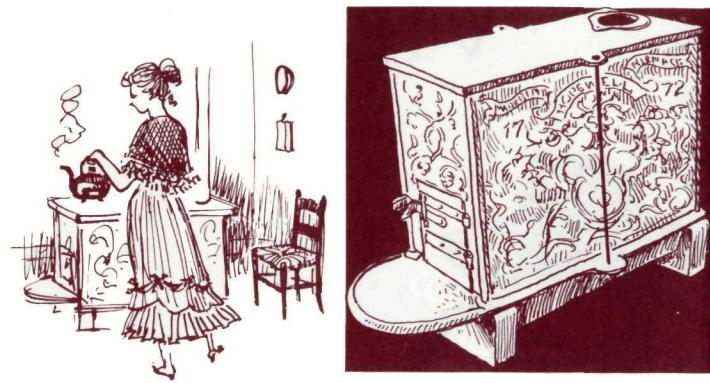


# HOPEWELL VILLAGE

NATIONAL HISTORIC SITE PENNSYLVANIA



# HOPEWELL VILLAGE . . . NATIONAL HISTORIC SITE



Hopewell Village, one of the oldest ironworks standing in this country today, is a symbol of industrial enterprise in colonial and early America and representative of the many furnaces of southeastern Pennsylvania. In the buildings of the village and in the restored furnace you find one of the best preserved examples of the forerunners of today's great iron and steel industry, a dominant factor in the development of our Nation.

## Iron in the colonies

While the colonies struggled to establish themselves, capital was short and skills scarce. To avoid increasing their indebtedness to Europe, the colonists determined to make their own iron. Thus for nearly 100 years most iron was made at bloomeries in which wrought iron was produced directly from ore. Bloomeries required little capital, few skilled workers and could shut down after making a small amount of iron for local needs.

As the colonies matured, large scale industry became practical. Ironmasters built and profitably operated blast furnaces that required more capital, skills, workers and organizational ability. Furnaces were worked day and night for months at a time to make cast iron. Some finished products were cast at the furnace, but most of the iron was formed into brittle cast-iron pigs. These went to forges, like Valley Forge, to be refined into malleable wrought iron, the raw material from which blacksmiths and toolmakers shaped hardware and tools.

Southeastern Pennsylvania, abundant in rich iron ore, hardwood forests, limestone, and water power, became the leading iron-producing area. Charcoal furnace

smelting in this area began with Colebrookdale in 1720. When Mark Bird built Hopewell in 1770, there were at least 19 other furnaces in the colony.

## Establishment of Hopewell

William Bird, father of Hopewell's founder, acquired his knowledge of forge and furnace operation through business dealings with the Potts family, then leaders in the iron industry. In 1743 he built Hopewell Forge on land he had acquired along Hay Creek near where it empties into the Schuylkill River, now the center of Birdsboro. When he died in 1761, he had several thousand acres of land, three forges on Hay Creek, a furnace west of Reading, and a townhouse in Birdsboro. Eventually his son Mark acquired the Birdsboro forges.

To supply cast iron for his forges, Mark Bird built Hopewell Furnace in 1770. Three mines of high-grade iron ore were within 5 miles of the furnace—Mark owned two of these. He had a source of water to power the blast machinery, and, of vital importance, he also owned thousands of acres of hardwood forest necessary for making charcoal, the fuel used in the furnace to smelt ore.

Mark Bird's associations with the industry probably made it easy for him to recruit skilled workers, perhaps from nearby Warwick and Reading furnaces. Nearby farmers were available for part-time wood cutting and hauling; slaves and indentured servants probably did the unskilled work. Full-time jobs were probably filled by young men of the neighborhood and the sons of the families of the village that grew up about the furnace.

Bird built homes for the workers who moved to the furnace; he also operated a store where they could buy their necessities. He, or his managers, lived in the "Big House" near the furnace. A barn sheltered the horses that hauled charcoal, ore, and limestone for the furnace, supplies for the village, and finished products to market. There were also a blacksmith shop and other utility buildings.

Seemingly isolated in a day of horse transportation, Hopewell Furnace served and was served by the country for miles around. Hopewell Village proper was the center of a larger community. More than 65 people worked for the furnace at such jobs as founder, keeper, filler, gutterman, moulder, blacksmith, collier, miner, wood-cutter, teamster, housekeeper, carpenter, mason and

laborer. Others supplied the families with meat, grain, flour, shoes, cloth, and other necessities. Bird's records show that in 1784 the furnace produced pig iron for forges, stoves, pots, kettles and other country castings sold locally, and forge hammers and other castings for industry.

## Hopewell during the Revolutionary War

Hopewell Furnace was hardly in production when the Revolutionary War started. Mark Bird saw service as a colonel in the militia, and some cannon and shot were cast at his furnace. His energy and knowledge of the area were put to use to get desperately needed supplies to Washington's army at Valley Forge during the agonizing winter of 1778.

After the Revolution, Mark Bird and his politically prominent brother-in-law, James Wilson, borrowed \$200,000 in sound Spanish money to meet certain obligations. In 1778, however, the sheriff sold Hopewell Furnace and the Birdsboro works.

## The Brookes and the Buckleys

During the next 14 years, Hopewell Furnace passed through a number of hands. Then, in 1800, it was purchased by Matthew and Thomas Brooke and Daniel Buckley, their brother-in-law. These two families shared control for the remaining years of Hopewell's operating history.

The new owners were plagued by a lack of working capital. With time, and with a new nation's increasing demands for quantities of iron, the financial problem was solved. Hopewell Furnace helped meet America's needs—and produced a profit for its owners.

## A prosperous era

A changing America was hungry for the products of forge and furnace. Many ironmasters concentrated on producing pig iron for forges, others for the more modern puddling furnaces where the pig iron was refined for blacksmiths or the new rolling mills. But Clement Brooke, son of Thomas, directed Hopewell's production to an expanding market for stoves. The cooking or heating stove was more convenient than a fireplace and used

less fuel—a special saving for city folk. The flask method of casting stoves used less iron than other methods; the new Schuylkill Canal cut the cost of hauling the product to Philadelphia nearly in half. Of the 40,000 stoves made at Hopewell in the 1830's, most went over the canal to Philadelphia and beyond. Profits from the longest blast in Hopewell's history, 1836-37, were reported at \$40,000.

In the village, stone houses replaced the earlier log ones, and families put down roots. Sons trained for the expanded number of skilled jobs resulting from the increased production of stoves. A school was built in the village, and the store provided most necessities for a comfortable life at fair prices and served as a "bank" for the workmen.

## End of an era

Hopewell Furnace was a part of America's early response to the need for iron. As our young Nation's demands for iron increased, the industry developed new and better iron-producing techniques. From Britain came the hot-blast method of smelting, making possible the use

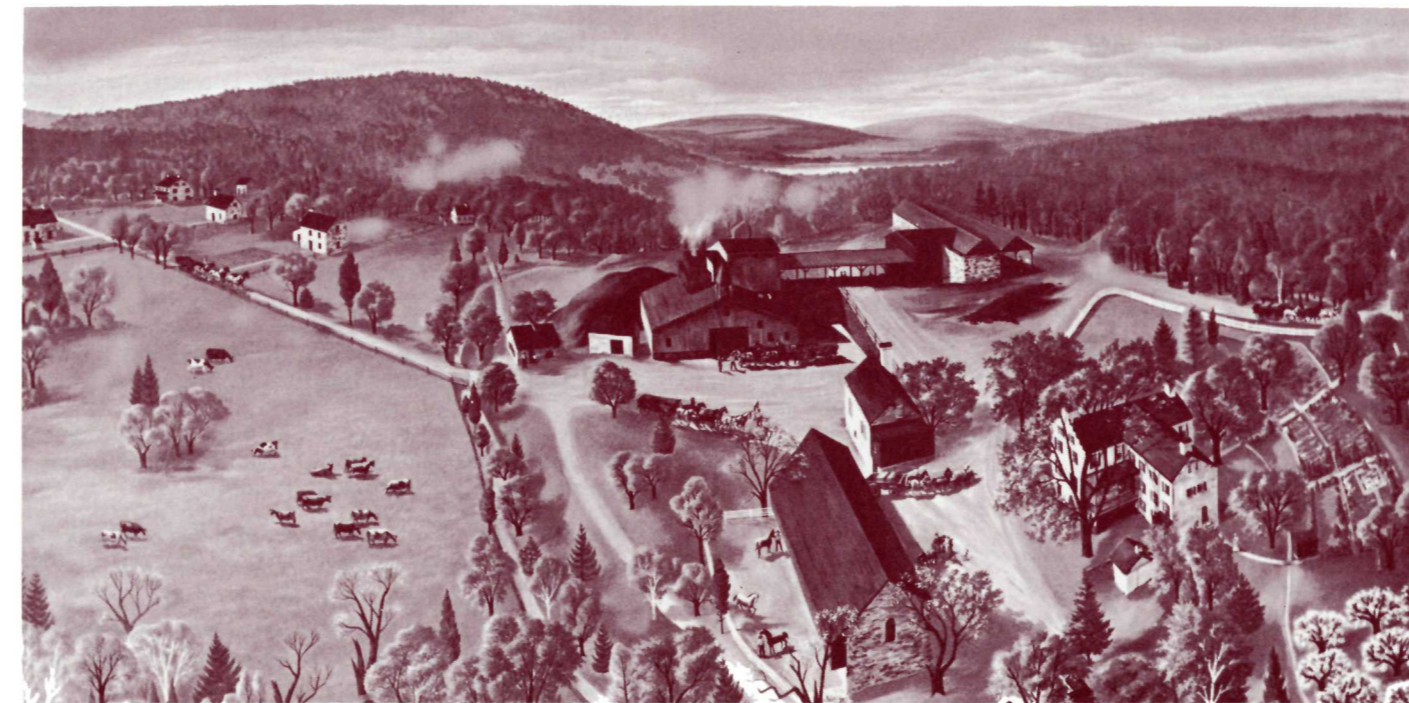
of anthracite coal and coke for fuel. With better transportation it was no longer necessary to locate furnaces near fuel supplies. Anthracite furnaces could be built in cities and could produce iron at a lower cost: concentration of the iron industry was inevitable. The doom of the charcoal furnace was sure.

The depression of 1841 and the growth of city foundries forced Hopewell Furnace out of the stove business, but the dwindling demand for charcoal-produced iron managed to keep the furnace operating. Finally, in 1883—after more than 100 years of almost continuous operation—it "blow'd out" for the last time.

## Hopewell Village today

The Federal Government acquired the site of Hopewell Village in 1935. Although the village had suffered physical deterioration through years of neglect, many of the major structures had survived basically intact and its significance as an early American industrial community was obvious. Therefore, on August 3, 1938, Hopewell Village National Historic Site was established. It now comprises 848 acres.

Hopewell Village, 1840: Big House, right; Barn, foreground; Furnace Group and Hopewell Lake, upper center. Today you enter the village from the right on the historic road bordered by the white fence.



Hopewell Furnace.



"Big House"—Ironmaster's Residence.

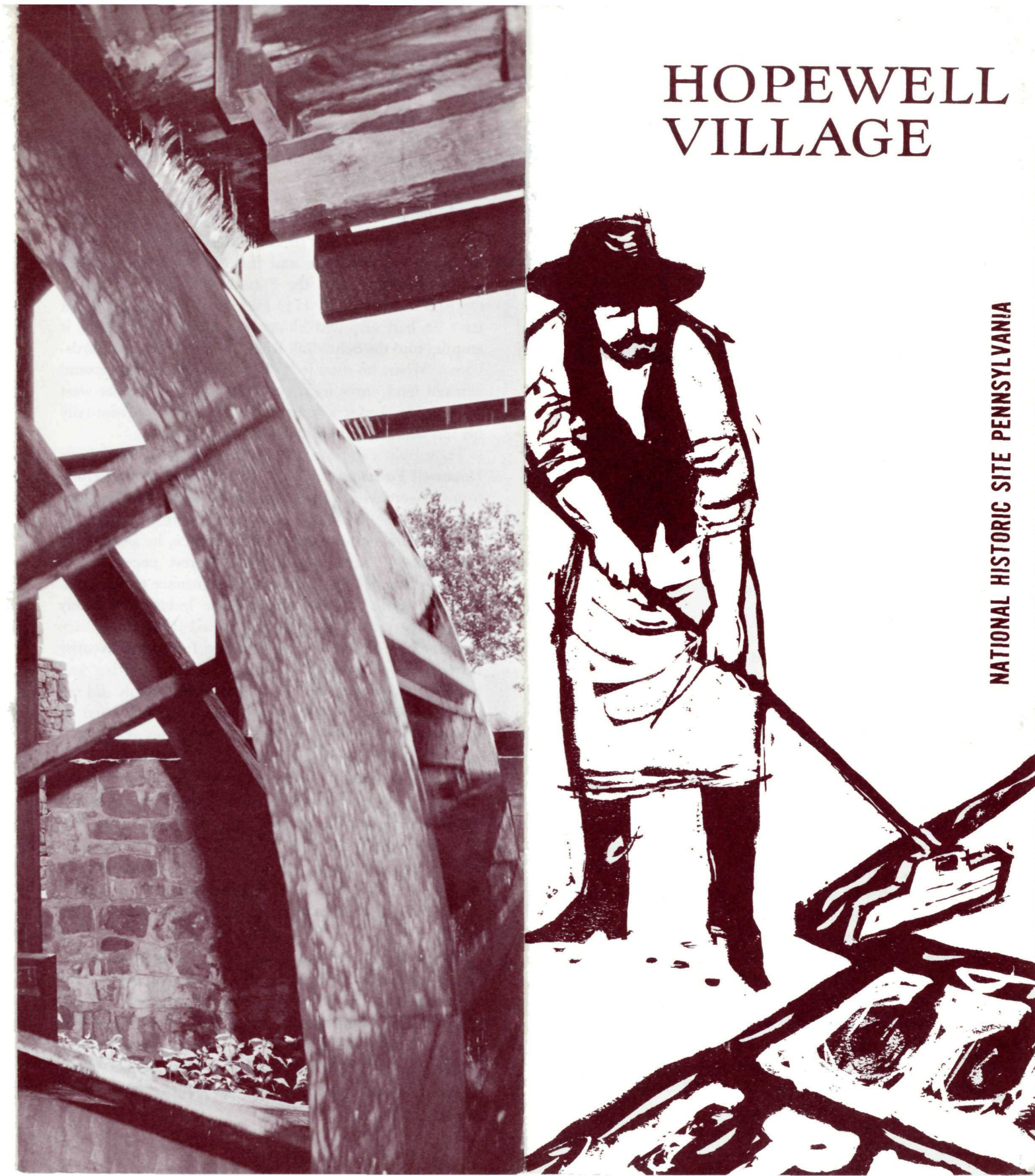


A feature at Hopewell Village each Establishment Day is charcoal making. Here a craftsman stacks cordwood before charring.



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## About your visit

We suggest that you follow the tour described in this folder. It begins with an audio-visual program and exhibits at the visitor center near the parking area. Here you will see original iron castings made at Hopewell and objects and tools used in the operation of a cold-blast furnace in the 1700's and 1800's.

Those who plan to visit in a group can receive tours if advance arrangements are made with the superintendent.

A visit to Cornwall Furnace will add much to your knowledge of early ironmaking. Cornwall is located on U.S. 322, southeast of Lebanon, and is administered by the Pennsylvania Historical and Museum Commission. This organization also administers Pottsgrove Manor, the townhouse of the prominent ironmaster, John Potts. This historic house is located on U.S. 422, at the west end of Pottstown, Pa.

## Administration

HOPEWELL VILLAGE NATIONAL HISTORIC SITE is administered by the National Park Service, U.S. Department of the Interior.

The National Park System, of which this area is a unit, is dedicated to conserving the scenic, scientific, and historic heritage of the United States for the benefit and inspiration of its people.

A superintendent, whose address is R.F.D. No. 1, Elverson, Pa., 19520, is in immediate charge of the site.

## America's natural resources

Created in 1849, the Department of the Interior—America's Department of Natural Resources—is concerned with the management, conservation, and development of the Nation's water, wildlife, mineral, forest, and park and recreational resources. It also has major responsibilities for Indian and territorial affairs.

As the Nation's principal conservation agency, the Department works to assure that nonrenewable resources are developed and used wisely, that park and recreational resources are conserved, and that renewable resources make their full contribution to the progress, prosperity, and security of the United States—now and in the future.



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DEPARTMENT OF THE INTERIOR  
National Park Service



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well ore. It was abandoned, and Hopewell Village relighted its charcoal furnace.

4. CHARCOAL HEARTH.—In the woods, on hearths like this, colliers made charcoal for fuel for the furnace. Wood was piled in large mounds and covered with leaves and dirt so that the wood slowly burned and charred. It took about an acre of hardwood forest to make enough charcoal for 1 day's furnace operation. Coaling was done in the woods from March to November; colliers lived in nearby huts to keep constant watch on the pile.

5. WATER WHEEL AND BLAST MACHINERY.—Water from Hopewell Lake comes by way of the West Head Race to turn this water wheel. As it turns, the wheel operates the blast machinery. Rods attached to the axle of the water wheel move pistons inside the wooden tubs, forcing air into an equalizing box between the tubs. From this box, the blast passes through the pipe to the furnace. This blast fanned the flame in the furnace, speeding the iron-making process: the more iron the more profit.

6. CONNECTING SHED AND BRIDGE HOUSE.—Teamsters dumped charcoal for spring-through-fall use under this open shed. The rest of the furnace charge—iron ore and limestone—was stored on the furnace bank near the charcoal house. Fillers brought the ore, charcoal, and limestone through the bridge house and dumped it into the hole—the tunnel head—at the top of the furnace. Each man worked a 12-hour day; every 24 hours the fillers put in about 380 bushels of charcoal, 4½ tons of ore and some limestone. This charge made 2¼ tons of iron and 2½ tons of slag.

From the connecting shed you can walk along the furnace bank and go down the steps to the lower level where Hopewell Furnace stands.

7. CASTING HOUSE.—Inside this building is the furnace cast arch. Here liquid slag, floating on the molten iron within the furnace, ran into pits on your left. Cooled hardened slag was dumped outside. The iron flowed into a pig bed on your right. Until 1845, molders also ladled iron into sand flasks to cast stove plates. Note the flasks and patterns in the room to your left. From 1845 until its final blast in 1883, Hopewell produced pig iron that nearby forges hammered into bar iron. In the front cleaning shed, women brushed stove plates before laborers boxed them for shipment. Examples stand in the casting house.

8. TUYERE (twee-air) ARCH.—Proceed under the bridge house. Here you can see how the air blast entered the furnace. To hear its swoosh, place your ear near the pipe as the wheel moves the pistons. The fire was above this tuyere, the molten products below.

9. BLACKSMITH SHOP.—Near the furnace is the tile roofed blacksmith shop. These are period tiles; note the runoff grooves that the potter made with his fingers before baking the clay.

The blacksmith used wrought iron to make tools and hardware for the community and shod the horses that hauled supplies to the village and products to market.

10. TENANT HOUSES.—Beyond French Creek—whose dammed waters form Hopewell Lake, 1,200 feet upstream—are four of more than a dozen company houses once occupied by furnace workers. The other tenant houses were scattered over the 5,000 acres of furnace properties. Most workers, however, lived nearby in their own homes.

11. STONE BRIDGE.—Going toward the barn, you pass a stone bridge under which French Creek flowed. Now, only the tail-race water flows under it to the creek beyond.

12. OFFICE-STORE.—In the office-store, nerve center of the village, a clerk kept the furnace records and sold nearly everything needed by the workers, their families, and the neighbors of Hopewell.

13. BARN.—Horse-drawn wagons carried the products and supplies of Hopewell Village. Even this large barn was too small to shelter enough horses and their feed, so horses and wagons were hired. More than half the hauling was hired in 1830. Stables are on the lower level; mows for hay and grain are above.

From the barn, you can make a short loop to visit the spring house and bake ovens, or you can go directly to the front entrance of the "Big House."

14. SPRING HOUSE, BAKE OVENS, AND KITCHEN.—Cool waters from the spring house supplied the ironmaster and his family with drinking water, and the trough in the middle room was the refrigeration unit for the Big House. Behind the Big House are the bake ovens that were heated by wood fires. When the ovens reached baking temperature, the coals were raked into ashpits, the breads inserted, and the doors closed. A long paddle-like utensil, a baker's peel, was used to remove the baked goods.

In the back-basement kitchen, furnished with cooking utensils of the early period, the ironmaster's servants cooked for the workers who ate in the Big House.

15. IRONMASTER'S HOUSE.—The owner, or his manager, lived here in the Big House. Three first floor rooms are furnished with furniture once in the house.

16. EAST HEAD RACE AND GARDEN.—Returning to the visitor center, you cross a race that carried water to help power the water wheel from 1772 to 1883.

Flowers, herbs, vegetables, and fruits grew on these terraces. Ruins of a greenhouse are to the right as you go up the stepped walk.

## How to reach the site

Hopewell Village is 5 miles south of Birdsboro, Pa., and 10 miles from the Morgantown Interchange of the Pennsylvania Turnpike. It is reached over hard-surfaced county roads marked with Hopewell Village signs.

Hopewell Village is open from 9:30 a.m. to 5:30 p.m. daily. From May 30 to July 1, it is open until 7:30 p.m. on Saturdays and Sundays. From July 1 through Labor Day, it is open daily from 8 a.m. until dark.

## Guide to the village

Exhibits, samples of ironwork and a slide talk in the Visitor Center tell the story of Hopewell, its people and the charcoal iron industry—the iron industry of young America.

Use this tour map as your guide during your walk through Hopewell Village.

1. ROADS.—The village roads are historic wagon roads. Just below the visitor center is the 1757 Valley Forge-Reading Road. After 1825 it also connected with the Schuylkill Canal.

2. CHARCOAL SHED AND HOUSE.—As fuel, Hopewell Furnace used charcoal, made in the nearby hardwood forests. While still hot, teamsters hauled it into this open shed in wagons that were dumped by pulling out the bottom boards. After cooling, a laborer stored it in the charcoal house.

3. ANTHRACITE FURNACE.—Just past the charcoal shed are the ruins of an anthracite furnace. In 1853 Hopewell built this furnace in an attempt to use a new iron-making technology imported from Britain some years before. Larger than the charcoal furnace, it used anthracite fuel and a blast of preheated air. The hot-blast process could produce more iron than the charcoal process, but this furnace could not successfully smelt Hope-

