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VLR 05/18/1982
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83-74

United States Department of the Interior
Heritage Conservation and Recreation Service

National Register of Historic Places
Inventory—Nomination Form

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See Instructions in How to Complete National Register Forms
Type all entries—complete applicable sections

1. Name

historic Tubal Furnace

and/or common Tubal Furnace Archaeological Site (Preferred)

2. Location

street & number [redacted] not for publication

city, town Chancellor vicinity of 7th congressional district(J. Kenneth Robinson)

state Virginia code 51 county Spotsylvania code 177

3. Classification

Category	Ownership	Status	Present Use	
<input type="checkbox"/> district	<input type="checkbox"/> public	<input type="checkbox"/> occupied	<input checked="" type="checkbox"/> agriculture	<input type="checkbox"/> museum
<input type="checkbox"/> building(s)	<input checked="" type="checkbox"/> private	<input checked="" type="checkbox"/> unoccupied	<input type="checkbox"/> commercial	<input type="checkbox"/> park
<input type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational	<input type="checkbox"/> private residence
<input checked="" type="checkbox"/> site	Public Acquisition	Accessible	<input type="checkbox"/> entertainment	<input type="checkbox"/> religious
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input type="checkbox"/> yes: restricted	<input type="checkbox"/> government	<input type="checkbox"/> scientific
	<input type="checkbox"/> being considered	<input checked="" type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial	<input type="checkbox"/> transportation
	N/A	<input type="checkbox"/> no	<input type="checkbox"/> military	<input type="checkbox"/> other:

4. Owner of Property

name C. Lacy Compton, Tr. ETA 1
c/o McDiarmid Associates
street & number 390 Maple Avenue, East

city, town Vienna vicinity of N/A state Virginia 22180

5. Location of Legal Description

courthouse, registry of deeds, etc. Spotsylvania Courthouse

street & number N/A

city, town Spotsylvania state Virginia 22553

6. Representation in Existing Surveys

VRCA Site Survey Forms 44SP12 &
title 44SP61 has this property been determined eligible? yes no

date December 6, 1977 federal state county local
Virginia Historic Landmarks Commission's Center for Archaeology
depository for survey records Wren Kitchen, The College of William and Mary

city, town Williamsburg state Virginia 23186

7. Description

Condition		Check one	Check one
<input checked="" type="checkbox"/> excellent	<input type="checkbox"/> deteriorated	<input checked="" type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site
<input type="checkbox"/> good	<input checked="" type="checkbox"/> ruins	<input type="checkbox"/> altered	<input type="checkbox"/> moved
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed		date _____ N/A _____

Describe the present and original (if known) physical appearance

SUMMARY DESCRIPTION

The Tubal Furnace Archaeological Site in Spotsylvania County is situated at the base of a narrow, heavily wooded hollow, approximately [REDACTED] the Rappahannock River. The furnace base, which measures twenty feet square and fifteen feet in height, is obscured by dense underbrush (Photo 1). The nominated acreage, which lies between an abandoned portion of [REDACTED] to the west, and [REDACTED] to the east, is expected to encompass Tubal Furnace's principal ore-processing area and related facilities.

DETAILED ANALYSIS

The Tubal Furnace Archaeological Site was surveyed by Ned Heite of the Virginia Historic Landmarks Commission in 1968, at which time it was designated 44SP12 in the state's inventory of archaeological sites. Heite reported that a member of the Archaeological Society of Virginia and two college students from California had done limited testing at the site. In 1977 the site was visited by a staff archaeologist during a survey of the Upper Rappahannock River. He noted that slag was visible on the surface of the site and that it extended eastward across the stream.

In 1981 a more comprehensive Virginia Historic Landmarks Commission survey determined the dimensions of the furnace site and assessed its condition. The furnace is built into the western slope of a hollow. The eastern and southern sides of the furnace were visible, and the presence of a tuyere hole was noted (Photo 2). The tuyere, which provided blast for the furnace, consisted of an open brick arch, three feet high and four feet wide, lying ten feet above the furnace base. Brick fragments, shell, and ash were observed scattered over the surface of the site, which contained no other visible artifactual material. Although no traces of a dam or race were visible, the extent of drop between the furnace and the confluence of the Rappahannock River and its tributary about two hundred yards to the south of the tuyere make it likely that any features associated with the utilization of waterpower for the furnace are contained within the acreage nominated. Heavy overgrowth impeded site visibility.

Approximately 100 to 150 yards west of the furnace are the remains of a Civil War trench line, running on a north-south axis along the crest of the ridge above the furnace. Two earthworks, a triangular fortification facing east and an artillery bastion one hundred yards to the south of the furnace and fort, are included in the nominated acreage and have been designated 44SP61.

HF

8. Significance

Period	Areas of Significance—Check and justify below				
<input type="checkbox"/> prehistoric	<input type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion	
<input type="checkbox"/> 1400-1499	<input checked="" type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science	
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture	
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input checked="" type="checkbox"/> military	<input type="checkbox"/> social/	
<input checked="" type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> humanitarian	
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> theater	
<input type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input checked="" type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input type="checkbox"/> transportation	
		<input type="checkbox"/> invention		<input type="checkbox"/> other (specify)	

Specific dates ca. 1717

Builder/Architect Alexander Spotswood

Statement of Significance (in one paragraph)

STATEMENT OF SIGNIFICANCE¹

The Tubal Furnace Archaeological Site in Spotsylvania County, Virginia, constructed ca. 1717 under the direction of Lt. Gov. Alexander Spotswood, is the earliest dated, archaeologically identified iron furnace in Virginia. Styled by his contemporaries as the Tubal-Caine of Virginia, Spotswood operated his furnace with the labor of skilled Negro slaves, a pioneering enterprise in the use of slave labor in technological industry that was continued by Spotswood's descendants for two generations. Scientific excavation of this industrial complex could yield previously unavailable research data on early 18th-century iron manufacturing technology. Tubal Furnace was also the site of Union entrenchments during the Civil War.

HISTORICAL BACKGROUND

Shortly after his arrival in Virginia in June 1710, Lt. Gov. Alexander Spotswood perceived that the colony had a valuable natural resource for development in its rich deposits of iron ore. However, an apparently apathetic House of Burgesses took no action on his proposal that iron mining be pursued as a public enterprise and that the profits of the industry be used to defray the cost of government. Spotswood's appeal to the Board of Trade in London for financing in 1711 also met with lack of success due to efforts there to protect England's iron manufacturing industry from less-expensive competition from the colonies. Spotswood's interest in mining did not wane, however. In June 1713 he wrote to his English agent, Colonel Blakiston, that a major iron deposit had been discovered and that he and several others were involved in the enterprise. He urged Blakiston to obtain a land grant for them quickly.¹ While Spotswood apparently arranged with the Baron DeGraffenreid to send a number of German miners to America at Spotswood's expense, Spotswood represented to the Lords of Trade in July 1714 that he had received twelve immigrant families from Siegen (Westphalia), Germany, who had been abandoned by DeGraffenreid and that he had settled them in a fort where, he alleged, they would serve as a barrier against the hostile Indians along the colony's northwestern frontier. Spotswood claimed that, fortuitously, the Germans were experienced miners and that he had seated them upon land containing minerals including silver, a so-called royal metal.²

Following Queen Anne's death Spotswood pressed his case with King George, emphasizing the common ethnic bond of the Hanoverian monarch and the miners as well as the king's awareness, as a German, of the value of mining on the European continent. He requested permission to put the miners to work at once and expressed his hope that more German miners would come to Virginia, encouraged by the good circumstances of the first arrivals. In fact, the accommodations provided by Spotswood consisted of a few small, squalid houses on the colony's outermost frontier. Moreover, later court records reveal that Spotswood persuaded the Germans to sign articles of indenture when they had little command of the English language. Spotswood prevailed upon the Virginia Assembly to grant the Germans a seven-year exemption from public levies, based upon their usefulness as a protective barrier, thus allowing them to work off their indentures without the encumbrance of taxes.

9. Major Bibliographical References (See Continuation Sheet #5)

- Bruce, Kathleen. Virginia Manufacture in the Slave Era. New York, 1931.
- Byrd, William. "A Progress to the Mines." In The Prose Works of William Byrd of Westover. Edited by L.B. Wright. Cambridge, 1966.
- . The Secret Diary of William Byrd of Westover, 1709-1712. Edited by L.B. Wright and Marion Tinling. Richmond, 1941.

10. Geographical Data

Acree of nominated property 12 acres

Quadrangle name Salem Church, Va.

Quadrangle scale 1:24000

UMT References

A	Zone	Easting	Northing	B	Zone	Easting	Northing
C				D			
E				F			
G				H			

Verbal boundary description and justification

List all states and counties for properties overlapping state or county boundaries

state	N/A	code	county	N/A	code
state	N/A	code	county	N/A	code

11. Form Prepared By

name/title Virginia Historic Landmarks Commission Staff

organization Virginia Historic Landmarks Commission date March 29, 1982

street & number 221 Governor Street telephone (804) 786-3144

city or town Richmond state Virginia 23219

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national state local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the Heritage Conservation and Recreation Service.

State Historic Preservation Officer signature

H. Bryan Mitchell, Executive Director

title Virginia Historic Landmarks Commission date

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I hereby certify that this property is included in the National Register

date

Keeper of the National Register

Attest:

date

Chief of Registration

United States Department of the Interior
Heritage Conservation and Recreation Service

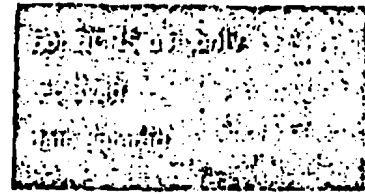
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8. Significance -- Historical Background

However unethical were Spotswood's political machinations in establishing his ironworks, he quickly revealed himself to be a skillful entrepreneur. He rapidly developed an iron manufacturing facility that inspired William Byrd II to call him the "Tubal-Caine of Virginia," a sobriquet based upon Genesis 4:22 in which Tubal-Caine, son of Caine and grandson of Adam and Eve, is named the father of every forger of copper and iron.

Court testimony and the diary of John Fontaine indicate that Spotswood began mining iron in 1716, two years before he received permission to do so, extracting ore from land he did not own. Spotswood secured title to the 3,229-acre Germanna tract in the name of William Robertson, Clerk of the Council, on October 31, 1716. Through Thomas Mones and Robert Beverley in February 1719, he secured a patent to the Mine Tract of 15,000 acres, the land on which Spotswood built his iron furnace. He also obtained an interest in the Wilderness, Fork and Massaponax tracts, most of which lay in newly created Spotsylvania County, where patentees, under a liberalized land policy instituted by Spotswood in 1721, were guaranteed mineral rights to "all Veins, mines and Quarries as well discovered as not discovered."⁴

Spotswood in 1739 wrote that his blast furnace had been in operation with slave labor for twenty years, or since 1719, but it is likely that the furnace was in actual production at least two years earlier with the labor of his indentured servants. William Byrd II reported to the Board of Trade in 1721 that sow and pig iron were being produced at Spotswood's ironworks, and in 1724 Hugh Jones wrote that Spotswood's iron "has been proved to be good, and 'tis thought will come at as cheap a Rate as any imported from other places."⁵ The Board of Trade later learned that Spotswood had "brought his iron works to such perfection that he now sells by public auction at Williamsburgh backs and frames for Chymnies, Potts, doggs, frying, stewing, and baking pans."⁶ This report referred to an air furnace which Spotswood had established at Massaponax Creek on the Rappahannock below Fredericksburg, where pig iron was melted and recast into goods. Spotswood also owned an interest in a blast furnace at Frederickville, twenty-five miles southwest of Fredericksburg. In 1725 the iron mine tract with 6 plantations, horses, the furnace, 154 cattle, and improvements was appraised by county officials at £7,200.

Two mid-18th-century maps depict the locations of Germanna and Tubal Furnace and their relatively close proximity on the Rappahannock River. Peter Jefferson and Robert Brooke's 1747 map of Virginia and the Fry-Jefferson map of 1751 show Tubal and Germanna as well as Massaponax, or Newpost (Figure 1).

In 1732 Spotswood shared with William Byrd II the details of his iron manufacturing operations at Tubal and Massaponax and conducted him on a tour of both facilities.⁷ Although there were iron deposits in several parts of Spotswood's 45,000-acre tract, the mine he worked in 1732 lay thirteen miles below Germanna, one mile from Tubal Furnace, to which ore was transported by ox cart. There, the ore was converted into pig iron and carted fifteen miles to Massaponax for processing into ironware.

Spotswood conducted Byrd from Germanna to his mines over a clean and well-marked road. Enroute, Byrd witnessed the process by which Spotswood's men mined the iron ore. A hole, drilled approximately eighteen inches deep and dried with a probe, was charged

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with a cartridge containing four ounces of powder and priming. The hole was then sealed with soft stone and pierced with a priming iron. Into this smaller hole, a lit paper moistened with saltpeter was dropped, which ignited the powder and blew the ore to the surface.

Byrd wrote that the Tubal Furnace was built of rough stone and that an overshot wheel twenty feet in diameter powered its bellows. Water was conveyed by wooden pipes sixty feet from one small stream and nineteen hundred feet from another to the wheel which operated with little water. Red oak was considered the best wood for coaling. Carts which brought coal to Tubal and discharged it through folding doors in the vehicles' bottom surface could haul 110 bushels of coal per load.

Spotswood indicated that a good furnace could be built for £700. If ore, wood, water, and transportation (via iron-shod wheel carriages and ox teams) were available, success was assured. The work force of an iron plantation would include a founder, mine raiser, collier, stocktaker, clerk, smith, carpenter, wheelwright and several carters, who could be employed for about £500 a year. In an August 1732 letter Spotswood also indicated that he had always had at least one mason among his indentured people to construct and repair the furnace hearths and walls.

According to Governor Gooch, writing to the Board of Trade, there were four iron furnaces in Virginia by 1734: three blast furnaces which produced pig iron and an air furnace which produced a variety of ironware. Gooch noted that boxes for cart wheels were made at the air furnace and marketed throughout the colony and that they were occasionally exported to other parts of America and the British West Indies. Gooch reminded the board that the Act of 1727 precluded persons employed in the iron industry from growing tobacco and assured them that iron manufacturing in Virginia was very unprofitable, an assurance he reiterated to the board five years later.

In 1739, while preparing to leave the colony, Spotswood drafted a lease for his Mine Tract and Tubal Furnace in which he argued the merits of self-sufficiency in an iron plantation. He astutely recognized the dependency of iron manufacturing upon agriculture, which produced food for workers and draft animals alike; upon a dependable source of water; and upon the availability of cheap labor. Spotswood, by utilizing skilled Negro slaves, demonstrated that they could become trained specialists and thus pioneered in the application of slave labor to technological industry. Spotswood's lease indicated that his only hired employees were a founder and general overseer.

Spotswood wrote that he had "culled his estate for all his choice slaves and trained them at considerable expense for 20 years, that he hired no woodcutters, miners, furnace keepers, carters, wheelwrights or smiths."⁸ He claimed to have an inexhaustible supply of wood and ore and an abundance of feed for slaves and cattle, and that his woodmen cut all the timber used in manufacturing. Spotswood noted that his slaves "make their own cabins or Habitations in the woods without one farthing of expense to me"⁹ and that even the hides used to make their shoes came from cattle slaughtered on the plantation. Corn for the slaves' food was ground at a grist mill run by slave labor, also on the iron mine plantation. Spotswood concluded by stating that with the exception of the founder and overseer,

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"the whole of my ironworks is carried on by slaves who have no wages and who will always be more subservient and observant of Orders than Freemen in this country will be."¹⁰

Spotswood's mine tract lease offered tenure of 23,000 acres with a grist mill, plantation buildings, and the Tubal Furnace, as well as 100 acres, the iron yard, carriages, the carter's house, an ox house, and a wharf at Massaponax (Newpost). Mention was also made of a 24-stall ox house located at Tubal. Spotswood offered to the lessee 60 male and female slaves currently working on his mine tract, plus 12 to 15 slave children, 400 head of draft oxen or bulls broken to the yoke, and 160 head of cattle. He included use of fully equipped iron-shod tumbills, coal carts and hay wagons, and working cattle, plus all the charcoal and cordwood on hand as of November 1, 1739. As rent, Spotswood expected an annual payment of £500 sterling and twenty tons of pig iron. At the termination of the lease, all of the land, slaves, and facilities were to be returned to him in an equal condition to when they were leased.

Less than a year after Spotswood proposed leasing his mine tract and his house at Germanna, he was called to military service in Cartagena. A month before departing he made his will, entailing his lands to his eldest son, John. Under the terms of the will, the mine tract could be leased for twenty-one-year intervals but not sold. Its land and equipment were to be retained intact, and eighty adult slaves and twenty slave children were to be maintained on the mine tract. Enroute to his military assignment, Spotswood died in April 1740 at Annapolis, Maryland. His eldest son, John, a minor, inherited the mine tract which stayed in the Spotswood family for two generations. Mining operations at Tubal apparently ceased at the outset of the 19th century. Whether the cause of this decline was poor financial management or a lack of ore is unknown.

Later in the 19th century, Civil War fortifications were built adjacent to Tubal Furnace. During the Battle of the Wilderness, on May 2, 3, and 4, 1864, Union troops constructed entrenchments, including an artillery bastion and a triangular earthworks near the furnace site, all of which are included in the nominated acreage. An 1864 map by Confederate cartographer Jed Hotchkiss shows these earthworks but does not depict the furnace. Modern U.S.G.S. topographic maps depict and label the furnace site as Spotswood's Furnace ruins.

The Tubal Furnace Archaeological Site is thus significant as the site of both the oldest archaeologically identified blast furnace in Virginia and the first financially successful iron manufacturing facility in America. It may well have been the most technologically advanced iron furnace of its day. Because the site of Spotswood's Massaponax air furnace has been destroyed by modern construction, the Tubal Furnace is the only surviving remnant of Spotswood's industrial enterprise. Archaeological research at Tubal Furnace could shed much light on early 18th-century manufacturing technology. One of only three iron furnaces of its era that survive in Virginia, it was the first one capable of achieving the higher temperatures required for extracting iron from hematite ore, as opposed to limonite ore, or bog iron, previously used in American furnaces. Parallel archaeological research could be conducted at the site of Germanna, where Spotswood's German miners lived, and at the Tubal Furnace site, where they worked. Comparative archaeological research could also be performed at the Accotek furnace site in Stafford County, Virginia.

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8. Significance -- Historical Background (Footnotes)

¹Alexander Spotswood, The Official Letters of Alexander Spotswood, ed. R.A. Brock (Richmond, 1882), I, p. 281.

²Ibid., II, p. 66.

³John Fontaine, The Journal of John Fontaine, 1710-1719, ed. E.P. Alexander (Charlottesville, 1972), p. 102.

⁴Nell M. Nugent, Cavaliers and Pioneers: Abstracts of Virginia Land Patents and Grants (Richmond, 1979), III, p. 295.

⁵Hugh Jones, "The Present State of Virginia," in Leonidas Dodson, Alexander Spotswood, Governor of Colonial Virginia, 1710-1722 (Philadelphia, 1932), p. 296.

⁶Ibid., p. 296.

⁷William Byrd, II, Progress to the Mines in the Year 1732, in W.W. Scott, A History of Orange County, Virginia (Richmond, 1907), pp. 89-94.

⁸Alexander Spotswood, Ironworks at Tuball: Terms and Conditions for the Lease, ed. L.J. Capon (Charlottesville, 1945), Item 11.

⁹Ibid., Item 11.

¹⁰Ibid., Item 11.

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9. Bibliographical References

- Dodson, Leonidas. Alexander Spotswood, Governor of Colonial Virginia, 1710-1712. Philadelphia, 1932.
- Harrison, Fairfax. Landmarks of Old Prince William. Berryville, Va., 1964.
- Jefferson, Peter, and Brooke, Robert. "Map of the Northern Neck of Virginia," 1736-1746.
- Nugent, Nell M. Cavaliers and Pioneers: Abstracts of Virginia Land Patents and Grants. Vol. III. Richmond, 1979.
- Rose, Robert. The Diary of Robert Rose. Edited by Ralph E. Fall. Vienna, Va., 1977.
- Spotswood, Alexander. The Official Letters of Alexander Spotswood. Edited by R.A. Brock. Richmond, 1882.
- . Ironworks at Tubal: Terms and Conditions for their Lease as stated by Alexander Spotswood. Edited by L.J. Capon. Charlottesville, 1945.
- Williamsburg, Va. Virginia Historic Landmarks Commission's Center for Archaeology Archives. Alexander Spotswood Letter to Charles Carroll, Esq., Annapolis, Md. (Facsimile.)
- Scott, W.W. A History of Orange County, Virginia. Richmond, 1907.