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Figure 1. Pair of beakers, 1813-1817, marked "I.O.G." for James O. Gaither. HOA 3 $\frac{1}{16}$. MESDA Research File (MRF) S-6756.

“I.O.G.”: *Silversmith of Georgetown, D.C.*

CATHERINE B. HOLLAN

Recently several pieces of holloware dating circa 1815 have been discovered with a clear maker's mark, “IOG” in a rectangle, a touch heretofore unlisted and unidentified. The author has identified the mark as that of James Orme Gaither, eldest son of Johnsey and Mary Threlkeld Gaither. James was a silversmith of the Maryland Gaither family, and a second cousin of the silversmith John Gaither, the subject of an article in the May, 1983, *Journal of Early Southern Decorative Arts*.

The Gaithers descended from the Englishman John Gater (1599-166?), who settled in Jamestown in 1620.¹ His son, John Jr. (1620-1652), relocated in Maryland between the Severn and South Rivers in the area that later became Annapolis. Third generation Captain John Gaither (1646-1702) was the father of Benjamin (1682-1741), the great-grandfather and common ancestor of the silversmiths John and James.² Benjamin had thirteen children, of whom the second son, John (1713-1784), was father of Zachariah Gaither (1747-1802), whose sons were the silversmiths John (1786-1819) and Greenberry Gaither (1792-1838).³ Benjamin's third son, Edward (1714-1777), married the widow Elenor Whittle and had twelve children.⁴ Their fifth son, Johnsey (1756?-1797), married Mary Threlkeld.⁵ Johnsey and Mary had four children: Harriet, James (the subject of this article), Matilda, and John.⁶

Johnsey was born in the lower district of Frederick County, Maryland, which became Montgomery County in 1776. He served during the American Revolution as a private in the 7th Company of the Middle Battalion of Militia from Montgomery County. Six of his brothers were granted land in Rowan County, North

Carolina, and began moving there during the 1780's.⁷ Although Johnsey also acquired land in Rowan County, he appears to have remained in Maryland,⁸ perhaps persuaded to stay by his marriage to Mary Threlkeld and her mother's settlement of 182¼ acres which comprised the prime part of "Ebenezer," the 250-acre family plantation on Muddy Creek.⁹ Johnsey and Mary acquired the dwelling house and property in return for an annual ground rent, and a portion of the annual wheat harvest during the mother-in-law's lifetime. He had inherited portions of several tracts when his father died in 1777,¹⁰ and purchased others, including a tract he bought from his brother, Brice Gaither, who also left for North Carolina.¹¹ On 12 September 1792 James O. Gaither, Johnsey's eldest son, was born.¹²

Johnsey died young. He had written his will on 12 December 1797 and died before the year's end, leaving Mary pregnant with her fourth child, and James barely five years old. The will was probated in Montgomery County 1 January 1798.¹³ His brother, Greenberry Gaither (1751-1823), and friend Charles Gassaway (175?-1816) were named guardians to the young children. The widow received her dower right of one-third of the real estate and one-third of the personal property during her lifetime; after her death, the children were to share equally. Part of the land, including the North Carolina property, was to be sold for immediate expenses and debts.

Over the next few years several important supporters of the young family left the area. By 1806 guardian Greenberry Gaither had joined several other Montgomery County families who moved to Nelson County, Kentucky.¹⁴ Between 1803 and 1807 Mary's mother and unmarried sister Nancy Threlkeld moved to Shepherdstown, Berkley County, now in West Virginia.¹⁵ Mary and her young family stayed behind. Mary was still a resident of Montgomery County in 1802 when she conveyed title to 19½ acres of "Good Luck" through her brother-in-law to Zachariah Linthicum.¹⁶ By 1806, however, the family had moved to Georgetown, once a part of Montgomery County, but redrawn in 1790 as Georgetown County, District of Columbia.¹⁷

In 1806 Mary Gaither of Georgetown County, D.C., gave her consent for her fourteen-year-old son James to be bound as an apprentice to learn the silversmithing trade from Georgetown silversmith Charles A. Burnett.¹⁸ James was to live with Burnett and serve him until 12 September 1813, when, after the seven-year term, he was to reach the age of twenty-one. He probably

stayed on another year or two as a journeyman silversmith, being paid by the day or the piece as customary for journeymen.

James must have learned the technique for working with the recently-introduced rolled sheets of silver which made quick work of simple shapes such as beakers. Such sheets were formed into a cylinder, needing only a soldered side seam and bottom. Gaither no doubt was also taught the traditional method of recycling scrap silver and raising a holloware object with hammers and stakes. The seamless pair of beakers (Fig. 1) appears to have been raised in the traditional method, shaped in a double s-curve, with a rolled, leaf-pattern band applied at the rim. The beakers bear elaborate script monograms of the Hoof family near Winchester, Virginia; both are engraved "FRH." "IOG" in a rectangle is stamped on the bottoms (Fig. 1a). The centerpunch mark used by Gaither for scribing off a circular blank of sheet silver prior to raising the vessels also shows prominently on the bottoms.



Figure 1a. Detail of the mark used on the beakers in Fig. 1. MRF S-6756.

Another piece, a goblet (Fig. 2) in the Maryland Historical Society Collection is very heavy for its size, 5½" high and 2⅞" in diameter at the rim. It has straight sides with concave ballooning on the lower body, and stands on a pedestal with a coved base. It is decorated with a small eight-pointed star rolled on a band at the base; the same starred band was used on the coffeepot illustrated below (Fig. 3). A narrow gadrooned band ornaments the center of the stem, and a delicate wriggle-engraved border cut with a notched burin, augmented with bright cuts, accentuates the rim. This combination of engraving and simple applied banding suggests this goblet is a transition piece, made early in the period of ornamentation. The interior of the vessel is gilt. On one side is the Johnson family crest over the script initials "AH."¹⁹ "IOG" in a rectangle is stamped under the base.



Figure 2. Footed goblet, 1813-1817, marked "I.O.G." HOA 5½. Courtesy the Maryland Historical Society, Baltimore, Md.

Once in business for himself, Gaither consistently used his middle initial. He signed his advertisements "James O. Gaither" and "J. O. Gaither" and marked his silver "IOG" in a rectangle. He may have been following local custom, since several of the best Georgetown silversmiths at this time also used their middle

initials, including Gaither's master, Charles A. Burnett, Burnett's former partner, John E. Rigdon, and George W. Riggs. Perhaps Gaither simply wished to differentiate himself from the other Gaithers who practiced similar trades in the area, such as Henry Gaither, a watchmaker in Georgetown, and brothers John and Greenberry Gaither, both silversmiths in Alexandria and Washington.

James Gaither seems to have quickly observed from Burnett and others that an emerging, yet lucrative aspect of silversmithing was the retail merchandising of ready-made goods, especially imported fancy goods and jewelry. During this period, in fact, it was difficult for small southern silversmithing shops to compete with large, specialized northern firms virtually capable of mass production. On 8 December 1815, Gaither advertised his "new fancy store" in Georgetown, situated in the house lately occupied by silversmith Jacob Leonard, a few doors above the Union Tavern on Bridge Street (now M Street).²⁰ This was a good location, having been owned by silversmith George W. Riggs for several years prior to Leonard's occupancy. Not being satisfied with a small but loyal local Georgetown trade, Gaither advertised in both the Georgetown *Federal Republican* and in the Washington *Daily National Intelligencer*. He offered

. . . an extensive assortment of the most fashionable importation and finest quality of goods as follows: Fine London and Liverpool Diamond cut and polished glass consisting of Compotes, decanters . . . all sizes dessert dishes in dining and dessert sets and in separate pieces. A general assortment of fine Birmingham and Sheffield plated goods eppernes [sic], tea urns, dining dishes, egg trains, table and mantle branches . . . Pearl and ivory handle butter, cheese, fish, and dessert knives and forks with silver plated blades—green and white ivory dining and dessert setts, with an extensive assortment of fine and coarse cutlery—steel and wire fenders . . . shovel tongs, andirons . . . An invoice of fine plated and gilt buttons, jewelry, patent lever and plain gold silver watches, ladies watch chains, seals, keys &c Pearl topaz, amethyst, emerald, filagrain and jett ornaments. All orders will be executed with dispatch.²¹

On 4 April of the following year Gaither advertised for a youth to train as his clerk. As another indication of his shift from artisan

to businessman, this notice reads very differently from traditional advertisements for apprentices. He wanted “a youth of good moral qualifications, natural abilities and respectable connections to learn the arts and mysteries of the jewellery and Goldsmith’s business.”²² He required the youth to possess a “good English education such as would render him capable of becoming an accountant and salesman in a store.” The sort of silversmithing Gaither intended to instruct an apprentice in was becoming a business run by accountants and salesmen.

In February, 1816, Gaither advertised that he had made some “recent additions to the new store amongst which is an invoice of imported jewelry and some superior plate.”²³ Offering his goods not only to his friends in the Georgetown and Washington area, he now reached beyond, “to the Southern and Western States” where strangers were respectfully informed that he was selling goods at a reduced price. On 6 December 1816 he advertised in the Georgetown *Messenger* that he had received a second supply of fancy goods including a large supply of Sheffield plated ware.

Among Gaither’s customers were legislators and visitors to the nation’s capital. One client was James Barbour (1775-1842) of Barboursville, Orange County, Virginia. Governor of Virginia from 1812-1815, Barbour came to Washington in 1815 as a United States Senator. He remained in the Senate until 1825, when he was appointed Secretary of War under John Quincy Adams; he became Ambassador to Great Britain in 1828.²⁴ Among the Barbour family papers at the University of Virginia there is a receipt from James O. Gaither dated “GeoTown Jan’y 2nd 1817”:

To the Honorable James Barbour for goods bought:	
To 1 pr Fruit Basket	\$28.00
To 2 pr Candlesticks @\$13	26.00
To 1 Sett Fine Ivory Kn & f	30.00
To 1 Plated Snuffer Tray	4.00
To 1 pr Steel Snuffers	2.00
	<hr/>
	90.00
15 pcent off	13.50
	<hr/>
	76.50
1 Doz Dessert Spoons @	28.00
	<hr/>
	104.50
8 pr cent off \$28	2.24
	<hr/>
	\$102.36
Recd pay by a Draft on New York ²⁵	



Figure 3. Coffee pot, 1813-1817, marked "I.O.G." and engraved "Barbour" on the reverse. HOA 11½, W'OA 11½. MRF S-13154.

Another client was James Barbour's brother Philip Pendleton Barbour (1783-1841), who came to Washington in 1814, served as Congressman from 1814 to 1825 (Speaker of the House from 1821 to 1823) and 1827 to 1830, and as Supreme Court Justice from 1836 to 1841.²⁶ A coffee pot (Fig. 3) marked "IOG" in a rectangle on the bottom (Fig. 3a) and "Barbour" in script on the body has descended in the family from Philip Barbour.²⁷ The animal-head style of the mounts on this piece were particularly popular in the Philadelphia and Baltimore area during the 1815-1830 period. The Barbour pot has a large, bulbous body,

dolphin-head handle, and a sea-serpent spout with acanthus leaves at the base where the spout joins the body. There is a basket-weave rolled band at the shoulder and a smaller eight-point star band at the rim, at the joint of the body and pedestal, and around the square base. Paw feet and an asymmetrical rose finial complete the ornamentation. The eight-pointed star band is unusual, and to date has been found only on these "IOG" pieces and on an unmarked coffee and tea service formerly owned by President James Madison. This five piece set (Fig. 4) is now in the collection of the New York Historical Society,²⁸ and contains a coffee pot identical to the Gaither-marked pot illustrated here. Attribution of the Madison set, however, has been problematical. Details on the set are shared by a pitcher also owned by Madison; the pitcher is signed "W&B," and though it was formerly attributed to Connecticut silversmiths Ward & Bartholomew,²⁹ the piece is now thought to be the work of Whartenby & Bumm (working 1816-1818) of Philadelphia.³⁰

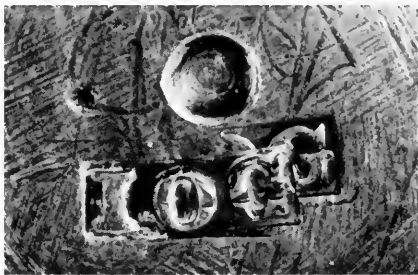


Figure 3a. Detail of the mark on the coffee pot in Fig. 3. MRF S-13154.

The Barbour coffee pot, then, may represent the work of a Philadelphia firm, though it is also possible that this pot, along with the entire Madison set, was made by Gaither using castings (the finial, handle, spout, and feet) and rolled banding purchased in Philadelphia. Such importation of ornament and hardware was not unusual for small southern shops that could not justify the purchase of expensive rolling dies. Until the eight-pointed star banding is found on silver marked by other shops, however, the precise source of the ornamental detail may remain a mystery. A close friendship between Philip Barbour and James Madison make it likely that identical pieces owned by good friends would have come from the same source.³¹ Unfortunately, however, Madison kept few receipts for his personal possessions, and among the bills existing there are none for silver from James O. Gaither.



Figure 4. Coffee and tea set, 1813-1817?, unmarked. Left to right: HOA teapot, 9⁷/₈; HOA sugar bowl, 9¹/₈; HOA coffee pot, 11; HOA slop bowl, 6¹/₂; HOA cream jug, 7¹/₂. Courtesy the New York Historical Society, accession 1939.544-.548.

There are receipts for White House silver from Liberty Brown of Philadelphia and Burnett and Riggs of Georgetown,³² but not for Madison's personal silver such as the elegant snuff box by Burnett now in the Yale Collection, or for either of the two coffee and tea services used at "Montpelier." The Madisons had a habit of turning in old silver to be refashioned; Dolly Madison was particularly style-conscious and something of a trend-setter. Even before the British burned the White House in August, 1814, George W. Riggs melted down enough White House silver to make 17 new pieces, repair 25 more, and still leave a credit of \$119 on 100 ounces of salvaged silver.³³ After the 1814 fire, a great deal of White House silver was melted down and refashioned. The Madison service is said to have been made from silver used by George Washington and Bishop Madison (James' uncle and President of William and Mary College).³⁴

It is likely that Gaither was known to Madison, and shared some of the Madison patronage after he completed his apprenticeship with Burnett and moved into Riggs' former shop. The early Empire animal-head style epitomized the latest fashion during the period. If Gaither indeed made both the Barbour and Madison silver, it is evident that he was able to provide the most fashionable designs to some of the best families, perhaps even to the President.

In the midst of what appears to be a well-established business, with no published intention of closing, twenty-five-year-old Gaither abruptly sold his properties, left town, and left no further record of his career. On 15 October 1817 James sold his portion of "Ebenezer" plantation to his uncle, David English, who had married Sally Threlkeld, Gaither's aunt.³⁵ In March, 1818, the

Gaither family recorded a deed in western Maryland at the pass which lead over the Alleghany Mountains toward the western and southern frontiers. Mary Gaither, her children and son-in-law William Pierce, all heirs of Johnsey Gaither, and “now all of Allegheny County Maryland” sold the Muddy Creek property for \$2,400 to Sam Hambleton of Georgetown. As directed in Johnsey’s will, the land could be sold “when either of the children marry or come of age.”³⁶ This was the last known record of James O. Gaither and his mother.

Alleghany County records contain no mention of the Gaithers. Family genealogist James Melford Gaither, Sr. has traced the movement of the younger brother, John, who moved to Kentucky; there, in 1820, he married Rebecca Bell. In 1833 he resettled in Cape Girardeau County, Missouri, near Egypt Mills.³⁷ No trace has been found of James O. Gaither or his mother in either Kentucky or Missouri. One record of the descendants of John Gaither seriously distorts the family line, listing “three children: Horace[?], Harriet (Pierce), and John,”³⁸ but omitting James and Matilda, strongly suggesting that these family members did not join them. No trace of Gaither has been found in Rowan County, North Carolina, where James’ uncles had resettled, nor in Nelson County, Kentucky, where Gaither’s uncle Greenberry Gaither was located. Similarly, Gaither has not been found in the records of Shepherdstown, West Virginia, where his grandmother, Jane Threlkeld, was resident. Perhaps future research will eventually locate the young entrepreneur on the southern or western frontier, supplying silver and fancies to the local gentry.

Ms. Hollan is Computational Linguist for the U.S. Patent Office and has long held an interest in researching silversmiths of the Maryland, Virginia, and District of Columbia area, with particular emphasis on Alexandria, where she is compiling data on clockmakers and silversmiths prior to 1830.

FOOTNOTES

1. Harry Wright Newman, *Anne Arundel Gentry*, Vol. 1 (Annapolis, Md.: private printing, revised edition 1970), pp. 59-147.
2. *Ibid.*, pp. 61-63.
3. *Ibid.*, pp. 90, 95, 104.
4. *Ibid.*, pp. 97-98.
5. *Ibid.*, p. 115. Presumably they were married prior to 1786, the year marriages were first recorded in Montgomery County. Reverend Threlkeld presided at the marriage of his brother Nicholas to Eleanor Greenfield on the 26 October 1779 (p. 117).
6. *Ibid.*
7. *Ibid.*, Basil moved to North Carolina in 1780 (p. 111), Burgess by 1784 (p. 102), Benjamin in 1785 (p. 114), Eli before the close of the Revolution (p. 117), and Nicholas Brice in 1786 (p. 118).
8. Montgomery County, Maryland, *Wills, Book D*, p. 13, lists Johnsey's land in Rowan County.
9. Montgomery County, Maryland, *Deeds, Book U*, p. 235.
10. Newman, on p. 98, cites a Montgomery County will dated 26 March 1777, proved 11 June 1777.
11. *Ibid.*, p. 118.
12. District of Columbia, *Wills, Apprenticeships*, JH#1, (National Archives and Records Service, Washington, D.C., Record Group 21, E-127), p. 122, notes age and birthplace.
13. Montgomery County, Maryland, *Wills, Book D*, p. 13.
14. Newman, p. 109.
15. *Ibid.*, p. 117.
16. Montgomery County, *Deeds, Book K*, p. 233, dated 15 February 1802.
17. One family story indicates that the posthumous son John was born in Georgetown in 1798, but documentation shows the family probably moved there when he was very young, perhaps between 1802 and 1806. (Goodspeed Publishing Company, *History of Southeastern Missouri*, published by author in 1888; 1964 reprint by Ramfre Press, Cape Girardeau, Missouri, p. 928.)
18. *District of Columbia Apprenticeships*, JH#1, p. 122, exact date not recorded.
19. The Barbour brothers, the only known Gaither patrons, both married daughters of Benjamin Johnson of Orange County, Virginia. James married Lucy Johnson, and Philip married her sister, Francis Todd Johnson. It seems an interesting coincidence that the Maryland Historical Society goblet is engraved with a crest alleged to be that of the Johnson family.
20. Georgetown *Federal Republican*, 8 December 1815; the Washington *Daily National Intelligencer*, 12 December 1815 (a typographic error in the header reads "James D. Gaither").
21. *Daily National Intelligencer*, 12 December 1815.
22. *Ibid.*, 4 April 1816.

23. *Ibid.*, 22 February 1816.
24. *Dictionary of American Biography*, Vol. 1 (New York: Charles Scribner's Sons, 1964), pp. 590-592.
25. *Ambler Collection*, Alderman Library, University of Virginia, Charlottesville, Virginia, Receipts for 1817.
26. *Dictionary of American Biography*, pp. 594-596.
27. Edward P. Norvell of Salisbury, North Carolina brought this piece to my attention and has been most helpful in searching for family references and documentation concerning the Barbour coffeepot.
28. Illustrated in Conover Hunt-Jones, *Dolly and the Great Little Madison* (Washington, D.C.: American Institute of Architects, 1977), p. 91, and in Jennifer Faulds Goldsborough, *Silver in Maryland* (Baltimore, Md.: The Museum and Library of Maryland History, 1983), p. 233.
29. *Goldsborough*, p. 223 (figure 331) and p. 233 (figures 352-356).
30. *Ibid.*, p. 223; the Philadelphia attribution for the pitcher was made by William Core Duffy.
31. Author's discussion with Conover Hunt-Jones 1 April 1985.
32. *Hunt-Jones*, pp. 40-41.
33. National Archives and Records Service, Washington, D.C., *Miscellaneous Treasury Accounts*, Record Group 217, reel 100.
34. Author's discussion with Conover Hunt-Jones, who read from New York Historical Society notes regarding the provenance of the service.
35. Montgomery County, Maryland, *Deeds, Book T*, p. 557.
36. *Ibid.*, *Book U*, p. 235, dated 31 March 1818, recorded 13 August.
37. James Medford Gaither, Sr., of Hickory, North Carolina, has been very helpful in tracing the Gaithers; see also *Newman*, pp. 130-135.
38. *Goodspeed*, p. 928.



Figure 1. Detail of Frederick County, Virginia, from the Map of the State of VIRGINIA by Herman Boye, published in 1826 and re-issued in 1859. The ridge of mountains to the extreme upper left is Great North Mountain, while the next toward the right is Little North Mountain. The site of Zane's first furnace is noted as "1," while the second furnace is "2."

Editor's Note: The research for the following article was carried out in 1970, with certain 1984-1985 additions from Frederick County, Virginia, research completed by the MESDA Research Program. A much shorter version of this article by the author entitled "Decorative cast iron on the Virginia frontier," was published in the March, 1972 issue of The Magazine Antiques (Vol. CI, No. 3, pp. 535-539). With the discovery of additional work from Marlboro Furnace, coupled with new information about the previously-known castings and new research data, it was felt that Journal readers would enjoy reading the complete history of the furnace. For additional technical information, it is suggested that the reader peruse Arthur C. Bining, Pennsylvania Iron Manufacture in the Eighteenth Century (Harrisburg: Pennsylvania Historical and Museum Commission, 1979); E. N. Hartley, Ironworks on the Saugus (Norman, Oklahoma: University of Oklahoma Press, 1957); Henry C. Mercer, The Bible in Iron, Third Edition (Doylestown, Pennsylvania: The Bucks County Historical Society, 1961), and H. E. Comstock, "The Redwell Ironworks," Journal of Early Southern Decorative Arts, May, 1981, Vol. VII. No. 1, pp. 40-80. As a matter of further interest, MESDA will mount a major permanent exhibit of cast iron, containing many Marlboro pieces, in 1986.

Isaac Zane and the Products of Marlboro Furnace

JOHN BIVINS, JR.

A half-dozen miles west of the town of Stevens City in the upper Shenandoah Valley lies the tiny community of Marlboro, which is situated on a bend of meandering Cedar Creek. This large stream flows south into the North Fork of the Shenandoah River, defining with its course the southern boundary of Frederick County where Marlboro is located. The rural serenity of the area gives little hint that the Cedar Creek watershed has ever been anything other than the verdant, hilly southern countryside that it is now. Two centuries ago, however, much of the area of Cedar Creek northwest of the point where the stream crosses under present-day Interstate 81 near Middletown was certainly choked with heavy gray industrial pollution, the outwash of a great blast furnace and its attendant operations. Instead of the nationally-famous apple orchards that characterize the region now, in the eighteenth century the banks of Cedar Creek very likely were denuded of most trees deemed large enough to cut for charcoal. The stream itself was probably fit for little more than supplying a head of water for turning the huge creaking water wheels which powered the numerous bellows and trip hammers used in the furnace works a few miles upstream.

The notion of such a blighted panorama tends to be most associated with twentieth century industry, but such scenes were common enough in the Shenandoah Valley before 1850. The Valley is part of the great limestone belt which extends from Pennsylvania through western Maryland and southwest for the length and breadth of the Valley. Limestone, used to flux away the impurities in iron ore, was critical to the operation of any merchant furnace. From the 1620's until the mid-nineteenth century, Virginians saw over forty such smelting operations—

most of them in the Valley—turning the night into day with their roaring blasts and thumping din, certainly the largest and most awesome of early industries. Not unlike the oil industry of today, the iron trade of the eighteenth century commanded the most spectacular amount of finance of the time and utilized the skills of far more laborers than any other trade.

The only visible remains of the great furnace complex which formerly polluted Cedar Creek consists of the limestone foundation of a grist mill (Fig. 2) and a diminutive but formal hexagonal limestone ice-house (Fig. 3), the latter building now known locally as “Stephens’ Fort,” both silent reminders of what once had been a collection of buildings forming an estate that might well be termed baronial by modern standards. The man who had owned this extensive empire was Isaac Zane, Jr., a Philadelphian who had energetically cast his lot upon the Virginia frontier with every expectation of joining the ranks of immensely wealthy American ironmaking families such as the Potts and Rutters of Pennsylvania. Zane never really attained the sort of financial power known by the ironmasters to the north, but his efforts were impressive, and the products of his furnace are among the very finest known southern cast iron.

On a 1775 visit to Stephens City (then Stephensburg), Philip Vickers Fithian described Zane as

. . . a man of the first Rank here, both in Property & Office—He possesses the noted Malbrow Iron-Works, six Miles from this Town—He has many Slaves, & several valuable Plantations—He is, with Regard to Politicks, in his own Language, a “Quaker for the Times. . . .”¹

Had Fithian taken the time to visit Zane’s Marlboro Furnace and the manor adjacent, he would have seen extensive physical evidence of Zane’s stature as a man “of the first Rank.” Surrounding a twenty-by-forty two-story stone dwelling was a huge collection of dependencies, workmen’s quarters, and buildings which housed Zane’s various industries. Standing nearby was the furnace, with its “casting house, pot-house, bellows-house, and ware-house,” a forge with “two hammers and four fires,” a large grist mill, a saw mill, smithery, counting house, distillery, three barns, and a stable “50 feet long, 22 wide.” Most of these buildings were stone. “Nearly adjacent” was a kitchen, wash house, and “three separate apartments” for use as dining rooms



Figure 2. Detail of a portion of the limestone foundation of Zane's grist mill on Cedar Creek; the wheel and structure above are twentieth-century.

“for workmen of different descriptions.”² Also on the grounds was a spring house, bath house, fish pond, fountain house, fountain, and the ice house which is still standing, all amenities which almost seem an anomaly for having stood in the shadow of a belching furnace. The entire complex fit within a space of “not more than 50 rods or 275 yards,” in all comprising the same sense of a self-contained community that most large eighteenth century furnaces required for efficient operation. Not far to the east of the furnace site lay the ore banks which yielded up iron that in Zane’s words was “excelled in quality by none in America, either for castings or bar-iron . . . well known to make choice steel.”³ In addition to the immediate Marlboro lands, Zane owned a number of other large parcels of land, including a large tract which had constituted an earlier furnace venture. In all, this “Quaker for the Times” owned upwards of 35,000 acres of land in three Virginia counties by the time of his death in 1795, and operated an ironworks that might well have rivaled the great furnace establishments of Pennsylvania had Zane’s venture begun in less troublesome times.

Isaac Zane was the son of Isaac Zane, Sr., a Quaker merchant of some standing in Philadelphia. The elder Zane (1710-1794) began his career as a house carpenter, later branching into the sale of various building materials, dry goods, and such ready

speculative commodities as the “sundry parcels of meadow land, lying handy to Philadelphia,” that he mentioned in one newspaper advertisement.⁴ As the century progressed, Zane, Sr. became involved in various community projects, including the Pennsylvania Hospital, to which he was a frequent contributor. He was a prominent member of both the Carpenter’s Company and the Philadelphia Monthly Meeting.⁵



Figure 3. Zane’s hexagonal ice-house on the same site.

Isaac Zane, Jr. was born in July, 1743, the fifth child of Isaac and Sarah Zane. Little is known of Zane’s childhood, but as a young man he traveled extensively. At the age of nineteen he visited Barbados, at least partially on his father’s business, and the following year, 1763, he sojourned to London and from there “. . . undertook the tour of Europe,” where he remained for approximately a year.⁶ Perhaps this “Grand Tour” elevated young Zane’s aspirations above the mercantile world, but in any event he apparently had little inclination after his return to remain in his father’s milieu of conservative Quaker society. Not unlike his cousin Ebenezer Zane, who is now well known for his pioneering exploits in Ohio, Isaac Zane felt the pull of the frontier. At the age of only twenty-four, Zane embarked upon the career of an ironmaster, having discovered an opportunity to purchase a



Figure 4. A plat of the Marlboro works and its immediately surrounding lands, evidently drawn by Zane during the early 1780's for Henry Drinker of Philadelphia. Courtesy the Historical Society of Pennsylvania, Gratz Collection.

share in a blast furnace near Winchester, Virginia, owned in partnership by Lewis Stephens, a Virginian, and three Pennsylvanians, John Hughes, Samuel Potts, and John Potts, Jr., all of Philadelphia. With the exception of Stephens, all of these men had large investments in other furnaces both in Pennsylvania and Maryland. Stephens, whose share Zane purchased in 1767, was the resident ironmaster; he had erected the furnace some time before 1760, and had entered in partnership with the Pennsylvanians in 1763.⁷



Figure 5. Zane's first furnace, later the A. P. Taylor Furnace, located on Furnace Run in Frederick County, Virginia.

Zane began purchasing land on Cedar Creek east of Little North Mountain by August of 1767. In a very complex series of transactions beginning in that month and extending through July of 1768, Zane bought out the other proprietors, who allowed him to sign mortgages. Zane also secured loans from other Philadelphia businessmen, and his father not only assisted in this, but also borrowed for the venture himself. The younger Zane owed the Potts family alone £8,000, and his total debt by the early 1770's was nearly £17,500, the paper held by some seventeen individuals according to a memorandum drawn by Zane's brother-in-law, John Pemberton, in 1772. This enormous debt was long to prove a burden to Zane, who remarked to Pemberton only a few years after the purchase that ". . . the dictates of . . . Honor to render to every man his due has been a heavy shadow to the Sun shine of my Happiness. . . ."8

The share which Zane purchased from Lewis Stephens for £2250 included the "Mansion House Spring Mill and six hundred Acres of Patented Land thereunto . . . and . . . Warrant Right to four hundred Acres . . . on the West side of Cedar Creek . . ." along with "one full equal & Undivided fourth part" of the "Tracts Called the Buffaloe, the Rock Ore, The Furnace, The Pine and the Forge Tract. . . ."9 The furnace was situated at the foot of Great North Mountain, and the manor was east of Little North Mountain, about seven miles southeast of the furnace site; the house was to be released to Zane on 1 August 1767, though he evidently did not take possession at that time. It is not known how early the furnace was called "Marlboro," but one of the mortgages to the Potts family clearly specified "a Furnace Called Marlborough Furnace and Forge Called Marlborough Forge . . .," indicating that the name had been in use for some time.10

This furnace, or at least a rebuilt version of it (Fig. 5), still stands on a creek appropriately named "Furnace Run" in the eighteenth century; the creek passes under Virginia State Road 600 near St. John's Church in Frederick County. Located on private land, the furnace is known locally as "Taylor's Furnace." When Zane purchased the property, the furnace and its dependencies were surrounded by a 7,900-acre tract traversed by a road which lead to Winchester, some twelve miles distant.11 Zane may not have moved to Virginia until after midsummer 1768, when he was still identified as a Philadelphia resident in one of the mortgages.12 At some point either just before or after his arrival, Zane became aware that bar iron made from Marlboro

pigs was, as he later put it, “brittle when cold,” and not fit for “American consumption.”¹³ Accordingly, he soon located a more malleable brown hematite ore lying in beds about twelve miles east of the furnace site. Since the new beds were on the opposite side of Little North Mountain from the furnace site, Zane evidently concluded that the expense of hauling the ore overland to the furnace would be prohibitive. The solution was the construction of a new furnace adjacent the manor house, which was located east of the mountain only a few miles from the new ore beds. To alleviate some of the enormous expense of building a new furnace, Zane elected to dismantle at least some of the machinery of the old furnace for use in the new operation.¹⁴ The old furnace, however, remained in blast until about the spring of 1771. The construction of the new works was carried out in an astoundingly short time, for by December of 1772 Zane was able to report that

. . . we have far exceeded expectation of what I thought could be done in one Summer, to Say, after so hard a Winter, & a late Spring, to Build a large Strong furnace, & all its appurtenances, make 40 Tons open Casings 16 Tons pott ware, keep the forge going & leave off in a little time with 120 Tons piggs in store. . . .¹⁵

A possibly confusing factor in understanding the sequence of events surrounding the construction of the new Marlboro furnace was the fact that John Potts, John Leshner, and Lewis Stephens had agreed in 1767 to build a new furnace “to be named New Work Furnace” as well as a new forge; these were to be located on a tract subsequently purchased by Zane. County records for early 1767 confirm the presence of a “furnace Erecting on the north Branch of Pembroke [Creek]” and a forge “Erecting on Cedar Creek.”¹⁶ Pembroke Creek, however, is southwest of the original furnace tract, but still on the opposite side of Little North Mountain from the site of Zane’s new furnace on Cedar Creek. It may be that the “New Work Furnace” was never completed, perhaps due to the problem of the ore beds on the west side of the mountain.

Even taking advantage of existing furnace and forge machinery at the old furnace, it seems incredible how much was accomplished in only a few months. The new furnace was put into blast late

in the summer of 1772,¹⁷ and Zane's parents, along with his sister, Sarah, journeyed down from Philadelphia for the great occasion. The high excitement of the event was recorded by Sally Zane in a letter to John Pemberton: "The Founders has layd a Wager that when she comes to the Height [when the furnace is fully charged with ore, charcoal, and limestone] that they cast 30 ton a Week Pigs & Hollow Ware. . . ." ¹⁸ She noted later in the month that "Their [sic] Continues a Great Sale for the Iron . . .," indicating that the new works was successful even at the beginning of its first blast.¹⁹ After the initial run of pigs and castings, Zane put the forge into operation, converting pigs into bar iron. He noted in early November that ". . . we go double handed at the Chafery. . . ." By this time the furnace production had risen to "Near 10 Tons Stoves & do. of potts a Week,"²⁰ which undoubtedly pleased Zane's Philadelphia creditors. By the time the new furnace was in blast for the second time the following spring, word had spread through the mercantile network of northern Virginia, and it appeared that Zane could not "keep any Great Stock of Iron on Hand there being so many Customers ready for it almost as fast as it is made." Zane's friend Thomas Jefferson was to remark eight years later, in 1781, that Marlboro had an estimated annual production of six hundred tons of pig iron and one hundred fifty tons of bar or wrought iron. "The toughness of the cast iron," as Jefferson remarked on the Marlboro products, was "very remarkable."²¹

Zane's furnace, in operation, was not unlike many similar establishments in Pennsylvania, Maryland, and other parts of Virginia. A large labor force was a necessity, since numerous specialized trades and a great deal of common labor was required to keep a furnace in blast for as long as nine months at a time. Furnaces commonly closed down only to repair the hearth and brick lining, or because winter ice stilled the wheel which drove the air blast. It was not unusual for most of the workmen to live on the premises of an iron works, since they had to work in shifts. Their ranks included woodcutters and colliers who supplied charcoal for fuel to maintain the blast, laborers to strip-mine the ore, foundrymen to supervise the running of castings and pigs, pattern makers and potters to provide casting patterns, joiners to make wooden implements such as casting flasks, and hammermen for working the brittle cast iron pigs into wrought iron in the forge or "chafery." Slaves were employed in gathering and breaking limestone, and no doubt for mining as well. Judging

from the numerous “runaway” advertisements in Virginia newspapers, Zane also employed a number of convicts. In all, Marlboro employed well over a hundred men, both skilled and unskilled.

Three great considerations faced any person who intended to operate a successful furnace. In addition to a plentiful supply of good ore, the furnace required enormous quantities of charcoal to maintain a blast, since well over 200 bushels of charcoal were needed to produce a ton of cast iron.²² The production of charcoal for blast furnaces, in fact, was responsible for the leveling of hundreds of miles of American hardwood forests. A good deal of the vast acreage comprising Zane’s land had been purchased in order to insure a ready supply of hardwood for the greedy furnace. Zane repeatedly advertised for woodcutters. In the 6 December 1776 issue of *The Virginia Gazette* (Dixon & Hunter), for example, he wished to have “10,000 CORDS OF WOOD cut” for the works. He was still advertising for woodcutters as late as 1789, offering “bar-iron or castings” or cash in payment.²³ Having a force of experienced charcoal-burners on hand was also a problem, and Zane advertised as far away as Baltimore for colliers.²⁴

In addition to a ready supply of timber and ore, limestone was vital to running clean iron. Liquefying in the immense heat of the furnace throat, the limestone fluxed off impurities in the iron ore, forming black, glass-like slag. A ton and a half of limestone was required to produce a ton of cast iron, making it perfectly evident why most American furnaces were located in the limestone belt.

Most eighteenth-century American furnaces used a pair of immense bellows for an air source, but Zane, very much up to the minute in the science of his trade due to his correspondence with Pennsylvania ironmasters, used “cylinder bellows” at the new furnace²⁵ which were much more efficient than the old wood and leather bellows, and were less likely to get out of repair. A crankshaft connected the continuously-pumping cylinders with the overshot water-wheel (Fig. 6).²⁶ Zane more than likely utilized an equalizing chest to collect the air blast, from which the tuyere (pronounced *twé’yâr’*) was fed with a continuous blast at about six to eight pounds per square inch.

The casting floor, like the “bellows-house” and other “appurtenances” of Marlboro, was enclosed in a frame shed, covering the entire casting arch. The floor of this casting shed

was sand, to allow making castings of flatware and pigs directly on the floor. Hollow ware such as pots had to be cast in two-part flasks made for the purpose; Zane's furnace used some fifty-six of these items in the production of hollow ware.²⁷ Great quantities of pig iron was sold at Marlboro, but no pigs are known to survive from the furnace, and in fact pigs remain one of the rarer products of early furnaces. Most had the name of the furnace cast upon them. No sows are known to exist from any southern furnace. The sow was formed by the principle trench cut in the casting floor, with shorter trenches flanking the sow to form the pigs, the obvious imagery of this arrangement providing the trade with the ancient terminology that is still in use. The long sows were generally broken up with hammers due to their inconvenient weight.

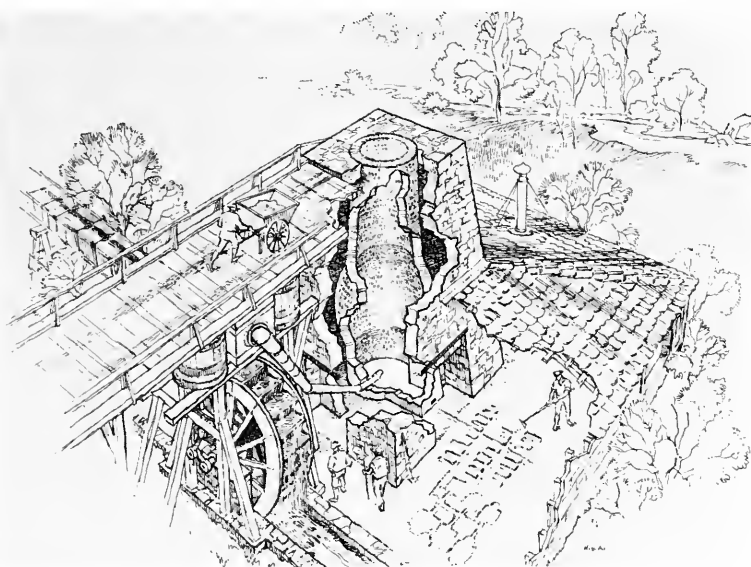


Figure 6. A conjectural section drawing of the second Marlboro furnace, using the configuration of the first furnace coupled with descriptions of the new works by Zane and others. Shown are the air tubs which Zane used to provide the blast, the overshot water wheel fed by a flume. The air supply was forced down the tapering tuyere from an equalizing chest, the air supply entering the furnace just above the tymp, at the bottom of the egg-shaped bosh. Like most large furnaces, the entire casting floor was enclosed in a frame shed; here a "gutterman" rakes trenches in the furnace floor for running pig iron, and on the left side of the floor stove plate and fireback patterns have been rammed-up into the sand to make "open" castings. Ink sketch by W. Stuart Archibald, MESDA collection.

One of the most important products of a merchant furnace such as Marlboro was also bar iron. Zane's forge, ". . . built of stone, 60 feet by 50," with ". . . two hammers and four fires . . ." ²⁸ was continuously engaged in that task. Driven by the same water power that supplied air to the furnace, huge tilt hammers were employed to reduce the brittle pigs into wrought iron; the "four fires" or forges were used to bring the pigs to welding heat. Marlboro had no rolling and slitting mill for making dimensioned iron such as nail rods, however.

Zane, with characteristic scientific zeal, frequently updated the equipment of both the forge and furnace. To his conservative father, such continual experimentation and upgrading were to be looked upon with certain reservations, and he noted in a 1773 letter that ". . . Some improvements now making to make the water run in a woden [flume] instid of a dick [dike] as usal, which I think is a frolick and of little Servis. . . ." ²⁹ But Zane, like many of his contemporaries, had an insatiable appetite for "scientifick principle," and he shared this pursuit with friends such as Thomas Jefferson, whom he had met in Williamsburg. After a visit to Marlboro in 1783, Jefferson wrote to Zane that

. . . After leaving your house a construction for a water wheel (such as yours) occurred to me which I think preferable. It differs from yours only in the manner of fixing the buckets. They are suspended each on a pin . . . fixed in the side of the wheel . . . They always hang perpendicular, and of course lose no water. . . .

Although Jefferson enclosed a sketch of his scheme, Zane evidently did not give this particular plan further thought. He did make use of a thermometer which Jefferson sent the same year, "the only one to be had in Philadelphia." Jefferson asked Zane to use the instrument to measure "the temperature of your ice house" as well as making readings in a neighboring limestone cave. ³⁰

Throughout the years preceding the Revolution, Zane was busy not only with the furnace, grist mill, saw mill, and distillery; he was also engaged in creating an impressive personal estate for himself. Credit being what it was in the eighteenth century, Zane was able to ensconce himself comfortably in surroundings that very probably rivaled any good town house in Philadelphia. It

was to that city, naturally, that Zane turned for many of his accessories and at least some of his furniture. A 1780 bill from silversmiths Joseph and Nathaniel Richardson, for instance, indicates the type of items Zane purchased on trips to the city:

Isaac Zane junr. Bot. of Joseph & Natl. Richardson	
4th mo. 27th 1780	
3 silver porringers	6. 1.0
6 table spoons	7.15.7
2 pincushion hoops & chains	1.16.1
2 scisser chains	1. 7.9
12 thimbles	2. 2.0
1 pair shoe buckles	0.18.0
1 silver seal cypher'd	<u>0.16.0</u>
	34.10.10 ³¹

Although the "12 thimbles" were more than likely for Zane's small general store, the porringers and spoons were probably at the request of the person whom Fithian hurriedly referred to as Zane's "kept & confessed Mistress,"³² Elizabeth McFarlane, the existence of whom Zane's staunch Philadelphia relatives chose to ignore altogether.

Zane's father had numerous dealings with Philadelphia cabinetmaker Benjamin Randolph,³³ and it is likely that Zane himself patronized such artisans, since numerous articles on his 1795 inventory such as "1 Pier Looking Glass . . . first Cost value £50," an "eight day Clock £18" and several "windsor chairs" seem likely to have been from Philadelphia. Some of the declared values of Zane's pieces compare favorably with prices of cabinet work compiled in Lehman's 1786 "Prices of Cabinet and Chair Work" in Philadelphia.³⁴ Most of Zane's accessories, including other silver items such as a "Cream jugg, 2 Gilded plated Goblets," and two "punch Ladles," as well as "Sundry . . . enamel'd & blue China ware," two "22 Inch Celstial & ditto Terrestrial Globes," a thirty-shilling "patent Lamp," and "1 Mahogany knife case with 2 dozn. large knives" were probably imports from Philadelphia, although any items of this sort could have come from England through Zane's eastern Virginia factors. Much of the furniture, if primary wood is any indication, would seem likely to have been from the Frederick County area, where walnut predominated as the major furniture wood. Philadelphia stylistic influence, not surprisingly, had made itself felt in the

work of Winchester cabinetmakers by this period. Walnut furniture in Zane's inventory included such items as two desks-and-bookcase, both £9 each, one of them "well mountd.," two "double leaf'd falling walnut Table[s] 1.16.0," a "neat plain walnut Table 16/," a "double Book Case of walnut Cost 50/makg.," and numerous other tables, chests, and chairs also identified as walnut, along with a "Lettercase and cupboard 60/." Several major pieces, including a half-dozen "beds and furniture" listed with an average value of £10, are not identified in regard to primary woods. This group also included a dressing table, "Cost £6," an armchair, and the clock. Some of these pieces, along with "6 broken Mahogany chairs @ 10/" might well have been Philadelphia work, although there is no proof. Other furniture, such as "Twenty eight common Wooden Collour'd chairs"³⁵ and numerous pine chests were probably of local manufacture. In all, Zane's furnishings seem to have been impressive for the region, but not necessarily lavish.

The ironmaster's scientific interests are reflected in various devices and items in the inventory, such as an "Electrifying Machine," and amusement was provided by a "Chamber Organ Cost £35" and "A whitehead shew with the Apparatus," which we may assume to be some sort of magic lantern. Zane also owned a number of weapons, including a steel crossbow and "2 Antique War Clubs," as well as various firearms of both American ("1 new Rifle with a Brass box & friction wheels 6.0.0") and foreign make ("1 pair Silver mounted pistols and holsters 9.0.0").

Zane's library has been the subject of considerable discussion among rare book students in the past. Zane's own 1794 catalogue of his library lists about four hundred volumes, various bound magazines, and numerous maps. His library at that time was of a general type, leaning somewhat toward travel narratives, of which Zane seemed to be particularly fond, as well as a number of scientific treatises of various sorts, 18th century English philosophers, particularly the mercantilists, English poets, and a smattering of Greek classics. Some £6 worth of architectural books were included in the library. This catalogue, however, gives no indication of the large number of volumes that Zane had owned only a few years preceding.

In December, 1777, an advertisement appeared in the *Virginia Gazette* to the effect that "A CATALOGUE of the valuable Library, the Property of the Estate of the late Hon William Byrd, Esq; consisting of near 4000 volumes . . ." had been printed for

the benefit of those who might be interested in increasing their own library. Zane became interested in the collection, which was "contained in twenty three double Presses of black Walnut," and consisted of many "Books in elegant Bindings, and of the best Editions. . . ." ³⁶ For the consideration of £2,000, Zane subsequently purchased the complete library, which was considered one of the largest private collections in the colonies. Late in the Revolutionary War, however, Zane had fallen heavily into debt because of the inability of the new Commonwealth of Virginia to pay for ordnance and shot cast at Marlboro, and Zane was forced to send the bulk of Byrd's library to Philadelphia for sale. Zane's general factor in that city, John Pemberton, took charge of the sale of the huge library. Correspondence between Pemberton and Zane throughout the 1780's records a trickling of sales, but there seemed to be few willing buyers. Zane took a loss on many of the volumes, judging from Pemberton's experience with haggling customers.

As a wealthy squire of Frederick County, the politics of the times drew Zane away from the orthodox mainstream of the Quaker church. In September, 1772, when the new Marlboro furnace was in its first blast, Sally Zane wrote that her brother had ". . . accepted the Office of Magistrate which gives my Dear Parents a great Uneassiness." ³⁷ The elder Zanes had just cause for "Uneassiness," since they were aware that Isaac would more than likely be disowned from the Philadelphia Meeting for swearing an oath of office. Zane, however, was something less than dismayed by such possibilities, for the following year he was seated in the Virginia House of Burgesses, where he was promptly appointed to three standing committees. ³⁸ As the Revolution drew near, the ironmaster became more involved in the heated topics of the day, as any gentleman was expected to do. Fithian noted that he was a "Patriot of a Fiery Temper," though he spoke "sensibly on the present Commotions." ³⁹ Zane's political inclinations are evident in his own words: "As I always have been, so yet I am to every Gentleman Volunteer and truly sympathizing Brother in the cause of our just Contest their devoted & every ready Friend. . . ." ⁴⁰ This statement was made before learning of the altercation which had taken place in Lexington, Massachusetts, only a few days before. A few weeks later, on 29 May 1775, Zane wrote Pemberton that ". . . the late alarm from Boston seems to have Struck the people here with more than equal Horror than if they had been immediately invaded." ⁴¹ Zane

already held a Colonel's commission in the Shenandoah County militia, and by the end of his career was a Brigadier General; he continued his political life until his death, having been elected to the Virginia Assembly as late as 1794.⁴²



Figure 7. A "Wedding" jamb stove, signed "MARLBRO FURNACE 1768." The front plate of this stove is 19¾ x 24¼; the side plates are 27⅞ x 23⅝. Courtesy the Mercer Museum, Bucks County Historical Society, accession 23113ff. Maddox photograph.

Zane, in contrast with his father, was by no means a zealous Friend. His name never appeared in the minutes of the large Hopewell Meeting in Frederick County, indicating that he had not bothered to request a certificate of transferral from Philadelphia Meeting. His various public offices, coupled with his political inclinations, were quite enough to sever his bonds with the Society of Friends. Compounding the problem, in the words of the Philadelphia elders, was "his keeping Company with a Woman in such manner as has subjected himself to the charge

of being Unchaste with her." Zane was accordingly disowned from the Philadelphia Meeting in 1773.⁴³ Nevertheless, Zane remained steadfast with his Quaker associates. In December, 1777, seventeen Friends, including John Pemberton, Zane's friend Henry Drinker, and the renowned cabinetmaker Thomas Affleck, were expelled from Philadelphia for refusing to sign the oath of allegiance, among other things supposedly "inimical" to the new government. The exiles were to be sent to Staunton, but Zane was able to intercede and have the prisoners detained in Winchester. By the end of January, 1778, Zane's father was able after considerable travail to convince the Congress in Philadelphia to release the beleaguered Friends. Despite the order from



Figure 8. Front view of another "Wedding" stove, private collection.

Congress, however, these individuals evidently remained in Winchester for some eight months,⁴⁴ allowing for speculation regarding the possible employment of Affleck by Marlboro Furnace. There is certainly ample evidence of Philadelphia work in various Marlboro patterns, as we shall see.



Figure 8a. Side view of the stove in Fig. 8.

The inventory of the estate which Zane made just before his death is an excellent guide to the type of production which Marlboro Furnace was engaged in. Carefully compiled and assessed were quantities of tools relating to the trades of smelting and founding. Bar and pig iron were the furnaces' largest products in terms of quantity sold, but castings provided an everyday trade, and were sold to a ready market north and east of Frederick County.

Utilitarian pieces comprised the bulk of Marlboro's cast wares. Of this type of ware, pots and kettles naturally were in the greatest demand, and Zane's foundrymen regularly ran quantities of pots

in 2, 3, 4, 5, 6, and 10-gallon capacities, along with kettles of eleven and seventeen-gallon capacities as well as a "Shallow Kettle" of unspecified size. Zane had gone to considerable expense to acquire pewter casting patterns for this hollow ware, in contrast to the wooden patterns used by most furnaces. Pewter patterns, while expensive, did not warp or shrink "out of round"; they were used for forming the exterior of the vessels which were to be cast in a closed sand mold or flask. In all, Zane listed some 413 pounds of pewter patterns for casting kettles, three sizes of "dutch ovens," and three sizes of skillets.⁴⁵ Other hollow ware cast at Marlboro included mortars with pestles,⁴⁶ salt pans, tea kettles, and "waggon boxes," which were the bearings used in the hubs of wagon wheels. Utilitarian flatware run at Marlboro included "bakeplates"⁴⁷ and numerous miscellaneous items such as flat irons, hatters' irons, bridle rings, ladles, and "wind mill wallowers," parts used in constructing hand-cranked wheat fans used for winnowing chaff from the grain.⁴⁸



Figure 9. Fraktur by Friedrich Krebs of Pennsylvania, ink and watercolor on paper, early nineteenth century. Courtesy the Museum of Fine Arts, Boston, Massachusetts.

Zane heavily committed himself and the production of the furnace to castings needed by troops of both the Commonwealth and the Continental Army during the Revolution. Although the 1795 inventory records only patterns for the yoke of a swivel gun



Figure 10. The front plate for a jamb stove, attributed to Marlboro Furnace, dated 1769. HOA 21, W^oOA 15¼. The corner rims at the sides are broken off. Courtesy the Mercer Museum, Bucks County Historical Society, accession 24443.

and for "Cannon Balls," twenty years earlier Marlboro had become something of a vital source for needed ordnance and ammunition. Zane undertook the casting of one, four, and six-pounder howitzers, as well as swivel guns which were probably

of half-pounder size. Of equal importance to the Revolutionary army was round shot for cannon ranging from one to twenty-four pounders, in addition to specialized ammunition such as "Double Headed Shot," chain shot, sliding shot, grape, and langrage. Many of Zane's orders for such war material came from the "Admiralty of Virginia,"⁴⁹ who also placed orders for other items such as salt pans, which were large shallow kettles used for rendering salt from sea water. Repeated orders also came to Marlboro from the Commonwealth⁵⁰ for "Camp kettles," dutch ovens, and pots to supply field troops. By the end of the war, however, an almost totally inflated economy and the lack of state funds caused Zane to accept a large amount of such orders on credit, for most of which he was never repaid. Operating a furnace such as Marlboro no doubt created cash-flow problems even in

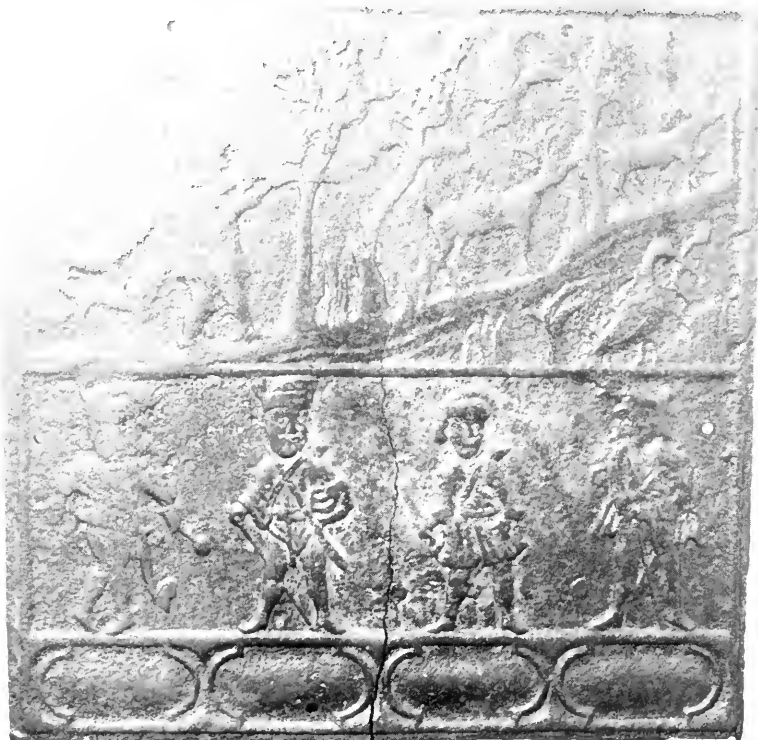


Figure 11. The side plate for a jamb stove, attributed to Marlboro Furnace, 1768-1790. HOA 26½, WOA 26½. The flange at the right side of the plate is broken off. Courtesy the William Paca House, Historic Annapolis, Inc. MESDA Research File (MRF) S-10342.

the best of times, and Zane's patriotic losses during the Revolution unquestionably added to his already considerable indebtedness. Other American furnaces such as Mark Bird's Hopewell in Pennsylvania suffered similarly for the cause, and, like Marlboro, did not long outlast the Revolutionary era for that reason.



Figure 12. Jamb stove by Marlboro Furnace, dated 1773. MESDA accession 2463.

Of considerably greater interest to students of early cast iron are the decorative pieces cast at Marlboro, a number of which fortunately survive. The following entries from Zane's own inventory of 1794-1795 describe well enough the variety of such work run at the furnace:

1 Franklin Stove pattern	6. 0.0
1 10 plate Stove do.	6. 0.0
1 £4 open do. Mahogany Carv'd	4. 0.0
1 do. do. do. more plain 40/	2. 0.0
1 £5 open do. plain	2. 0.0
1 £3 pipe ditto	3. 0.0
1 £3 open do. Mahogany Carv'd	3. 0.0
1 do. do. do. plain	1.10.0
1 £3 pipe do. plain	1.10.0
1 Fairfax Arms back wall plate pattern	8. 0.0

Not included in this inventory, but listed in the inventory filed by the executors of Zane's estate, was a pattern for making "Dog Irons," or andirons.

The "pipe" stoves which Zane referred to in his list of patterns were six-plate stoves, the earliest form of free-standing stoves cast in America; they were in use at least by the early 1760's. The "open" stoves were five-plate or jamb stoves which followed a European tradition and which had become popular in German communities in America before 1750. Germans preferred the efficiency of stoves for heating, although English settlers tended to cling longer to open fireplaces which were less efficient, but did not cause a room to become stuffy.⁵¹ The five-plate stove was designed to be mortared into the wall of a room opposite an adjacent room with a fireplace. The open back of the stove was accessible through an opening left in the masonry of one of the fireplace jambs; in use, burning faggots were shoveled from the fireplace into the stove. It was a common practice with some Germans to place a single andiron inside the stove to keep the small pieces of wood burning efficiently.⁵²

Also included in the inventory was a set of patterns for a ten-plate stove, which, like the six-plate examples, stood upon a frame and utilized a stovepipe for exhausting the smoke. The side plates of ten-plate stoves, however, were left with openings which extended through the stove and were lined with additional cast-iron plates; the openings were covered with hinged wrought-iron

doors (see Fig. 21 of H.E. Comstock, "The Redwell Ironworks," *Journal of Early Southern Decorative Arts*, Vol. VII, No. 1, May, 1981, p. 66). This enclosed chamber could be used as a small oven, though the actual design of such stoves may have been an attempt as well to improve upon the efficiency of the earlier six-plate version rather than just to provide a cooking device. Ten-plate stoves are not known to have been cast in America before 1765.



Figure 12a. The front plate of the stove in Fig. 12. WOA 17½, HOA 20½.

The "Franklin stove" on Zane's inventory was a set of cast-iron plates which could be assembled inside a fireplace to provide additional radiant heat by means of a set of baffles inside which the smoke passed through; the device had been invented by

Benjamin Franklin in 1742, and first run at Warwick Furnace in Pennsylvania.⁵³ The “Fairfax Arms back wall plate” was a fireback. These plates were in use at least as early as the sixteenth century, and were intended not for radiating heat from a fireplace, but rather to prevent the back of the fireplace from burning out, a common problem before the invention of heat-resistant or refractory brick in the nineteenth century. A number of examples of Zane’s fireback survive, along with a ten-plate stove end attributable to Marlboro, two patterns of six-plate stoves, and at least parts of four of the jamb stoves. Of the sets of stove or fireplace patterns listed by Zane, only examples of the Franklin stove, one jamb stove, and the andirons appear to be missing. The surviving castings show remarkable flexibility in Zane’s product marketing, since they range from jamb stoves decorated with scenes taken from European peasant folklore to elegant stove plates elaborately detailed with the very height of British Rococo in the Philadelphia style.



Figure 12b. The side plate of the stove in Fig. 12. W/OA 22¼, HOA 20⅞.

Three of the five jamb stove patterns run at Marlboro for sale to the large German contingent of the Valley were carved by the same artisan. The carver may have been a man by the name of Calhoun, whom Zane mentioned in his own inventory of 1795 in regard to six patterns for two sizes of pots, a dutch oven, and two "dutch Skillets," all of which were "Calhouns make for which he charged £9 exclusive of materials. . . ." This was probably James Calhoun, who was employed by Westham Foundry in Richmond, which produced ordnance during the Revolution.⁵⁴ He may have been an "inside contractor" at Marlboro in the late 1760's, rather than having his own shop, since it was common for patternmakers to have such arrangements with an iron works.

Due to the number of surviving plates, Zane's "Wedding" stove (Fig. 7) is the best-known of the three patterns carved by Calhoun or some patternmaker employed by Zane. The front of this stove shows a betrothal scene, replete with hovering angels, surmounting the legend for the furnace and the date 1768, all of which is flanked by characteristically heavy corner rims with moldings much in the Gothic style. More interesting are the side plates (8a) of this stove, the design for which was drawn from a fable well known to eighteenth century Germans. In this scene, a pair of men's breeches hang from a tree. Three women on the right are ringing handbells, while on the left a man stands clapping his hands in glee. Joseph Sandford interpreted this plate in the third edition of Mercer's pioneering *Bible in Iron*:

The clue to the meaning of the picture may be found in the breeches which are the symbol of domestic authority . . . It is probable that this is a little joke about hanging the breeches in the tree, so that the wife will be unable to wear them. The women by ringing their bells, try to call down the breeches, the man derisively applauds their futile effort.⁵⁵

Editor Sandford further notes that an ancient custom called for women to "wear the pants" during leap year, which is significant in regard to the Marlboro stove since 1768 indeed was a leap year. A somewhat parallel sentiment is expressed in an early nineteenth century Fraktur by the Pennsylvania artist Friedrich Krebs (Fig. 9), who illustrated a woman tossing a pair of breeches into the air, and six other women grappling for it. A gentleman stands woefully at the left of the scene, well-dressed except for his missing

breeches, and laments that his breeches cause him "much travail." "Am I not something most laughable," he wails, "As I am left standing absurdly/ Without breeches, without money . . . Oh, how is the world so insane,/ that . . ./Seven women debase themselves/ over a pair of old trousers."

The decoration of the "Wedding" stove, like the other jamb stoves run at Marlboro, exhibits a mixture of primitive Rococo and flat execution of the human form which is so characteristic of other art associated with Germanic folk culture. The same heavy-handed Baroque style of the foliate scrollwork is evident in another front-plate from a jamb stove (Fig. 10), missing its corner rims, in the collection of the Mercer Museum in Doylestown, Pennsylvania. Mercer had included this plate in *Bible in Iron*; though no provenance of the plate was listed, it certainly can be attributed to the Marlboro works. An identical plate, complete with its corner rims as well as broken top and bottom plates, was found in Winchester in the early 1970's; these objects have not been recorded for the MESDA research file. Mr. Sandford suggested several possibilities regarding the origin of a design employing two birds, all from Sir Roger L'Estrange's fables published ca. 1730. The most likely of these detailed the story of a nightingale, which, while singing in a bush, was assaulted by a hawk. The nightingale offered a song in return for its life, but the hawk refused, replying "No, no, I want for my belly, not for my ears." The moral to this tale, naturally enough, was "A bird in hand is worth two in the bush."⁵⁶

The side plate of another jamb stove now attributed to Marlboro was also recorded by Mercer, who illustrated his example in Plate 140 of *Bible*; editor Sandford identified the plate as the "Deer Hunter," and stated that the plate was "purchased in the Shenandoah Valley, Virginia."⁵⁷ The example illustrated in Mercer is complete and in fine condition, though the one illustrated here (Fig. 11) is weathered, and missing the wide flange at the right side which provided the extensions of the sides that could be mortared into the wall. In the upper panel of this plate, a hunter fires at one of a pair of bucks, both of whom look back over their shoulders at the hunter; the hunter's dogs stand behind him, while a large bird soars in the air above. In the lower right corner of the panel, a stork has plucked a snake from the reeds; all of these images are familiar ones in German hunting fables. The four figures in the lower panel appear to be hunters, and are dressed in the style of European peasants. The central two

men have rifles slung at their backs, and the man on the right may be similarly armed. Three of the figures have short hunting swords or *jagdschwerten*, commonly used in Europe but not favored in America, indicating that the source of the design from this plate may well have been from a woodcut illustration in some German-language book of fables. Regardless of the source, however, the relationship of this plate to the Marlboro "Wedding" stove is evident in the manner in which the carver modeled the leaves of the trees in the upper panel, simply scooping out the "leaves" with a gouge. This plate, with a height of twenty-six inches, is about two inches taller than the side plates of the "Wedding" stove, and five inches taller than the side plates which matched the "Birds" front plate (Fig. 10).

Probably by a different carver, but having a clear precedent in regard to decoration, is a simpler jamb stove (Fig. 12) which clearly draws from a Biblical source. The example illustrated here is in the MESDA collection, and is exhibited with the sides plastered into the wall, the stove resting upon a shaped sandstone block, all over a framed hearth filled with square pavers in typical German tradition. A translation of the compelling German-language message on the side plates (12b), which was taken from Isaiah 11, 6-7, is a familiar one: "I hope for a better time, when all strife shall cease [and when] cows and bears will go with each other on the pasture [and] the wolves will dwell with the lambs." The same sentiment was popular well into the nineteenth century, and provided the central theme for Edward Hicks' numerous paintings of the "Peaceable Kingdom." With the same message of peace, the front plate of this stove (12a) bears the inscription (in translation) "Every one shall under his own vine and fig tree live without fear," which proves to have been taken from Micah 4,4, though unlike the side plate the verse is not identified. Appropriately, the front plate is decorated both with a vine and a fig tree; the 1773 date of this stove is the latest known date on an American jamb stove, which is not surprising in view of the fact that six and ten-plate stoves were already supplanting jamb stoves in Pennsylvania by that time. It might well be assumed that this stove was made from one of the sets of patterns which Zane noted as "plain" on the inventory, since the preceding three stoves were obviously more elaborate. Two of those shown here must have been under the heading of "Mahogany carved" patterns. Zane thoughtfully included the sale price of each pattern of stove in the inventory, the jamb stoves

selling for £2, £3, £4, and £5, which constituted a considerable expense in the eighteenth century.

The simple folk themes which characterize Marlboro's jamb stoves stand in rather startling contrast with other patterns of castings which Zane clearly intended for a more sophisticated market. The most impressive of these is a massive fireback casting weighing almost three hundred pounds (Fig. 13), indeed cast from the "Fairfax Arms back wall plate" pattern listed in Zane's inventory; the ironmaster noted that he had paid £8 for the pattern. A memorandum filed in the Pemberton Papers at the Historical Society of Pennsylvania, originally discovered by Charles Hummel of Winterthur Museum, sheds an interesting light upon the origin of this elaborate pattern:

Recd. 12 moth. 20th 1770 of John Pemberton Eight pounds for the carving the Arms of Earl of Fairfax for a Pattern for the Back of Chimney sent Isaac Zane jr.

Bernard & jugiez

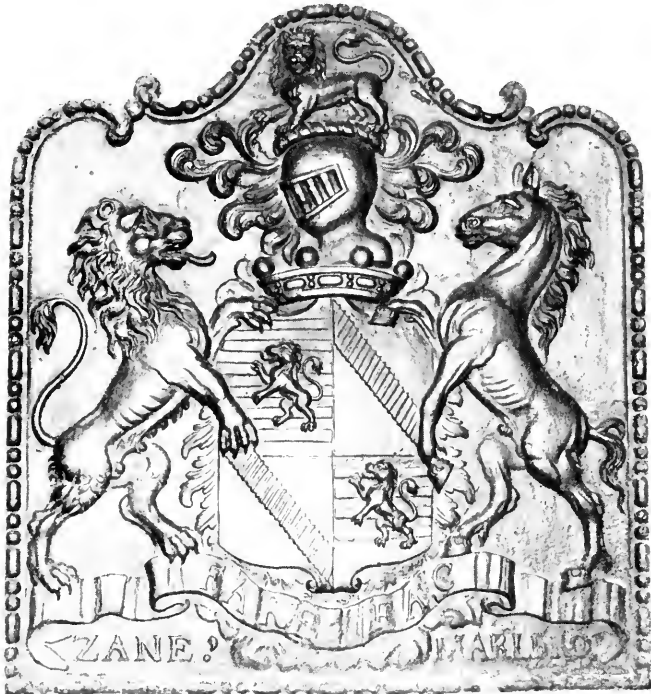


Figure 13. Fireback with the coat-of-arms of the Fairfax family, cast at Marlboro Furnace, 1770-1790. HOA 34 $\frac{1}{16}$ %. W'OA 31%. Courtesy the U.S. Army Engineer Museum, Fort Belvoir, Virginia.

Nicholas Bernard and Martin Jugiez operated a "Looking-Glass Store" in Philadelphia, "In Walnut-street, between Front and second-streets, and next Door to Mr. Claypoole's." There they offered "All Sorts of Carving in Wood or Stone, and Gilding, done in the neatest Manner---," in addition to selling "A Compleat Assortment of Looking-Glasses, framed in the newest Taste, Picture Frames, Sconces, Chimney-Pieces . . ." and other assorted items imported from London.⁵⁸ Like other Philadelphia shops such as Hercules Courtenay and Benjamin Randolph, the partnership of Bernard & Jugiez offered carving services to the trade, including cabinetmakers who had no carvers in their employ. Bernard & Jugiez seemed to be particularly successful in their line, for they advertised and sold work in other major American cities, including Charleston and Boston. Though it is entirely possible that Zane's patterns came from several Philadelphia shops patronized by Pemberton, it seems probable that Bernard & Jugiez received further custom from Marlboro in addition to the fireback pattern, for Zane wrote Pemberton in March, 1776, that "I should be glad to pay Bernard & Jugiez, but I have not an exact account of the Debt. . . ."⁵⁹

The design source for the fireback has been identified by Michael W. Berry, Curator for the National Trust; it is a virtual copy of the "FARE FAC" crest on a copperplate engraving for a map entitled "A Survey of the Northern Neck of VIRGINIA, being The LANDS belonging to the Rt. Honorable Thomas Lord Fairfax . . . etc." This coat-of-arms was incorporated in a 1745 restrike of the map, which was first published in 1737.⁶⁰ The baronial nature of the casting is certainly revealed in this, as well as the source of Zane's order for the fireback. The Fairfax family owned a five-million-acre proprietorship in the Northern Neck of Virginia, the boundaries of the grant extending westward to an unspecified point which included a vast section of the Shenandoah Valley. During Zane's time, the Baronetcy was held by Thomas, Lord Fairfax, whose will was proved in Frederick County in 1782. Fairfax, surprisingly, was a neighbor of Zane's. Despite owning Belvoir plantation near Alexandria, a property which was ". . . considered to be, after the Governor's Palace at Williamsburg, the social and political center of the colony," Fairfax had chosen to take residence at a more rural spot. At his death he was living at his plantation, "Greenway Court," near White Post in neighboring Clarke County, only about twelve miles from Marlboro. Fairfax, who was a graduate of Oxford and fond

of literary subjects, was no doubt an acquaintance of Zane's. A frequent visitor to Greenway Court was George Washington, whom Fairfax had appointed as surveyor in 1748. Washington's brother Lawrence had married Anne Fairfax, the daughter of Lord Fairfax' cousin William, who was colonial agent for the proprietary.⁶¹

Certainly a major American casting, the fireback is framed in a bead-and-reel molding; the muscular realism of the animals and the beautifully-detailed scrolled acanthus represents some of the best of Philadelphia carving. Judging from the ground of the casting, the pattern evidently was carved from a single piece of glued-up mahogany rather than utilizing applied decoration. This may be due to the common practice of using water-tempered sand on the casting floor; the slightly dampened sand would have loosened the hide glue which appliquéés would have been attached with, and the considerable heat inside the casting shed would have completed the damage. A number of these firebacks survive, all of them much thicker castings than most American firebacks, even those as large as the Marlboro example.



Figure 14. The side plate of a six-plate stove, 1768-1790, signed "ZANE MARLBRO FURNACE." HOA 19⁷/₈, W^oOA 22. MRF S-10677.



Figure 15. Fireback cast from a modified version of the pattern used to run the stove plate in Fig. 14. HOA 24, W/OA 26. MRF S-7695.

While no complete six or ten-plate stoves from Marlboro are known, the plates which either bear the furnace legend or are attributable to Marlboro reveal that Zane relied heavily upon Philadelphia carvers for the patterns for all of his free-standing stoves. Bradford Rauschenberg of the MESDA staff has identified probable English design sources for elements of several of these elegant plates. One example is the central urn on the sideplate for a six-plate stove (Fig. 14), which may well have been adapted from a ceiling design (15a) in Thomas Johnson's popular 1758 untitled collection of Rococo fantasies. The blunt scroll-like lobes of the body of the vase as well as the broken-scrolled handles are certainly allied to the Johnson design. Bearing the legend "ZANE MARLBRO FURNACE" in a ribband, the broken plate illustrated in Fig. 14 was found in a ca. 1795 house near Winchester, along with the side plate from a Marlboro "Wedding" stove. Another plate of identical design (Fig. 15), but run from a pattern which had been modified by cutting away the edge rebates, extending



Figure 15b. A detail from ceiling ornaments illustrated in an untitled collection of Rococo designs published in 1758 by carver Thomas Johnson of London.

the edges, and adding heavy ovolo moldings; it was found in a house on Loudoun Street in Winchester. This interesting conversion of a stove plate pattern to an almost-square Rococo fireback pattern may have been done either at Marlboro or at another furnace which bought Marlboro tools after Zane's death in 1795.

Though no proof has been found, it may well be that the side plates of six-plate stoves were sold for use as firebacks. Two six-plate stove sides in a writhing Chinese Rococo pattern (Fig. 16) were found in Woodstock, Virginia, about thirty miles south of Winchester. While there may be no correlation between these discoveries and an 1801 credit in Jacob Rinker's account of the Zane estate, the entry is nevertheless enticing: "By on [sic] Ton of dis-sorted Castings sent to Woodstock for Sale and for Which I received the money Some time afterwards £18.0.0."⁶² This plate, and two different patterns of rear plates (Figs. 17, 18) used with it, are attributed to Marlboro by virtue of the very formal Rococo design that is so obviously Philadelphia work, and representing the very pinnacle of the city's carving trade at that. The only possible problem with this attribution lies in Zane's pattern inventory, which refers to one "pipe stove" pattern or set of

patterns worth £3, and another which was “plain” and worth only £1.10. Neither Fig. 15 nor Fig. 16 could be considered “plain.” However, no other patterns of this quality are associated with any Virginia furnace other than Marlboro, and it is possible that Zane had sold or discarded a set of six-plate stove patterns before making his inventory. It is interesting to note that a portion of what appears to be a carved fireback pattern (16b) in the collection of the Henry family of Bolton, Pennsylvania can be attributed to the same carver that executed the patterns for the Marlboro-attributed six-plate stove. The Bolton pattern was reputedly part of a number of such implements purchased by William Henry, an eighteenth century gunmaker of some note in Nazareth, from the sale of the effects of Durham Furnace (operating 1727-1789) on the Delaware River nearby.⁶³ This oral history appears to be corroborated by the existence of the side plate of a six-plate stove run from a pattern executed by the same carver. Signed “BACKHOUSE & Co. DURHAM FURNACE,” the plate is in the collection of the Mercer Museum (accession 4190), and is illustrated in Plate 316 of the third edition of *Bible in Iron*; the pattern used for this casting was convertible in that it could be used for making either a six or ten-plate stove side.



Figure 16. The side plate of a six-plate stove, 1768-1790, attributed to Marlboro Furnace. HOA 21 $\frac{1}{8}$, W'OA 27 $\frac{1}{2}$. Private collection.

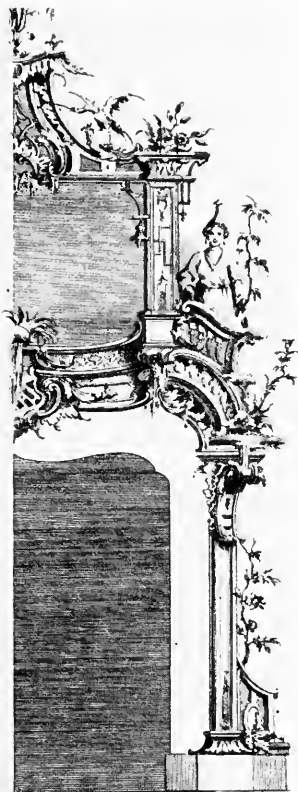


Figure 16a. The elevation for a chimney piece from Lock and Copland's New Book of Ornaments, published in London in 1752 and re-issued in 1768. The Buddha incorporated in this design was adapted for the central figure of the pattern used to cast the stove plate in Fig. 16.

The use by Philadelphia carvers of Lock and Copland's 1752 *New Book of Ornaments*, which was re-issued in 1768 by Robert Sayer of London, is evident in the design of both the side plates and two patterns of end plates for the chinoiserie stove. The familiar figure of Buddha grasping a branch of the Bo tree (Fig. 16) was lifted from Plate 4, an engraved elevation of a fanciful chimney piece (16a). Two patterns of end plates were used with this side plate; an example of the opposite end plate, which would have been fitted with a fire door and probably the furnace legend as well, has not yet been found. One of the end plates for this stove (Fig. 17) has a seated figure playing a flute that was also taken from a Lock and Copland chimney piece design (17a). The



Figure 16b. A portion of a mahogany casting pattern, 1770-1785, possibly for a fireback, said to have been used at Durham Furnace in Pennsylvania; this pattern is attributed to the same carver who executed the pattern for Fig. 16. MRF S-12068.

other end plate (Fig. 18) is also decorated with a flautist and the same scrolled surround, but in this instance the entire image is doubled in a very effective fashion, allowing the scene to be "read" regardless of what end the plate stands upon. No architectural distinction is made between the bases and capitals of any of the columns on these two plates, presumably because of the reversibility of the end plate in Fig. 18. The end plates have the same coved surround as the side plates. Like the side plates and the Fairfax fireback, the patterns for the plates were carved from the solid rather than being composed of appliqués. Both were found in the upper Shenandoah Valley; Fig. 18 was found in Page County, and accompanying this plate were a side plate like that in Fig. 16, along with a top and bottom plate (18a, 18b), all from the same stove.

The style of the scrolls and leafage on another pillared end plate in the Mercer Museum (Fig. 19) reveals the same carving shop which produced the preceding three plate patterns. The size of this plate indicates the probability that it is from a ten-plate stove, and though it has no history, it may be surmised that this plate was indeed from one of Marlboro's patterns. Since the pattern is obviously Philadelphia work, however, it is equally possible that this plate was run at one of the Pennsylvania works such as Durham Furnace.

Like the end plate in Fig. 18, an elaborate stove base (Fig. 20) was also found in Page County, though by a different

individual. The dimensions of this base are appropriate for a stove the size of that represented by the plates in Figs. 16, 17, and 18, and though it cannot be said for certain that the patterns for this base were carved by the same shop as the stove plates, it seems probable that this base indeed was intended for the "Chinese" pattern six-plate stove attributed to Marlboro. It should be noted that the small cove molding surrounding the stove plates was used under the top rail of the base. The "S"-scrolled legs may be an adaptation of one of the published design sources for tea kettle stands. Like other stove bases of the period, the connecting stretcher is wrought iron; the "U"-shaped pieces riveted to each end are also wrought, and are an unusual feature. Like all of the Marlboro stove plates, the uprights of the base were "open" castings; that is, they were run directly in the sand of the furnace casting floor rather than being rammed up in flasks.

Zane's methods of marketing the production of Marlboro followed the standard eighteenth-century business practices of utilizing various factors located in seaport towns, who in addition to supervising the exportation of bar iron and castings, were responsible for seeing that the various staples required by the furnace and its master were shipped to Frederick County. Necessarily, such factors were forced to carry considerable long-term credit due to the lengthy process of shipping goods to Europe and collecting payment. Some of these merchants, such as William Allason of Falmouth, Virginia, pressed Zane so hard for payment that he made frequent reference to ". . . those Vultures . . . that I am too much connected with. . . ." ⁶⁴ Zane's own brother-in-law, John Pemberton, acted as Zane's Philadelphia factor. Pemberton repeatedly pulled Zane out of financial trouble, and remained a steadfast friend all the years that Marlboro was in blast.

The bulk of the cast ware made at Marlboro seems to have either been sold at the site, shipped down the Potomac and Rappahanock Rivers to Alexandria and Falmouth for consignment to British ports, or sent to Philadelphia to the care of Pemberton. Pemberton usually rented a store for the sale of the ware, and placed advertisements in the *Pennsylvania Gazette*:

To be SOLD cheap for cash, by JOHN PEMBERTON,
A FEW TONS OF BAR IRON, and a parcel of neat
CASTINGS, consisting of large, middle sized, and small
kettles; large, middle sized, and small pots; and some bake
plates. . . . ⁶⁵



Figure 17. An end plate for a six-plate stove, attributed to Marlboro Furnace, 1768-1790. This plate is one of two patterns of castings intended for use with the side plate in Fig. 16. HOA 21 $\frac{3}{4}$. W'OA 14 $\frac{3}{8}$. MRF S-10806.

In one such consignment of goods from Marlboro to Pemberton, sent by "the sloop Powtomac, Saml. Sidebotham Mr.," Pemberton conducted a sale of cast ware. During a period of about nine months, he disposed of 10 mortars with pestle, 42 bake plates, 13 small kettles, 73 "midling" kettles, 10 large kettles, 4



Figure 17a. The design source for the flautist on the end plate in Fig. 17, also taken from a chimney-piece design in Lock and Copland's *New Book of Ornaments*.

"midling Potts," 5 large pots, and 2 small pots. The gross was £65.3.4, and after expenses, including £5 rent for the store, the net amounted to £53.18.1.⁶⁶ Bar iron was far more profitable for Zane than castings; in another sale supervised by Pemberton, Zane grossed £191.13.11 on a shipment of bar iron, sold during a three-month period in 1772-3.⁶⁷



Figure 18. A second pattern of end plate designed for use with the side plate in Fig. 16, attributed to Marlboro Furnace, 1768-1790. HOA $21\frac{3}{4}$, W/OA $14\frac{1}{8}$. MRF S-10786.

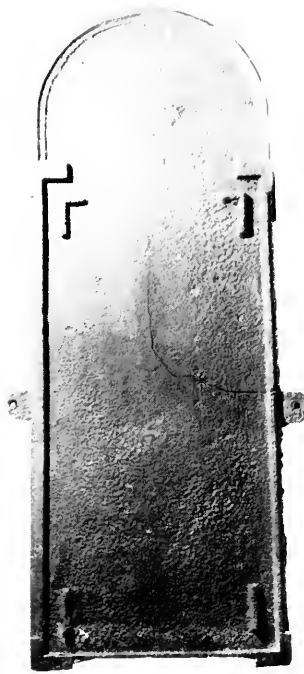


Figure 18a. Found with the end plate in Fig. 18 was a bottom plate for the same stove, measuring $12\frac{3}{4} \times 27\frac{7}{8}$ inside the edge flanges, along with a . . .



Figure 18b. . . . top plate, also from the same stove, measuring $12\frac{7}{8} \times 27\frac{3}{4}$ inside the flanges. Both are attributed to Marlboro Furnace, MRF S-10786.



Figure 19. An end plate, possibly for a ten-plate stove, attributed to Marlboro Furnace, 1768-1790. HOA $25\frac{7}{8}$, W/OA $15\frac{3}{4}$. The pattern for this plate (not existing) is attributed to the same carver who executed the pattern for the side plate in Fig. 16. Courtesy the Mercer Museum, Bucks County Historical Society, accession 12688.

Bar iron from Marlboro was usually consigned to several different merchants in eastern Virginia, who in turn shipped it to English markets. In this sort of trade, Zane was in competition with other Virginia furnaces, such as that of John Semple at Occoquan or James Hunter on the Rappahanock River. Furnaces nearer the Tidewater had the advantage over Zane, since bar iron from Marlboro had to be shipped out of the Valley by wagon to a navigable point on either the Potomac or Rappahannock River. With an annual production of bar iron alone approaching 200 tons,⁶⁸ such drayage was no small problem. Had the Shenandoah River been rendered navigable to its connection with the Potomac, Zane's transportation problems would have been eased. But this was not done during his lifetime.⁶⁹



Figure 20. A stove base attributed to Marlboro Furnace, 1768-1790. HOA 14 $\frac{1}{8}$, DOA 17 $\frac{1}{4}$, LOA 28 $\frac{3}{4}$. The size of this base is appropriate for a stove the size of that represented by the plates in Figs. 16, 17, and 18. MRF S-11049.

Pig iron was seldom exported from Marlboro, although there was at least one interesting exception to this rule: "I sent down some Piggs intending if James Hunter would permit or let his Founder undertake to cast 3 or 4 Hammers for me at his air Furnace I should be glad thou could Learn if he is Willing. . . ."⁷⁰ Allason, to whom the iron had been sent, finally purchased the hammers in Philadelphia, since Hunter evidently could not supply them. Zane placed this order in 1769, well before the new ore

beds were opened and the second furnace put into blast; it is probable that iron from the earlier beds was not malleable enough to withstand the impact of a five-hundred pound forge hammer striking the anvil or even white-hot metal. It is interesting to note that although Zane was no longer a member of any Quaker meeting, he retained the formal use of "thou" in this correspondence.

At the end of the Revolutionary War, Zane, facing a heavily inflated economy, losses on wartime production, and his past debts including the more recent £2,000 expenditure for the Byrd library, decided that it would be expedient to consider the sale of the Marlboro works and the surrounding tracts. He turned to several respected merchant friends in Philadelphia for advice; one of these men, Henry Drinker, wrote pessimistically that "Purchasers for an Estate of this Sort & so considerably in Value, I believe are rarely to be met with. . . ." Drinker also noted that he had been considering "the Value of the Works &c." and that the sum of £20,000 for the works and 10,000 acres of land seemed reasonable. Drinker advised Zane to make a "complete plot or plan" of the estate "on a pretty large Scale," and that it should "contain a View of the various Buildings, their Dimensions, the Waters. . . ." ⁷¹ A manuscript map nearly answering these specifications (Fig. 4) is in the Gratz Collection at the Historical Society of Pennsylvania.

Although production continued at Marlboro, Zane was neither able to decrease his debts nor find a willing buyer for the property. Consequently, in 1790 John Pemberton once again came to Zane's financial rescue, accepting a mortgage on Zane's properties. Zane's debt by this time amounted to nearly £20,000, and he owned almost 35,000 acres in Frederick and "Shannadoe" Counties, ⁷² not including the "bloomery" lands in Hampshire County, now in the state of West Virginia. All during this period Zane attempted to find a purchaser, hopefully someone prepared to make ". . . payment of one-third of the purchase money." This purchaser would be offered "considerable credit for the remainder, provided satisfactory security be given. . . ." ⁷³ Zane had evidently settled upon Drinker's suggestion of £20,000 sale price for the works and immediately adjoining land shown in Zane's plat (Fig. 4). The 7,900 acres comprising "Marlbro Old Furnace" lands evidently was something of an albatross to Zane; he repeatedly inquired through Pemberton whether the Potts family would repurchase the property, presumably to expel Zane's

debt to them.

Although Zane remained active in politics after the Revolution, retaining his seat in the Virginia Assembly in Richmond, his health began to fail. Zane no longer had the driving energy required to supervise such an exacting operation. Early in 1795, after returning from Assembly at Richmond, Zane wrote his sister Sarah that he had not “. . . been out of Bed any length of time or been down Stairs—I am now so reduced that [I am] not able to stand 3 minutes at one time, in fact am but a moving skeleton. . . .”⁷⁴ By June of the same year, the ironmaster’s health had deteriorated considerably further. He wrote Sarah that he found himself “. . . in such excruciating pain as to disable me [from writing]. . . .” The letter, which is in a different hand, notes that

Some days past I have had carefull & proper persons taking an acct. & valuation of my moveable property here for the purpose of preventing underselling & knowing the cost thereof as well to lessen the trouble of those that should follow me . . . I have made shift to have a New Will wrote. . . .⁷⁵

Zane held on until August, evidently battling some form of cancer, judging from John Croudson’s description of “the Lump in his side” to Sally Zane. By this time, Croudson noted, Zane’s “. . . ideas are so much scattered that he cannot express himself only in very short & disjointed sentences. . . .” Zane’s “neighbors & friends” were “almost constantly with him.”⁷⁶

In his will, Zane left his mistress Elizabeth McFarlane five hundred dollars, 297 acres of land in Shenandoah County, the “. . . Best bed and furniture her Choice of a Chest of Drawers . . .” and “all such plate in my Possession as is Marked with her Cypher also a silver cream Jugg and Sugar Tongs the Gold Watch and all wearing apparel heretofore given her and her Choice of my Cows. . . .” Young Isaac, Jr., their illegitimate son, was left an annuity of \$300, to be paid “in Advance” from a legacy of \$3,000, the total of which was due the day the boy came of age. Zane left small stipends to several of his friends, including ten guineas to both Thomas Jefferson and James Madison “to purchase a Memorial of our long and Mutual friendship. . . .” The balance of the estate was to go to his sisters Sarah

Zane and Hannah Pemberton. Zane owned twenty-one slaves valued at £859; his will specified that all the adolescents be manumitted.⁷⁷ The will was proved 2 September 1795.

Sarah Zane was the member of the family closest to her brother, and to her fell the bulk of the tedious job of settling the complex estate. Two vendues were held in the winter and spring of 1795-1796 to sell off the personal effects which were left; the sales were managed by Jacob Rinker of Woodstock, one of the executors. Rinker kept the Marlboro books for Sarah Zane over the succeeding years, compiling a lengthy record of small parcels of land being sold to various local people, such as one James Bean, who had at last purchased "the old Furnace place."⁷⁸ At the time of Zane's death, a friend noted that "The Iron works, Forge and Furnace, are . . . completely out of repair . . ." and that they could not be "rented to advantage."⁷⁹ Sarah Zane made repeated attempts to sell the works over the following twenty years, advertising in various newspapers including German-language tabloids, but she never received an application from anyone who was interested in operating the works. Rinker continued to parcel off the extensive lands on credit; it was not until 1812 that all claims against Zane's estate were settled.

As Zane's great estate began to crumble, so did the presence of the Zane family in Virginia. Zane's son, Isaac, Jr. died in 1799, owning only a few books and the "22 Inch Celstial & ditto Terrestrial Globes" of his father's which he had managed to purchase at one of the vendues. Sarah Zane remained in Philadelphia in her father's house "nearly opposite The Presidents [on] Market Street . . ."⁸⁰ and quietly lived out her genteel spinsterhood.

Though Zane's second furnace was never put in blast again after his death, "Marlbro Old Furnace," as Zane called it, ironically became an operating furnace once again by the early nineteenth century. The site is known today as the "Taylor Furnace" by Frederick County residents and must have been sold to the Taylors by James Bean, who had purchased the site from Zane's estate. A small ca. 1820 ten-plate stove in the collection of Old Salem, Inc. is marked "A.P. TAYLOR FREDERICK," providing an interesting clue to students of early iron who might care to continue this research. The surviving furnace stack (Fig. 5) no doubt was extensively rebuilt by Taylor; its brick-lined bosh and throat is still in good order. About sixty yards east of the furnace is a smaller stack and foundation, possibly the remains of a chafery.

Large quantities of slag and vitrified limestone cover the site, providing something of the impression of industrial filth that an early visitor would have seen at such a furnace.

Isaac Zane was an industriously complex gentleman who certainly made an impact upon his world. He was a man of many parts; his conservative mercantile background, coupled with the intellectual interests shared with his urbane Virginia friends, enabled him to become a relatively successful industrialist. Zane's interests were as complex as his business and estate; he was well read, he enjoyed philosophical pursuits, he was active in the affairs of his country, even to the point of his own financial detriment, and he found pleasure in surrounding himself with fine things. His refined tastes brought to the products of rural Marlboro Furnace a surprising degree of sophistication, and his achievements were the mark of a man quite obviously filled with the zest of living. A Richmond newspaper, shortly after his death, observed that Zane was an "agreeable, edifying, and entertaining" individual, and that "by his death" the country had "sustained a very considerable loss."⁸¹

FOOTNOTES

1. Robert G. Albion and Leonidas Dodson, eds., *Philip Vickers Fithian Journal, 1775-1776* (Princeton, 1934), pp. 14-15 (hereafter cited as *Fithian*).
2. Isaac Zane broadside "To be Sold or Rented, etc.," 4 March 1791. *Coates and Reynell Papers, 1702-1847* (MSS), Historical Society of Pennsylvania, Philadelphia (hereafter cited as *C and R Papers*, HSP). This very large collection consists of miscellaneous loose papers.
3. *Ibid.*
4. *Pennsylvania Gazette*, 25 June 1767, No. 2009 (Supplement).
5. Roger W. Moss, Jr., "Isaac Zane, Jr., A 'Quaker for the Times,'" *The Virginia Magazine of History and Biography*, Vol. 77, No. 3, July 1769, pp. 291-306. This article is a finely-researched and comprehensive biography of Zane. Hereafter cited as *Moss*.
6. *Moss*, p. 293; *Richmond & Manchester Advertiser*, 29 August 1795.
7. *Moss*, p. 294; Correspondence, *C and R Papers*, HSP; Frederick County, Virginia, *Deed Books*.
8. Isaac Zane to John Pemberton, undated letter of the early 1770's. *C and R Papers*, HSP; "Money Owing By Isaac Zane, junr.," undated manuscript in the *Pemberton Papers*, HSP.
9. Frederick County, Virginia, *Deed Book 13, 1769-1770*, pp. 289-294, 16 May 1767.
10. *Ibid.*, pp. 332-336, 13 July 1768.
11. Unidentified newspaper clipping, Sarah Zane advertisement "To be Sold, etc." dated 11 July 1796. *C and R Papers*, HSP.
12. Frederick County, Virginia, *Deed Book 13, 1769-1770*, pp. 332-336, 13 July 1768.
13. Zane broadside, 1791. *C and R Papers*, HSP.
14. Zane to J. Pemberton, 7 November 1775: ". . . the furnace shaft gave way being rotten it belong'd to the old Furnace." This "shaft" was more than likely a water-driven wooden line shaft used to drive ancillary machinery. *C and R Papers*, HSP.
15. Zane to Pemberton, 10 December 1772. *C and R Papers*, HSP.
16. Frederick County, Virginia, *Deed Book 13, 1769-1770*, pp. 289-294; Frederick County, Virginia, *Order Book 13, 1765-1767*, p. 293, 5 March 1767.
17. Zane to Pemberton, 6 September 1772. *C and R Papers*, HSP.
18. Sarah Zane to Pemberton, 5 September 1772. *C and R Papers*, HSP.
19. Sarah Zane to Pemberton, 19 September 1772. *C and R Papers*, HSP.
20. Zane to Pemberton, 4 November 1772. *C and R Papers*, HSP.
21. Sarah Zane to Pemberton, 11 June 1773. *C and R Papers*, HSP; *Jefferson's Notes, on the State of Virginia, etc.* (Baltimore: W. Pechin, 1800), p. 28.

22. Production figures from early American furnaces indicate the following statistics as something of a norm: 130 bushels of charcoal were required to smelt a ton of *ore*, which in turn yielded about 700 pounds of cast iron. A cord of wood yielded about 40 bushels of charcoal, and a dense acre of hardwoods contained about 20 cords. Since 3 to 4 cords were expended per ton of ore, a furnace easily burned an acre of woodlot each twenty-four hours of blast.
23. *Virginia Centinel; or the Winchester Mercury*, 22 July 1789.
24. *Dunlap's Maryland Gazette; or the Baltimore General Advertiser*, 30 July 1776.
25. Zane broadside, 1791. *C and R Papers*, HSP.
26. Zane to I. Zane, Sr., 11 October 1769. *C and R Papers*, HSP.
27. Zane's 1794-1795 inventory of Marlboro. *C and R Papers*, HSP.
28. Zane broadside, 1791. *C and R Papers*, HSP.
29. I. Zane, Sr., to Pemberton, 5 July 1773. *C and R Papers*, HSP.
30. *The Papers of Thomas Jefferson*, ed. Julian P. Boyd, 17 vols. (Princeton: Princeton University Press, 1950), p. 347ff.
31. *C and R Papers*, HSP.
32. *Fithian*, pp. 14-15.
33. Randolph bill to Isaac Zane, Sr., 1768-1769. *C and R Papers*, HSP.
34. William M. Horner, Jr., *Blue Book of Philadelphia Furniture*, Philadelphia, 1935. Zane had prepared an inventory of his own estate a few months before his death "for the purpose of preventing underselling and knowing the cost thereof as well to lessen the trouble of those that should follow me." (Zane to Sarah Zane, 26 June 1795, *C and R Papers*, HSP.) This inventory (*C and R Papers*) is somewhat more thorough than the one compiled by the executors (Frederick County, Virginia, *Will Book I*), since Zane knew, in many cases, what he had paid for items. Therefore, Zane's inventory in the *C and R Papers* is used unless otherwise noted.
35. Frederick County, Virginia, *Superior Court, Will Book I*, pp. 224-305; Zane inventory, *C and R Papers*, HSP.
36. *The Virginia Gazette*, Dixon and Hunter, 19 December 1777.
37. Sarah Zane to Pemberton, *C and R Papers*, HSP.
38. *The Virginia Gazette*, Rind, 15 April 1773; *Moss*, p. 298.
39. *Fithian*, pp. 14-15.
40. Zane to George Rootes, 6 May 1775. *C and R Papers*, HSP.
41. Zane to Pemberton, 29 May 1775. *C and R Papers*, HSP.
42. *Fithian*. Zane owned land in both Frederick and Shenandoah Counties, qualifying him for militia service in either county; *Moss*, p. 304; *The Virginia Gazette & Richmond and Manchester Advertiser*, 21 April 1794.
43. *Moss*, p. 304.
44. *Moss*, pp. 300-310; Frederick Morton, *The Story of Winchester in Virginia* (Strasburg, Virginia: Shenandoah Publishing House, 1925), pp. 90-91. Most of the information regarding the exiles has been taken by various authors from Thomas Gilpin's *Exiles in Virginia*, published in Philadelphia in 1848. Gilpin was one of the exiles himself.

45. Zane's inventory of Marlboro. *C and R Papers*, HSP.
46. "Sales of Iron Ware An Account of Isaac Zane Junr. etc.," 1771. *C and R Papers*, HSP.
47. *Ibid.*
48. The "wallowers" may have either been the crank itself or parts of the internal cage which the wooden vanes were attached to.
49. Correspondence, *C and R Papers*, HSP.
50. *Ibid.*
51. The Moravians in Salem understood well enough that their English ". . . neighbors prefer[red] a fireplace to the stove in our public room [of the Tavern]. . . ." In this instance, order was given for the stove to be ". . . removed and the fireplace be reopened." (*Minutes of the Aufseher Collegium*, Moravian Archives, Winston-Salem, N.C.).
52. Inventories in the Moravian Archives indicate that this was common practice in the Moravian settlements in North Carolina.
53. Henry C. Mercer, *The Bible in Iron*, third edition (Doylestown, The Bucks County Historical Society, 1961), pp. 241-242, plate 336. Hereinafter cited as *Mercer*.
54. Zane's inventory and memorandums. *C and R Papers*, HSP. My thanks go to Mr. Harold Gill for the information linking Calhoun with Westham Foundry.
55. *Mercer*, pp. 202-203. On most five and six-plate stoves, both side plates are the same design, but they are not interchangeable on five-plate stoves due to the flanged section at the rear of the plate, which is mortared over in installation. (See Fig. 12b.)
56. *Mercer*, p. 203.
57. *Mercer*, p. 204.
58. *Pennsylvania Gazette*, 6 January 1763; an extensive study of the work of Bernard & Jugiez by MESDA staff member Luke Beckerdite is planned for publication in the September, 1985 issue of *The Magazine Antiques*.
59. Zane to John Pemberton, 25 March 1776. *C and R Papers*, HSP.
60. Michael W. Berry, "The Design Source for the Fairfax Fireback," unpublished manuscript of 1984.
61. Frederick County, Virginia *Will Book 4*, p. 583; G. M. Moore, *Seaport in Virginia: George Washington's Alexandria* (Richmond: Garret and Massie, 1949), pp. 77-80; Charles Cambell, *History of the Colony and Ancient Dominion of Virginia* (Philadelphia: J. B. Lippincott & Co., 1860), pp. 457-459.
62. "Dr. the Estate of Isaac Zane . . . in Account with Jacob Rinker one of the Executots," *C and R Papers*, HSP.
63. This pattern was examined by the author in 1980, and the family oral history was obtained at the same time.
64. Zane to Pemberton, undated, *C and R Papers*, HSP.
65. *Moss*, p. 296 (*Moss* reveals that Marlboro iron was shipped to Bristol, London, and Glasgow); *Pennsylvania Gazette*, 5 April 1770.

66. "Sales of Ironware An Account of Isaac Zane junr. . . ." *C and R Papers*, HSP.
67. Correspondence, *C and R Papers*, HSP.
68. Zane to Pemberton, 29 July 1775. *C and R Papers*, HSP.
69. Newspaper clipping, the source unidentified, Sarah Zane advertisement "To be Sold, etc.," dated 11 July 1796. *C and R Papers*, HSP.
70. Zane to William Allason, 23 January 1769. *William Allason Papers*, Virginia State Library.
71. Henry Drinker to Zane, 20 August 1783. *Henry S. Drinker Papers*, HSP.
72. Mortgage paper to Pemberton, *C and R Papers*, HSP.
73. Zane broadside, 1791. *C and R Papers*, HSP.
74. Zane to Sarah Zane, 31 January 1795. *C and R Papers*, HSP.
75. Zane to Sarah Zane, 26 June 1795. *C and R Papers*, HSP.
76. John Croudson to Sarah Zane, 1 August 1795. *C and R Papers*, HSP.
77. Frederick County, Virginia *Superior Court Will Book I*, p. 199ff.; *Ibid.*, pp. 224-247 (the court-ordered inventory).
78. "Dr. the Estate of Isaac Zane . . . in Account with Jacob Rinker . . .," *C and R Papers*, HSP.
79. Alexander White (one of the executors) to Sarah Zane, 12 September 1795. *C and R Papers*, HSP.
80. *Winchester Gazette*, 24 April 1799; Zane to Sarah Zane, 26 June 1795, *C and R Papers*, HSP.
81. *The Richmond and Manchester Advertiser*, 29 August 1795.

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