



Phase II and Phase III Archaeological Database and Inventory

Site Number: 18FR29

Site Name: Catocin Furnace

Prehistoric

Other name(s)

Historic

Unknown

Brief Description:

late 18th-early 20th century iron furnace complex

Site Location and Environmental Data:

Maryland Archaeological Research Unit No. 17

SCS soil & sediment code Ma

Latitude 39.5753

Longitude -77.4393

Physiographic province Blue Ridge

Terrestrial site

Underwater site

Elevation 146 m

Site slope

Ethnobotany profile available

Maritime site

Site setting

-Site Setting restricted

-Lat/Long accurate to within 1 sq. mile, user may need to make slight adjustments in mapping to account for sites near state/county lines or streams

Topography

- Floodplain
- Hilltop/bluff
- Interior flat
- Upland flat
- Ridgetop
- Terrace
- Low terrace
- High terrace
- Rockshelter/cave
- Hillslope
- Unknown
- Other

Ownership

- Private
- Federal
- State of MD
- Regional/county/city
- Unknown

Nearest Surface Water

Name (if any) Little Hunting Creek

Saltwater

Ocean

Estuary/tidal river

Tidewater/marsh

Spring

Freshwater

Stream/river

Swamp

Lake or pond

Spring

Minimum distance to water is 240 m

Temporal & Ethnic Contextual Data:

Paleoindian site

Woodland site

Contact period site

ca. 1820 - 1860

Y

Archaic site

MD Adena

ca. 1630 - 1675

ca. 1860 - 1900

Y

Early archaic

Early woodland

ca. 1675 - 1720

ca. 1900 - 1930

Y

Middle archaic

Mid. woodland

ca. 1720 - 1780

Post 1930

Late archaic

Late woodland

ca. 1780 - 1820

Y

Unknown historic context

Unknown prehistoric context

Unknown context

Ethnic Associations (historic only)

Native American

Asian American

African American

Unknown

Anglo-American

Other

Hispanic

Y

Y=Confirmed, P=Possible

Site Function Contextual Data:

Prehistoric

- Multi-component
- Village
- Hamlet
- Base camp
- Rockshelter/cave
- Earthen mound
- Cairn
- Burial area
- Misc. ceremonial
- Rock art
- Shell midden
- STU/lithic scatter
- Quarry/extraction
- Fish weir
- Production area
- Unknown
- Other context

Historic

Urban/Rural? Rural

Domestic

- Homestead
- Farmstead
- Mansion
- Plantation
- Row/townhome
- Cellar
- Privy

Industrial

- Mining-related
- Quarry-related
- Mill
- Black/metalsmith
- Furnace/forge
- Other
- iron furnace
- Transportation
- Canal-related
- Road/railroad
- Wharf/landing
- Maritime-related
- Bridge
- Ford
- Educational
- Commercial
- Trading post
- Store
- Tavern/inn

Military

Battlefield

Fortification

Encampment

Townsite

Church/mtg house

Ch support bldg

Burial area

Cemetery

Sepulchre

Isolated burial

Bldg or foundation

Possible Structure

Post-in-ground

Frame-built

Masonry

Other structure

Slave related

Non-domestic agri

Recreational

Midden/dump

Artifact scatter

Spring or well

Unknown

Other context

Interpretive Sampling Data:

Prehistoric context samples

Soil samples taken

Flotation samples taken

Other samples taken

Historic context samples

Soil samples taken

N

Flotation samples taken

N

Other samples taken



Phase II and Phase III Archaeological Database and Inventory

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late 18th-early 20th century iron furnace complex

Diagnostic Artifact Data:

Projectile Point Types		Koens-Crispin	
Clovis	<input type="checkbox"/>	Perkiomen	<input type="checkbox"/>
Hardaway-Dalton	<input type="checkbox"/>	Susquehana	<input type="checkbox"/>
Palmer	<input type="checkbox"/>	Vernon	<input type="checkbox"/>
Kirk (notch)	<input type="checkbox"/>	Piscataway	<input type="checkbox"/>
Kirk (stem)	<input type="checkbox"/>	Calvert	<input type="checkbox"/>
Le Croy	<input type="checkbox"/>	Selby Bay	<input type="checkbox"/>
Morrow Mntn	<input type="checkbox"/>	Jacks Rf (notch)	<input type="checkbox"/>
Guilford	<input type="checkbox"/>	Jacks Rf (pent)	<input type="checkbox"/>
Brewerton	<input type="checkbox"/>	Madison/Potomac	<input type="checkbox"/>
Otter Creek	<input type="checkbox"/>	Levanna	<input type="checkbox"/>

Prehistoric Sherd Types

Marcey Creek	<input type="checkbox"/>	Popes Creek	<input type="checkbox"/>	Shepard	<input type="checkbox"/>	Keyser	<input type="checkbox"/>
Dames Qtr	<input type="checkbox"/>	Coulbourn	<input type="checkbox"/>	Townsend	<input type="checkbox"/>	Yeocomico	<input type="checkbox"/>
Selden Island	<input type="checkbox"/>	Watson	<input type="checkbox"/>	Minguannan	<input type="checkbox"/>	Monongahela	<input type="checkbox"/>
Accokeek	<input type="checkbox"/>	Mockley	<input type="checkbox"/>	Sullivan Cove	<input type="checkbox"/>	Susquehannock	<input type="checkbox"/>
Wolfe Neck	<input type="checkbox"/>	Clemson Island	<input type="checkbox"/>	Shenks Ferry	<input type="checkbox"/>		
Vinette	<input type="checkbox"/>	Page	<input type="checkbox"/>	Moyaone	<input type="checkbox"/>		
				Potomac Crk	<input type="checkbox"/>		

Historic Sherd Types

Earthenware		Ironstone	<input type="checkbox"/>	Staffordshire	<input type="checkbox"/>	Stoneware	
Astbury	<input type="checkbox"/>	Jackfield	<input type="checkbox"/>	Tin Glazed	<input type="checkbox"/>	English Brown	<input type="checkbox"/>
Borderware	<input type="checkbox"/>	Mn Mottled	<input type="checkbox"/>	Whiteware	<input type="checkbox"/>	Eng Dry-bodied	<input type="checkbox"/>
Buckley	<input type="checkbox"/>	North Devon	<input type="checkbox"/>	Porcelain	<input type="checkbox"/>	Nottingham	<input type="checkbox"/>
Creamware	<input type="checkbox"/>	Pearlware	<input type="checkbox"/>			Rhenish	<input type="checkbox"/>
						Wt Salt-glazed	<input type="checkbox"/>

All quantities exact or estimated minimal counts

Other Artifact & Feature Types:

Prehistoric Artifacts		Other fired clay	
Flaked stone	<input type="checkbox"/>	Human remain(s)	<input type="checkbox"/>
Ground stone	<input type="checkbox"/>	Modified faunal	<input type="checkbox"/>
Stone bowls	<input type="checkbox"/>	Unmod faunal	<input type="checkbox"/>
Fire-cracked rock	<input type="checkbox"/>	Oyster shell	<input type="checkbox"/>
Other lithics (all)	<input type="checkbox"/>	Floral material	<input type="checkbox"/>
Ceramics (all)	<input type="checkbox"/>	Uncommon Obj.	<input type="checkbox"/>
Rimsherds	<input type="checkbox"/>	Other	<input type="checkbox"/>

Prehistoric Features

Mound(s)	<input type="checkbox"/>	Storage/trash pit	<input type="checkbox"/>
Midden	<input type="checkbox"/>	Burial(s)	<input type="checkbox"/>
Shell midden	<input type="checkbox"/>	Ossuary	<input type="checkbox"/>
Postholes/molds	<input type="checkbox"/>	Unknown	<input type="checkbox"/>
House pattern(s)	<input type="checkbox"/>	Other	<input type="checkbox"/>
Palisade(s)	<input type="checkbox"/>		
Hearth(s)	<input type="checkbox"/>		
Lithic reduc area	<input type="checkbox"/>		

Lithic Material

Fer quartzite	<input type="checkbox"/>	Sil sandstone	<input type="checkbox"/>
Jasper	<input type="checkbox"/>	Chalcedony	<input type="checkbox"/>
Chert	<input type="checkbox"/>	Ironstone	<input type="checkbox"/>
Rhyolite	<input type="checkbox"/>	Argilite	<input type="checkbox"/>
Quartz	<input type="checkbox"/>	Steatite	<input type="checkbox"/>
Quartzite	<input type="checkbox"/>	Sandstone	<input type="checkbox"/>
		European flint	<input type="checkbox"/>
		Basalt	<input type="checkbox"/>
		Unknown	<input type="checkbox"/>
		Other	<input type="checkbox"/>

Dated features present at site

Historic Artifacts		Tobacco related	
Pottery (all)	<input type="checkbox"/>	Activity item(s)	<input type="checkbox"/>
Glass (all)	<input type="checkbox"/>	Human remain(s)	<input type="checkbox"/>
Architectural	<input type="checkbox"/>	Faunal material	<input checked="" type="checkbox"/>
Furniture	<input type="checkbox"/>	Misc. kitchen	<input type="checkbox"/>
Arms	<input type="checkbox"/>	Floral material	<input type="checkbox"/>
Clothing	<input type="checkbox"/>	Misc.	<input type="checkbox"/>
Personal items	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/> slag

Historic Features

Privy/outhouse	<input type="checkbox"/>	Depression/mound	<input type="checkbox"/>	Unknown	<input type="checkbox"/>
Const feature	<input type="checkbox"/>	Well/cistern	<input type="checkbox"/>	Burial(s)	<input type="checkbox"/>
Foundation	<input type="checkbox"/>	Trash pit/dump	<input type="checkbox"/>	Railroad bed	<input checked="" type="checkbox"/>
Cellar hole/cellar	<input type="checkbox"/>	Sheet midden	<input type="checkbox"/>	Earthworks	<input type="checkbox"/>
Hearth/chimney	<input type="checkbox"/>	Planting feature	<input type="checkbox"/>	Mill raceway	<input checked="" type="checkbox"/>
Postholes/molds	<input type="checkbox"/>	Road/walkway	<input type="checkbox"/>	Wheel pit	<input type="checkbox"/>
Paling ditch/fence	<input type="checkbox"/>				

All quantities exact or estimated minimal counts

Radiocarbon Data:

Sample 1: +/- years BP Reliability Sample 2: +/- years BP Reliability Sample 3: +/- years BP Reliability

Sample 4: +/- years BP Reliability Sample 5: +/- years BP Reliability Sample 6: +/- years BP Reliability

Sample 7: +/- years BP Reliability Sample 8: +/- years BP Reliability Sample 9: +/- years BP Reliability

Additional radiocarbon results available



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Prehistoric

Other name(s)

Historic

Unknown

Brief

Description:

late 18th-early 20th century iron furnace complex

External Samples/Data:

Collection curated at MAC

Additional raw data may be available online

Summary Description:

Site 18FR29 is the location of the main iron furnaces in the Catoctin Furnace Historic District south of Thurmont, Maryland. The site is situated along US Route 15 in Frederick County and falls within Cunningham Falls State Park. Excavations within the area have led to the designation of two archaeological sites; 18FR333 and 18FR334. The former is the immediate vicinity surrounding the mid 19th century Isabella furnace stack and casting house; also known as "Stack 2". The latter is a 19th century retaining wall and engine house associated with the late 19th century "Deborah" stack (or "Stack 3"). This synopsis report provides background detail regarding the three (possibly 4) furnaces thought to have been situated within the confines of 18FR29. A brief technical description of iron-working technology is provided here, followed by a synopsis of what archival and oral history research in the Catoctin Furnace area has revealed. These data were obtained from numerous Phase I, II, and III archeological reports, but the archeology itself is not discussed here. For discussions of the archeological work performed within 18FR29, see the individual site reports for 18FR333 and 18FR334.

The iron blast furnaces at Catoctin provide physical evidence to support the historical record regarding the way in which hematite ore was processed into finished goods during the late 18th, 19th, and early 20th centuries. Major technological innovations were effected during the lifespan of the furnaces (most notably the transition from water-powered charcoal furnaces to steam-powered anthracite coke furnaces), yet the process involved remained rather simple. A blast furnace is primarily a facility for producing metallic iron from iron ore (hematite). Eighteenth and nineteenth century iron furnaces were pyramidal stone structures lined with firebrick to form an enclosed conical hearth. They contained an opening at the top of the pyramidal "stack" and usually two major openings near the base. The top of the stack was "charged" by dumping iron ore, charcoal, and limestone for flux in specific amounts and orders. A fire was lit at the base and the charcoal began to burn, heating up the iron ore. One of the openings near the base of the stack was used to supply air to the furnace hearth by means of water-powered bellows. This brought the temperature ever higher until the iron began to flow down to the base of the stack. The impurities tended to collect at the top of this iron "pool" and would be drained off via a "cinder hole" in the other base opening. Then the iron itself could be allowed to pour out either into sand molds for cast iron products (such as hollowware). Cast iron products would go to ancillary structures for finishing and then to the market.

If it wasn't as pure, the iron could be poured into standard sized/shaped molds. These standardized sand molds were normally of a flat rectilinear form and the molten metal poured into the molds via a long runner and through a "gate" in the sand. The layout looked something like piglets suckling at a sow and the term "pig iron" was used for the uniform iron slabs produced. Because it was in uniform sizes and shapes, pig iron could be easily transported by wagon or other means. It would either be shipped to market or would be sent to a local foundry (for remelting into cast iron) or to a finery forge (for processing into wrought iron). A full discussion of the difference between furnaces, foundries, and forges can be found in the synopsis report for 18FR320. During the 19th century, most iron furnaces transitioned to steam power. Steam power was cheaper and allowed the furnaces to increase output. More importantly, a process for utilizing anthracite coke as a fuel source was developed, which also made it possible to increase output beyond what charcoal-fueled furnaces could produce. The innovations were first being introduced in the mid 19th century, but did not come into play at Catoctin until the latter part of the 1800s.

Archival and oral history research reveal that in the year 1774, James, Thomas, Baker, and Roger Johnson constructed the first iron furnace at Catoctin. In 1776, they began producing pig iron under the name of James Johnson and Company. Hematite ore from the Catoctin Mountains provided the raw material for production of the iron while the Catoctin forests provided charcoal for fuel. In addition, water from the local springs and streams provided the energy to power enormous bellows blowing air into the furnace, as well as power for forge hammers, mills, and other machines. A complex system of ponds, races, ditches, dams, and aqueducts ensured that the water wheels were supplied with sufficient "drop" to maintain the power levels needed. One of the most important early products of the furnace is rumored to have been supplies (including munitions) for George Washington's Army. While pig iron continued to be produced at the furnace, other important products were machine parts, foundry rolling mills, iron car/cart wheels, cast-iron stoves, and other materials. During the Civil War, iron from the furnace was used to armor the famous iron-clad ship, the Monitor. Over the course of history a number of additional furnace stacks, support structures, quarries, casting areas, and other structures were constructed in the area. Some structures were demolished and improved facilities were built.

No issue is more contentious in the interpretation of the Catoctin Furnace area than the location of the original stack built by the Johnsons. Many researchers have argued that all of the furnaces at Catoctin were located in the same general area; that is at Site 18FR29, the main furnace area. Archival evidence clearly indicates that a hot blast charcoal furnace (called "Isabella") was built in 1856 near the site of an already extant charcoal furnace dating back to the 18th century. Much of Isabella was dismantled in 1893, but some ruins were left and the stack and casting house were eventually restored for interpretive purposes. The old 18th century stack near Isabella had been dismantled a few years prior (ca. 1890) after being deemed obsolete. The last furnace to be constructed at Catoctin was "Deborah", built in 1873. This was a steam and water operated hot blast, anthracite coke furnace encompassing the latest improvements in furnace technology. Its annual capacity for producing pig iron was 3 times that of the other two furnaces combined. It was dismantled in the early 20th century following the last blast at Catoctin and salvageable parts were shipped to iron furnaces in Pennsylvania. What is less certain historically is whether the old charcoal furnace near Isabella (see above) was the original (ca. 1774) stack, a later 18th century stack constructed on the same site as the original, or a later 18th century stack constructed approximately ¾ mile north of the original (ca. 1774) furnace. The key piece of historical evidence for a furnace stack outside the confines of 18FR29, is a statement by J.H. Alexander concerning information he had received directly from James Johnson, descendent of the founders of Catoctin Furnace. In 1840 Alexander wrote that, "The original furnace was built in 1774 by James Johnson & Co. within a mile of the present furnace stack, and carried on successfully until 1787, in which year the same company erected the present furnace about three-fourths of a mile further up the Little Hunting Creek and nearer the ore banks". Since Alexander's informant was a Johnson, he is probably correct and the 18th century stack standing in 1840 at 18FR29 was the second Johnson stack constructed in 1787. Oral history does suggest that some sort of iron-working facility (but typically referred to as a forge) was located south east of the Auburn Pond, just under ¼ of a mile south of 18FR29. One local informant, an 80 year-old man recalled his mother saying she used to play in the "Old Forge" house which was standing in the area without its roof when she was a child. Another man in his 70s used to boat on Auburn Pond and stated that below the lake in a ravine was "the forge". His wife played in the forge as a child also. A man in his late 60s, the son and grandson of miners at Catoctin Furnace, said the area was known throughout the community as the "Old Forge field". When he was young, horses were put in the field to graze. He had seen the Old Forge house in the same locale indicated by the other informants and stated that it was "a pretty good size". The majority of Auburn pond was destroyed by the construction of US Route 15, but the stone-faced, earth embankment of the dam was still extant in 1977. Intensive archeological work in the last 30+ years has been unable to solve this mystery.

External Reference Codes (Library ID Numbers):

MARYLAND
HISTORICAL



TRUST

Phase II and Phase III Archaeological Database and Inventory

Site Number:

Site Name:

Prehistoric

Other name(s)

Historic

Brief
Description:

Unknown

00005963, 00005972, 00005973, 00006001, 00006002, 00006046