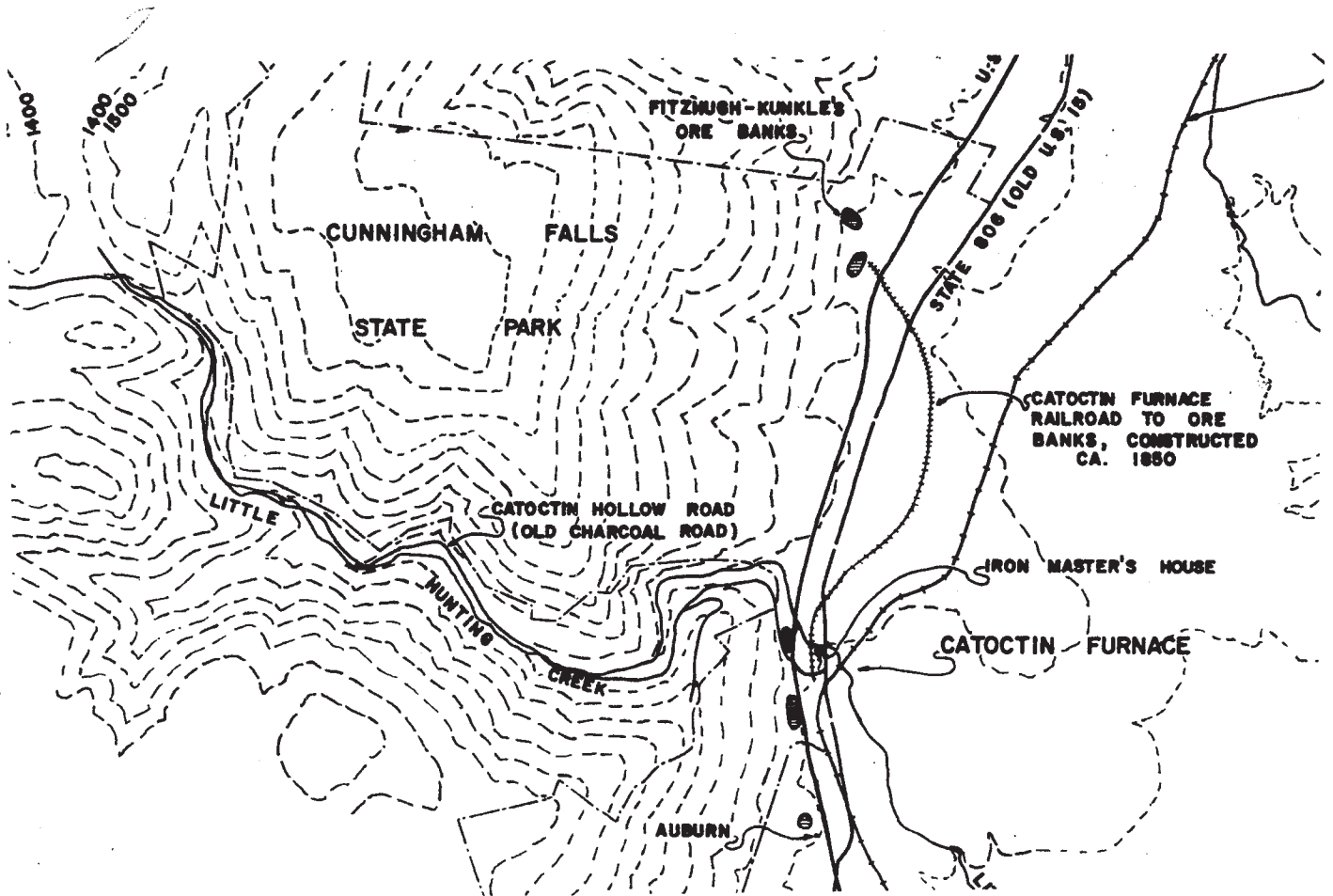


Catoctin

Ind. Co.

# AN HISTORICAL AND ARCHAEOLOGICAL SURVEY



LAND AFFECTED BY DUALIZATION OF  
U.S. ROUTE 15 AT THE  
CATOCTIN IRON FURNACE

AN HISTORICAL AND ARCHAEOLOGICAL SURVEY  
OF LAND AFFECTED BY  
THE DUALIZATION OF U. S. ROUTE 15 AT THE CATOCTIN IRON FURNACE  
1971

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Baltimore, Maryland

## PREFACE

Historical and archaeological research at the Catoctin Iron Furnace Complex was limited by contract to the State Highway Administration's right-of-way property with a total number of 32 working days allocated, not to exceed 458 man hours. This report is not a final or complete study of all aspects of the iron furnace. Instead it describes the conclusions that were reached as the result of specifically directed research. The results were to provide information and, hopefully, answers to questions raised by the State of Maryland Highway Administration.

The Introduction to the report clearly emphasizes and reviews the reasons for the preparation of this study as well as the limitations imposed upon it. Because of these limitations, we do not feel that extensive, broad statements can be made about the social, economic, and cultural history of the Catoctin Iron Furnace Community and Industrial operations, and that our specific statements may be in part disproven or altered by subsequent intensive historical and/or archaeological research.

The historical importance of the Catoctin Iron Furnace is clearly stated in the report and an effort should be made by interested persons to expand the initial limited survey in order to avail the State of Maryland of the maximum potential of the Catoctin Iron Furnace Complex and its history. We regret our inability to establish the existence of any Company operating records for the James Johnson Company (1775 - 1793);

or individual owners such as the Johnson Brothers (1793 - 1811 ); Mayberry (1811 - 1820); Brien (1820 - 1843); Fitzhugh (1843 - 1856); and Kunkel (1856 - 1880); or the Catoctin Iron Company (1885 - 1897); the Catoctin Mountain Iron Company (1889 - 1899); and the Blue Mountain Iron and Steel Company (1899 - 1906). We were also unable to find records directly relating the Catoctin Iron Furnace to the Revolutionary War, the War of 1812, or the Civil War.

## ACKNOWLEDGEMENTS

The State of Maryland, State Highway Administration, Baltimore, Maryland, in cooperation with the State Archaeologist, Mr. Tyler Bastian of the Maryland Geological Survey, should be commended for their proffered aid and continuous cooperation in the planning and contracting of the Historical and Archaeological Survey of Land Affected by the Dualization of U. S. Route 15 at the Catoctin Iron Furnace. Mr. E. Donald Reilly, Chief of Administration, and Mr. Paul Milash of the Special Service Division, were instrumental in enabling the study to be undertaken and the survey to be completed.

Mr. Tyler Bastian's letter and brief report, dated May 14, 1970, included in the "Record of Proceedings and Public Hearings F522-771, State Roads Commission, held at Lewistown Elementary School, Lewistown, Maryland, May 6, 1970", were helpful. The Chief of District 7 Right of Way for Frederick County, State Highway Administration, Mr. Tom Summers, provided specific answers to our many questions, and his cooperation is appreciated.

The Superintendent of the Catoctin Mountain Park, Thurmont, Maryland, Mr. Frank Mentzer, whose long-time interest in the Catoctin Iron Furnace has produced numerous articles, has graciously provided material for our use. Mr. Charles Sandy, Superintendent, Cunningham Falls State Park, Thurmont, Maryland, provided a photographic plate of an ore cart he excavated in 1969 during a preliminary excavation of a section in a limestone/ore pit to the southwest of the present furnace area.

Thanks is also due to Mrs. Phoebe Jacobson and Mr. Russell Menard, Hall of Records, Annapolis, Maryland; Mr. William E. Davies, Geologist, U. S. Geological Survey, Department of the Interior; Joan Fricks, Librarian, American Iron and Steel Institute of New York.

Personal interviews with Mrs. Marble L. Townsend, Mr. William Renner, and Mr. Clinton Miller, Catoctin Furnace residents, were of primary importance; they provided many of the photographic plates that are utilized in the report.

Dr. Grace Tracy, Hampstead, Maryland was kind enough to allow us to review her plotting of the early tracts and parcels of Frederick County. Interviews with Mr. H. R. Damuthy, Thurmont, Maryland; Mr. Joseph Duricks, Jr., Thurmont, Maryland; and Mr. William C. Ruth of Hagerstown, Maryland provided photographs and information that have been useful to the report.

A special thanks is due to the Librarians at the C. Barr Artz, Frederick Public Library; the Maryland Room, Enoch Pratt Free Library; the Maryland Historical Society; and the Frederick County Court House Record Room, who all provided invaluable assistance.

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## INTRODUCTION

On May 6, 1970 the State Highway Administration (then the State Roads Commission) of Maryland held a public hearing to discuss the proposed improvements of U. S. Route 15 (Contracts #F-522-44-711, and Federal Project Number FAP F-909-1(20) ), conducted by Mr. Thomas G. Mohler, District Engineer for District 7 of the State Highway Administration. In attendance were numerous representatives of the State Highway Administration, Bureau of Public Roads, and private consulting firms, as well as representatives of the Frederick County Commission, the Frederick County Planning and Zoning Board, and local residents of the Frederick area. The hearing was arranged in compliance with Policy and Procedure Memorandum 20-S, issued by the United States Department of Commerce, Bureau of Public Roads, relative to highway projects using Federal Aid Funds, and was designated as a "Design Public Hearing" for the express purpose of discussing the proposed improvements of U. S. Route 15 from Haywood Road to the Kelly Store Road.

The present U. S. Route 15, from Haywood Road to Kelly Store Road, was constructed at different intervals, beginning in 1950 and concluding in 1964. As originally planned, it was constructed as two 12-foot lanes of an ultimate controlled access, dual highway. At that time, planning was accomplished to provide for further improvements when, and if, they became necessary. For the dualization project to qualify under the Federal Aid to Highways system, the latest safety standards had to be adhered to; and these requirements indicated the need for



additional right of way acquisition. The Record of Proceedings of the Public Hearing states, on page 7:

The new right of way will be of a marginal nature but will be needed throughout one side of the new facility.

With the alignment having fixed terminals on both ends, the new dualization will generally follow the existing roadway. A slight modification is proposed in the Catoctin Furnace area. There will be some limited adjustment to existing county roads.

No other major alternates having been considered, the normal corridor hearing has been ruled out in favor of tonight's design public hearing.

The Record of Proceedings indicates that there were 22 design aspects or ideas considered in the planning of the dualization of U. S. Route 15 and its connecting roads. Point 14, on page 11 of the Record, states:

Natural and historic landmarks. The old Catoctin Furnace will abut the proposed right of way but will not otherwise be affected. No other recorded natural or historic landmark is known to be in the vicinity.

During the discussion, numerous individuals addressed themselves to the various aspects of the dualization; and, on page 37 of the Record of Proceedings, Mr. Frank Mentzer of the National Park Service and Superintendent of the Catoctin Mountain Park in Thurmont, Maryland, replied to point 14 and stated:

The National Park Service of the United States Department of the Interior is the principal Federal agency concerned with historic sites and archaeology. While our primary concern is with those areas set aside by the Congress and the President as possessing national significance, we are greatly interested and concerned about other areas of lesser importance and not in Federal ownership. The National Register of Historic

Sites, The Historic Buildings Survey, our programs of Federal and State assistance and our programs of salvage archaeology bear evidence of this interest and concern.

The Catoctin Furnace ruins possess historical value of significance to the State of Maryland and to Frederick County, especially with respect to their ownership by the Johnson brothers, Thomas Johnson having served as our first Governor. In our best judgment, the ruins possess outstanding archaeological and historical potential for interpreting the early iron industry of Western Maryland and the effects on this environment. While much research needs yet to be done to fully understand the importance of the Catoctin Furnace, it is definitely established that in the closing years of the American Revolution shot was cast here for the cannons of the Continental Army. The furnace was the last to be constructed in Maryland in the Colonial period and the only one of the Colonial iron furnaces that was still in operation in this Century.

He continues,

The Catoctin Furnace ruins remained in private ownership until 1936 when they were acquired by the Federal Government as part of the Catoctin Recreational Demonstration Area. One of the earliest projects undertaken by the National Park Service at that time was the stabilization of the ruins, an action which probably accounts for their excellent condition, in comparison with other such ruins, that they now enjoy.

This action, along with a limited program of archaeological excavation, indicates further the concern of the National Park Service at that time. Unfortunately, subsequent events prevented further development of the property, and in 1954, it was transferred to the State of Maryland as part of Cunningham Falls State Park.

Relocation of any part of the present route of U. S. Highway 15 to the east of its present location would bring it into such close proximity to the furnace ruins that they would be endangered, both by the construction and the vibrations caused by heavy trucks traveling this section of the highway. Further, if they survived these elements, the relocation would make them esthetically displeasing and destroy its potential interpretative and educational values.

One unusual feature of the Catoctin Furnace was the close proximity with its ore beds. Immediately behind and to the south of the ruins is located one of these old ore pits. This unique situation presents outstanding opportunity for telling a complete story, from mining the ore to its being cast into pigs. Any construction east of the present route of U. S. 15 would require filling of this ore pit, destroying forever its possible educational value.

In the vicinity of the furnace ruins are several structures associated with its history and operation. We are equally concerned over the possible destruction of any of these associated structures.

We urge that careful consideration be given to the planning for U. S. 15 in the vicinity of the Catoctin Furnace ruins to avoid any possible destruction of their inherent historical and archaeological values.

Mr. Mentzer's statement raised the question: "Will the construction of the dualization of U. S. Route 15 affect the old Catoctin Iron Furnace and/or any other historic landmarks, such as ore pits, in the vicinity?". The same question was also raised by Mr. George P. Gernand, Representative of the Catoctin Mountain Tourist Council, on page 59 of the Record of Proceedings:

The Catoctin Mountain Tourist Council is seriously concerned about the problems inherent

with the construction of a second lane of U. S. Highway 15 in the vicinity of the Catoctin Furnace ruins.

The furnace ruins and adjacent water pits and other remaining structures are, we believe, of archaeological and historic importance and worthy of preservation. For over one hundred fifty years the operation of the furnace was the dominant influence shaping the environment of this section of Western Maryland. The furnace was the last constructed in Maryland in the Colonial period and the only one still operating at the beginning of this century. Together with the nearby Cunningham Falls State Park and Catoctin Mountain Park, a unit of the National Park System, they form a tourist attraction that is of great importance to the economy of this nation. Their value in this regard is just being realized and will continue to increase with time. Of the hundreds of iron furnaces that once stocked the hills of Colonial America, few remains are as solid and imposing as these; probably nowhere else were the pits from which ore was dug as near to the furnace as here, offering an unusual possibility for interpretation of the total iron-making industry.

Additional statements concerning the individual fears about the nature or even amount of destruction that the dualization of U. S. 15 will cause the Catoctin Iron Furnace are contained within the Record of Proceedings. However, they are only general statements. The important points that both Mentzer and Gernand raised are:

1. Do we consider the Catoctin Iron Furnace and adjacent ore banks as one historical unit?
2. If not, are the ore banks and Catoctin Furnace treated as individual units with equal historical importance?

3. As Gernand points out, if the ore banks are destroyed, will the interpretive value of the Catoctin Furnace area be greatly affected, thereby decreasing the number of visitors, and economic and recreational importance of both the Cunningham and Catoctin Parks?
4. Will the dualization of the highway, destroying portions of the conjectured ore pits, also destroy significant historical and archaeological information?

Considering these points, Mr. Tyler Bastian filed a brief report with the State of Maryland, State Highway Administration on May 14, 1970, discussing the historical and archaeological resources to be affected by the dualization. In summary, he reviews the history of the furnace, its importance as an economic stimulus in Western Maryland during the colonial days, and states: "...a number of other industries were associated with it including paint, saw, grist, and barrel stave and utility pole mills."

In addition, he clearly states that the information that is known about the Catoctin industrial complex concerns only the political, economic, and geological aspects of the iron industry, and that the total industrial complex at Catoctin, or the technology of any part of it is unknown at this time. Therefore, Mr. Bastian recommended that a short, intensive archaeological and historical survey would be necessary to establish whether or not the dualization of U. S. Route 15 as it passes the Catoctin Iron Furnace would affect the furnace in a detrimental manner. Recognizing the condition of the Catoctin Furnace ruins, their location to Cunningham Falls

State Park, their potential as an historic site and interpretive center, Mr. Bastian observed: "The preferred alignment is located on the east side of the present U. S. 15 and would pass through a portion of the Catoctin Furnace Complex" (see Planview Figure 2, Location of Furnace Complex and Limestone/Ore Pits). "The alternative alignment would place the new road west of present U. S. 15 and would pose no direct threat to the Catoctin Furnace area."

Recognizing that the dualization to the east of the present U. S. 15 would result in the destruction of archaeological, historical, and interpretive materials, Mr. Bastian stated that there was an urgent need for intensive archaeological/historical survey of this area to preserve irreplaceable scientific data. It was his feeling that sufficient funding would enable the investigations to be instituted without loss of information or causing delay in the construction of the highway. Of course, the survey would employ salvage archaeology techniques and prohibit preserving the integrity of those areas of the site tested for possible future development as interpretive features. Therefore, since the Catoctin Furnace complex is the only State-owned iron furnace site in Maryland, there is considerable justification to consider the alternative dualization to the west of the present U. S. Route 15.

In response to the Record of Proceedings and Mr. Tyler Bastian's brief report, the State Highway Administration contracted for a preliminary historical and archaeological survey in order to define the specific destruction that would take place by the dualization of U. S. Route 15.

The purpose of the study was to ensure that both recorded and unrecorded historic landmarks would not be damaged and that the nature and presence of archaeological remains to be affected by the construction would be scientifically recorded. The results of the study would enable an evaluation to be made of the remaining historical and archaeological features of the Catoctin Iron Furnace complex and their interpretive and educational values to the public.



## THE IRONWORKS INDUSTRY

### HISTORICAL BACKGROUND

In ca. 1650, a colonial ironworks appeared in Saugas, Massachusetts, but for one reason or another failed to develop or expand significantly. The great distances that ores had to be transported to the furnace contributed to this lack of development; however at the beginning of the 18th Century in specific geographic regions possessing basic ore resources, production of iron began slowly and eventually flourished.

Pennsylvania was one such region and, in 1720 along the French Valley in the southeastern part of the State, its iron industry began and within a decade developed into central Pennsylvania and northern Maryland (Stevens 1970: 16-17). The southeastern Pennsylvania iron industry was centered around small enterprises using predominantly hand labor, and locally owned by one or two persons. The water wheel was the major power source, turning gears and machinery for the casting house, foundry, and furnace. By 1750, ironmaking was Pennsylvania's major industrial interest. This development and growth was fostered by the rich iron ore deposits in Western Maryland and Pennsylvania.

In 1719, the Maryland General Assembly passed an act to encourage the manufacturing of iron. The Principio Iron Company in Cecil County was soon thereafter in operation. By 1754, there were seven furnaces and eight forges operating in Maryland; and by 1758 the number had increased to eight furnaces and ten forges, producing 2,500 tons of pig



iron and 600 tons of bar iron annually.<sup>1</sup>

On the eve of the Revolutionary War there were seventeen furnaces and seventeen or eighteen forges under operation in Maryland alone.

Counting the additional furnaces and forges in Pennsylvania and Virginia, the number probably triples that. The Maryland economy expanded with the profits made from the iron industry (which were said to be large in 1727); with the Principio Furnace selling its pig iron at 10 pounds a ton, its bar iron at at 35 pounds per ton, and its blooms at 25 pounds per ton. In 1754, the prices had fallen to 8 pounds per ton for pig iron, 18 pounds per ton for bloom, and to 28-30 pounds per ton for bar iron.

Even though the first ten furnaces built between 1720 and 1760 were located in the area of the arundel ores in the eastern part of Maryland, by 1760 the limonite ores of Western Maryland had begun to be utilized; and in 1760, the Hampton Furnace near Emmitsburg in Frederick County was erected. There were three others in Washington County; one in Carroll County; and the Catoctin Furnace, in Frederick County built in 1774-76, the last of the furnaces to be erected in Maryland in the colonial period. By the Revolutionary War, both of Maryland's ore deposits were being mined, and as many as thirteen were probably in blast at one time. The ore was in such quantity that it was being exported to England and to the Commonwealth

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1. A furnace is an enclosed structure in which heat is produced for heating a building and reducing ores and metals; whereas a forge is a structure where metal is heated and hammered or wrought into shape and where wrought iron is made from pig iron or iron ore.

of Virginia. The exporting of ores suggests that an interlocking relationship existed between the iron industry of Virginia, Maryland and Pennsylvania (Singewald 1911: 128-133).

The need for iron during the Revolutionary War fostered the identification of the two most important classes of ore in Maryland: carbonites and limonites. Following the Revolutionary War from 1788 to 1839, the Maryland iron industry grew slowly. Only seven new furnaces were built (four of which were in the western part of the State), as compared to the seventeen built prior to the Revolutionary period, and six of those were abandoned during and just after the War.

In the ten year span from 1855 to 1865, the growth of the iron ore industry was stationary. After the Civil War, a rapid decline ensued, and by 1880 the less favorably located furnaces closed down. By 1885, only seven furnaces remained in activity in Maryland. During 1887, two of these seven ceased to operate; and in the year 1900, only two manufacturers of pig iron were left: the furnace at Muirkirk, producing a high grade of charcoal iron in 1911 (Singewald 1911: 128-137); and the Catoctin Iron Furnace in Frederick County, Maryland, which closed down in 1903 and was dismantled in 1905, ending the pig iron manufacturing history of Maryland.

## HISTORICAL SKETCH OF CATOCTIN

### LOCATION

The Catoctin Furnace complex lies four miles west of the Monocacy River and twelve miles northwest of the City of Frederick (see Figure 1). In 1954 the State of Maryland, Department of Forests and Parks, acquired (in part from the National Park Service, Department of the Interior) 4,460 acres of land, which included the Catoctin Furnace Complex, and established the Cunningham Falls State Park. Cunningham Falls State Park is a year-round recreational area accessible by U. S. Route 15, a limited access highway (Frederick County Deed 535: 69-77).

Today, the Furnace is accessible to the public, and is marked by a Highway Historical Plaque which reads:

Catoctin Iron Furnace, an important iron furnace during the Revolution, owned by Governor Thomas Johnson and his brothers. Furnished 100 tons of shells used at Yorktown.

## GENERAL HISTORY

The Frederick County Catoctin Furnace was one of the fifty-five furnaces using local ores in Maryland between 1719 and 1895 (Edwards 1967).

Because the economic growth of Western Maryland was complex in the 18th Century, the role that the Catoctin Furnace played is unknown. However, Frederick County, in the 1700's, had come:

. . .no closer to being a manufacturing community than the periphery. This inability to keep the wheels of industry going has not been due to a lack of local ambition. Nature simply said, 'no'. The exhortations and ambitious pronouncements of the local press fell as it were on sterile ground. It is true that the early efforts and activities in manufacturing gave a basis for sanguine hopes; however, any large amount of industrial activity was possible only as long as the pioneer life did not lend itself to specifications (Douglas 1938: 164).

The Bantgis Republican Gazette, March 17, 1810, claimed that no sizeable industry existed in Frederick County. An article in the Examiner, Fredericktown, Maryland, December 14, 1853, entitled "A Sketch of Frederick County," states that Frederick County's 18th Century trade, arts and manufacturers disappeared early in the 19th Century. Vanderblue and Crum (1927: 37 - 46), undoubtedly referring to the Catoctin Furnace, summarize this economic decline:

The small and isolated (charcoal) blast furnace had held its economic justification in the use of (available) local ores, (limestone, timberlands-charcoal fuels and water

power) lost ground to the steel plants located at strategic hubs causing costs to rise and less demand for the products produced at the small-rural furnaces.

More than a century later, following introduction of numerous technological and transportation improvements, Williams (1906: 140) states that Frederick County wealth is second to Baltimore when compared to all Maryland counties. This partially explains why the Furnace remained in operation until 1903 with fluctuating economic success. The "medieval-feudal manor-like" early American iron plantations were usually comprised of several thousand acres of forest land because of the enormous quantities of charcoal fuel needed. Along with the furnace, most iron communities had their own shops, dwelling houses and gardens, orchards, grain fields and frequently grist and saw mills. The inhabitants literally lived at their jobs, in a compact community which was largely self-sufficient and isolated (Walker 1967: 465-472).

The charcoal furnace itself was a truncated pyramid of stone, built near the side of a hill or bank. Across its upper opening was a covered bridge or furnace bridge over which the "fillers" carried iron ore, charcoal, and limestone to the furnace tunnel head where the charge was dumped into the stack. At the opposite end of the furnace bridge stood one or more large buildings for storing charcoal.

The blast to operate the furnace was furnished by geared machinery attached to a water wheel. Races and sluices brought water to the wheel from a stream or furnace pond. Located to one side of the furnace stack

was the casting house where molten iron was cast in sand molds. In the forge, cast pig iron was refined and hammered into blooms and bars of wrought iron which were shaped into tools, nails, horseshoes and wheel tires by the blacksmiths' hammer. In addition, pig iron was melted and cast into stoves and hollow wares; i.e., pots and kettles.

The furnace complex was usually composed of a blacksmith shop, wheelwright shop, barns, sheds, and the iron master's office and store. The workmens' homes, "tenant houses", were normally small and were built either of stone or logs with stone chimneys. Overlooking the entire complex would be the iron master's house.

Aside from the large number of men working the ore mines, colliers, and charcoal hearths, only a few workmen were required to operate the furnace in blast. These included two founders, charged with regulating the furnace; two keepers, in charge of the blast equipment; two fillers; two gutters to supervise the sand mold casting-beds; a potter, in charge of small finishing castings; and several laborers (Kurjack 1954: 1 - 18).

#### CATOCTIN FURNACE 1774 TO 1856

A tract called Good Will was surveyed and patented in 1752 on the south bank of the Little Hunting Creek, located on the eastern slope of Catoclin Mountain in northern Frederick County. Charles Calvert, Fifth Lord of Baltimore, issued a tract called Good Will to Charles Carroll of Annapolis in 1752 (Patent BC & GS 26: 191, and 27: 215); and Charles Carroll conveyed the tract to Thomas and James Johnson in 1776 (Frederick County Deed WR 24: 435-37).

The growth in Colonial wealth, land acquisitions, profits, and the availability of raw materials found Benedict Calvert, Fourth Lord Baltimore, issuing Thomas Johnson patents on lands for several tracts, amounting to over 7,000 acres, which passed into the hands of the brothers Thomas, Baker, Roger, and James Johnson between 1771 and 1776 (Frederick County Deed WR 24: 435-37). Thomas Johnson, with the prospect of personal financial gain, considered erecting a cold-blast charcoal iron furnace in Frederick County because of other successful charcoal iron furnaces in other American Colonies and the existence of fifteen working furnaces in Maryland, along with the availability of land, ore mines, timber for charcoal, limestone, and water power on his property (Singewald 1911: 177; Walker 1966: 465-472).

An 1803 Frederick County deed states that Thomas Johnson gave Nicholas Carroll, legatee to the late Charles Carroll of Annapolis, 100 tons of pig iron on January 3, 1776 in exchange of two tracts of land in Frederick County: Stoney Park (which contained 100 acres), and Good Will (containing 150 acres), upon which James Johnson and Company erected an iron furnace. Pig iron had been exchanged in place of cash (Frederick County Deed WR 24: 435-37). The deed further states that Nicholas Carroll owned First Divided Tract at Catoctin as legatee of Charles Carroll (barrister, deceased), "from whose agent Thomas Johnson long since purchased all such parts of additional tract which

was not included in earlier surveys," and that the first division of property was between James Johnson and Company. This part was given to Thomas and Baker Johnson, and that since the division, aforesaid Baker purchased all this, the said Thomas Johnson's right and claim in the furnace and land thereto belonging (Frederick County Deed WR 25: 201-202).

The possibility of an earlier furnace on the Good Will tract is doubtful as there is no mention of an iron furnace or ore pits in the conveyance of the Johns Mountain Tract from John Vertrees to Thomas Johnson and Benedict Calvert, March 24, 1769 (Frederick County Deed, MF: 147). However, Dr. Grace Tracy, who has plotted on a preliminary survey many 18th and 19th Century Frederick County tracts (including those within the Catoctin Furnace locale), suggests that the 1774 - 75 James Johnson Company charcoal furnace was built near the common boundary line between the original Good Will Tract surveyed in 1752 and the Johns Mountain Tract, surveyed in 1738 (Personal Communication).

The Good Will Tract was received on January 3, 1776. However, in a letter from Thomas Johnson to the Maryland Council of Safety in Annapolis dated July 22, 1776, the furnace apparently had already been in blast. Therefore, the construction of the furnace may have started as early as 1774 when the tract was owned by the late Charles Carroll of Annapolis.

The following letters testify to the 1776 existence of the Catoc-tin Furnace Stack #1, but not necessarily of the actual production of war materials for the Colonial cause in opposition to the British. The



absence of later Council of Safety notes on the July 1776 contract as having been forfeited leads one to consider the possibility that the charcoal furnace (Catoclin Furnace Stack #1) had not actually produced war material for the Colonial army.

Council of Safety to Colonel James Johnson

July 15, 1776

Sir. We are in want of about 20 4lb Cannon, 20 3lb and 20 2lb and 40 Swivels for the use of the Province and desire to know whether you will engage to furnish us with those quantities immediately -- if you can, be pleased to favor us as soon as possible with your terms and the time by which you will have them made, tho' it will be much more agreeable to us to see you upon the occasion. We shall likewise want 200 Iron Potts, some to contain 4 and others 2 Gallons, with Gales or Handles to supply the place of Camp Kettles, and should be glad you would advise us whether you could also cast them for us and by what time, likewise the price.

Md. Arch., XII, 55.  
Steiner 1902: 46

Thomas Johnson to the Council of Safety

Frederick Town, July 22, 1776

Mr. Ringgold gave me your letter for my Brother James our furnace is not now in Blast. I went out to him as soon as I got the Letter. We have now by us a few potts of about the size you describe, a few Kettles & a few Dutch ovens of much the same contents, the covers we could lay by and of all sorts, make up perhaps 60 or upwards. We shall have Bales made to them, and unless you have an opportunity of supplying the men with others more to your satisfaction, send them to Balt as soon as we can: the prices must depend on their size and the whole shall be so reasonable as to give Satisfaction. But if you can be better provided please to advise me of it. My Brother is getting his furnace into Blast with all Diligence and hopes to effect it within a fortnight. You may then have any number of potts and Kettles that you please within a short time. We shall also attempt to cast such guns as are wanted but cannot contract for them in all Events because the metal may not suit, though we have every Reason to expect it will. If we succeed in making good Guns the public may have them held at Baltimore at £ 40 a Ton the Guns being proved at the

the works at the public Expence, the swivels at their common price, but I should be glad if you would ascertain the length & other Descriptions as the make of cannon carrying the same shot vary very much. If any Body also will contract for a Certainty, I wish he should be preferred even at a greater price.

Md. Arch., XII, 92.

Council of Safety to Thomas Johnson

July 22, 1776

If your Brother's Iron is suitable for casting Guns we could contract with you for fifty three pounders, fifty four-pounders, and seventy five Swivels to Carry one pound Ball. Captain Nicholson informs us that the length of the Swivels is not material, the three and four pounders ought to be somewhat shorter than the common standard.

Arch. of Md., XII, 114.

Apparently, a letter in the James McHenry Papers, Volume VI (17990 840 L/C), dated Frederick, February 12, 1800 from Thomas Johnson to the Secretary of War, stated that "upwards a year ago," he made a proposition for furnishing shot, "but never had the satisfaction of hearing more on the subject." From this statement we can interpret that the Catoctin Iron Furnace did not provide shot for the Revolutionary War as the Johnson letter suggests.<sup>2</sup>

Catoctin Furnace Stack #1, constructed between 1774-75 and in blast by 1776, measured 32 feet high by 8-1/2 by 8-1/2 feet on the inside. It was relined in 1787 and measured 33 feet high by 9 by 9 feet, with an annual capacity of 1,000 tons of forge and foundry metal in 30 weeks time (Lesley 1859: 50; Swank 1884: 253;

2. However, correspondence from the Superintendent of Hopewell Village National Historical site in 1941 to the Catoctin Iron Furnace Complex states the Knox papers in Boston contain an inventory of Revolutionary War munitions by sources. The letter states that the inventory shows the Catoctin Furnace (James Johnson) furnished 10 inch shells - 950. Unfortunately we were unable to confirm this reference and therefore we can not endorse it as historical fact.

Directory 1888: 32). In 1788, Thomas Johnson purchased additional real estate for the furnace and also four negro slaves from an iron master (Frederick Deed WR 8: 286). The early and initial success of the furnace may have led to the 1787 remodeling. However, the operation was not profitable and, in 1793, the James Johnson and Company was dissolved. His brother, Baker, acquired two-thirds, and Thomas one-third interest in the furnace.

There is mention of the James Johnson Company furnace and furnace lands in the conveyance of 2,026 acres of land from Thomas to Baker in a deed dated May 6, 1802 (Frederick County Deed WR 12: 499). There is no mention of the furnace in a lengthy deed dated December 6, 1802, when 934 acres were re-surveyed and incorporated into a tract called Auburn Tract upon which a large dwelling house was erected ca. 1802 - 06 (IC#Q 497, Patent 362).<sup>3</sup>

The furnace was again operated unsuccessfully until 1803, when Baker Johnson bought out his brother's interest and became the sole owner. The absence of the Catoctin Furnace in Bohn's 1797 Map of Maryland may be indicative of a financial crisis which affected Baker Johnson's ability to contract out his pig iron products. He later leased the furnace to Blackford and Thornberry for ten years for \$1,100.

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3. The records of the Henry Foxall Foundry, located in Georgetown (1800-1812) and later called Columbia Foundry, should be checked for its possible use of pig iron from Catoctin (Henry Foxall's and John Mason's Account Books, National Archives).

Colonel Baker Johnson's will, probated in Frederick County on July 1, 1811, mentions numerous lots, houses, and farms in Frederick. According to the will, his son, Baker, was given "the place where he now lives called Auburn." To his daughters, whose executors were to sell both the furnace and furnace lands for their benefit, he left "Catoctin Furnace and all the land annexed thereto" (Frederick County Will Book, RB #1: 192-200). A clause in the codicil in the above Will says,

It is also my will and desire . . . that my executors shall cause to be laid off and run out a line from the gate which stands between the overseers house and the other farm house running a course with the commencement of the fence to intersect the first line of the Green Spring Tract, west of South Mountain, also another line to be run from the said gate to the end of the stone fence that is begun to be made on the side of the road leading to my son Baker's house; i.e., "Auburn."

(Author's Note: The line apparently ran east-west).

It is not clear whether the overseers' house is referred to here as the Auburn house. One would suspect that socially prominent and wealthy people, such as the Johnsons, would not have resided in the iron master's house with the blast furnace virtually in their front yard (Porter 1936).

A 1811 newspaper article states the existence of two furnaces in Frederick County which produced 380 tons of pig metal annually, 400 tons of pots, stoves, and was valued at \$42,970. Three forges are reported in an article entitled, "Annual Manufactured Articles in Frederick County", The Hornet, Frederick Town, January 16, 1811.

On July 13, 1811, the Catoctin Iron Furnace and furnace lands were offered for sale. The public notice describes the charcoal furnace as being a large blast furnace, with stack, wheel and bellows, and all the buildings of the furnace (which were said to be in good order), along with several tracts of land. Improvements made between 1803 and 1811 included a large two-story dwelling house, two stone houses, a chopping mill, a stonemith shop, barns, stables, corn houses, and fifteen to twenty additional iron worker houses.<sup>4</sup>

On August 15, 1811, the Catoctin Furnace and furnace lands were sold by Colonel Johnson's executors to Willoughby and Thomas Mayberry of Philadelphia for \$12,500 Pounds current Maryland money (Frederick County Deed WR 41: 637-41). Within a year, the Mayberry partnership was dissolved and the furnace was operated by Willoughby Mayberry until 1820. The national financial crisis and discouraging profits necessitated Willoughby trustees to sell the furnace to John Brien who, it is said, made many improvements thus increasing the furnace's annual capacity. It is believed that Brien refitted the charcoal furnace in 1831 to modernize its operation towards greater efficiency (Lesley 1859: 50). Brien manufactured hollow ware, i.e., stoves, kettles, etc. (Frederick County Deed, H.S. 19: 213-15). Unfortunately, little is currently known pertaining to John Brien's ownership (Mentzer 1969). A 1841 public sales notice describes a much expanded furnace complex in comparison to an earlier 1811 public sales notice. Structures mentioned in 1841 but absent in the 1811 sales notice include a carriage

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4. Frederick Town Herald, July 13, 1811, Vol. X, No. 6; and July 20, 1811 edition.

house, ice house, merchant mill, saw mill, and a large garden.<sup>5</sup>

Alexander (1836: 96) observes that horse drawn wagons, transporting goods from the Catoctin Furnace to neighboring towns ran daily during the year except on Sundays. Because of the apparent inefficient transportation methods and unstable economic conditions of the Catoctin Iron Furnace, Alexander attempts to encourage the sale of a railroad to the people of Frederick and the Catoctin Furnace owners. Supporting the hope of this sale, Alexander points out that it cost \$1,200 to haul 600 tons of merchandise to Frederick and that a railroad would improve Catoctin Furnace's ability to sell its goods at a profit. Alexander's statements apparently were disregarded since Tanner's 1833 Atlas shows Frederick and Baltimore linked by rail in addition to several turnpikes and canals.

On August 14, 1843, John McPherson, trustee for the heirs of John Brien's estate and other interested parties (apparently creditors) sold the Catoctin Furnace Complex to Peregrine Fitzhugh of Washington County, Maryland (Frederick County Deed, HS 19: 213-15).

The cost of purchasing the furnace, along with Peregrine Fitzhugh's heavy equipment investments, created unmanageable debts which brought on a financial crisis at a time when many charcoal furnaces in Maryland were attempting to expand with the new and less expensive coke furnaces. These financial difficulties, along with a general economic

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5. The Republican Citizen, Frederick, December 24, 1841.

decline are noted in the Examiner, December 14, 1853, which describes the Frederick, County industries as decreasing in numbers beginning early in the 19th Century.<sup>6</sup>

#### CATOCTIN FURNACE 1856 - 1873

In 1856, Fitzhugh constructed a steam operated cold-blast charcoal furnace, Catoctin Furnace Stack #2 (named Isabella), along side of Catoctin Furnace Stack #1 which was of the same size and was to operate from the same ore (Lesley 1859: 50; Directory 1888: 32). However, the expense proved to be too much and on November 26, 1856, Fitzhugh sold one-half of his interest to Jacob M. Kunkel, a Frederick lawyer and State Senator, for \$35,000. In this conveyance between Fitzhugh and Kunkel, the description of the "Catoctin Iron Works" includes 7,000 acres of land, six teams of horses and mules, wagons and harness, coal on hand, 1,400 cords of wood on hand, the ore (mined), the furnace, the railroad cars, furnace tools, blacksmith and carpenter tools, wagons, carts, farming tools and car, cart and bank mules (Frederick County, Deed ES 9:99).

The firm of Fitzhugh-Kunkel was dissolved on April 21, 1858 and the whole furnace was mortgaged to Jacob M. Kunkel, with the understanding that Fitzhugh was to operate the furnace for one year and apply the

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6. The Fitzhugh-Snyder Iron Furnace was reported to have burned on January 25, 1853. A local newspaper of this date, if found, ought to describe the fire and damage in detail.



net proceeds to the partnership debts (Frederick County Deed, BGF 1: 503 - 504).<sup>7</sup>

Kunkel apparently de-emphasized the hollow-ware furnace (#1) and built Catoctin Furnace #3, a steam and water operated hot-blast anthracite-coke furnace, having a capacity of 35 tons a day in 1873. The new coke furnace was built as a cylindrical iron column stack 50 feet high by 11-1/2 by 11-1/2 inside. This furnace was named Deborah after Kunkel's wife and produced mill and foundry pig iron with an annual capacity of 9,000 tons (Directory 1888: 32). Three years later Kunkel took out a patent for the elimination of phosphorus from pig iron by the use of magnesium limestone, a process that produced no notable results (Singewald 1911: 147). The furnace now was at its largest capacity and its economic success made a substantial impact on the surrounding communities.

William J. Ross, trustee to John B. Kunkel, on August 21, 1866 described in full the 7,000 acres of the Kunkels' and the furnace lands (Frederick County Equity case court proceedings 2805, and Frederick County Deed, JWLC 4 f 278; JWLC 4: 159). The latter contains a brief on all twenty-four land purchases by Kunkel, increasing the furnace lands from 7,500 to 10,000 acres.

7. A detailed study should find Fitzhugh as having been engaged in several partnerships at the Catoctin Iron Works (Mentzer 1969). Also several chancery cases were filed against Fitzhugh's faltering enterprise; i.e., Chancery Papers Frederick County 10168, 1850 for unpaid debts.



## CATOCTIN FURNACE 1873 - 1890

All three furnaces were in operation in 1880 (Frederick County Tax Assessment Records, 1876; Swank 1884: 254; Directory 1888: 32). The Frederick County Tax Assessment Book for 1876 lists John B. Kunkel with 10,000 acres of mountain land valued at \$30,000, and improvements including a dwelling house, three furnaces, warehouses, shops, store houses, and fifty iron workers' houses, all valued at \$40,500. On page 80 of the same Tax Assessment Book (#15), two steam engines valued at \$3,000, and thirty ore carts valued at \$300 are listed.

Scharf's History of Western Maryland was written in 1882 during Kunkel's operation and therefore may be valid as far as its facts are concerned. Scharf states that the furnace in 1882 had an annual capacity for 10,000 to 12,000 tons of pig iron. Kunkel purchased additional furnace lands to make charcoal, increasing his holdings to 11,000 acres.

Regarding the iron furnace work force, Scharf writes that there were 300 woodchoppers and coal makers employed; 100 miners were extracting the brown hematite ore from the ore bank one mile north of the furnace and transporting it to the furnace over the privately owned railroad where Kunkel kept 100 men busy keeping the furnaces in blast around the clock. This suggests that a total of 500 men were at work.

After his death in 1885, Kunkel's children organized the Catoclin Iron Company which closed within two years time and went into the hands

of the receivers who presided over the bankrupt firm.<sup>8</sup> It is not known what specific year all three furnaces ceased to be in blast simultaneously. Their operational condition as being in blast through 1890 is confirmed by the Directory (1888: 32; 1890: 32). After operating the Catoclin Iron Company for a year, the receivers sold it to the newly formed Catoclin Mountain Iron Company who continued operating and produced 30 tons of pig iron a day. This company kept in blast until 1892 when they were forced to shut down because of the decreased demand for pig iron, high operating costs, and low price of iron due to the severe market competition of the anthracite and bituminous iron technology.

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8. The Catoclin Iron Company possessed 10,677 acres of land (excepting 200 acres farm) (Equity Case 6881, August 26, 1898; Deed DHH 3: 94) and 70 acres, reserved for use by the Monocacy Valley Railroad (Frederick County Judicial Proceedings, TG: 229, August 28, 1886) which, since 1886, passed through the furnace property directly to the west of the tenant's houses. The railroad was a steam line four miles long, running from Catoclin Furnace to Mechanicstown providing connections with the Western Maryland Railroad. The primary purpose of the railroad was to haul coke to the blast furnace (which was used instead of charcoal in reducing the iron ore into blooms and bars) and to transport the manufactured pig iron to market.

## CATOCTIN FURNACE 1890 - 1903

The Catoctin Furnace sat idle and rusting under ownership of the Catoctin Mountain Iron Company from 1892 through 1899, at which time the receivers (Mary Kunkel, George Kunkel, and Charles Levy) held a public sale of the furnace at Frederick on July 7th. The sale was forced upon the receivers since the company had been involved in suits.<sup>9</sup>

Ernest Sharp purchased the furnace from the receivers for \$30,000 on April 17, 1899 (Deed DHH 3: 614). Soon thereafter, on August 1, 1899, Sharp sold the furnace to the Blue Mountain Iron and Steel Company (Frederick County Deed DHH55: 215) who purchased, along with the plant, 10,000 acres of land and \$500,000 in capital stock.

The company began operations in 1900 and apparently immediately enlarged Catoctin Furnace Stack #3, Deborah, to 60 feet high by 13 by 13 (Directory 1904: 276); which produced almost 40 tons of pig iron<sup>10</sup> per day until 1903 when it was shut down. The company, recognizing that Catoctin Furnace Stack #2 (Isabella, built in 1856) was inefficient to operate, began dismantling it; and only portions of it remained in 1904. The old Charcoal furnace erected in 1774-6 was dismantled in 1890 (Directory 1892: 30).

Stiff competition brought bankruptcy to the Blue Mountain Iron and Steel Company and a petition was filed against the creditors of the company by Frank Porter of Baltimore on December 17, 1903 (STH 284: 567).

9. Frederick County Equity Court Proceedings 6881, Catoctin Mountain Iron Company v. the Stockholders and Creditors, May 5, 1898.

10. Foundry produced forge pig iron and had an annual capacity of 15,000 tons (Directory 1904: 276).

## CATOCTIN FURNACE POST-1903 TO PRESENT

On February 19, 1906, M. L. B. Keene Claggett, Jacob Rohrback, and Charles O. Waters, trustees of the bankrupt Blue Mountain Iron and Steel Company, sold the furnace to Joseph E. Thropp at a public sale<sup>11</sup> for \$44,950 which included the real estate, with its inexhaustible ore banks and lush timberlands with locust and poplar mixed with the abundant supply of chestnut trees (Frederick County Deed 344: 369).

Joseph E. Thropp owned and operated the Earlston Furnace and Mill in Everett, Pennsylvania and considered the purchase of the Catoctin Furnace as an extension of his Pennsylvania enterprise. His intent is not directly known, but we can suppose that he never considered actually using the Catoctin Furnace for the production of pig iron, but instead desired to salvage all equipment and materials for use at his furnace in Everett. The real and personal property that he acquired from the bankrupt Blue Mountain Iron and Steel Company was consolidated<sup>12</sup> only to support his activities at the Fitzhugh and Kunkel Ore Bank one mile north of the Catoctin Furnace from which he shipped ore by rail to the Earlston Furnace<sup>13</sup> (Frederick County Deed STH 284: 567 - 71; Directory 1912: 65). In 1912, he closed down his ore operations in Maryland, and in 1923 shut down his furnace in Everett (Directory 1935: 361).

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11. Including costs for steam shovel for use at the Kunkel-Fitzhugh Ore Bank, Thropp's total investment exceeded \$51,000 (Frederick County Deed 344: 369).

12. At the time of purchase, The News of February 20, 1906 and Directory 1908: 413, indicate that Thropp acquired 10,470 acres, a coke furnace, a large dwelling house, a store, an office building, 60 iron worker or tenant homes and other buildings which were essentially dismantled in 1906 - 07.

13. See Singewald (1911: 194 - 95) for description and sketch of the ore bank.

Discontinuing operations at the Earlston Furnace in southwestern Pennsylvania, Thropp in financial difficulty sold a portion of his Catoctin Furnace holdings to Lancelot Jacques (Frederick County Tax Book 1923; Frederick County Deed 344; 369). The tax books show that Jacques held at least 6,242 acres of Thropp's 10,000 acres in 1923, having sold a portion of the Catoctin Furnace tract to the Potomac Hills Development Company on September 2, 1926 (Frederick County Tax Book 1928: 32; Deed 360: 90: and 364: 146). In 1929, Jacques sells another portion of the Catoctin Furnace tract to Lawrence Richey. Apparently, from these numerous transactions, Jacques was attempting financial gain by parcelling of the 10,000 acres he acquired in 1923. The Frederick Post and News, on June 16, 1928, carried an article of an auction held by him to sell the historic Catoctin Manor House at the Catoctin Furnace, "the former ironmaster's house", which is the first transaction recorded that indicates sale of actual Catoctin Furnace Complex structures, and clearly shows us that Thropp had not dismantled and salvaged everything. Jacques continues his operations and, on June 15, 1937, sells 78.8 acres of the Catoctin Furnace tract to E. A. Nicodemus (Frederick County Deed 414: F587-89). Nicodemus apparently also purchased several thousand acres more of the furnace tract because, soon after, on April 30, 1937, he sells 3,175.6 acres of the tract to the United States Government, Department of the Interior for \$22,197 (Frederick County Deed 407: 145). However, the deed detailing the acquisition of the additional acreage to make a

parcel totalling over 3,000 could not be located. The National Park Service, Department of the Interior, made this acquisition with the intent of adding the 3,000 acres to its new 12,000-acre Catoctin Mountain Demonstration and Recreation Area.

Descriptions of the condition and extent of the remains of the Catoctin Furnace Complex are sketchy. Mentzer reviewed the history of the National Park Service involvement and concern with historic sites and archaeology since its acquisition of the Catoctin Furnace ruins in his statement before the Maryland Highway Administration, Record of Public hearings (see pages 2, 3, and 4 of this report); but his description does not shed light on the specific remains at the furnace in 1936. However, the Frederick News, on August 10, 1940, describes the "iron master's" house at the Complex as being a structure located on a grade, three stories high with gable roof and pediment, flanked by dormer windows, and containing 23 rooms and hearths. The front entrance walk is edged with rows of large boxwoods, overgrown and unkept. Numerous boxwoods from the entrance walk were transplanted on the White House grounds, Washington, D. C., in 1930.

In 1954, the National Park Service, Department of the Interior, conveyed some 4,460 acres of the Catoctin Furnace tract and complex to the Maryland Department of Forests and Parks.

In 1964, the completion of the present U. S. Route 15 sealed under the roadway a number of important historical and archaeological features

that were part of the various Catoctin Furnace Complex operations. These features, in our opinion, included portions of an old charcoal road, logging road, ore cart roads and tracks, race courses, and some 13 or more unidentified structures which probably included a saw mill and grist mill which are indicated on an 1873 map of the Catoctin area found in the Atlas of Frederick County Maryland, taken from the actual surveys of D. J. Lake, C. E. and C. O. Titus and Company of Philadelphia, Pennsylvania. It is possible that the location of the unidentified structures on the map could be questioned because the map fails to show the 1886 Monocacy Valley Railway from Catoctin Furnace to Mechanicstown. However, it is not the existence of these structures of 1886 which is in question, but their exact location.

AN ANNOTATED SUMMARY OF THE EXPANSIONS AND CONTRACTIONS  
CATOCTIN IRON FURNACE COMPLEX 1765 - 1971

CATOCTIN FURNACE STACK #1 (1775)

The Catoctin Iron Furnace Complex was constructed by the brothers Thomas and James Johnson in 1774 - 75 on the boundary of the Good Will Tract and Johns Mountain Tract (Personal Communication, Dr. Grace Tracey). It extended from the south bank of Little Hunting Creek along the east slope of the Catoctin Mountain, south to a point where the race course from the furnace and mills returned to Little Hunting Creek (see Planview, Figure 2). The original Catoctin Furnace Tract, in 1776, consisted of some 7,000 acres growing to over 10,000 acres during the 1873 - 1890 period. The Johnson brothers probably finished construction of the Catoctin Furnace Stack #1 in 1775 since the Council of Safety Records (pages 19 and 20 of this report) indicate that, in a letter from Thomas Johnson, the furnace had been in blast in 1776. However, since the Johnson brothers did not acquire the land from Charles Carroll until 1776, without a deed (Frederick County Deed WR 24: 435-37), it is impossible to assume conclusively that Thomas and James Johnson built the Catoctin Furnace Stack #1. Therefore, it is reasonable to assume that construction was undertaken on the furnace prior to 1776 by unknown parties, or it would have been impossible for Johnson to address the Council of Safety on July 22, 1776 stating, "My Brother is getting his furnace into Blast with all Diligence and hopes to effect it within a fortnight." It also may be that the Johnsons actually conceived



of the furnace and began its construction before they had acquired the land and on which a deed had not been issued. An 1803 Frederick County deed clearly indicates that, on January 3, 1776, 100 tons of pig iron were exchanged between the Johnson brothers and legatee Nicholas Carroll for the land on which the furnace stood.

Of course, the assumption that it takes more than one year's time to construct a furnace stack, sluices, races and all related buildings must be accepted if we are also to accept the possibility that the Johnson brothers did not originally begin construction of Stack #1 or, that if they did begin the construction, they did so on property that they did not legally own.

Historically we know that for an iron furnace to function, a series of associated buildings were necessary. These buildings would include those directly related to the processing of ores into pig iron, i.e., charcoal house, casting house, foundry, forge, stables, wagon sheds, saw mill, etc., as well as tenants homes and ironmasters house. Water power had to be harnessed for the owner to provide the energy to drive the bellows while the furnace was in blast, and this process would include the construction of water storage ponds, races, sluices, etc. (see Walker, n.d., and Kurjack 1954). The furnace complex at Catoctin and Stack #1 was in use from 1775 until 1787 when it was relined, increasing its capacity, and finally shut down in 1880 (Swank 1892: 30).

From 1787 until 1793, Furnace Stack #1 was in almost continual

blast and apparently was idle from ca. 1795 to 1803. From 1803 to 1811 substantial improvements were made to the Complex with the inclusion of nine furnace structures and twenty workers' houses. In the post-1811 years, financial crises beset the furnace, and it exchanged hands several times until John Brien purchased it in 1831. It is thought that at this time the original Catoctin Furnace Stack #1 underwent substantial changes towards modernization. An 1841 record describes several improvements having been made since the 1811 period. With the introduction of Catoctin Furnace Stack #2, named Isabella, the efficiency of the original stack is questioned, and it is finally dismantled in 1890 (Directory 1892: 30).

#### CATOCTIN FURNACE STACK #2 -- ISABELLA (1856)

Catoctin Furnace Stack #2 was constructed along side of Stack #1. It was the same size (33 feet high by 9 by 9), and was to operate from the same ore beds (Lesley 1859: 50; Directory 1888: 32). Stack #2 was a steam operated, cold-blast charcoal furnace. The introduction of steam to provide the energy for the blast furnace required the addition of an engine house, a hot-air oven, and other related buildings to the Catoctin Furnace Complex. The Isabella was in continuous use by its owners until it was shut down permanently in 1893 and partially dismantled by Thropp for salvage in 1904 (Directory 1904: 365).

### CATOCTIN FURNACE STACK #3 -- DEBORAH (1873)

To the south of Furnace Stacks 1 and 2, approximately 140 feet, Kunkel, in an attempt to revitalize the failing economic situation created by Fitzhugh in his operation of Stacks 1 and 2, constructed Furnace Stack #3 -- Deborah, a steam and water operated, hot blast, anthracite coke furnace having the capacity of 35 tons a day in 1873. The new coke furnace was constructed of cylindrical iron column stacks 50 feet high by 11-1/2 by 11-1/2, and was in blast until 1903 when it was shut down by Thropp who was consolidating and salvaging Complex materials for his Pennsylvania industrial interests (Singewald 1911: 148). He had completely dismantled the iron stack by 1905 (see photographic Plate 3b of dismantling operation; Directory 1908: 413).<sup>14</sup>

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14. The Monocacy Valley Railroad, constructed in 1886 (Frederick County Judicial Proceedings TG: 229), sold to the Potomac Edison Company in 1905 and electrified in 1910, creating the Frederick-Thurmont Trolley and abandoned in 1954.

# CHRONOLOGICAL CHART OF THE CATOCTIN IRON FURNACE

DATES	PROPERTY & LAND GRANT TITLES	
1970	CUNNINGHAM FALLS STATE PARK	STATE OF MARYLAND
1960	DEPARTMENT OF FORESTS AND PARKS 1954	
1950	NATIONAL PARK SERVICE	U. S. GOV'T.
1940	1937	
1930	E. A. NICODEMUS LANCELOT JACQUES and MR. HAUVER 1923	Private
1920	(IDLE)	
1910	1912	INCORPORATED
1900	J. E. THROPP 1905	
1890	BLUE MOUNTAIN IRON & STEEL COMPANY 1899	
1880	(IDLE) RECEIVERS 1892	
1870	CATOCTIN MOUNTAIN IRON COMPANY 1887	
1860	CATOCTIN IRON CO. 1885	PROPRIATORY
1850	JACOMB M. and JOHN B. KUNKEL	
1840	1859	
1830	FITZHUGH and KUNKEL 1856	
1820	PEREGRINE FITZHUGH 1843	
1810	JOHN BRIEN	
1800	1820	
1790	WILLOUGHBY MAYBERRY 1811	
1780	BAKER JOHNSON 1803	
1770	THOMAS and BAKER JOHNSON 1793	
1760	JAMES JOHNSON & COMPANY 1774	PATENTS FOR LAND
1750	LAND GRANT PROPRIATORS	
1740	CHARLES CARROLL JOHN VERNRESS JAMES JOHNSON	

## RECORDED BACKGROUND AND DATES ASSOCIATED WITH THE CATOCTIN IRON FURNACE

**CATOCTIN  
CHARCOAL  
FURNACE  
STACK No. 1**

**CATOCTIN  
CHARCOAL  
FURNACE  
STACK No. 2  
(Isabella)**

**CATOCTIN  
ANTHRACITE  
COKE  
FURNACE  
STACK No. 3  
(Deborah)**

DISMANTLED  
(DIRECTORY  
1892:30)

PRACTICALLY  
DISMANTLED  
(DIRECTORY  
1904:365)

DISMANTLED  
(DIRECTORY  
1908:413)  
1900 - ENLARGED TO  
60 x 13 FEET  
(DIRECTORY 1904:276)  
Annual Capacity  
Increased to  
15,000 Tons  
of Pig Iron

CONSTRUCTED  
50 x 11½ FEET  
INSIDE STACK  
(DIRECTORY 1888:32)  
Annual Capacity  
9,000 Tons of Pig Iron

CONSTRUCTED  
33 x 9 FEET  
INSIDE STACK  
(DIRECTORY 1888:32)  
Annual Capacity  
3,300 Tons  
of Pig Iron  
(DIRECTORY 1892:30)

1831 - ENLARGED TO  
33 x 9 FEET  
(LESLEY 1859:50)  
Annual Capacity  
1,700 Tons  
of Pig Iron

1787 - REBUILT - Annual Capacity  
900 Tons - (12 to 18 Tons Weekly)

CONSTRUCTED  
32 x 8½ FEET  
INSIDE STACK  
(DIRECTORY 1888:32)  
Annual Capacity  
600 to 900 Tons  
of Pig Iron

## CATOCTIN IRON FURNACE COMPLEX

The industrial demands of the Colonies just after the Revolutionary War undoubtedly served as a major impetus for the establishment and growth of the Catoctin Furnace Complex. Similar demands in the Federal Period and post-Federal Industrial History of the Eastern Colonies also directly affected the growth of the Furnace Complex.

We can assume that extensive alterations were made during the growth of the Catoctin Furnace Complex from its beginning, ca. 1775, that were parallel to the ever expanding technological society and would include dismantling, rebuilding, and enlarging. These improvements during its history would naturally cause severe disturbances both to the social and technological life in the Iron Furnace community; as well as, to the natural and physical features at the Complex. Particularly affected would be the subsidiary structures at the Complex such as tool sheds, mule barns, additional stables, workshops, etc. Of course, the construction of Stack #1 necessitated the building of additional primary structures; i.e., casting house, charcoal house, foundry, and forge with secondary structures being tenants' houses and an iron master's home. Construction of Stacks #1 and #2, each utilizing different power sources, required additional primary structures such as the engine shed and hot-air oven utilizing coke instead of charcoal. Therefore, it is logical to assume that the Complex was at times physically modernized; that buildings that had once been utilized as

primary structures would either be re-used for a secondary or subsidiary purpose, or be dismantled to construct additional buildings. It is also logical to assume that a structure that was no longer needed would simply be ignored and allowed to fall into decay.

Because of the natural destruction process occurring during the modernization stages of the Furnace, and the subsequent weathering and cultural changes that affected it, the compiling of historical and archaeological facts for a preliminary report on the survey of the Catoctin Furnace was limited. This limitation has been partially overcome through utilization of aerial photographs, historical photographs, early maps, and recent topographic maps correlated to the folklore and personal conversations with Catoctin Iron Furnace residents. The results and interpretations of this comparison process have been compiled and are shown in Planview, Figure 2. Before a discussion of the results of field surveying and the aerial photography and mapping can be presented, a review of the distinct growth patterns of the Complex is necessary if we are to understand the relationship to the present-day physical features, historical features, and the potential location of missing features.

Historically, tax assessment records and deeds have provided us with a partial picture of the physical plant. In 1811, a public sale notice published in the Frederick Town Herald, July 13, Vol. X, No. 6 lists the Furnace Complex, valued at \$12,500, and describes the area of