

VLR - 3/19/09
NAHP - 6/5/09

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name West Fork Furnace
other names/site number VDHR file # 031-0084 / 44FD0048

2. Location

street & number Old Furnace Road (SR605) not for publication N/A
city or town Town of Floyd vicinity N/A
state Virginia code VA county Floyd code 063 zip code 24091

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this x nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property x meets does not meet the National Register Criteria. I recommend that this property be considered significant nationally statewide x locally. (See continuation sheet for additional comments.)

[Signature] 7/23/09
Signature of certifying official Date
Virginia Department of Historic Resources
State or Federal Agency or Tribal government

In my opinion, the property meets does not meet the National Register criteria. (See continuation sheet for additional comments.)

Signature of commenting official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I, hereby certify that this property is:

- entered in the National Register
 See continuation sheet.
- determined eligible for the National Register
 See continuation sheet.
- determined not eligible for the National Register
- removed from the National Register
- other (explain): _____

Signature of the Keeper

Date of Action

5. Classification

Ownership of Property (Check as many boxes as apply)

Category of Property (Check only one box)

- x private
public-local
public-State
public-Federal

- building(s)
district
X site
structure
object

Number of Resources within Property

Table with 2 columns: Contributing, Noncontributing. Rows: buildings (0, 0), sites (1, 0), structures (0, 0), objects (0, 0), Total (1, 0)

Number of contributing resources previously listed in the National Register N/A

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.) N/A

6. Function or Use

Historic Functions (Enter categories from instructions)

Cat: Industry/Processing/Extraction Sub: processing site
Industry/Processing/Extraction manufacturing facility

Current Functions (Enter categories from instructions)

Cat: Landscape Sub: park

7. Description

Architectural Classification (Enter categories from instructions)

No Style

Materials (Enter categories from instructions)

foundation stone
roof N/A
walls stone
other N/A

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

- A Property is associated with events that have made a significant contribution to the broad patterns of our history.
B Property is associated with the lives of persons significant in our past.
x C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
x D Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)

- A owned by a religious institution or used for religious purposes.
B removed from its original location.
C a birthplace or a grave.
D a cemetery.
E a reconstructed building, object, or structure.
F a commemorative property.
G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

Engineering
Archaeology - Historic/Non-Aboriginal

Period of Significance 1853 - 1855

Significant Dates 1853 - 1855

Significant Person (Complete if Criterion B is marked above) N/A

Cultural Affiliation Euro-American

Architect/Builder Unknown

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS)

- preliminary determination of individual listing (36 CFR 67) has been requested.
previously listed in the National Register
previously determined eligible by the National Register
designated a National Historic Landmark

___ recorded by Historic American Buildings Survey # _____
___ recorded by Historic American Engineering Record # _____

West Fork Furnace

Floyd County, Virginia

Primary Location of Additional Data

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository: Virginia Department of Historic Resources

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10. Geographical Data
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Acreage of Property 2.6

UTM References (Place additional UTM references on a continuation sheet)

Zone	Easting	Northing	Zone	Easting	Northing	Zone	Easting	Northing	Zone	Easting	Northing
1			2			3			4		

x See continuation sheet.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

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11. Form Prepared By
=====

name/title Thomas Klatka, Archaeologist
 organization Virginia Department of Historic Resources date December 2008
 street & number 1030 Penmar Ave., SE telephone 540-857-6047
 city or town Roanoke state VA zip code 24013

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Additional Documentation
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Submit the following items with the completed form:

Continuation Sheets

Maps A USGS map (7.5 or 15 minute series) indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs Representative black and white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items)

=====
Property Owner
=====

(Complete this item at the request of the SHPO or FPO.)

name Captian Daniel Shelor Memorial Furnace, Incorporated; Janice Shelor, President
 street & number 271 Canning Factory Rd., SW telephone 540-745-2248
 city or town Floyd state VA zip code 24091-3270

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Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.). A federal agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number.

Estimated Burden Statement: Public reporting burden for this form is estimated to average 36 hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of

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CONTINUATION SHEET**

**West Fork Furnace
Floyd County, Virginia**

Section 7 Page 1

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NARRATIVE DESCRIPTION

Summary

The West Fork Furnace is located in Floyd County, Virginia, about 5.9 miles southeast of the Town of Floyd, and includes structural, landscape and archaeological components of a small and well preserved mid-19th-century iron furnace. The approximate 2.6 acre property sits on the northeast side of the East Prong of Furnace Creek, historically known as the West Fork of Little River. The acreage is steeply to moderately sloping forested land in a deeply entrenched fluvial valley of the East Prong. A massive stone furnace stack remains conspicuous on this forested landscape, but less salient components of this historic property include a retaining wall, staging area, head race, wheel pit and tail race. The property also includes a portion of the East Prong, the power source for the furnace. (See Figure 1 for a plan map of the West Fork Furnace property.)

Inventory

1. Furnace. Ca. 1853. Contributing feature.
2. Retaining Wall. Ca. 1853. Contributing feature.
3. Staging Area. Ca. 1853. Contributing feature.
4. Head Race. Ca. 1853. Contributing feature.
5. Wheel Pit. Ca. 1853. Contributing feature.
6. Tail Race. Ca. 1853. Contributing feature.
7. East Prong of Furnace Creek is a natural not a cultural feature, but is herein described with the site.

All individual features within the site are considered contributing elements to the entire site because each represents an integral component of the 1853 West Fork Furnace, and these resources collectively impart a clear conception of an articulated iron processing and manufacturing system.

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Floyd County, Virginia**

Section 7 Page 2

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Description (continued)

Furnace & Retaining Wall

The form and composition of the intact furnace are similar to other known iron furnaces in western Virginia. Its plan view is nearly square with dimensions at ground surface measuring 27.5 by 29.5 feet, and its side view is trapezoidal with the wider base gently tapering to an upper stack that measures about 14.5 square. The structure reaches a height of 25.5 feet and consists of locally quarried and dry-laid ashlar blocks. Some patches of sandy, friable mortar along exterior joints suggest at least some of the exterior was once mortared. Although the furnace interior is not accessible, a visual examination into the casting arch, tuyere arch and stack opening suggests the brick inwall of the furnace is intact but the bricks are deteriorating. The casting arch is located on the southwest side of the furnace and measures 7.45 feet deep and 10.8 feet high. Its opening width of 15.6 feet tapers to a back width of 7.25 feet. A single tuyere arch on the southeast side measures 7.5 feet deep and 8.75 feet high. Its width tapers from 9.2 feet to 5.65 feet. The furnace is in very good condition, but the upper courses of the stack appear disturbed. Shelor family tradition recounts the removal of some stones from the furnace stack by the Virginia Department of Highways over 40 years ago. The stones were reportedly used to build abutments which continue to support a bridge upstream from the furnace. Two undated, historic photographs depict the furnace stack prior to disturbance of the upper courses of the stack (see Figure 2).

Construction plans sited the furnace on the northeast floodplain of the East Prong, and required partial excavation of an adjacent ridge slope so the rear base of the furnace abutted the ridge and minimized the distance between the top of the stack and the top of the ridge. The furnace sits 84 feet from the East Prong at an elevation of 2700 feet, and the adjacent ridge reaches an elevation range of about 2720 to 2740 feet. With iron ore, charcoal fuel, and limestone flux stored at a staging area on the ridge top, this construction plan eased the process of loading the ore, fuel and flux into the top of a blast furnace. Along the western side of the furnace, natural erosion continues to recreate a ground surface that slopes steeply from the top of the ridge down to the narrow floodplain of the East Prong. On the eastern side, the back of the furnace merges with a retaining wall of dry laid stone. This wall supports a near vertical cut in the ridge side, and its length extends 18.5 feet to the southeast where it merges with an unexcavated part of the ridge slope. The retaining wall measures 5.5 feet high and consists of dry laid stone capped by a hewn timber. During the past 15 years, erosion has begun to undermine the wall and threaten its collapse.

Staging Area

Archeological evidence of the staging area was identified and documented on a fairly level landscape on the ridge immediately behind the furnace. While the northern part of this modified landscape has been disturbed by the construction of Old Furnace Road, an undisturbed area measures about 190 feet long with a width that varies from as little as 27 feet to as much as 85 feet. The grade of the landscape slopes gently at less than 9 percent until it breaks sharply to a near vertical drop where the ridge slope was excavated to accommodate construction of the furnace. This landscape represents the staging area where materials necessary for the furnace operation were once stored and prepared. It was modified to create a work area nearly level with the top of the furnace, and it once held structures to shelter or store wood charcoal, mined iron ore, and limestone. Earth, rock and fill material formed an extension of the landscape that continues to connect the ridge top to the furnace. A charging bridge once spanned over this extension to the furnace and enabled the loading, or charging, of measured amounts of charcoal fuel, ore and crushed limestone flux into the furnace by wheelbarrows. The artificial landscape is now covered with deciduous trees less than 40 years old, and there is no recognizable evidence of previous buildings on its surface.

Archeological investigations of this level landscape included the use of shovel tests greater than 1 foot in diameter and aligned systematically at intervals of 20 feet. Additional shovel tests were excavated at intervals of 10 feet for a more precise boundary determination. All excavated soil was passed through ¼-inch hardware cloth to aid the recovery of artifacts, and excavation of each test continued until underlying rock or undisturbed clay subsoil was encountered. Soils on the ridge tops in this region have been deflated by natural and culturally induced erosion, so clay subsoil or rock is usually encountered within 9 to 14 inches (.75 – 1.15 feet) from the ground surface. However, most of the shovel tests encountered subsurface deposits that extended to unexpected depths, and a split-spoon soil auger was necessary to determine and document the depths of these deposits. While some artifacts were recovered from the shovel tests, most of the archaeological evidence consisted of culturally modified soils and artificial layers of fill material.

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Description (continued)

Subsurface testing indicates the natural soils in the staging area consist of topsoil that ranges from dark brown sandy loam to dark yellowish-brown clay loam. Natural subsoil ranges from dark yellowish-brown sandy loam and brown to dark brown clay loam or strong brown sandy clay. All of these soils are micaceous. Culturally modified subsoil takes two basic forms at the site. One form consists of disturbed and moderately consolidated subsoil mixed with flecks and small pieces of wood charcoal. Much of this subsoil is redeposited since it overlies layers of wood charcoal that range up to 1.15 feet in thickness. The second form of culturally modified subsoil is poorly consolidated and gritty in texture with colors ranging from black to very dusky red. The black color apparently results from a thorough admixture of pulverized charcoal, while the dusky red color may represent thermally altered soil or soil mixed with iron ore fragments and residue. This dusky red subsoil is often magnetic, so it apparently contains various amounts of very small to minute ore particles. It also contains some small and hard masses that are magnetic and probably represent unprocessed or poorly processed pieces of ore. The black and dusky red subsoil also contains varying amounts of charcoal flecks and chunks along with some small fragments of furnace slag and limestone. This soil lies at depths ranging from 0.65 to 2.1 feet below ground surface, and its thickness ranges from 0.15 to 1.5 feet. There are variations to this pattern of two basic forms of culturally modified subsoil. In some areas of the site, both types of culturally modified subsoil are present. One unusual area of the site contains modified subsoil that extends from 1.3 feet below ground surface to an undetermined depth. The subsurface test terminated at 4.2 feet below ground surface when the soil auger reached its depth limit. Results of subsurface testing indicate the maximum dimensions of this modified landscape reach approximately 70 by 140 feet.

Head Race

Waters of the East Prong were captured in a pond then released into a headrace, or sluice, and directed to a waterwheel which converted the energy of the flowing water into mechanical power for the furnace. Although much of the headrace remains, the dam and pond were removed by 20th-century road and bridge construction, or by landscape alterations associated with an adjacent copper smelting operation that functioned intermittently from the mid 19th century through the mid 20th century. Landscape evidence of the headrace runs for 342 feet, but this span is discontinuous due to the loss of 120 feet by construction of Old Furnace Road (Route 605). The headrace now appears as a linear trough cut into the side of the ridge. In cross section, it has a U-shape with an upper width of 3 to 4 feet and a bottom width of 2 to 2.25 feet. There is no evidence for a stone lining, so it was probably lined with wood. Old Furnace Road and the headrace run parallel and follow the contour of the ridge slope. In some areas, the headrace is only five feet from the edge of the road, but most of the headrace is at a lower elevation than the road. The head race ends abruptly on the ridge slope about 30 feet west of the furnace. The wooden end of the race, which carried water to an overshot waterwheel, is no longer extant.

Wheel Pit & Tail Race

The race directed the flow of waters to a waterwheel mounted onto a stone enclosure or wheel pit. The flowing water turned the waterwheel, and a system of shafts, controls and cams enabled the generation of mechanical power to operate a bellows which introduced a draft, or blast, of air at the tuyere arch. The draft fanned the charge inside the furnace to temperatures necessary for reduction of ores.

A well preserved wheel pit sits on the floodplain of the East Prong just over 27 feet south of the furnace. The rectangular pit measures 8 feet by 18 feet, and the upper courses of its dry-laid stone walls are flush with the ground surface. The wheel pit reaches a depth of at least 5 feet, but its actual depth is masked by layers of humus and tree leaves. The longer sides of the pit feature small rectangular extensions slightly recessed one to two feet into the ground surface. Both extensions are lined with dry laid stone; one extension measures 5.85 feet by 7 feet and the other measures 2 by 3.5 feet. These extensions supported the mounts for the waterwheel. A stone-lined tail race released water from the wheel pit and into the nearby stream. Although the tail race has been filled with soil, its beginning is visible in the southwest wall of the wheel pit and its terminus is still apparent in the bank of the East Prong.

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Description (continued)

East Prong of Furnace Creek

The picturesque East Prong continues to slowly downcut gneiss and other amphibole-rich metamorphic rock exposed on the bottom and sides of the stream. Upstream from the furnace, boulders in the stream exhibit drill marks of identical dimensions to drill marks observable on rocks used to construct the furnace. It is probable that boulders in the stream were drilled and split to fashion some of the stone blocks used to build the furnace. Downstream from the furnace, fragments of glassy black slag, commonly referred to as furnace glass, are found on the stream bed and provide further evidence of the furnace operation.

Previous Research

While the West Fork Furnace was discussed by Sue Jefferson Shelor (1961), the first research of the West Fork Furnace in a regional context was completed by Tate Thompson (Tom) Brady. Brady learned of the West Fork Furnace during his extensive archival research of the historic iron industry in Virginia¹. He subsequently documented the location and condition of the furnace during a 1985 field inspection, and compiled limited production figures for the furnace. Based on information submitted by Brady, the West Fork Furnace was included in the Virginia inventory of archaeological sites and assigned the designation 44FD0048.

Brady also used a published account by geologist J.P. Lesley to make a record of the Shelor Cold Blast Furnace. J.P. Lesley visited the West Fork Furnace in 1859 and noted the "Shelor's Charcoal Furnace, situated close by West York [sic] Furnace was abandoned long ago and a few traces alone mark its site." (Lesley 1859: 65)^{2,3}. Other primary and secondary documents indicate that Captain Daniel Shelor mined and processed local ore deposits and cast hollow ware and other products sometime in the late 18th century through early 19th century (e.g., Deed Book F: 216; Lesley 1859, Currey 1880, Shelor 1961; Allen 1997). However, the location of Shelor's operation has never been determined.

More recently, extensive documentary research was compiled by Leslie Shelor Allen and published as a narrative history of the Shelor Cold Blast Furnace and the West Fork Furnace (Allen 1997: 34-39). Allen's thorough research charts the development of industrial interests in the ore deposits near the East Prong, chronicles the rise and decline of the Shelor and Toncray iron operations, and documents the eventual development of copper smelting operations that lasted from the 19th through mid-20th centuries.

Statement of Integrity

The varied components of the West Fork Furnace property, from the preserved remains visible on the landscape to the intact subsurface remains of the staging area, convey the historic significance of the West Fork Furnace property as an articulated metal processing and manufacturing system of the mid-19th century. Due to the short lived nature of the West Fork Furnace, preserved elements of the processing and manufacturing system impart a clear sense of a mid-19th-century industrial facility unmodified and undisturbed by structural and technological changes of more long-lived, industrial operations of the 19th century. Mining and manufacturing operations usually experience an evolution in form due to technological advances, expansion of operations and other factors. The unaltered state of the West Fork Furnace, and its preserved design, make it a rare example of a 19th-century industrial facility with individual components that maintain an integrity of association. Because the property experienced little use after the furnace went out of blast, the furnace structure and the preserved components of the facility retain evidence of original workmanship. Modern development of Floyd County has been minimal, and the rural and remote setting of the property readily imparts the feeling or sense of a 19th-century operation that contributes to the property's integrity. The Shelor family's acquisition of the property and their careful stewardship of its historic and natural features have been integral to the preservation and protection of the property's historic integrity. Although the West Fork Furnace does not represent a long-lived industrial pursuit, the well preserved condition of its above ground structural remains and archaeological deposits suggest its continued study will inform our understanding of the structure and internal design of a mid-19th-century iron furnace complex, and broaden our understanding of the development of the iron industry and the industrialization of America.

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STATEMENT OF SIGNIFICANCE

Summary and Justification of Criteria

The West Fork Furnace property is eligible under Criterion C for the category of engineering due to its well preserved furnace structure which possesses a design and composition distinctive of iron ore processing facilities of the mid 19th century. Most of the individual components of the district lack individual distinction, but the components collectively represent an articulated and distinctive system engineered during the mid-19th century for effective and efficient metal ore processing and manufacturing. The property is also eligible under Criterion D for the category of historic, non-aboriginal archeology due to its demonstrated potential to yield information that will enhance or further our understanding of the application of scientific principles to the development of an industrial facility in the mid-19th-century American backcountry. The preserved components reflect the mid-19th-century technology and process of manipulating natural resources for the production of goods. The West Fork Furnace property is eligible at the local level of significance with a period of significance of 1853-55, encompassing its construction and brief period of operation.

The West Fork Furnace has not yet undergone the level of archaeological study necessary to yield information that contributes to our understanding of 19th-century iron ore processing. However, completed archaeological investigations have demonstrated the presence of intact, subsurface remains in the furnace staging area that represent a principal source of information important to our understanding of the design and structure of the mid-19th-century mining system at the West Fork Furnace. Furthermore, a visual study of the district landscape, with well preserved components of the iron processing system visible on the ground surface, indicates other areas of the district have undergone a land use history comparable to that of the staging area. This suggests other areas of the district likely possess subsurface integrity and contain information potentially important to our understanding of mid-19th-century iron ore processing and manufacturing. Continued archaeological investigations in the staging may illuminate the process of organizing labor during the storage and preparation of furnace charges. Archaeological investigations in the area surrounding the base of the furnace have the potential to provide information that will enhance and further our understanding of furnace construction methods, especially the subsurface foundation of the furnace. Likewise, investigations near the casting arch and between the wheel pit and tuyere arch have the potential to increase our understanding of the process and products of iron casting, as well as the process of converting the energy of flowing water into mechanical energy for a cold blast furnace. The documented and potential archaeological deposits in the district provide the primary means of fully understanding the internal design and structure of the West Fork Furnace operation, and represent an important source of information for the study of mid-19th-century iron ore processing systems.

Acknowledgements

A number of people encouraged and assisted with this study and nomination. I am especially grateful for the efforts of George Shelor to teach me the extent and influence of 19th- and 20th-century metals mining industries in Floyd County, especially the impact of iron and copper industries at the "Toncray Mines" on the people of Floyd County. David and Warren Shelor are thanked for inviting and encouraging me to undertake this study. Nola Shelor Albert and Janice Shelor graciously shared historic photographs and other historic documents in the Shelor Family Archives. Janice Shelor, as president of the Captain Daniel Shelor Memorial Furnace, Incorporated, also kept this project apace by quickly answering my many questions.

Background Information

As with other early industrial pursuits in Floyd County, the historic record of iron ore mining and processing at the West Fork Furnace is fragmentary. Published accounts by two 19th-century geologists⁴, coupled with land conveyances and property indentures recorded in county deed books, and records of court proceedings in chancery order books, provide a means of charting the brief history of the West Fork Furnace. The furnace was built and operated under the direction of Robert Toncray, an entrepreneur from Tennessee. Little is known about Robert Toncray or his background in the iron industry, but the timing of his interests in the Floyd County gossan ores suggests a possible influence by the success of early iron and copper manufactories in Ducktown, Tennessee, where industrial exploitation of gossan deposits were initiated in the late 1840s. Early

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Statement of Significance (continued)

work by Captain Daniel Shelor, and possibly others, had already opened the Floyd County ore bank, established the presence of iron ore and demonstrated a degree of success in processing the local gossan ores for iron manufacture. The financial success of the Ducktown industrial facilities, and the similarity of local ores in Floyd County, was likely enough reason for Robert Toncray to pursue an industrial venture and convince investors to support establishment of the West Fork Furnace.

An 1851 agreement in the deed records of Floyd County documented Robert Toncray's intent to purchase land that included the "ore bank worked by Shelor and others" in order to "build a furnace nearby said land and work the ore from said bank" (Deed Book F: 216). Land conveyances over the next two years indicate Toncray was able to raise capital, acquire the ore bank property, and obtain additional tracts with the timber needed to launch his business venture (Deed Book F: 291; Deed Book G: 28, 211). Existing records in the Floyd County Courthouse do not document construction of the furnace or when it went into blast, but geologist J.P. Lesley (1859: 165) indicated the furnace was built in 1853. The furnace went into blast quickly, but production reports were limited to Lesley's (1959: 165) optimistic estimate of "150 tons per annum."

Over the next two years, Toncray acquired additional tracts of timber necessary to fuel the operating furnace (Deed Book G: 342; Deed Book H: 173). However, financial and legal difficulties characterized his industrial venture at the West Fork Furnace. A lengthy series of deed book entries documented his attempts to fulfill financial obligations and raise capital by placing his Floyd County and Knoxville, Tennessee, properties in trust (Deed Book G: 411; Deed Book H: 218, 308, 352, 418). In 1854, he also sold one half of his copper mineral rights to the Meigs Mining Company of Tennessee (Deed Book G: 220), but by the close of the year production at the West Fork Furnace fell to only 32 tons of iron products (Currey 1880: 95). In 1855, Toncray continued to advertise his cast iron products in a local newspaper, but the furnace went out of blast by the end of the year (Floyd Intelligencer 1855, Lesley 1859: 165).

Problems continued to mount when production decreased and the furnace went out of blast. A court injunction prevented the Meigs Mining Company from cutting timber on Toncray's land, and another injunction was necessary to stop the attempt of creditors to possess and sell his Floyd County real and personal property (Chancery Order Book 1: 274, 327-329; see Figure 3). With Toncray unable to pay his financial debts, his property was eventually auctioned in 1858, and the court dismissed his final cause in 1862 (Chancery Order Book 1: 373-374, 456; Deed Book K: 72). The West Fork Furnace never went into another blast, but early interest in the iron ore was replaced by a significant recognition of the copper sulfite deposits that refocused industrial operations at the nearby "Toncray Mines" for the next century (see Klatka 1993: 45-53).

A combination of three factors structured the brief history of the West Fork Furnace operation. A basic road system enabled the transport of furnace products to local markets, but efforts to integrate furnace products into regional and national market systems were impeded by the near lack of a local infrastructure for long-range transport. Transport was accomplished by wagons pulled by traction engines or teams of horses, and costs rose considerably as products for external markets moved slowly over turnpikes to reach existing rail, canal or bateaux systems. The Virginia and Tennessee Railroad was under construction when the West Fork Furnace was established, but the line did not reach the local region until late in 1853 or early in 1854 when a depot was established in Cambria, about 22 miles north of the furnace (Noe 1994: 29). Production costs also rose because overland transport by wagon was necessary to haul limestone to the furnace. Operation of an iron furnace requires three natural resources – iron ore, wood charcoal for fuel and crushed limestone rock to act as a fluxing agent. Iron ore and timber reserves for charcoal were plentiful around the furnace, but limestone had to be shipped at least 20 miles from the closest limestone deposits in neighboring Wythe and Montgomery Counties. A final factor that influenced the brief history of the West Fork Furnace operation was an inherent characteristic of the local iron ore. The iron ore also contained varying amounts of copper, which had little effect on smelting and casting. However, the copper content resulted in an unmalleable iron difficult to work with a trip hammer or by blacksmiths. This limited the range of goods that could be produced from the iron, and external market demands for iron produced at West Fork Furnace quickly dropped. With low demand for the local iron and increased costs due to overland shipping, the West Fork Furnace failed to make a profit and the operation ceased after less than two years.

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Statement of Significance (continued)

Although industrial interest in the Toncray Mines persisted through the mid-20th century, the West Fork Furnace remained idle and little changed for nearly 140 years. In 1990, the Captain Daniel Shelor Furnace Memorial, an organization incorporated by the Shelor Family, purchased the furnace and its surrounding property (Deed Book 174: 165). Under the sound stewardship of the Shelor Family, the furnace property has been preserved and protected. The property is now used as a private park in honor of Daniel Shelor, the family ancestor who initiated the industrial history of Floyd County at a nearby furnace in the late 18th century. The property is also made available for community use, and the Shelor Family actively uses the property for recreation and interpretation of the industrial heritage of the county⁵.

Recent Archaeological Investigation

All of the documentary research and archaeological fieldwork for the West Fork Furnace nomination was completed in March and April of 2008 by Thomas Klatka of the Virginia Department of Historic Resources. He had also field inspected the West Fork Furnace in 1992-1993 when he conducted a thematic survey of mining properties in Floyd County, but did not do any documentary or archaeological research on the the furnace at that time.

ENDNOTES

1. The "Tate Thompson Brady Papers, 1971-1992" (Mss1 B7297 a FA2) are in the research collections of the Virginia Historical Society, Department of Manuscripts and Archives.
2. Note the references to Shelor's operation as a "Charcoal Furnace" and a "Cold Blast Furnace." Various facilities were used to produce and work cast iron and wrought iron, and the nature of Shelor's operation is not completely known. Brothers (2005) and Rolando (1992: 17-37) elucidate differences between the various types of iron ore processing and iron manufactory facilities, and discuss the ambiguous terminology in both primary and secondary documents relating to the technology of iron making.
3. Lesley (1859: 65, 445) also noted "another furnace stood close by Shelor's and West York [sic] Furnaces, which was built before either of them. No remains." Archival research on the regional iron industry has not yet resulted in any documentation regarding this earlier furnace.
4. Geologists J.P. Lesley and Richard O. Currey independently inspected the West Fork Furnace in 1859 and published brief reports on its operation and production. J.P. Lesley's compendium fueled continued interest in the United States iron industry during the late 19th century, and continues to serve as an important document for historic, industrial research. Richard O. Currey's manuscript was originally titled "A Geological Visit to the Virginia Copper Region," and published in 1859 by Beckett, Haws and Company (Hotchkiss 1880: 60). More widespread attention to this important mineral resources survey occurred 21 years later when the entire manuscript was reprinted in The Virginias as "The Copper and Iron Region of the Floyd-Carroll-Grayson Plateau of the Blue Ridge in Virginia."
5. The extensively researched and informative Allen manuscript (1993: 43-53) documents the acquisition and sound stewardship of the West Fork Furnace property, and the nearby Toncray Mines property, by the Shelor family.

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GEOGRAPHIC DATA

Verbal Boundary Description

The West Fork Furnace encompasses approximately 2.6 acres with the East Prong of Furnace Creek to the southwest and Old Furnace Road (SR605) to the northeast; the northwestern boundary is defined by the extent of archaeological deposits and the southeastern boundary is defined by intact landscape features of the resource. The boundaries encompass a polygon generally described as beginning: (1) at the intersection of Old Furnace Road (SR605) and a paved driveway into parcel number 60-94, (2) then running 89 feet southwest along the western side of the driveway, (3) then running 469 feet northwest along the southern bank of the East Prong of Furnace Creek, (4) then running 225 feet northeast to Old Furnace Road, then running 450 feet southeast and along the southern side of Old Furnace Road to the beginning point.

The corners of the 2.6 acre polygon correspond to the following UTM grid points (based on the 1927 North American datum):
1. 17/555740E/4076430N; 2. 17/555750E/4076410N; 3. 17/555590E/4076470N; and 4. 17/555630E/4076520N.

The UTM points are shown on the attached quad map and on the attached quad section.

Boundary Justification

Boundaries were determined by the horizontal distribution of structures and landscape features of the resource, the surface distribution of resource related artifacts and the extent of intact, archaeological deposits documented by a series of subsurface tests.

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PHOTOGRAPHS

All digital images are of the West Fork Furnace, Floyd County, Virginia. DHR file #031-0084, 44FD0048.
Digital images were taken by Thomas Klatka in 2008.
Image files are archived at the Virginia Department of Historic Resources, Richmond.

Photo 1 of 6: furnace, view north-northeast

Photo 2 of 2: wheel pit and furnace, view north

Photo 3 of 3: tuyere arch, view west

Photo 4 of 4: furnace stack opening, view southwest

Photo 5 of 6: wheel pit, view northeast

Photo 6 of 6: East Prong of Furnace Creek, view southeast

ADDITIONAL DOCUMENTATION

Figure 1. Plan map of the West Fork Furnace complex.

Figure 2. Composite image of undated photographs of the West Fork Furnace (VDHR # 031-0085, 44FD0048). Original photographs are filed in the Shelor Family Archives.

Figure 3. Trust Sale Bill for West Fork Furnace 1856. Copy filed with the Shelor Family Archives.

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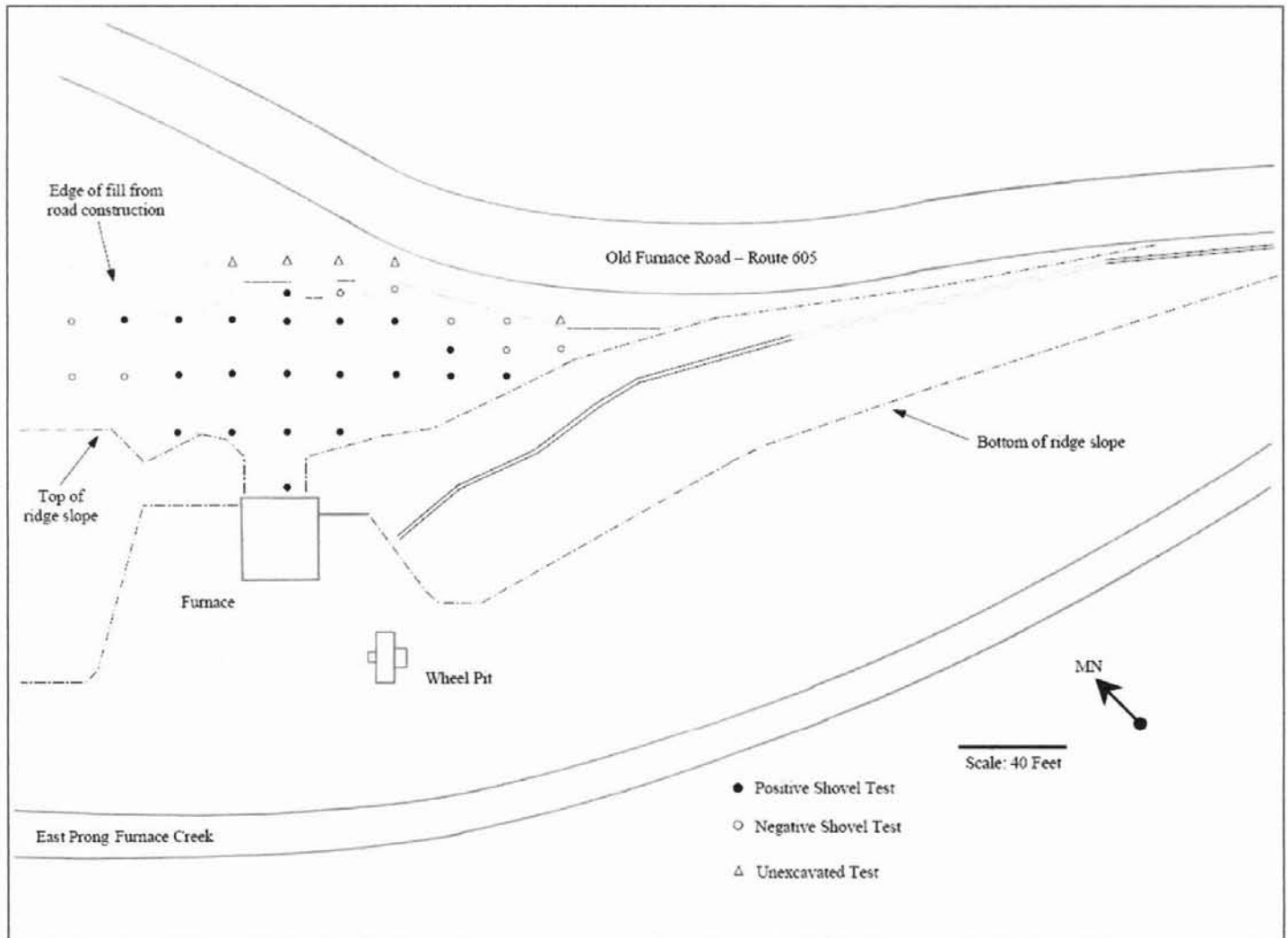


Figure 1. Plan map of the West Fork Furnace complex.

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Figure 2. Composite image of undated photographs of the West Fork Furnace (VDHR # 031-0085, 44FD0048). Original photographs are filed in the Shelor Family Archives.

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**TRUST SALE
OF
VALUABLE LAND & PROPERTY!**

Pursuant to the provisions of two Deeds of Trust, executed to me by Robert L. Toncray, for certain purposes in said deeds mentioned, and of record in the Clerk's Office of the County Court of Floyd, I shall, on Monday the 21st day of July next, on the premises, sell to the highest bidder, at public auction,

THE LAND AND PROPERTY IN SAID DEEDS MENTIONED,

The LAND contains about **THREE HUNDRED ACRES**, lying on the waters of the westfork of Little River, 7 1-2 miles South West of Floyd Courthouse, and has on it one of the best constructed

IRON FURNACES

In South-western Virginia, with facilities for making **CAST IRON**, unsurpassed by any Furnace in the State—being convenient to a dense forest of the finest timber for Coal, and not more than six hundred yards from an inexhaustible bank of **IRON ORE** of the best quality.

There is also on the land a vein of Copper Ore, known to be 60 or 70 feet wide and of unknown depth, not having been fully developed, but is believed to be equal to any in this or Carroll County, and perhaps as good as any in all the Copper regions throughout the States of Virginia and Tennessee.

The property consists of **FOURTEEN HEAD OF HORSES; THREE WAGGONS and GEARING;
ONE SET OF BLACKSMITHS' TOOLS, &c., &c.**

The title to the land is undoubted but will not be warranted. TERMS liberal and made known on day of sale.
June 30, 1856. JACKSON GODBEY, Trustee.

NOTICE.

At the same time and place, I will sell to the highest bidder, the following property to-wit: Two Wagons and Harness; Three Oxen; One lot of Cooking Stoves; One lot of Box do.; A large lot of Hollow-ware; A lot of Plow Irons; A Foundry or Cupola, with all necessary patterns and flasks; A full set of patterns for Cooking & other Stoves, Hollow-ware, Plows, patterns and flasks for all the various Castings about a

FOUNDRY;

A lot of Lime; Household and Kitchen Furniture, a large lot; 150 or 200 tons of Pig Iron; Mill Irons; One pair large Ballances; One pair small do., to satisfy sundry flms, &c., in my hands.
June 30, 1856. WM. B. SHELOR, S. F. C.

(*) THE ABOVE SALES WILL CERTAINLY TAKE PLACE IF THERE ARE BIDDERS TO BUY.

Figure 3. Trust Sale Bill for West Fork Furnace 1856. Copy filed with the Shelor Family Archives.

