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Defiance and Independence event, Fort Ticonderoga, 2014.



Late 18th century paper cartridge

Musket Cartridges of the American Revolution

by Paul E. Klatt

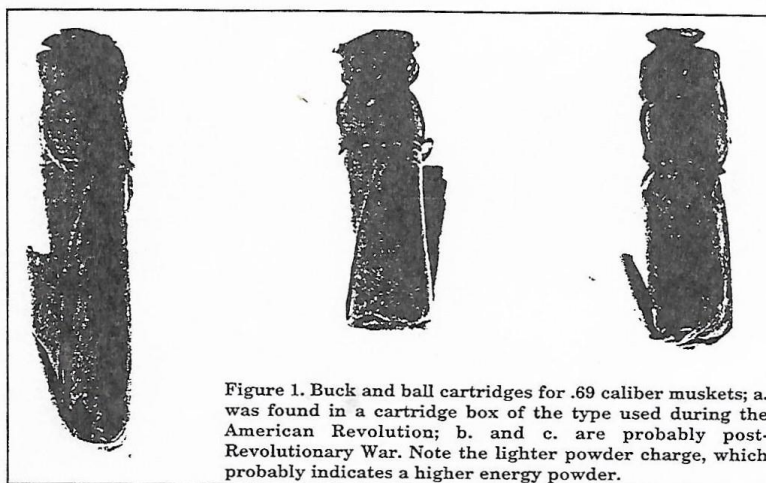


Figure 1. Buck and ball cartridges for .69 caliber muskets; a. was found in a cartridge box of the type used during the American Revolution; b. and c. are probably post-Revolutionary War. Note the lighter powder charge, which probably indicates a higher energy powder.

The basic firearm of the American Revolution was the smoothbore musket. These were usually supplied to the soldier along with a bayonet, a cartridge (or cartouche) box, some flints, and a quantity of cartridges.¹ These cartridges consisted of a pre-measured charge of powder, a round ball and/or shot wrapped in paper.²

The reason for the use of cartridges was to increase the rate of fire over having to measure the powder charge in the field. Also, the soldier would have had to patch the ball and/or shot, unless he carried these already done up. In any kind of action the soldier with "quickfire" cartridges had the advantage.

Much is known about the firearms of the American Revolution. Fabulous collections exist. Volumes have been written. But what of the cartridges for these weapons? Very little is known. A few specimens have been found still contained in cartridge boxes of the period (Fig. 1) and packets of cartridges are known that are thought to be of the American Revolution, but

nothing definite. There was no American specification on how these cartridges should be made or how they should be packaged, so they cannot be dated by the style of their construction or the method of packaging.

Even though enormous quantities of cartridges were produced during the American Revolution, they are extremely rare today.³ The obvious reasons are that they are fragile by design, and much affected by more than two centuries of moisture and oxidation. So when two full labeled packets of musket cartridges were recently discovered that are dated during the period of the American Revolution, we were given a new insight into this corner of ephemera.

The account of the discovery of these cartridges and how they came to light will not be detailed here, in that it is not historically significant. It is sufficient to mention that they can be traced to an old collection of Revolutionary War artifacts. The wonderful condition of these packets and their contents is nothing short of miraculous. They must have been stored in a perfect environment with

very careful handling, if any, for all of those years.

One packet, No. 207 (Fig. 2) is sealed. Its contents have been examined only by X-ray (Fig. 3), which reveals ten cartridges, each containing three .32 caliber buckshot and one .69 caliber ball. The wrapper is a coarse, gray, laid paper, with a mold pattern typical of the period.⁴ The label is a whiter laid paper with a similar mold pattern, and is probably sized. The handwriting on the label is faded to a red-brown color, which is expected of many 18th century inks due to the use of iron compounds, which oxidize to this color. The tie is done with a coarse material (possibly jute), almost rope-like, much heavier than seems necessary.

Packet No. 208 (Fig. 4) is identical to No. 207, except that the wrapper is open at one end and the writing on the label is more faded.⁵ Also, the label is imprinted with part of a watermark: three concentric arcs. These marks match a British watermark that was fairly common in papers used during the American Revolution, (a Britannia device within three crowned circles).⁶

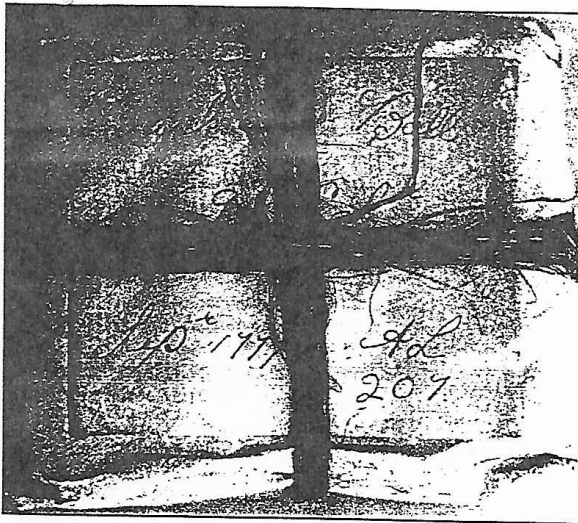


Figure 2. Packet No. 207; ten buck and ball musket cartridges, dated September 1777.

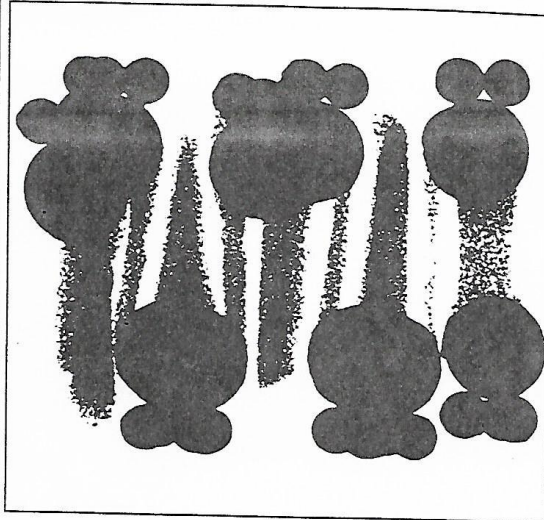


Figure 3. X-ray of packet No. 207. The balls measure 0.69". Note one cartridge may contain only two buckshot.

This label was most probably made from British paper purchased before the war or from American paper made on molds purchased from Britain. There were at least two American mills producing paper during the war that used these British molds.

The open end of the wrapper of No. 208 allowed the removal and examination of the contents of this packet without having to break any seals. The car-

tridges contained in No. 208, two of which are shown as Fig. 5, are wrapped in pieces of a religious tract, which is printed on laid, sized paper, again with a mold pattern typical of the period. The tie is very different from other buck and ball cartridges believed to be contemporary (Fig. 1). Nine of the cartridges from packet No. 208 are tied with a knot above the buck shot and a turn around and under the

ball with a knot that also secures the folded tail. The seams of the paper tubes are sealed. This style of cartridge making seems to be an American variation of both the French and British methods. British cartridges were tied with string above the ball (and/or buck) and the paper tube twisted to secure the powder charge. French cartridges were folded and pasted above the ball (and/or buck) and twisted below the powder charge. Both were constructed according to written specifications that existed during the time of the American Revolution. Closing the cartridge with a folded tail turned forward

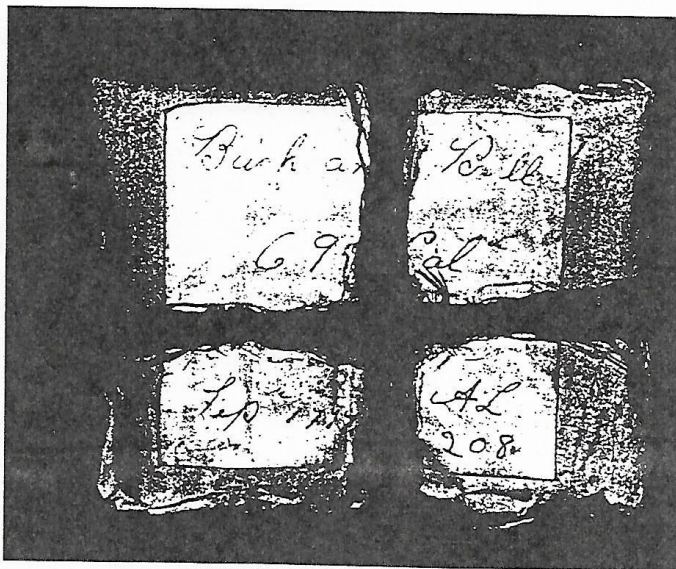


Figure 4. Packet No. 208; identical to No. 207.

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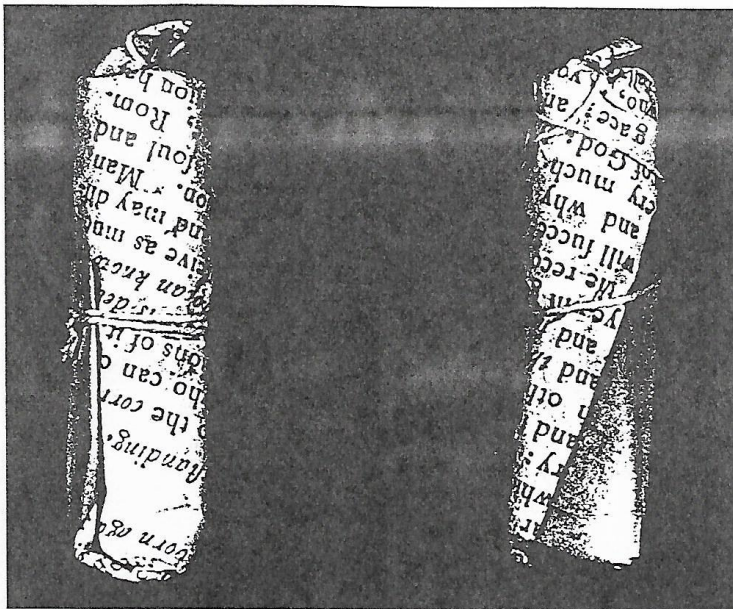


Figure 5. Cartridges from packet No. 208; a. is typical of nine of the cartridges from this packet; b. is unique, with a tie above the buckshot and a separate tie below the ball to secure the folded tail. These cartridges measure approximately 0.75" through the paper.

alongside the powder charge appears to be an American idea, which was specified by 1832 and continued through the paper cartridge period.⁷ The balls of these cartridges measure 0.69", but through the paper wrapping the dimension is approximately 0.75", which is correct for a variety of muskets used during the Revolution. The average weight of eight of the cartridges from No. 208 is 775 grains. Three .32 caliber buckshot (150 grains), a .69 caliber ball (490 grains) and the paper and string (20 grains) add up to 660 grains, which yields a powder charge of about 115 grains, considerably lighter than the British or French standards, and may indicate the use of a higher energy powder.⁸

One other cartridge weighs 720 grains, but contains only 2 buckshot, which accounts for the difference. The tenth cartridge in No. 208 weighs 724 grains. It contains three buckshot, but its shorter overall length (0.6") is commensurate with a 50-grain lighter powder charge. Such a difference must be considered intentional, perhaps for use as a guard load, but nothing obviously differentiates it from the rest of



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MOUNTAIN MAN KENTUCKY RIFLE

MOUNTAIN MAN KENTUCKY RIFLE SIGNED "E.K. MOTE" IN SCRIPT WHO WAS FROM BEAMSVILLE, OHIO, ON THE 44" OCTAGONAL BARREL WITH ITS LARGE 50 CALIBER RIFLED BORE AND A 5" LONG BARREL TANG. LOCKPLATE IS SIGNED "H.E. LEMAN-JANCASTER." PEWTER INLAY AROUND BARREL DRUM AND BRASS FLASH PAN MOUNTED UNDER NIPPLE HAS PREVENTED ANY WOOD BURN FROM FLASH. 36 PERIOD TACKS WERE INSTALLED ON THE RIGHT BUTT AND FULL LENGTH OF THE TOE AREA OF WHICH 5 HAVE SINCE BROKEN OFF DUAL SET TRIGGERS. BUCKHORN REAR SIGHT AND BLADE FRONT RETAINS SOME OF ITS ORIGINAL BLACK LACQUER FINISH WITH MILDLY STRIPED CURLY MAPLE SHOWING THROUGH. EVEN RETAINS ITS ORIGINAL RAM ROD WITH JAG END, 59" OVERALL. A NICE EXAMPLE OF THE PERIOD. CIRCA 1850.



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the cartridges in the packet.

The most historically significant aspect of these two packets of cartridges is that they are labeled and dated during the War of the American Revolution September 1777. This date is surely the date of their manufacture. The practice of marking packets of cartridges with the date of manufacture is well known through the Civil War and continues to this day for the military. The inscriptions Buck and Ball and 69 Cal^r certainly match the contents of these packets. Buck and ball was almost a standard load for smoothbore muskets through the Civil War and the .69 caliber ball with its paper wrapping was right for use in a variety of .75 caliber muskets used during the Revolution. But a question remains – what do AL 207 and AL 208 mean? There has been much speculation on this subject. The congress had resolved on August 28, 1776, "That every maker of gun powder mark every cask, in which he shall pack his gunpowder with the first letters of his name."⁹

There is record of American powder barrels marked: EM, CL, F, VI, 286, 295, 390, 324, 309, 306 etc.; so AL might stand for the maker of the powder.¹⁰ Abraham Livingston's powder mill was operating early in the hostilities and was an important supplier to New York troops.¹¹ But most of the powder, an estimated 80 percent, used by American troops was supplied by France. This powder was considered to be the best in the world and was the product of the government works at Essonnes, under the directorship of the famous chemist Antoine Lavoisier. And there were probably other powder makers with the initials AL. However, the most likely reason for the use of these letters was to identify the person who made the cartridges or who packaged them. The consecutive numbering (207, 208) was probably used for computing piecework. While soldiers often made cartridges during lulls between military actions, large quantities were also produced at ordnance installations, such as the Springfield

Magazine, established by Congress, April 14, 1777, or individual manufacturers working independently or under Committee of Safety or state contracts.

So now we have more questions than answers. With the outbreak of war, England stopped exporting paper to the colonies and its scarcity became so acute that soldiers who were paper craftsmen were discharged so they could return to paper making.¹² Why then would such a scarce commodity be used to wrap up neat little packets of ten cartridges and then use more paper to make a separate label when barrels and kegs were acceptable? Perhaps these cartridges were something special – maybe a new high-energy powder. Also, why does the label give the caliber of the naked ball rather than that of the weapon it was to be used in? As for AL, unless we can find a specific reference to the use of such an inscription to mark this product, we may never know the meaning of these letters. Hopefully this brief description of these rare artifacts will inspire some-

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AMERICAN PAPER AMMUNITION

For almost a century, Americans relied upon paper casings for cartridges. The first of several articles to appear irregularly

By PAUL KLATT

SPECIMENS of the small arms used during the first 85 years of our country's existence are still available in the collector's market, but ammunition for these old guns is rare. Only in a few private collections and in museums specializing in this material do these cartridges appear.

There are several reasons for the scarcity of early cartridges. First, they were made of paper which does not survive the ravages of time. The latest of these cartridges is a century old, and moisture, mishandling, and chemical decomposition of the powder and ball which they contain usually leave little to collect. Second, only comparatively small numbers were manufactured, especially of the very early material. Most cartridges were produced for the military and were consumed in service or broken down.

The sportsman or hunter rarely made cartridges, preferring instead a powder horn or flask and separate ball. Rapidity of fire was not important to the civilian, and the readily accessible, premeasured powder charge of the early cartridge was of little use to him. By the middle of the 19th century a few manufacturers (e.g., Sharps) produced paper cartridges for sportsmen, but not in large quantity.

The first cartridges produced in the

United States were made during the Revolutionary War for weapons used by the Continental Army. These weapons were of every description—early Pennsylvania fowlers, as well as muskets, rifles, pistols, and carbines imported from practically every European country. However, the standard weapon of the Continental soldier was the Charleville musket. This was a cal. .69 smoothbore flintlock of French manufacture. Over 100,000 were purchased between 1776 and 1781. With the Charleville as a pattern, the U.S. Government solicited the help of private gunsmiths and attempted to standardize the cal. .69 musket. However, practically the only requirement for muskets during the Revolutionary War was that they be cal. .69.

Some cartridges for these muskets were manufactured at Springfield Armory and by private contractors, but most were produced in the field. The soldier was issued a quantity of lead, powder, and paper with which he manufactured his own fixed ammunition.

There were very loose specifications, if any, and the style of wrapping varied with the individual. Two general configurations did occur, however, as a result of the influence of the cartridges imported from France and England. English cartridges were usually made by securing the ball to the paper tube with a turn of string above and below the ball and twisting or tying the paper below the powder charge. American-made specimens of this style are shown in Figs. 1, 2, 3. French cartridges were made by simply folding or pasting the paper over the ball and twisting it below the powder charge. An American-made cartridge of this type is shown in Fig. 4.

Bullets for the cal. .69 musket were cast in diameters from .63" to .67" to allow for different degrees of powder fouling in the barrel. To add to the variety, these cartridges were made up with powders of different strength.

ABOUT THE AUTHOR

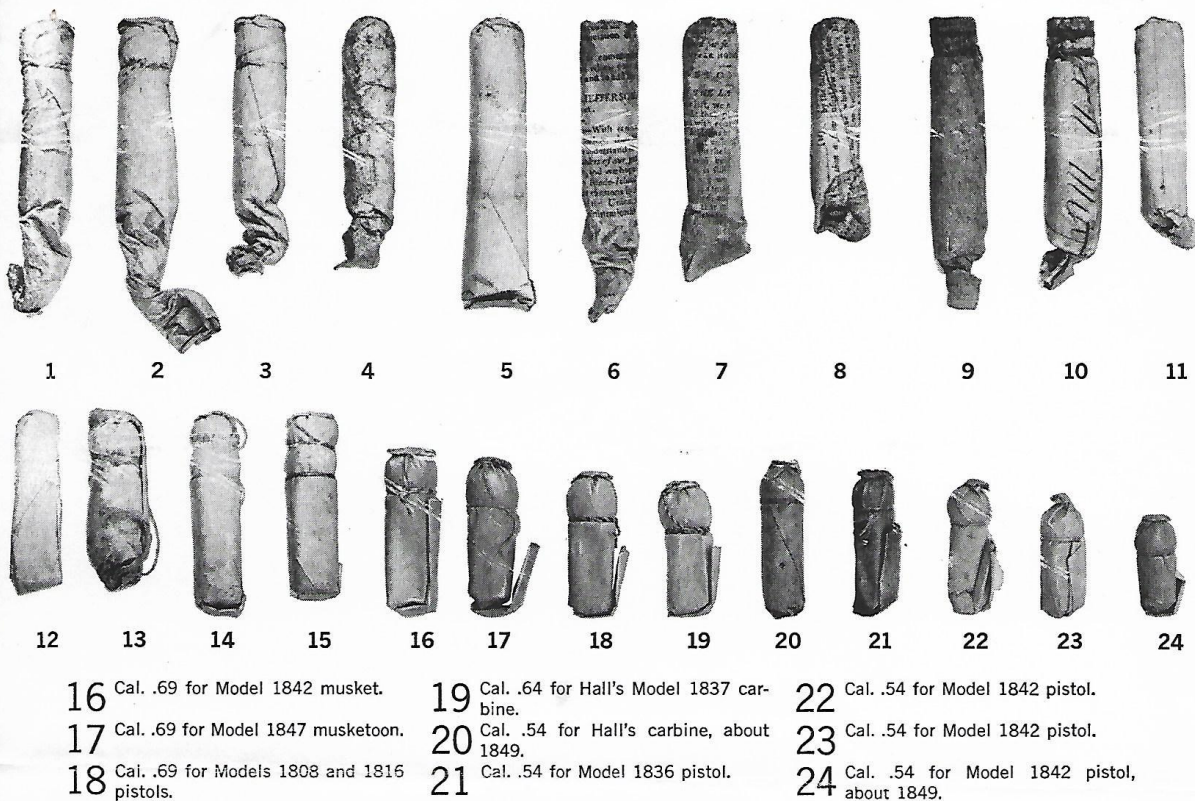
Empty cartridge cases found on a police range near his home whetted Paul Klatt's interest in cartridges when he was still a small boy. For the past 10 years, however, he has specialized in collecting early American cartridges. He now has one of the largest such collections in the U.S. Currently a technical editor in the Space Sciences Division of General Electric, Klatt has exhibited his collection in cartridge shows, winning "best of show" awards.

- 1 Cal. .69 for Charleville flintlock musket, English style, about 1776.
- 2 Cal. .69 for Charleville flintlock musket, English style, about 1776.
- 3 Cal. .69 for Charleville flintlock musket, English style, about 1776.
- 4 Cal. .69 for Charleville flintlock musket, French style, about 1776.
- 5 Cal. .69 for Model 1795 flintlock musket, about 1804.
- 6 Cal. .69 for Model 1795 flintlock musket, about 1804, wrapped in American newspaper.
- 7 Cal. .69 for Model 1795 flintlock musket, about 1804, wrapped in American newspaper.
- 8 Cal. .60 for English flintlock pistol or pistol/carbine, wrapped in American newspaper, about 1804.
- 9 Cal. .54 for Model 1803 Harpers Ferry rifle, about 1804.
- 10 Cal. .54 for Model 1803 Harpers Ferry rifle, about 1804, wrapped in page from ledger book.
- 11 Cal. .69 for Models 1808 and 1822 flintlock muskets.
- 12 Cal. .54 buck and ball, about 1812-1830.
- 13 Cal. .62 for English carbine, about 1835.
- 14 Cal. .69 buck and ball for Model 1822 musket.
- 15 Cal. .69 buck and ball for Model 1842 musket.

Sources of powder were many, and the explosive force of powders varied from mill to mill or even from lot to lot. This situation required the use of different volumes of powder to produce the same ballistics. A cartridge could be 2" long or 5" long and be used in the same musket. Finally, paper was very scarce and was commandeered from every source. Books, newspapers, ledgers, maps, everything paper was used to make cartridges. So, it becomes apparent that the first ammunition produced in this country could have looked like almost anything.

The question might therefore arise: How is a Revolutionary War cartridge identified? Outside of carbon dating, which of course is out of the question because of cost, the writer knows of only 2 methods.

If the cartridge is wrapped in newspaper or some other document, that piece of paper may be dated. This is extremely rare, but if such a specimen is discovered it is probable that it was made only a short time after the date on the paper. Another means of identification is possible if the cartridges are



found in a cartridge pouch. These pouches are rather specific in their design and can be dated without too much difficulty. This is probably the only practical approach, since specimens from the Revolutionary War are rarely found in any other place. The soldier most likely stored the cartridges in his pouch immediately after he made them, and this protection allowed their survival for the intervening years.

As already mentioned, the primary purpose of early cartridges was to provide a handy premeasured charge of powder and ready-patched ball. The objective was to reduce loading time in the field. The soldier simply tore the paper-wrapped ball away from the powder charge, poured the powder into the barrel of his weapon, and rammed the patched ball down on top of the charge. This loading technique prevailed with the military, until the Minie ball came into use.

In the years following the Revolutionary War, and continuing through the Jefferson administration (1801-1809), the U.S. Army was reduced to almost non-existence. Thomas Jefferson was opposed to a large standing military force and Congress consequently limited

the number of men in the Regular Army to 3350. Considering this figure, it is easy to understand why cartridges made during this era are very scarce.

The weapons used by this small force were primarily the Model 1795 musket, Model 1803 Harpers Ferry rifle, and a few leftover English and French pistols and carbines. Cartridges for these guns were made with the same lack of specifications as those produced during the Revolution. Springfield Armory manufactured some small arms ammunition during this period, but again, most of this kind of work went to the soldier. Like the earliest cartridges, a great variety of shapes and wrapping styles were produced. Figs. 5, 6, 7, show 3 different cartridges for the cal. .69 Model 1795 musket. Two are wrapped in American newspaper. A specimen identical to that shown in Fig. 7, was unwrapped and revealed an 1804 date. Figs. 9, 10, illustrate 2 cartridges made for the cal. .54 Model 1803 Harpers Ferry rifle. One specimen, Fig. 10, is wrapped in a piece of notebook paper. Fig. 8 shows a cal. .60 newspaper-wrapped cartridge which was probably made for an earlier English pistol or pistol-carbine.

The War of 1812 saw no change in the styles of American ammunition; see Figs. 11, 12. In fact, this crude technique of wrapping cartridges persisted throughout most of the flintlock era. In 1835, however, an ordnance specification was issued which brought about considerable change in martially made cartridges. This specification required that the ball be secured within the cartridge tube with several turns of string and the opposite end closed by a standard fold with the remaining tail pointing forward. By this time, black-powder was of much better quality and more consistent in explosive force. The volume of powder necessary to produce good ballistics in the Model 1842 musket was 110 grs. (including priming charge) while the earlier Charleville of the same caliber required 190 grs. or more depending on what quality powder was available at the time. As a result, the powder columns in cartridges became shorter, and all cartridges made for a specific weapon began to look the same. Figs. 14-24 illustrate cartridges which were manufactured between 1835 and 1849. There is a consistency of wrapping style in these specimens.