the units of the provisional revolutionary government that procured the muskets were frequently not so named, being Committees of Observation, Committees of Correspondence, legislatures, etc., but the term is well-accepted and no one would realistically argue that we replace it!

To qualify as a "Committee of Safety" weapon, a gun should be (1) of military form; (2) dateable to the 1775-6 period; (3) its lock (or possibly barrel) should be signed with the initials or name of a known contractor; and (4) it should have marks of government ownership appropriate to the locality in which it was produced. To some extent, (3) and (4) can substitute for each other.

In deducing the place of manufacture, regional stylistic traditions, and known historic sources for components, such as captured French guns in New England, are helpful. An important general indicator is the wood used in the stock. Thus cherry and maple suggest New England production and ownership, whereas black walnut suggests Pennsylvania. Although walnut does sometimes grow in New England, it is marginal there and does not produce lumber of good quality. Thus, when the New England musket contractors of 1798 could not get walnut from Pennsylvania, they used maple or cherry, stained black with *aqua fortis* (Moller, v. 2, p. 146, and personal observation). Conversely, maple and cherry do grow in Pennsylvania, but are inferior to walnut. In particular, cherry decomposes rapidly in the presence of moisture.

Arms scholars estimate that no more than 10 or 12 legitimate Committee of Safety muskets are known today. But the survivors make it clear that specifications were not followed in manufacture, so the characteristics of the arm alone cannot justify a "Committee of Safety" attribution. As such, Pennsylvania's "Committee of Safety" arms acquisitions are better known than those of any other colony. A single example of the State's acquisition is in the collections of the Pennsylvania Historical and Museum Commission, branded "PP," which I believe stands for "Province Property." Alternative interpretations are "Proved" and "Pennsylvania Property," and like the later "CP" mark (Commonwealth Property?), have been much debated. I base my opinion on two things. First, society during this period was quite immobile, so markings, such as "Public Property" on early 19th Century powder flasks did not need to specify the locality. The item was assumed to be owned by the local government. Second, Commissary Young visited Dietz's blockhouse, just south of Wind Gap, Pa, during the French and Indian war (June 25, 1756), and found "6 Provincial Muskets all good"; in all likelihood, he would not have known they were 'Provincial property' unless the arms were so marked. (Bazelon & Trussell, 1983; Neumann, 1998, p. 135; Hunter, 1960, p. 277).

Moreover, Pennsylvania's County "Committees of Safety" procured arms, and several examples are known with appropriate county markings, such as Cumberland ("C – COUNTY"), "CHESTER" and "PHILADA." (Guthman, 1979, p. 49-50; Reilly, 1986, pp.35, 37; W. O'Connor, pers. com., 2006).

Yet absent the elusive "Committee of Safety" muskets, there remains a largely unrecognized group of arms that are significant "firsts" for the new nation. These are the products of manufactories actually operated by the Continental (US) government, and so, by the conventional definition of collectors, these are the first "primary" martial arms. "Committee of Safety" muskets, even if contracted by the Continental Congress, are by that definition "secondary." Furthermore, muskets made by (or for) Continental entities are more likely to have seen service by regiments of the Continental Line (e.g., Washington's "Main" Army) in the major engagements of the Revolution, whereas locally purchased arms tended to be jealously guarded and retained for local defense. Thus county-marked Pennsylvania "Committee of Safety" muskets found today have usually surfaced in or near the county that bought them in 1775-1776.

The central revolutionary government began producing arms in 1776 at the Continental Gun Factory, in Lancaster, PA. Southeastern Pennsylvania was the arms-making center of the colonies, and conveniently close to the Continental Congress in Philadelphia. From October 1777 to June 1778, the British occupied Philadelphia, forcing Congress to meet in York, but after the British left, the Continental Gun Factory, now renamed the Continental Armory, moved to Philadelphia. It and other "Philadelphia Supply Agencies" such as the Brass Foundry and the French Factory were in production by 1780 and continued for the duration of the war. The name of the French Factory evidently derives from the source of its funding; it actually produced arms of the British "Brown Bess" pattern (Moller, 1993).

Though these Philadelphia stocks are in British style, only the M 1717-derived musket (L) uses the raised breech plateau of the antecedent British P1756. M1766 (C), "Prahl," (L).

To my knowledge, only three prior publications have attempted to identify the Revolutionary War muskets made by these Continental agencies. Many of the Revolutionary-period personnel continued to work on US arms in Philadelphia during the Federal period. Because their initials also appear on arms of that later period, misattributions have resulted (Guthman, 1975, p. 44; Moller, p. 150). In particular, the IP-marked muskets are simply too numerous to date from the Revolution (Ed Flanagan, pers. com., 1993)

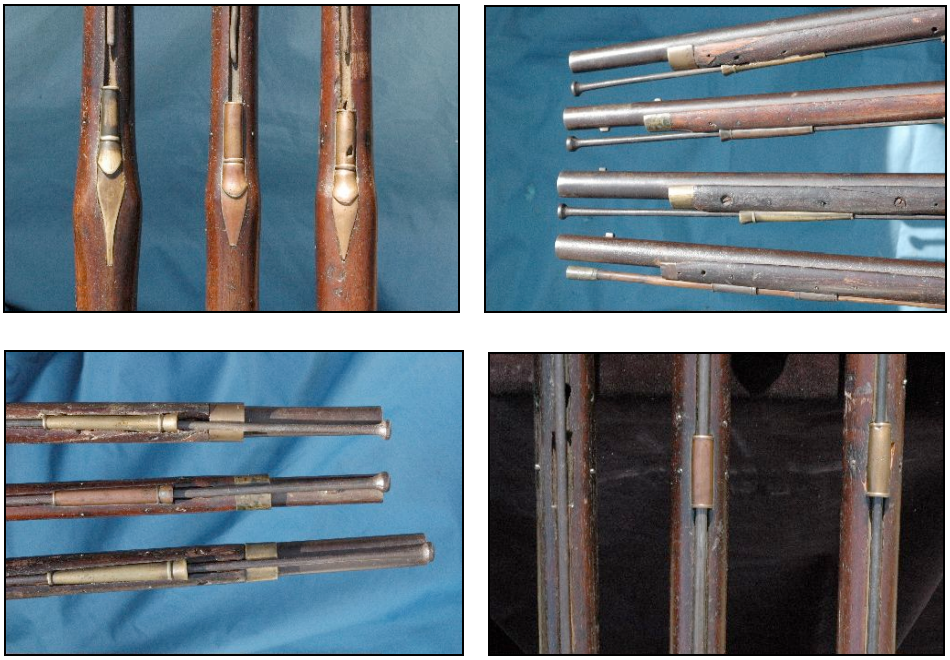
A number of these Federal period muskets are known; some are French-styled, iron mounted, and their barrels are held with bands. Others have pin-fastened barrels and are of the "Brown Bess" pattern, but with the flared second ramrod thimble that officially entered British production in 1777. They have US-stamped Germanic locks with a stepped rear surface and nearly comb-less stocks like those of the US Model 1816/1822 muskets. These stocks lack the lateral flutes that typically separate the comb from the belly of the butt-stock in eighteenth century work.

Importantly, recent scholarship has pointed to the following arms as 1780-1783 Continental production (Schmidt, 2006, p. 9-14). These brass-mounted, pin-fastened arms are all patterned after the then-new Short Land Musket (P. 1769) of the British Army. Yet a number of traits link them to Philadelphia during the late-war period, the most obvious of which is

(1) An unusually short heel-plate-tang that terminates in a simple semi-circle, instead of the elongate, multi-stepped tang of the British counterpart. These "thumb-nail" heel-plates are characteristic of rifles made in Bucks and Berks counties, which are adjacent to Philadelphia (Gable, 2000). These muskets also lack the wrist escutcheons of the British antecedent arms, as is often the case in American-made muskets. The shortened heel-plate-tang eliminated the need for a transverse pin to secure it to the stock Eliminating the wrist escutcheon strengthened the vulnerable wrist of the stock, because it was no longer drilled to accommodate the through bolt, which holds the escutcheon to the trigger-guard. The trigger guard is attached instead by a transverse pin, so the single, slotted bolt-head visible on British muskets at this point is missing. Both of these simplifications saved time by reducing the amount of complex inletting, and saved brass, which was in short supply.

Salient identifying characters of the Philadelphia-stocked guns are the truncated "thumb-nail" heel-plate tangs and absence of wrist escutcheons. Guns in standard sequence: Prahl (top), Charleville M1766 (middle), M1717 (bottom).

(2) These muskets all have mountings, including four ramrod-thimbles, of porous, often red-colored brass. The casting defects and copper-rich, red brass are characteristics of primitive production techniques that use scrap of variable composition. In this respect, the brass of Confederate-made arms resembles that produced in the first American Revolution. If copper scrap is used, the temperature must be raised to 1083˚ C to melt it, but zinc, which is alloyed with copper to form brass, vaporizes at 905˚ C. (Gogan, 1999). Consequently, if brass is already in the pot when pure copper is added, some of the zinc will evaporate before the copper melts. Therefore the alloy becomes copper-rich, and thus red, by two mechanisms. And simple overheating of a conventional brass melt is third possibility.

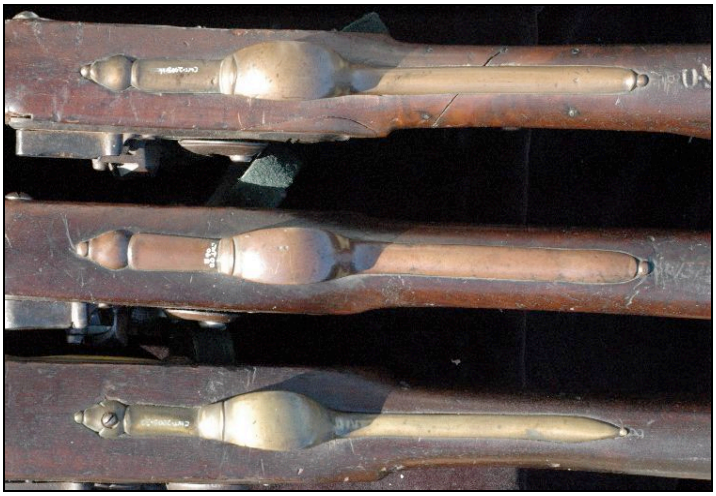


Each musket was fitted with socket bayonets via rectangular lugs (top or bottom of barrel; top-mounted lug of the Prahl has been lost) and barrel projections of 3 to 4 ¼ inches. All were made for iron ramrods as shown by protective nose caps (or band, in Cowell's work, bottom gun in upper right image) and stock channels and thimbles of small diameter. The third musket (Philadelphia, 1717) has a period bolted repair to a split in the ramrod channel. Furniture, attributed to the Continental Brass Foundry, varies in composition (red to yellow), size, and shape. All three Philadelphia-made guns were made with cast nose caps, two barrel-like pipes (lower shown, removed in repair of rampart musket). Tail pipe of the Prahl (right gun) shows characteristic porosity. Threads removed from rod-tips, a typical American feature to facilitate use as roasting spits.

Production as part of a large American operation is indicated by the varied shape and size of the brass parts, most of which of which differ significantly from their British counterparts. The trigger guards, for example, are often very narrow, another brass-saving feature, and were often not drilled to accept sling swivels. The swivels of European muskets used in the American Revolution were often purposefully removed. These guards were obviously produced using different, hence multiple, patterns to make the cavities in the sand mold. A very small facility could use a single pattern to make multiple impressions, but large-scale production requires several men to make the molds, and hence multiple patterns.

Although there was post-war production of such parts, it was evidently on a small scale (and so probably did not use multiple patterns). For example, in 1787, James Morrow, who had contracted to clean old arms stored at West Point, was instructed that "what mountings is wanted have them cast rough" and then polish them (Guthman, 1975, p. 14). British-style muskets had cast furniture (all brass); the only common alternatives were French, all with wrought iron furniture. But in this post-War production, the second ramrod-pipe would likely have been trumpet-mouthed, as it is in Pratt's (British) improvement of 1777. All but the top pipe of the Philadelphia-attributed muskets of 1780-1783 are simple barrel-like forms that lack bell mouths.

It appears that the Continental Brass Foundry in Philadelphia was the only large American producer of Brown-Bess style brass hardware during the late War period. It is not likely that many other facilities were in production, for from 1777, the great influx of iron-banded French muskets had rendered the pin-fastened Brown Bess pattern virtually obsolete. But most importantly, it is documented that the Continental Brass Foundry issued brass components to the French Gun Factory in precisely the proportions required for the four-piped muskets of the Brown Bess type, including a cast nose (forend) cap, which encloses the end and sides of the wood, not just the sides as a simple band of brass does. The latter was the norm on pre-1756 British muskets (Moller, p. 140; Bailey). All known muskets with the Philadelphia-area thumbnail heel-plates conform to this pattern, which derived from the P1769 Short Land Musket.



Trigger guards vary in width and in development of "acorn cap" on finial (Prahl, top).

(3) These Philadelphia-attributed muskets are uniform in the wide range of barrels and locks that were used, essentially anything that would work. For the most part, they are all components that would not have been available in quantity before 1777, and then only to a Continental facility. Three are known with Germanic locks (Prahl herein, Schmidt, p. 11, Flayderman, ND) that would not have been available before the victorious Continental armory captured them at Saratoga (1777) and in later battles. Previously there had been few victories, and few spoils. These locks are unmarked, as are known Brunswick locks, but American refinishing often removed markings, so we can only label them "Germanic." True, Germanic arms were captured earlier, as by New Hampshire at Bennington in 1777, but such trophies were relatively rare.

One of the muskets herein has a M1766 lock by Charleville. The place name was removed during Continental refinishing (draw-filing or grinding), but a small "D," which is diagnostic of Charleville arms during this period, survives. Such parts and complete arms were first generally available in America as French aid that did not arrive in volume until 1777. For the most part, this aid was shipped to the Continental authorities (a significant exception was an early 1777 shipment that arrived in Portsmouth NH and was commandeered by the local states).

Any available locks were used; those seen were not generally available until 1777 (top to bottom): Germanic (likely Brunswick) with British cock (period replacement), Charleville M1766, French M1717 by Girard. Despite its missing rear teat, the 1766 lock is the only lock this gun has ever had. Sideplates are American copies of British P1756, French M1766, and British P1779, respectively. Trigger guard bows are not drilled for sling swivels,except on the rampart musket, but still-burred edges show it was never used.

The other Philadelphia-attributed musket herein has the lock of a M1717 French Rampart musket marked "GIRARD." Such early parts could have been captured during King George's War (1745-1748) or the French and Indian War (1755-1760). For example, prior to the Revolution, Massachusetts owned a large number of rampart muskets, likely taken at Louisbourg (Nova Scotia) in 1745 or 1758 (Neumann, pers. com.). But I have not noted any locks by Girard in muskets with a New England provenance. So this Girard lock was probably included in the large shipments of obsolete rampart parts that arrived in 1777 and later (Moller, 141-142). And by the last years of the war, the Continental authorities definitely held a large number of rampart muskets; in 1781 and 1782, they sold over three thousand of them to Maryland and Virginia (Moller, p. 136).

The barrels tell a story like that of the locks. They vary in length from 42 inches, the new British standard, to 44 and a fraction, the contemporary French standard. Thus barrels from either source could be used without sacrificing much "uniformity." Old barrels of either nationality (46 inch and a bit over 46 inches, respectively) were cut to conform.

The barrel marked "Prahl" is almost certainly from one of the 150 muskets for which he contracted with the Pennsylvania Committee of Safety in 1775 (Reilly). It is very similar to the barrel of the well-documented Pennsylvania Committee of Safety musket that is stamped and branded PP (Bazelon & Trussell, 1983; Neumann, p. 135). Both have full round barrels that imitate the British Brown Bess: baluster "turnings" on top of the breech, and a rearward-flaring tang, which here

bears a sighting groove. The later is a typical American feature, for from 1778, Continental drill, as part of the revision initiated by Von Steuben at Valley Forge, included the command "Take sight!" Most British infantrymen were merely instructed to "present" their arms in the general direction of a massed enemy formation (Wright, 1989, p.141). Significantly, both barrels have bores smaller than the standard British caliber of 0.75 – 0.76 inches (16 balls to the pound) which was specified by the other colonies (Peterson, p. 187-188). Pennsylvania was unique in specifying 17 balls to the pound (0.72 cal); the PP gun is 0.73 whereas the Prahl is 0.69, but its bore is rather crusty and would probably measure about the same as the PP barrel if cleaned.

The faint Prahl and PENNSY markings are palimpsest, doubtless draw-filed (cleaned) before the barrel was reused and stamped "US," for the latter is quite sharp. Although this musket has been frequently published, the full barrel markings have not been given. In fact, the "PENNSY" is followed by "N^{o} 679," which is almost certainly a gun number for the 2nd Pennsylvania Regiment of 1775.

The Prahl barrel is engraved "PENNSY N^{o} 679," suggesting use by the PA 2nd Regiment of 1775.

Because the barrel bears the State name instead a county name, we may infer that it was intended for a Continental regiment, and when the Prahl muskets were received (late 1775 or 1776) there were only two Continental Pennsylvania regiments. The first was a rifle regiment, whose arms could not be confused with those of the second regiment, who were infantry (musket-armed). Consequently, a regimental marking was unnecessary. Later in the war, Pennsylvania had more regiments. Its pacifist tradition led to few "associators," and regiments were slow to form, never catching up in number with those of bellicose New England. Thus the lack of a regimental designation on the barrel indicates delivery between 12 October and 9 December, 1775, when four more regiments of infantry (musketmen) were authorized. (Wright, 1989)

The gun number, 679, also indicates issue to a Continental regiment, for it is too great for a State unit. 679 is very near the maximum authorized number of musketmen in a Continental regiment. In particular, for the establishment of 1776, a regiment had 8 companies that totaled 608 privates, 8 ensigns, 32 sergeants, and 32 corporals, for a grand total of 680 potential musket-bearers. The equivalent strength for the Pennsylvania State musket regiment was only 460. (Wright, 1989).

Attribution to the Second Pennsylvania Regiment of the Continental Line enables us to reconstruct a very significant history which brings the musket back to Philadelphia in time to be

reworked in 1780-1783. The regiment arrived in Quebec in the winter of 1775, participating in the siege of that city and the disastrous retreat back to Lake Champlain. There they manned Benedict Arnold's little fleet, the first "U. S. Navy," which delayed the British advance at the Battle of Valcour Island (October, 1776), and held Ticonderoga until the approach of winter sent the British invasion back to Canada. In the year thus gained, the rag-tag American armies were revitalized, and ready to defeat Burgoyne at Saratoga in 1777. That victory brought formal French alliance, and assured US independence.

But meanwhile, after the defeat at Ft. Washington, NY (1776), the 2nd Pennsylvania Regiment marched through Northern New Jersey, enduring "the times that try men's souls," and returned to defend Philadelphia (unsuccessfully) against Howe's invasion of 1777 (Wright, 1989).

This Pennsylvania barrel also bears a stamped "M," generally regarded as a "Maryland" mark of ownership. This musket, in its present 1780's configuration, was likely one of the 1,018 muskets and bayonets that were sold by the Continental government (presumably from its principal facility, Philadlephia) to Maryland in 1781, along with 1,000 rampart muskets.

The octagon-to-round barrel of the Charleville-locked Philadelphia musket has a full length flat, a characteristic of French infantry muskets from the model of 1717 through the early production of the model 1754 (Boudriot, *Cahiers*). All exterior barrel marks were removed (as normal in Continental refinishing) so we cannot begin to speculate as to whether this barrel was captured from New France, or received as post-1776 French aid. The engraved "D" on the breech is an American addition. No such French marks are known. The Charleville "D"s are invariably stamped and smaller.

The third Philadelphia musket has the barrel (and lock) of a French rampart musket. Although the lock is for the 1717 Model, rampart muskets were also produced in the M1728, with no change in the form of the barrel. In this instance, we can be fairly sure that the barrel came to America as French aid in 1777 or later. From 1777 to 1780, at least 16,000 rampart musket barrels were received from France (Moller, v. 1, p. 136). On this barrel, the original French markings are extremely sharp, not consistent with colonial service in North America. Furthermore, they are, like the Girard-marked lock in the same gun, marks that I have not noted on guns with colonial New England provenance.

An explanation of the widely misunderstood rampart musket is in order here. Little has been published on the topic, but much can be inferred from the tactical purpose of the roughly equivalent British wall-piece. The British gun was a long-range weapon with a bore of 0.98 inches. Firing a single ball, it exceeded the range of the standard musket. In the woods of North America, through which an army was usually unable to bring artillery, wall-pieces were generally able to keep attackers at bay. In European-style siege tactics, wall-pieces could pick off artillerymen who were out of normal musket range, thereby delaying the cannonade required to breach the defender's walls. The British wall-piece is so heavy that it requires a swivel, and a secure mounting for it.

The French rampart musket (*fusil de rempart*) was a lighter arm that did not require a swivel, and so could be more easily deployed where need along the ramparts. Still, it was much heavier than the standard infantry musket of the period. Never intended for field use, it was made without sling swivels and, stocked to the muzzle, it could not accept a socket bayonet. Although the

barrel was of the same length (just over 46 and a fraction inches) as the infantry musket, it was 0.72 rather than 0.69 caliber, and the wall thickness was considerably greater, especially at the breech, to withstand the long-range powder charge.

The locks were also larger (7 1/8 vs. 6 ¾ inches length), so both barrel and lock required a very robust stock, adding to the already heavy weight of the piece. The Philadelphia restocked version, with barrel cut back to 42 ½ inches, weighs 10.6 pounds, nearly a half-pound heavier than British Short Land Pattern (10.2 pounds), which it was modified to resemble. The French infantry musket of the period weighs only 9 pounds. No wonder it was issued to British Light Infantry during the French and Indian War (Guthman, 1988). And no wonder that it became the new American standard, copied by contractors and the new national armories from 1794.

In other American-assembled guns, the barrels of rampart muskets were ground down, especially at the breech, to lighten them, but there is no evidence that the Continental operations in Philadelphia did so. Rampart barrels may have been desireable in the production of muskets made according to the British pattern, for they could be bored out to the standard "Brown Bess" caliber, 0.76 inch.

It has been alleged that the unsophisticated American commissioners who negotiated the acquisition of French arms were unaware of the "subtle" differences that distinguished the obsolete rampart muskets from the newer muskets (Moller, 1, p.142.) The rampart musket is a blatantly ponderous object, not to be confused with the superbly portable musket of the French infantry. Continental authorities knew its shortcomings, and after ample French infantry muskets were on hand, "dumped" rampart muskets by selling them to the states (Moller, v. 1, p. 136).

(5) The side-plates of these Philadelphia muskets are invariably American brass castings, but vary in pattern from the convex, tailed plate of the British P1756 to the convex, tailless S-shaped plate, commonly known as the India Pattern, which was first produced in Britain in 1779. This is the latest British feature to be incorporated in these Philadelphia muskets, and so dates their production to 1779 or later. The musket with the Charleville lock utilizes a red brass copy of the original, flat, S-shaped French side-plate; the French version was off course iron.

(6) Although not diagnostic of particular years, the various Continental markings applied to these Philadelphia guns are, based on prior perceptions (Moller, 1), at least consistent with application in the latter years of the Revolution. Although many of these marks appear to have been applied with the same stamp or brand, upon measurement, most are of different sizes. This means there were multiple stamps in use at the same facility, indicating that it must have been a large one. This argument parallels that based on multiple foundry patterns for brass components.

Collectors often apply a rule of thumb regarding the large US markings as indicative of early application, with smaller characters coming later. It is certainly true that the average height of the characters in such markings was much smaller in, say, the 1840's, than it was in the 1770's. But these Philadelphia muskets show that dating should never be based on a single stamping, for here stamps of multiple sizes occur on a homogeneous group of arms that must have peen produced in narrow time range. Indeed, large and small stamps occur on a single gun! As these English pattern muskets were not long continued in US service -- they were replaced by the Charleville pattern -- the likelihood of their being stamped or re-stamped during a later period is not great. And in one case (1717 rampart), the presumably later stamp (to replace a partial first strike) is larger than the first!

Barrels were any available (L to R): Prahl PA Committee of Safety in British form, French M1717 -1754 infantry Charleville, and M1717 rampart musket. Breech markings are: Prahl, "US", "M" (Maryland?), and "P" with diagonal rearward slash; Charleville, engraved "D," probably American; M1717; same small "US" as on the Prahl, larger conjoined "US" with tailed "U," and original French stamps of barrel maker "Jean. L…" whose surname was over-stamped by the St. Etienne mark of a fleur-de-lis flanked by "SF," the latter is apparently a broken "E."

Although sizes vary, the style of these US ownership marks is homogeneous. Perhaps further study will show that some of these markings are unique to Philadelphia in the early 1780's. Candidates include the following:

* The brand "U·STATES" with raised dot (not colon or period)
* The brand "USTATES" with the U having a tail, as if it were lower case (Schmidt, p. 14)
* The US stamp, tailed U and S conjoined.
* The US stamp, U having a very short, nearly absent serif atop its left vertical.

All serifs seem to be of rectangular (block) form, neither curved nor pointed.

Locks of the Prahl and 1717 have similar conjoined US stamps with tailed U's that resemble the stamp on the breech of the Prahl, but all three are of different sizes. The US on the Prahl lock was double-struck due to problems with the case-hardened lock and the convex shoulder of the Germanic bevel; as a result, it appears disjointed.

(7) All of the Philadelphia muskets are stocked in poor-quality black walnut, which suggests late-war production in Pennsylvania. In this era, the quality of gunstocks typically declined during a war. Even if quality trees were available, the traditional curing time, one year per inch of thickness, required 2 years between the cutting of a 2-inch stock blank and its eventual use. Using green wood resulted in warps, cracks, etc. And of course, quality trees were depleted if the war was a long one. This happened in France during the mid-18th Century, exacerbated by the killing frost of 1709. (Bouchard, p. 5).

The Prahl musket has a large transverse knot in its wrist, an absurdity as this is always the weakest part of a gunstock. It also has numerous small 20th Century wood repairs occasioned by the fissile grain.

The Charleville has a large transverse knot in the butt. In quality stocking of this period, a vertical knot was often deliberately placed in this position, for it prevented a common problem: the tendency of the toe to split. Any knot makes the stocker's job difficult, because he must reverse his plane or draw shave to work "with the grain" on opposite sides of the knot. This transverse knot made work with no gain. Evidently there was also a knot in the middle of the forestock. Here the wood is only a fraction of an inch thick, and knots cause immediate breakage. Consequently many 18thCentury pin-fastened stocks, including this one, were manufactured with "pieced" stocks (Gooding, 2003, p. 41,76; Schmidt p. 11). "Half stocks" and "stocks spliced" were common repair items in the 1780's (Guthmann,1975, p. 14; 1979, p. 55). On the present arm, the old glue has dried out, alligatored, and failed, but the pins still hold the wood in place against the barrel. On band-fastened guns, splices cannot be so well secured, and I have never seen period splices on such guns. Eighteenth Century splices employ lapped conical surfaces, often with several inches of overlap, whereas modern restorers usually use a simple planar joint at 45 degrees to the barrel.

Guns are stocked in poor-quality American black walnut. Left, conical splice in Charleville, muzzle is to the left. Right, large knot in wrist of Prahl.

The 1717 rampart musket has splintered around the breech tang and the lock, and the forestock has split along the ramrod channel. The latter was repaired during the period of use, possibly during manufacture, with two transverse iron bolts, one of which utilizes the barrel lug that might have carried a sling swivel. The other occupies the barrel loop normally used for a pin, just behind the nose cap. Slotted bolt heads, on the right, and crudely squared washers, on the

left, were partially inlet into the wood. Then wood and iron were all rasped down simultaneously to produce a conformable surface, nearly eliminating the screw-driver slots, so that the stock can no longer be removed from the barrel. The whole was then stained dark. This was a period technique, for I have a French 1733 carbine (CWT.2004.17) restocked in maple, on which the butt-plate and stock were similarly (and simultaneously) rasp-dressed, all before its "UNITED:STATES" brand was applied.

The Flayderman specimen was also stocked in splintery walnut.

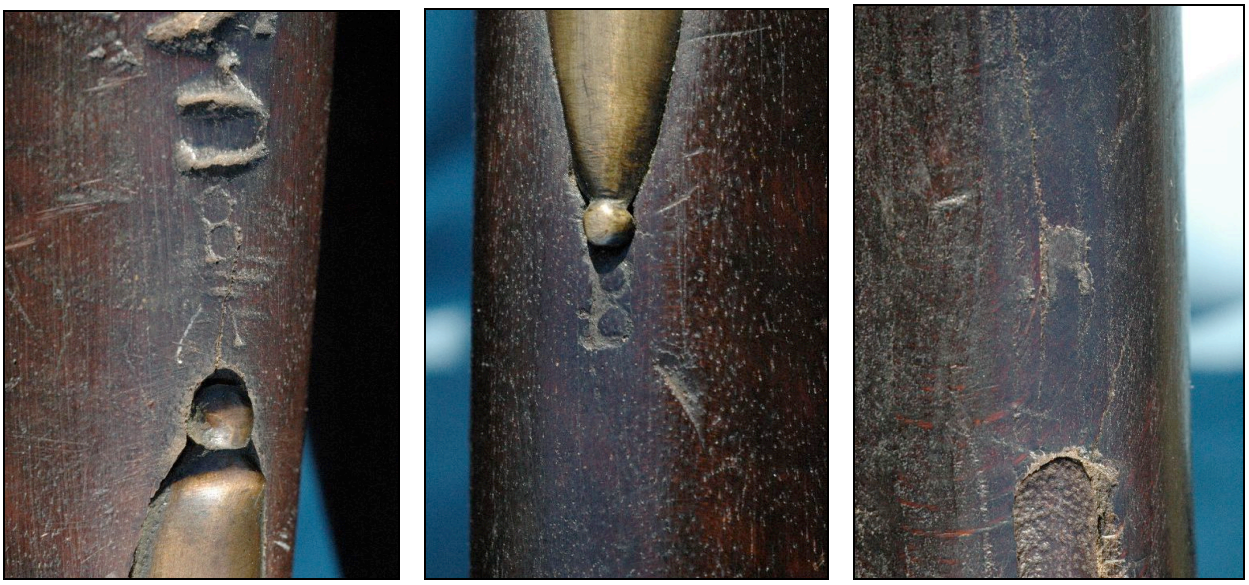
(8) The Philadelphia-attributed muskets described here are linked to each other by similar initials stamped in the stock to the rear of the trigger-guard (the Charleville's markings, if any in this position, were removed along with its "U·STATES" brand). But more importantly, this trait links them to another gun with an independent history, but which is solidly documented as having been repaired in Philadelphia late in the Revolution.

"U· STATES" brands maybe unique to these Philadelphia guns. Large version on Prahl, smaller version, nearly carved away when removed from US service, is clearly same text. A diagonal gouge (forward slash) is in the position of the raised dot; the U and S can be distinguished on either side of the slash.

This gun, another 1717 rampart musket, was restocked in cherry in Massachusetts, where it was regimentally marked in 1775. The original gun was probably captured at Louisbourg in 1745 or 1758. Its full story must be told elsewhere, but suffice it to say that it wound up in Philadelphia in 1777-1782, where Ebenezer Cowell repaired and marked it "SP," for "State of Pennsylvania" or "State Property." As Cowell invoiced the State of Pennsylvania for this work, the intent of the "SP" is clear. Others have attributed an "SP" mark to the State of New Jersey (Neumann, 1967,M.84; Reilly, 1986, p. 34), and perhaps both states used those initials. In any case, there can be no doubt that this particular gun was one of those refurbished by Cowell, for he invoiced the State of Pennsylvania for "100 Rampart muskets Cut & repaired Sighted and Cleaned." The same bill also includes 11 rampart arms labeled "S P Muskets."(Guthmann, 1979). The specific repairs enumerated on this invoice include those which were performed on this musket.

One of Cowell's nine subcontractors was Joseph Rinkert. On this particular invoice, he is credited for six of the seven the operations performed on this gun. The letter "R" stamped behind the trigger guard is probably Rinkert's initial, placed there for accounting purposes. No other men with "R" names (first or last) are recorded in the 32 bills Cowell sent to the State of Pennsylvania.

On British military muskets, government inspectors stamped their marks in the stock to the rear of the trigger guard. The "V" on the Prahl maybe such a mark (for viewed?). But the "B"s on the Prahl and the other rampart musket are probably accounting marks; they are of the same style and size as the "R" on the SP rampart musket, and such practices were probably uniform among the various gun-related trades in Philadelphia. Whatever their purpose, the mere similarity of these stamps is independent evidence that the Philadelphia-attributed muskets with thumbnail heel-plates were actually made in Philadelphia during the 1780's. There is a good chance that the same craftsman made all of these stamps.



A "B" is stamped to the rear of the trigger-guard on the Prahl and the US 1717 rampart musket; On the Cowell musket, it is an R. These are similar in size and style, but none are from the same stamp. The Prahl also bears a "V." The latter is presumably a 'view' mark, the former may designate subcontractors.

The SP marks vary considerably in size, even though evidence indicates they were stamped at a single time. In any case, the "SP" was replaced by "CP" when the first of Pennsylvania's 1797 contract muskets were delivered in 1799, so there were only two decades in which this arm might have been issued, then returned for "re-certification" and stamping. And as an already obsolete arm in a period of peace, there is good reason to question whether it would have been issued. The SP marks are two stock brands, 0.96 cm and 1.26 cm, and a barrel stamp, 0.78 cm.

Because a brand must contain enough metal to retain heat for the burning of the wood, tiny markings are not practically applied by branding. Thus the delicate inspector's marks of the Civil War period, for example, were stamped (at least until the fakers of today started using lasers). Tiny stamps were used to mark locks and barrels of British and French military muskets in the second quarter of the 18th Century, but perhaps the die-sinkers of colonial America were not so skilled as their European counterparts.

(9) The "JS" stamps on the Prahl are consistent with Continental production in Philadelphia in 1780-1782, when at least two men with those initials were "US armorers." (Moller, 1, p. 151)

The two "JS" stamps on the Prahl maybe the initials of John Small or James Smith, employed at the Continental Armory, 1780-1782 (Moller, v. 1, p. 151)

(10) With five examples, we have a large number of survivors, at least by the standards of other American Revolutionary War manufactories, such as Fredericksburg and Rappahannock Forge. This implies a large output, and a large production facility. There can be little doubt that the Philadelphia Continental arms complex meets both criteria. On that basis alone, it is reasonable to attribute these muskets to Continental assembly in Philadelphia during 1780-1783.

While some of the above points offer only weak support for the proposed attribution, others are quite compelling. In aggregate, the weight of evidence solidly supports the hypothesis: these splintery-stocked, "short land" muskets, with their crudely cast, copper-rich brass furniture and thumb-nail heel-plates, without wrist escutcheons and sling swivels, are the earliest known examples of arms actually produced by the US government – in short, the first primary US martial arms.

WORKS CITED

I thank Walter O'Connor for his numerous contributions.

Bailey, De Witt, 1997, *Pattern Dates for British Ordnance Small Arms, 1718 – 1783*, Thomas Publications, Gettysburg, PA, 116 pp.

Bazelon, Bruce S, & John B. Trussell, 1983, Arming the Associators: the documentation of a "Pennsylvania Committee of Safety" musket. *Man at Arms*, Sept-Oct, p. 16-18.

Bouchard, Russel, 1980, *The Fusil de Tulle in New France, 1691-1741*. Museum restoration service, Alexandria bay, NY, 48 pp.

Flayderman, Norm, no date, 1987-8, Catalog No. 112, Lot 1507

Hunter, William A., 1960*, Forts on the Pennsylvania Frontier, 1753 – 1758*. Penna. Historical and Museum Commission, 596 pp.

Gable, Ronald G, 2000, Pennsylvania Rifles in the Beginning, Historical Influences & the Characteristics of the Early Schools, *Man at Arms* 22(3):19-24.

Gooding, S. James, 2003, *Trade Guns of the Hudson's Bay Company, 1670-1970*, Museum Restoration Service, Alexandria Bay, NY, 158 pp.

Guthman, William H., 1975, *U.S. Army Weapons – 1784-1791*, American Society of Arms Collectors, 94 pp.

Guthman, William H., 1979, Committee of Safety Musket? Prove it! *Man at Arms*, July-Aug, 1(4):45-55.

Guthman, William H., 1988, Rifles in 1759, *Kentucky Rifle Assoc. Bull.,* Spring, p. 2. Guthman cites General Amherst's orders of Jan 23, 1759, for the upcoming conquest of Canada.

Gogan, Art, 1999, *Fighting Iron, A metals Handbook for Arms Collectors*, Mowbray, Lincoln, RI, 176 pp.

Moller, George D., 1993, American Military Shoulder Arms, v. 1., *Colonial and Revolutionary War Arms*, Univ. Press of Colorado, 517 pp.

_____, v.2, *From the 1790s to the end of the Flintlock Period*, 534 pp.

Neumann, George C., 1967, *The History of Weapons of the American Revolution*, Harper & Row, NY, 373 pp.

Neumann, George C., 1998, *Battle Weapons of the American Revolution*, Scurlock, Texarkana, TX, 393 pp.

Peterson, Harold, *Arms and Armor in Colonial America, 1526 – 1783.* Bramhall House, NY, 350 pp.

Reilly, Robert M., 1986, *United States Martial Flintlocks*, Mowbray, Lincoln, RI, 263 pp.

Schmidt, Peter A., 2006, *U. S. Military Flintlocks and their Bayonets: the Early Years 1790 – 1815*. Mowbray, Woonsocket, RI, 432 pp.

Wright, Robert K, Jr., 1989, *The Continental Army*, Center of Military History, US Army, Washington, DC, 451 pp.