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## SOME ARTILLERY IMPLEMENTS AND CARRIAGE HARDWARE FROM FORT PLAIN, NEW YORK

by

Wayne Lenig

The village of Fort Plain is located in upstate New York, about midway between Albany and Rome. It is close to the geographic center of a region that is often designated the Middle Mohawk valley (fig. 24). During the American Revolution this Mid-Mohawk region boasted six American frontier fortifications: Fort Hunter, Fort Johnstown, Fort Paris, Fort Herkimer, Fort Dayton, and Fort Plain (fig. 25).

### *Historical Background*

The exact date that fortifications were first erected at Fort Plain is not known, but documentary evidence suggests that it was probably in the late spring or early summer of 1780.<sup>1</sup> The original name of the fort was Fort Rensselaer, but due to animosity towards Robert Van Rensselaer, the fort's namesake, the area residents soon re-christened it Fort Plain.<sup>2</sup> At various times in its history Fort Plain was garrisoned by Continental Line Regiments, New York State Levies, and local militia. In the winter of 1784-1785, following the Treaty of Fort Stanwix, a company of the United States Infantry Regiment was stationed at Fort Plain.<sup>3</sup> From 1784 to 1794 the fort was used as a warehouse for federal military supplies on the western New York frontier.<sup>4</sup> The federal military stores were removed from Albany in November of 1796, and it is probable that they were removed from Fort Plain at the same time.<sup>5</sup> The fortifications were undoubtedly destroyed soon after this date.

In 1960, a group of businessmen from the village of Fort Plain organized a corporation to purchase the site and rebuild Revolutionary War Fort Plain. Local tradition maintained that the fortifications had stood upon a large hill, just inside the western limit of the village of Fort Plain. The corporation was successful in obtaining all but a small portion of this site.

Preliminary investigations were conducted by Robert Lord of Fort Plain and the late Stanley Gifford of Syracuse, New York. The cultivated stratum of nearly the entire hilltop was removed by heavy machinery, revealing a number of stained disturbances in the subsoil. One of the disturbances, which was roughly thirty feet square, corresponded favorably with the dimensions and position of an outlying blockhouse as recorded by 19th century historian Benson Lossing.<sup>6</sup>

This blockhouse was designed by Major Jean de Villefranche, a French engineer, who had been sent to the Mohawk valley by General Washington in 1781.<sup>7</sup> Construction was started in August of 1781, but the blockhouse was not completed

until the summer of 1782.<sup>8</sup> A traveler reported that the building was still standing in 1793, and it seems likely that it stood until about 1797, when the rest of the defenses were razed.<sup>9</sup> (fig. 26)

In 1961, after Gifford died suddenly and Lord resigned from the project, the author was engaged to direct intensive archaeological excavations. The first task was to determine if the feature that corresponded so favorably with Lossing's description of the 1781 blockhouse was actually the remains of that building. A grid comprised of ten foot square units was established with its axis parallel to the outline of the feature. Upon excavation the disturbance proved to be a cellar hole with a maximum depth of 38 inches below subsoil (an unknown amount of topsoil had been removed by Gifford and Lord). From the artifacts recovered, and the situation and dimensions of the feature, it was deduced that it did represent the remains of the 1781 blockhouse.

In addition to architectural information, which will be discussed in another report, the cellar hole yielded a large quantity of 18th century military artifacts. Perhaps the most interesting find was a concentration of artillery implements, carriage hardware, and small arms parts discovered resting on the floor of the cellar, about halfway along the west wall. These implements were positioned in a manner that suggests they were discarded when the building was torn down. The archaeological context is, therefore, c. 1781-1797. The purpose of this paper is to examine and analyze a group of these artifacts which have functions relating to artillery.

### *Artillery Implements*

**Powder ladle (fig. 27a)**— Powder ladles performed two important functions. Their primary use was to load a cannon with loose gunpowder if cartridges were not available. For this reason ladles were cut from patterns which were formulated to hold a specific charge of powder. With the increasing dependence upon cartridges in the late 18th century, ladles were more often relegated to their second function: if a ball became lodged in a gunbarrel by dust and dirt while the gun was being transported, the ladle could be used to dislodge it.

The ladle from Fort Plain is formed from two pieces of copper, and is brazed at the seams. Copper was invariably used as a material for powder ladles because it seldom produced sparks which could ignite the powder if the ladle was accidentally struck against another piece of metal. The scoop of this specimen was fastened to a wooden throat by six brass nails. The throat, which had one copper reinforcing band, was secured to a long, pole-like handle by a single wooden pin. The outside diameter of this ladle is 3.312 inches. John Muller, an 18th century military scientist, recorded the diameter of the French four-pound shot as 3.196 inches, and the English three-pound ball as 3.498 inches.<sup>10</sup> Since the English projectile was larger than the diameter of this ladle, this example was probably used with a French

four-pound gun. The fact that this ladle is made from two pieces of copper also indicates that it is probably not of English manufacture. The traditional English ladle pattern is made from a single piece of copper, with the seam along the top of the collar. This specimen has two seams, one on each side of the collar.<sup>11</sup> Assuming then that this is either a French ladle or an American ladle made for use with a French four-pound gun, its 10-inch usable length is equal to about three times the caliber of the gun with which it was utilized. This figure corresponds with the practice of the period.<sup>12</sup>

Worms (fig. 27b & c)— A worm is a single or double pronged corkscrew-like implement which is attached to a long, straight handle. Its function was to remove the residue of wadding and cartridge which remained in a gun after firing. It was also used to remove the cartridge if a gun needed to be disarmed. The two examples from Fort Plain are hand-forged iron implements with double prongs, but there are some stylistic differences. The smaller worm (b) has a maximum outside diameter of 2.187 inches at the shank end of the corkscrew, and it tapers to 1.750 inches in diameter at the tip. The shank is 6.5 inches long, and it was made to receive a tapered wooden handle, which was held in place by a metal pin. The second worm (c) has a maximum outside diameter of 2.563 inches at the shank, but there is no appreciable taper towards the tip. The shank of this specimen is only 4.125 inches long, and the tapered wooden handle was also secured by a metal pin. One theory that has been advanced to explain the difference in these two worms is that the tapered worm was used to extract cartridges, while the straight worm was used to pull out projectiles.<sup>13</sup> Either of these examples could have been used with a French four-pounder or an English or American three-pounder.

Copper reinforcing bands (fig. 27d)— Copper bands were often used to reinforce the wooden throats of rammers and sponges. Five of these objects were discovered at Fort Plain. Two of the bands are 2.5 inches in diameter and three are 1.875 inches in diameter, and each was attached to a wooden throat, or shank, by three brass nails. Copper salts have preserved a large portion of the wooden throat on one specimen, including a wooden pin which secured the rammer or sponge to the handle. Significantly, these bands were found in a position which indicates that all of the implements which were discovered at this site were mounted on separate handles, although many 18th century engravings illustrate tools with implements mounted at both ends of the handle.

Vent picks (fig. 27e & f)— Vent picks, sometimes called priming wires, were used to keep the vent of a gun free from obstructions. They were also used to pierce the cartridge when loose powder was used for priming. One broken and two complete vent picks were recovered at Fort Plain, and the two complete picks exhibit some interesting differences. The larger specimen is 12.5 inches long and has a .188 inch diameter. The tip of this pick tapers evenly to a point. The other complete specimen is 9.125 inches long and .156 inches in diameter, and the tip is

hollowed out like a gouge. The cultural significance of this variation, if any, is not known, but it seems quite obvious that the pointed specimen would have been better for piercing a cartridge, while the gouge-like tip would be more suitable for cleaning the vent.

Primers (fig. 28a)— By 1750 primers, or "tubes," were beginning to replace loose powder as a method of ignition. A section of quickmatch was threaded through the metal tube, and the button, or funnel, was filled with gunpowder. A piece of parchment or flannel soaked in wine was wrapped around the button to prevent the powder from falling out when the primers were in storage. Primers made possible a more rapid rate of fire because they punctured the cartridge and primed the gun in one quick operation. The specimens from Fort Plain are manufactured from tinned sheet-iron, and the only complete example has a stem which measures 1.375 inches in length and .188 inches in diameter; the button is .875 inches in diameter at the top. This primer could only have been used on a very small caliber gun.

Primer pouch (fig. 28b)— Lists of Revolutionary War ordnance supplies often mention "primer pouches," but, to the author's knowledge, previous to the discovery of this example at Fort Plain no surviving specimen had been located. The function of this box is unquestionable because it contained fragments of a half-dozen primers. The box was originally 6 inches long, 3.5 inches wide, and 3 inches deep. It had a hinged cover, and belt loops soldered to three sides. Like the primers, it is fashioned entirely from tinned sheet-iron, and overall it bears a strong resemblance to a Revolutionary War cartridge box that has been preserved at the West Point Museum.

### *Carriage Hardware*

Elevation handwheel (fig. 29)— Around 1760 elevating screws began to compete with the wooden quoin as a method of raising and lowering the barrel of a field piece. The British system utilized a threaded movable shaft which was secured to the cascabel, or button, of the gun. Elevation was controlled by a stationary nut or handwheel which was mounted on the carriage, directly beneath the cascabel. Some French guns also utilized this method, but by the beginning of the American Revolution, many of the French weapons employed a system in which the handwheel was an integral part of the shaft. The specimen from Fort Plain is a representative of the first type. It is entirely hand-forged; the threads appear to have been formed around a wooden core; thrust through the opening of the handwheel; and brazed into place by heating the entire assembly. The wooden core was probably then burned out, and the finished product was dipped in molten brass, the remains of which is still evident. The size of this example indicates that it was used on a carriage for a small gun or howitzer, and the threads are spaced so that one com-

plete revolution would move the cascabel one quarter of an inch. British hand-wheels usually featured four handles, so it is probable that this three-handled specimen is French or American. Since the Americans usually painted their carriage hardware, the remains of brass-plating on this example point towards a French origin. It is most probably from a French four-pounder carriage of about 1770.

**Axle-tree hook (fig. 31a)**— Gun carriages were covered by many different kinds of hooks. Some were used for securing implements to the carriage while the gun was being transported. Others, such as this example, were used as a place to attach drag-ropes for maneuvering the cannon. This hook is made from hand-forged iron. Harold Peterson illustrates a nearly identical example on a Revolutionary War period French howitzer carriage, and it is probable that this hook is also French.<sup>14</sup>

**Nave box (fig. 30)**— This object was originally part of a wheel. The bearing surface of the wooden hub was covered by one or more of these nave boxes. This fragment is made from cast iron; it is 2.5 inches wide, and it originally had an inside diameter of 4.75 inches and an outside diameter of 5.75 inches. The ridge-like projection from its outer surface is a key which would have eliminated slippage between the nave box and the wooden hub. Similar examples have been unearthed in 18th century contexts at Fort Ligonier, Pennsylvania and Rosewell Plantation, Virginia.<sup>15</sup> This specimen may have been used on a gun carriage, limber, or any other wheeled vehicle. While removing the iron oxide from it, a small casting bubble was discovered which had filled up with axle-grease. Although this grease has not yet been analyzed, it appears to be common tallow.

**Bearing scraper (fig. 31b)**— Although this item is not a piece of carriage hardware, it has been included here because of its possible associations. This modified tool was originally a British light infantry pattern bayonet. Both the blade and socket have been shortened, and the blade has been broken off and thrust through the hole of the socket so that the socket now forms a handle. The tip of the blade has been heated and curved, and a groove has been ground into the flat side so that the object could be utilized as a bearing scraper. This tool could have been used to clean the bearing surfaces of the trunnion plates or the nave boxes.

### *Ammunition*

The blockhouse at Fort Plain yielded an interesting variety of projectiles. The most numerous form was grape shot; 265 pieces in assorted sizes were found. In addition, three solid projectiles were discovered: a three-pounder, a six-pounder, and a twelve-pounder. These balls could have been used with either British or American guns. The end section from a three-pound canister casing was also recovered. It was fashioned from tinned sheet-iron, and, like the solid projectiles, it could have been fired from either a British or American weapon. Lastly, 62 frag-

ments of thin, tin plated iron straps were found. These straps range in width from about .25 to .50 inches. They were probably used to secure projectiles to a sabot and cartridge. This arrangement was often referred to as "strapped shot."

### *Conclusions*

Eliminating the grape shot, which is not very diagnostic, 19% of the material from Fort Plain relates to the British system of artillery; 14% relates to the French system; and 67% could have been used with either system. These figures seem to bear out the hypothesis that the Americans preferred British guns, but the relatively high percentage of French material suggests some intriguing possibilities. This material may reflect the increasing availability of French guns in the 1780's, or it may be an indicator of the status of the garrison at Fort Plain. Since this fort was situated on the frontier, the French guns could have been sent there because they were considered unsuitable for use with the main army. Whatever the case, it is necessary to use caution, for it must be remembered that the artillery stores were probably removed from Fort Plain in 1796, and the excavated sample could represent a highly selected group of artifacts.

More comparative data must be made available before any really sound hypothesis can be advanced. For example, it would be interesting to see if the data from Fort Plain correlates with the data from other American frontier forts, such as Fort Stanwix and Fort Pitt. Some interesting information might also be gleaned from a comparison of the material found at these frontier fortifications and that which is unearthed at main army sites, such as West Point and Yorktown. With the increasing interest in historical archaeology in our colleges, and the bicentennial of the Revolution upcoming, it is hoped that this paper will generate some interest in a problem that is both relevant and virtually unexplored.

*Wayne Lenig is the Historical Archaeologist for the Fort Plain Museum. His twelve years of field experience include work on prehistoric as well as historic sites and he has a special interest in the 18th century Palatine German settlements in the Mohawk valley. Currently a sophomore at Fulton Montgomery Community College of the State University of New York, Mr. Lenig plans to obtain a degree in American Studies.*

## NOTES

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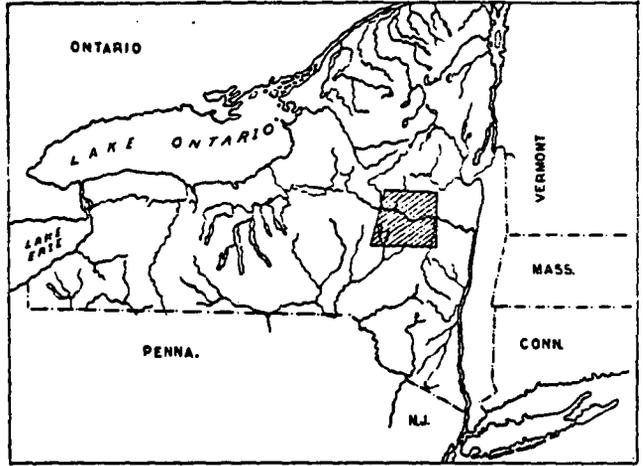


Fig. 24— The Middle Mohawk valley in New York. —Drawn by Donald Lenig.

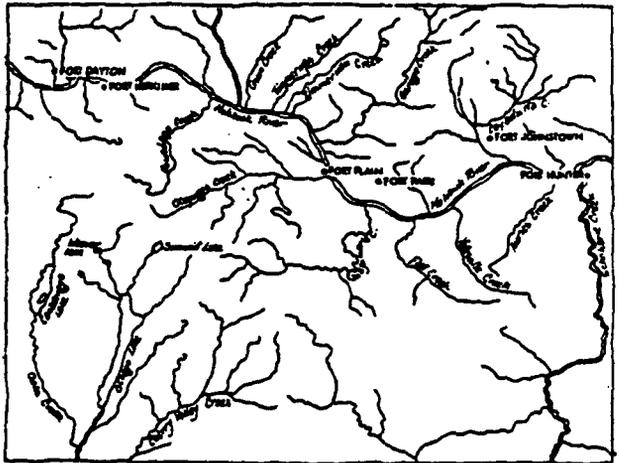


Fig. 25— American fortifications in the Middle Mohawk valley. —Drawn by Donald Tuttle.

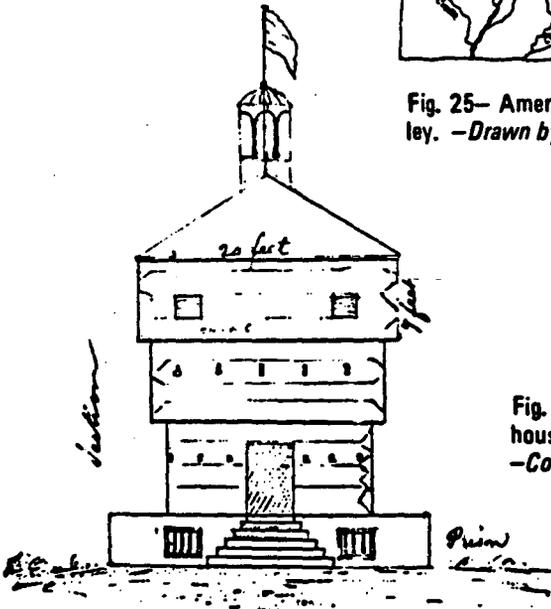
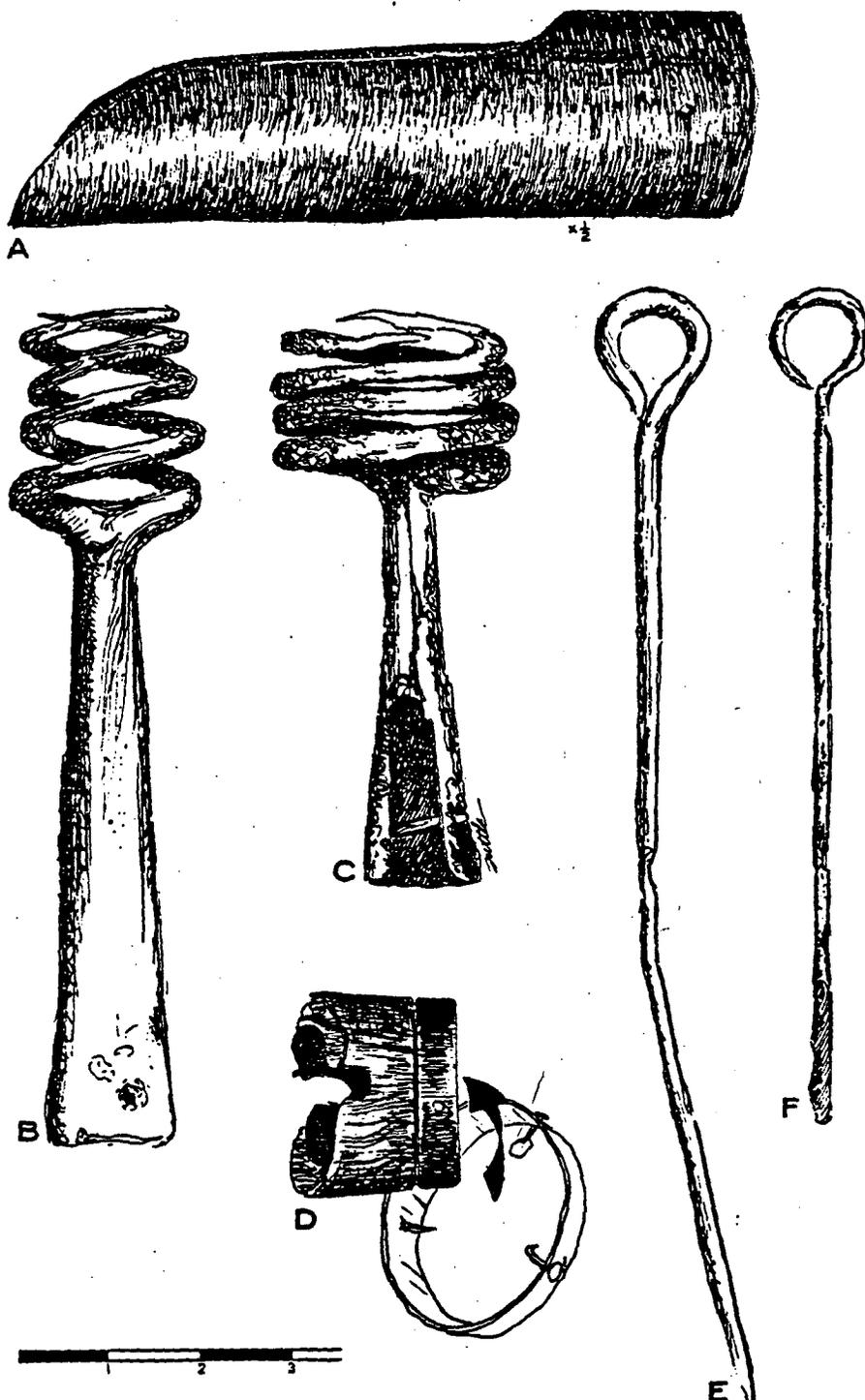


Fig. 26— Contemporary sketch of the 1781 block-house at Fort Plain, by an unknown author. —Courtesy, American Antiquarian Society.

Fig. 27— a) powder ladle; b) tapered worm; c) straight worm; d) copper reinforcing band and wooden throat; e) pointed vent pick; f) gouge tipped vent pick. —*Drawn by Donald Tuttle. All specimens from the Fort Plain Museum Collection.*



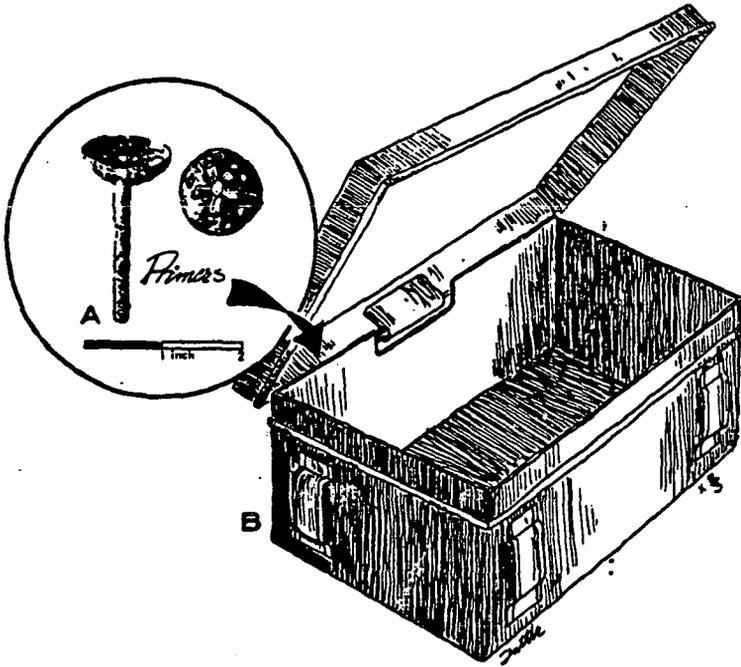
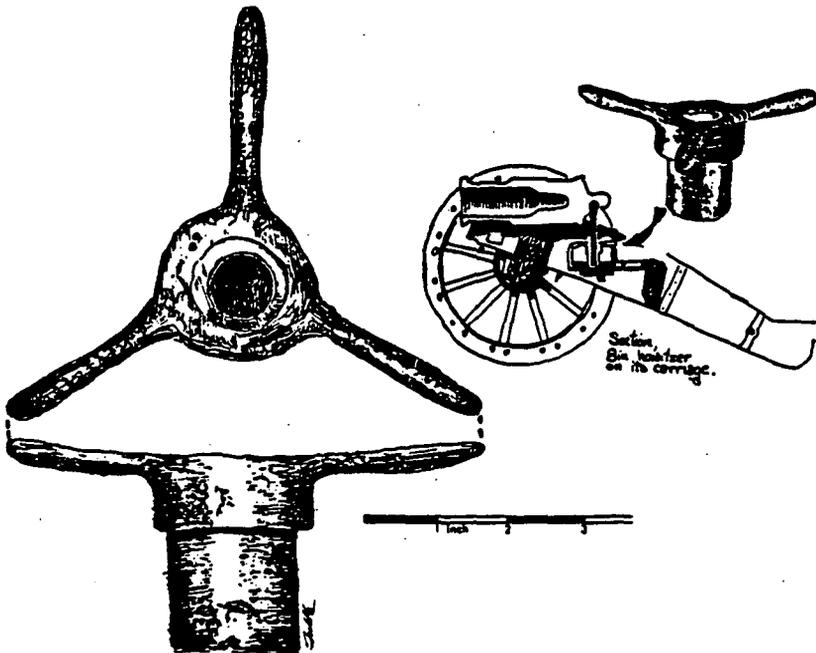


Fig. 28— a) primer; b) primer pouch. —Drawn by Donald Tuttle. Fort Plain Museum Collection.

Fig. 29— Elevation handwheel and position on gun carriage. —Drawn by Donald Tuttle. Fort Plain Museum Collection.



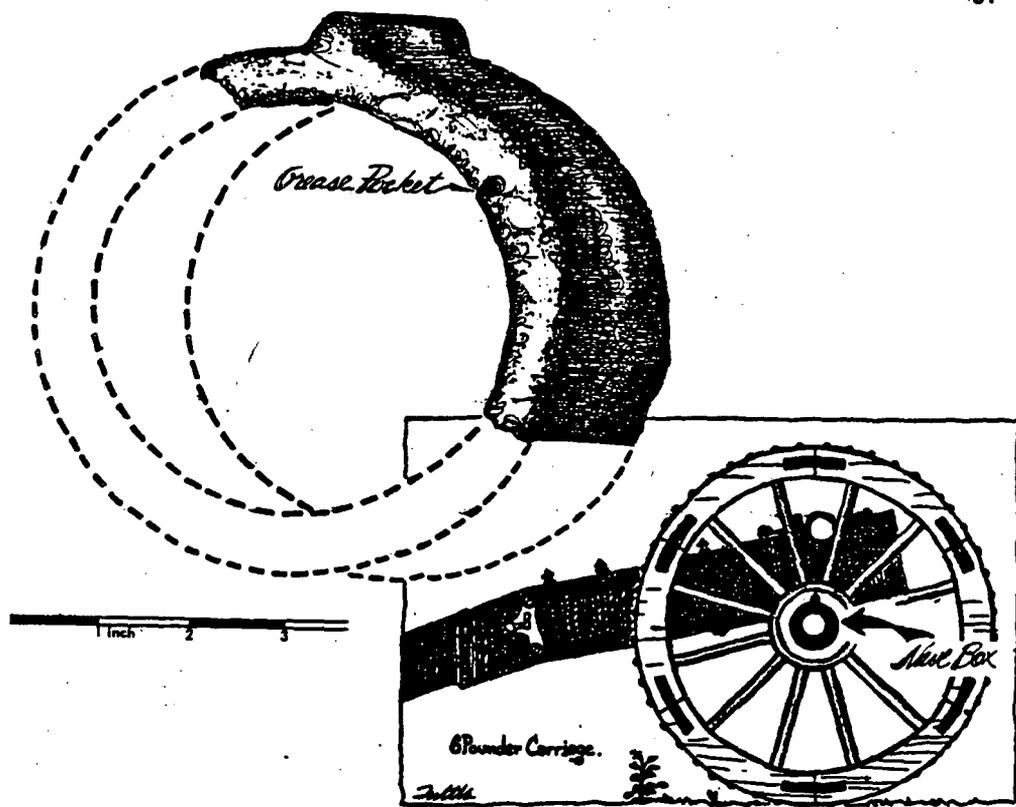


Fig. 30— Nave box and position on wheel. —Drawn by Donald Tuttle. Fort Plain Museum Collection.

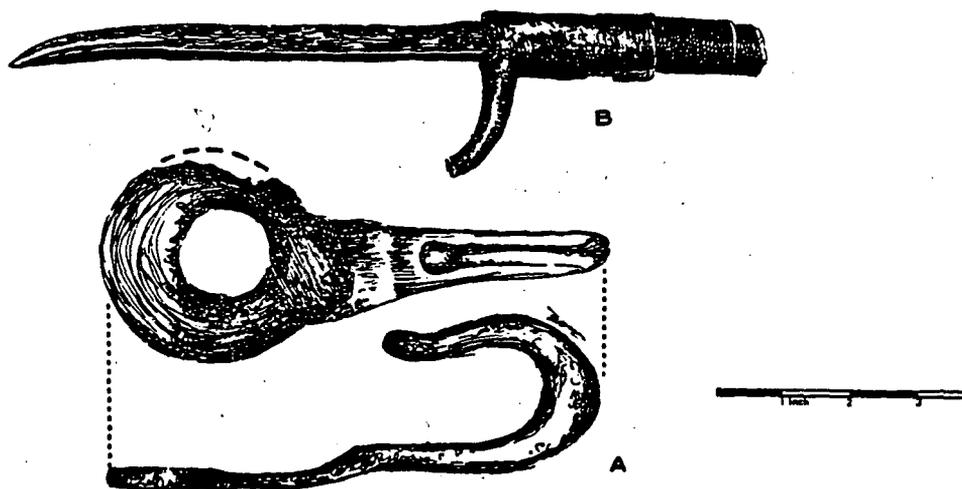


Fig. 31— a) axle-tree hook; b) bearing scraper. —Drawn by Donald Tuttle. Fort Plain Museum Collection.