

# Hopewell Village

NATIONAL HISTORIC SITE • PENNSYLVANIA

## IRONMAKING IN EARLY AMERICA

In the early days of colonial America, iron tools and household items were brought over from Europe by the settlers or imported at a high cost. The colonists, early recognizing the need to manufacture their own iron, set up a number of ironworks, notably at Falling Creek, Va., and Saugus, Mass. Operations gradually spread throughout the colonies, and by the end of the 1700's, south-eastern Pennsylvania had become the industry's center. Hopewell Village, founded by Mark Bird in 1770 in time to supply cannon and shot for

*This Franklin Stove reflected heat into the room rather than letting it escape up the chimney.*



the Revolutionary armies, is representative of the hundreds of ironmaking communities that supplied the iron needs of the growing nation.

Until surpassed by more modern methods, cold-blast charcoal-burning furnaces, such as that at Hopewell, supplied all the iron. These furnaces consumed about 1 acre of trees a day for fuel, so they had to be located in rural areas close to a timber supply.

Since the pig iron produced by these furnaces had a limited use, much of it was sent to forges

(such as Valley Forge) to be made into the tougher and less brittle wrought iron. This was used to make tools, hardware, and horseshoes.

## HOPEWELL FURNACE

In an age when most businesses were operated by one or two men in a shop, Hopewell employed at least 65 men, with some responsible for two or more jobs. As the nearest town was many miles away, the ironmaster built a store to supply his workers, many of whom lived in company-owned homes. The ironmaster's house was built near the store and furnace, so that he could keep a close watch on operations. Between 1770 and 1883, the managers made several attempts to modernize Hopewell Furnace and remain competitive, but the growth of city foundries able to produce castings at lower costs forced them to cease operation. And those furnaces not on major transportation routes failed because of the very developments they themselves had helped to create.

## THE VILLAGE TODAY

The restored stone buildings and the reconstructed wooden ones present an authentic picture of the social, cultural, economic, and industrial life in an ironmaking community of early America, and reflect the humble but ingenious beginnings in our country of this basic industrial enterprise. Hopewell has been restored by the National Park Service to its appearance of 1820-40.

## ABOUT YOUR VISIT

Hopewell Village is 6 miles south of Birdsboro on Pa. 345. Via Pa. 23 east and 345 north, it is 10 miles from the Morgantown Interchange on the Pennsylvania Turnpike. The site is open daily except January 1, and December 25.

*An artist's conception of Hopewell Village in 1840.*



## A TOUR OF HOPEWELL VILLAGE

Of special interest throughout July and August are "Living History" programs of trades and crafts conducted by employees in period costumes. We suggest that you stop first at the visitor center, where exhibits, a slide talk, and samples of cast iron help tell the story of Hopewell, its people, and the charcoal iron industry of young America.

This tour will serve as your guide through the village; paragraph numbers are keyed to the map.

1. *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. *Coaling shed and charcoal house.* For fuel, Hopewell Furnace used charcoal, made nearby. Still hot, it was hauled by teamsters into this shed in wagons that were dumped by pulling out the bottom boards. After cooling, it was stored by a stoker in the charcoal house.

3. *Anthracite furnace.* This ruin represents Hopewell's attempt to "keep up with the times." Built in 1853, this hot-blast furnace used a new method (hard coal and a blast of pre-heated air) which produced more iron than the charcoal process and drove cold-blast furnaces like Hopewell's out of business. But the new furnace failed because it could not successfully smelt Hopewell ore.

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 burned slowly and charred. It took about 1 acre of hardwood forest to make enough charcoal to operate the furnace for 1 day. Coaling was done in the woods from March to November usually by 12 colliers.

5. *Water wheel and blast machinery.* Water from Hopewell Lake comes through the West Head Race to turn this wheel, which operates the blast machinery. Rods attached to the axle of the wheel move pistons inside the wooden tubs, forcing air into an equalizing box. From this box, the blast of cold air passes through the pipe to the furnace. This blast fanned the flame in the furnace, speeding the ironmaking process.

6. *Connecting shed and bridgehouse.* Teamsters dumped charcoal 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 bridgehouse and dumped it into the tunnel head, the hole 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, which made 2¼ tons of iron and 2½ tons of slag.

7. *The office store* (authentically furnished) was the nerve center of the village. The clerk kept the records and sold nearly everything needed by the workers and the neighbors of Hopewell. Note the feed bins in the adjoining shed before leaving.

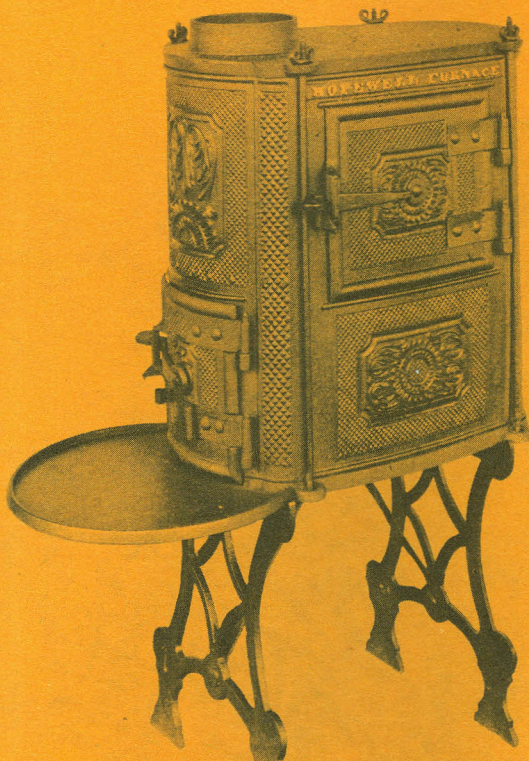
8. *Castling house.* Here in front of the furnace "cast arch" the molten iron flowed into a pigbed

or was ladled into sand flasks (with pattern-shaped molds) in the rooms to your left and right. Slag was drawn off the molten iron in the cast arch. 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 are shown here.

9. *Tuyère (twee-air) arch.* Proceed under the bridgehouse. 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 tuyère, the molten products below.

10. *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 hammered red-hot wrought iron into tools and hardware for the community and shoes for the horses that hauled supplies to the village and products to market.

11. *Tenant houses.* Fronting the old mine road beyond French Creek—whose dammed waters form Hopewell Lake 1,200 feet upstream—are survivors of several dozen company houses where furnace workers lived. The first one is furnished. Other tenant houses were scattered over the 5,000 acres of furnace properties. Most workers, however, lived nearby in their own houses.



Hopewell cast more than 80,000 stoves in 138 different patterns and types and shipped them as far as Boston. This ten-plate cooking stove was one of the more popular models.

12. *Stone bridge.* Going toward the barn, you pass a stone bridge under which French Creek flowed. Now, only the tail-race water—that which comes from the wheel—flows under it to the creek beyond.

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, in 1830, more than half the horses and wagons were hired. Stables are below and hay and grain mows are above.

14. *Springhouse.* These cool spring waters supplied the ironmaster's family with drinking water. The trough in the middle room was the refrigeration unit for the Big House. Hired girls worked at the fireplace.

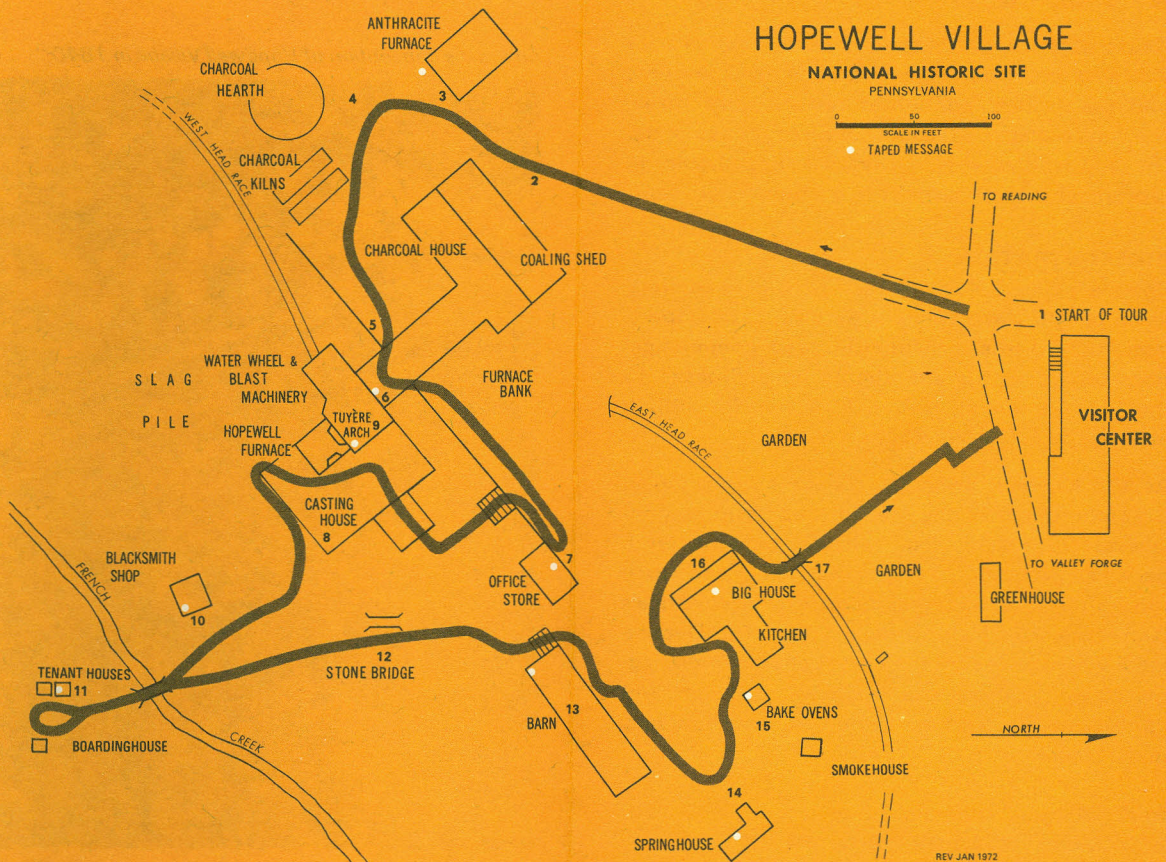
15. *Bake ovens and kitchen.* Behind the house are bake ovens that were heated by wood fires. When the ovens reached baking temperature, the coals were raked out, bread dough inserted, and the doors closed. A baker's peel, a long paddle-like utensil, was used to insert and remove the baked goods. In the back-basement kitchen, furnished with cooking utensils of the period, servants cooked for workers who boarded in the Big House.

16. *Big House.* The owner, or his manager, lived in the Big House. Three first-floor rooms have furniture which was once used in the house.

17. *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 1853. Flowers, herbs, vegetables, and fruits grew on these terraces. Ruins of a greenhouse are to the right as you go up the steps.



*The collier at work.*



## **FOR YOUR SAFETY**

Please stay on established tour routes and do not climb on the unstable anthracite furnace ruins, split rail fences, and other historic structures. The sharp slag can cause severe, jagged cuts. Those allergic to bee and wasp stings should be careful; about 30 visitors are stung each year.

## **ADMINISTRATION**

Hopewell Village National Historic Site is administered by the National Park Service, U.S. Department of the Interior. Inquiries and communications regarding the site should be addressed to the Superintendent, R.D. 1, Elverson, PA 19520, or telephone 215-582-8773.

As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities for water, fish, wildlife, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of America's "Department of Natural Resources." The Department works to assure the wisest choice in managing all our resources so each will make its full contribution to a better United States—now and in the future.

**National Park Service**

**U.S. DEPARTMENT OF THE INTERIOR**