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Peter Hasenclever and the American Iron Company

Edward J. Lenik

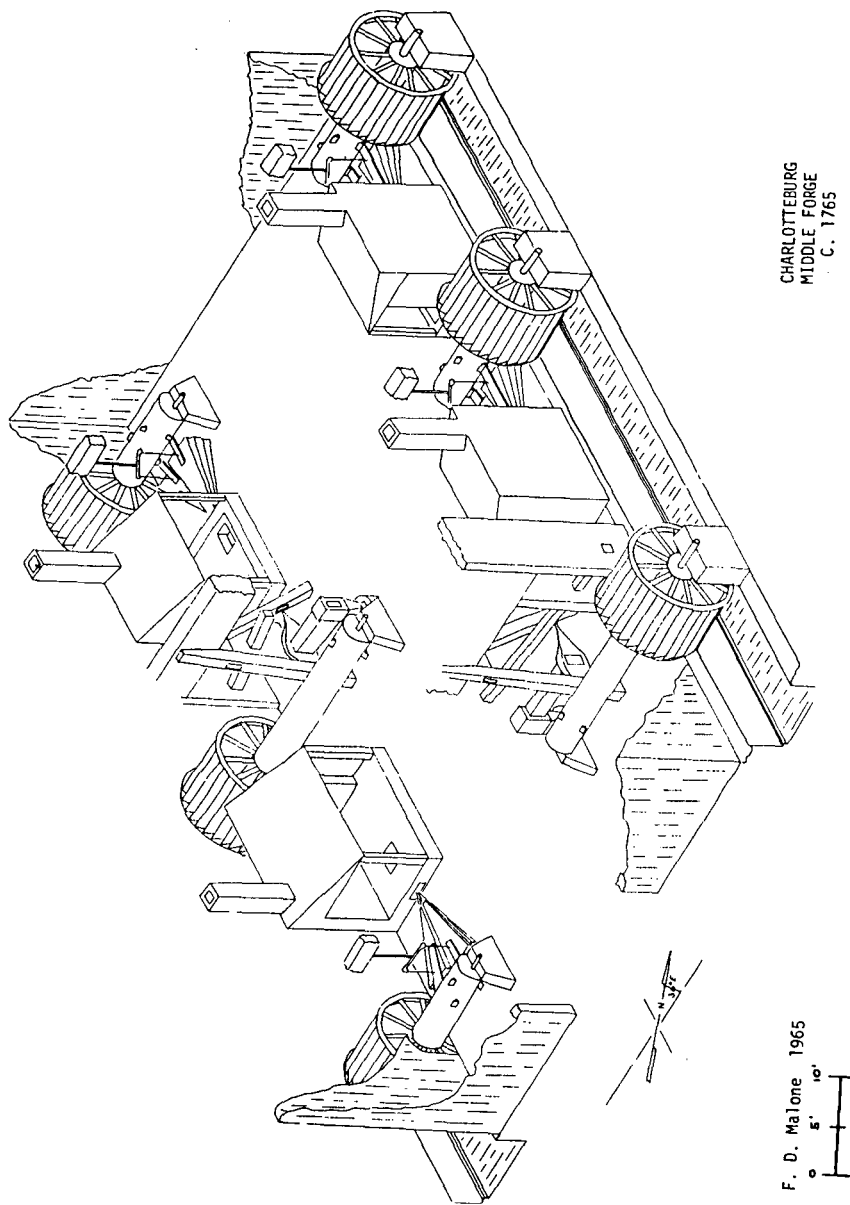
HISTORICAL BACKGROUND

London society buzzed with excitement during the early winter of 1764, for into the midst of court followers had come handsome, gray-haired Peter Hasenclever, telling tales of riches to be made from the iron mines of New Jersey. Hasenclever knew iron. Born in 1716 in Germany, he had started work at the age of 14 in his father's iron and steel works. When he struck out to make his fortune, however, he did so as a merchant, traveling through Europe before settling down in Cadiz, Spain. Unfortunately, the Cadiz climate forced his young wife to leave in 1756 for the healthier fogs of London. Hasenclever followed her six years later, arriving in England in 1763.

Iron fever obsessed Hasenclever. He soon formed a corporation and persuaded several people, including Queen Charlotte, wife of George III, to back a proposed iron empire in America. He received from this corporation authorization to spend between 10,000 and 40,000 pounds.

Hasenclever showed uncanny ability in developing an enterprise to exploit iron mines that he had never seen. He went to Germany, signed a company of skilled iron workers and induced them to sail with their families for New York; Hasenclever himself followed, arriving in America in June, 1764.

Once here, he acted promptly. On July 5, 1764, he concluded purchase of an old iron works that had been operated in Ringwood, New Jersey, since about 1740. Hasenclever found the works "decayed", but as he wrote himself: "I repaired it without loss of time and made iron in the



CHARLOTTEBURG
MIDDLE FORGE
C. 1765

F. D. Malone 1965
0 5' 10'

FIGURE 1. Reconstruction of Charlotteburg Middle Forge based on documentary and archaeological evidence. [Courtesy F.D. Malone].

month of November, 1764. I purchased...upwards of 50,000 acres of land for the use of the iron works and for the planting of hemp, flax and madder" (Hasenclever 1773:10).

The wild forest rang with activity. Within a year Hasenclever had brought 535 Germans to New York and New Jersey to work as "miners, founders, forgemen, colliers, carpenters, masons and laborers." The total of immigrants included wives and children, so Hasenclever acted as both colonizer and iron master.

Workers opened 53 different iron mines and under Hasenclever's direction they built forges, furnaces, roads, dams, houses, stables, bridges, reservoirs, ponds, mills and various other buildings. He was the first to recognize the possibilities in volume production. When others were thinking in terms of a single forge and furnace, Hasenclever engaged in large scale planning.

Hasenclever developed iron works at Ringwood, Charlotteburg, Long Pond (Greenwood Lake) in New Jersey and Cortland and Cedar Pond Works in New York State. His accomplishments would be incredible even with today's good transportation and rapid communication; in 1765 they verged on the unbelievable. Thus, Hasenclever's courage, spirit and know-how enabled him to establish the first large scale operation in the Colonial wilderness.

Hasenclever introduced several technical innovations in the development of his ironworks. He was the first to render the old cinder-beds of the furnaces useful and profitable. He did this by erecting a stamping mill at Ringwood to separate the iron waste from the cinders and, thus recover several hundred tons of iron. Hasenclever also improved the construction of the furnaces by building the in-walls of slate which enabled them to last for several years. He laid pipe underground to carry water to the furnace wheels and, thus, prevented them from freezing in the winter. Finally, he built a huge reservoir at Tuxedo Pond, New York, and conducted the water into a new canal into the Ringwood River. Thus, he assured an adequate supply of water for the Ringwood Works.

Hasenclever was a man ahead of his time and his enterprise was a mighty forerunner of today's vital iron and steel industry.

EXCAVATIONS AT CHARLOTTEBURG MIDDLE FORGE

In 1764, Peter Hasenclever acquired the area along the Pequannock

River in West Milford, New Jersey, which contained the site of Charlotteburg Middle Forge. He immediately began to build, and by the end of 1765, the so-called "middle forge" was likely in operation. Hasenclever's control was short and stormy and in 1771 Robert Erskine became manager of this and the other works owned by the American Iron Company. How long Middle Forge remained in operation and the reasons for its demise are highly controversial. However, it appears that Charlotteburg Middle Forge was no longer functioning by about 1780.

Several years ago, members of the North Jersey Highlands Historical Society undertook the excavation of Peter Hasenclever's Middle Forge in Charlotteburg, New Jersey (presently West Milford Township). Sufficient work was done to reveal with certainty the major features of the forge building and its contents (Figure 1). We were aided in this respect by the fact that no other iron works or buildings were established on this site at a later date. Thus, we could be reasonably sure that what was found was essentially that of the early forge which operated in the period 1765 to 1780.

The report of a committee to colonial Governor William Franklin in 1768 gave the number of forge hearths and trip-hammers at Middle Forge and *The Remarkable Case of Peter Hasenclever, Merchant*, published in London in 1773 gave the dimensions of this building as being 45 feet wide by 80 feet long (New Jersey Archives, First Series, Vol. 28, 1772:247). This information was of considerable help to us because at least we knew what to look for (Figure 2).

We removed the over-lying earth to the depth of the original working level of the forge. As a result, we were able to obtain some idea of the size and construction of the various forge features. Not more than 3 to 4 feet of any of the forge hearths was intact above the working level, therefore, no direct evidence of their height could be found (Figure 3). Furthermore, all of the wooden structures which had been above ground level had completely disappeared. However, in the case of the trip-hammers, two holes which contained the anvil bases were found and for one of the hammer sites, depressions in the scoria (refuse from the making of iron), showed the location and size of some of the members of the wooden frame work.

The width of the building was determined by measuring the distance between the row race-ways which were excavated and agrees with that given in *The Remarkable Case of Peter Hasenclever*. However, finding the length of the building which according to this document was 80 feet, was not so simple. A large cut stone lying at what appeared to be the

southwest end of the south race-way was found. A right angle to the race-way laid out at this point was found to pass through four or five closely spaced cut stones themselves being in a straight line. Projecting this line to its intersection with a projection of the inside of the north race-way was taken to be the location of the northwest corner of the building. The location of the east wall was taken as being 80 feet from the previously determined west wall, since many test pits dug in the vicinity of what should be the east wall failed to show any evidence of a wall foundation. Despite the uncertain nature of these determinations, it was found that the distance from the east wall to the nearest hearths was the same as that between adjacent hearths. Since the shaft and bellows would have been located in these spaces, some substantiation was given for locating the east wall as discussed.

The construction and dimensions of the two race-ways were determined by actual excavation. The side walls were of carefully laid cut stone and the bottom of heavy wooden planking (Figure 4). This, along with 9 inch by 9 inch "tie-pieces" along the bottom sides, were still intact and well preserved by the high water table.



FIGURE 2. Site of Charlotteburg Middle Forge before excavation. Note remains of forge hearth in center.

The location and working level dimensions of the forges' hearths were also located by excavation as were the tuyeres. A tuyere is the opening in the side of the hearth through which the blast of air is introduced. Thus, the position of the tuyeres located not only the bellows mechanism, but also that of the crucible. The crucible was the part of the forge hearth in which the iron was actually melted and was lined on the sides and bottom with cast iron plates. While the tuyeres of three of the furnaces were located by excavation, that of the hearth nearest the southeast corner could not be found because of its poor condition. However, since a hammer was on one side of the furnace, occupying all of the available space between the furnaces, the tuyere and bellows must have been on the opposite side. The size of the crucible of these hearths was indicated by a hearth plate found near one of these furnaces.

As noted earlier, only a few feet of these structures remained above the working level. At each of these forges a large number of bricks of early manufacture were found, indication that at least a portion of the chimney was made of this material.

It must be noted that the forge hearth nearest the southeast corner is somewhat larger than the other three. Our excavations further showed that this forge was not only larger but heavier and more crudely constructed.

Two holes were found in the floor of the forge which had contained the anvil bases, thus pinpointing the location of the hammers. Also in the area of the hammer near the northeast corner, the wooden members of the structure which had been at the working level left clear impressions in the scoria. Thus, not only could the distances from the furnace be determined, but also the position of the "A" frame and the two vertical members supporting the wooden spring beam which gave the hammer added downward velocity. The size of these beams was estimated and recorded from the impressions left in the scoria. The shaft from the water wheel was about 3 feet in diameter.

A dam abutment on the south side of the river was clearly visible. Projecting a straight line across the river, we found that it passed through a long series of cut stones lying in a straight line. This would seem to define the line of the original dam site and would bring the dam location to 14 to 15 feet of the west wall of the forge building. The site of this forge lay in a deep ravine and although the dam abutment on the south side of the river was still evident, there was no indication of the location of the abutment on the forge side of the river.



FIGURE 3. Remains of excavated forge hearth.



FIGURE 4. South race-way of Middle Forge with stone-lined side walls and remains of oak beams in the bottom.

The water furnishing the power for the wheel flowed in an easterly direction on overhead sluiceways. The size of the water wheels was determined to be 6 feet which would allow 6 inches clearance between the sides of the race-way. The estimation of their diameter was 10 feet.

Innumerable artifacts were recovered from all areas and from various levels. The most important of these are: Shovel blades, hoe, trowel, harness buckle, hammer-headed chisels, pick, wedges, blacksmith tongs of various sizes, shoe buckle, button, a clay smoking pipe marked "RT" on the bowl, pipe stem fragments, a fragment of pig iron with the date "1770" on it, a fragment of pig iron with the letters "CH" on it, bar iron and anconies, slip decorated earthenware fragments and glass fragments.

A great many hand-forged spikes, nails and pins of various sizes were found. Also recovered was one complete iron pig weighing 69 pounds, plus many assorted fragments. An interesting and unusual feature revealed was a cache of several 6 to 8 inch pig fragments which were stacked neatly inside forge hearth Number 4. Another curious feature was the presence of fine screened sand in many areas. Finally, a profusion of slag, charcoal, brick, mortar, bar stock, strap iron and plate iron of various sizes was found scattered throughout the site. The many fragments of plate iron may have come from the forge crucible plates or the loop-and-drag plates (an iron-plated path leading from the forge to the hammer) which were on the floor.

From the foregoing archaeological data it is possible to draw some conclusions regarding the fate of Charlotteburg Middle Forge. The preponderance of evidence seems to favor the theory that the works were destroyed by violence. For example, the large quantity of artifacts recovered lends support to the belief that the works were not abandoned. Items such as tools, pig iron, and bar stock were much too valuable to be left behind.

Furthermore, the appearance of much of the iron uncovered seems to indicate a violent suspension of activity while the material was in process. A prime example of such a condition was noted by Malone who described the appearance of a 40-pound piece of pig iron which was found and concluded that it was in the process of being melted at the time the operation was halted (Malone 1962:42).

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