STONE-STACK SMELTING FURNACES
IN WESTMORELAND COUNTY

BY J. PAUL HARMAN

INTRODUCTION

NOT far from some of the busy highways and roads in many sections of the eastern states can still be found the ruins of old iron furnaces that dot the landscape. The crumbling stone walls, or vine-covered heaps of stone, or perhaps only piles of slag, tell the story of a picturesque era of the past, an era which marked a milestone in the march toward American industrial supremacy. The ruins of these furnaces are relics of pioneer days and in recent times much interest has been manifested in them and in the life of the communities of which they were once the center.

The iron industry of Pennsylvania took root in the eighteenth century in the southeastern part of the state, but as the frontier moved westward, ironworks were established not far behind. Furnaces and forges quickly sprang up to supply the agricultural communities with iron products that were badly needed. The spread of settlement afforded men of initiative and capital the opportunity of producing iron first for a local market and then, in many cases, for more distant markets. At the beginning of the nineteenth century, frontier conditions still prevailed in many parts of Pennsylvania, but the iron industry—at that time a combination of iron manufacture and agriculture—played an important part in the development of the economic life of the state and the nation, and in bringing about the change from an agrarian to an industrial civilization.

During the first part of the nineteenth century all the iron furnaces in the country were cold-blast charcoal furnaces. By the time of the Civil War, however, technological changes were taking place, as can be seen in the use of bituminous and anthracite coal or coke as fuel in many furnaces and in the application of a hot blast instead of a cold one. But the old-type charcoal furnaces did not disappear immediately, for the newer techniques of making iron did not entirely displace them for some time; indeed, the last furnace of this type in Pennsylvania did not end its active career until the period of the First World War.

The blast furnace, with its casting house, blast house, stock house and wooden blowing cylinders or tubs, operated by an overshot water wheel or steam engine, was an impressive sight in its agri-
cultural setting when in blast. Not far from the plant were the houses of the workers, the “mansion house” of the ironmaster, the office, the stables and the smith shop. Many of these communities also included a forge where pig iron from the blast furnace was heated and hammered into the bars of commerce. It is difficult to realize today, as one visits the desolate ruins of old iron furnaces, that not so long ago they were part of a busy community, where families lived, toiled and died.

As was the case with the cold-blast charcoal furnaces all over the state, those of Westmoreland County of the nineteenth century were located near iron deposits or pockets of ore and where water power was also available. They were in a well-wooded section, for large quantities of wood were necessary for making the charcoal fuel. As transportation improved, pig iron and iron products were sent by road or canal and later by railroad to expanding markets. The failure of local ores, the rising costs of production and the competition with other sections, especially the Pittsburgh district, brought an end to the Westmoreland County charcoal iron industry, which at best was short-lived. The financial and technological problems of the ironmasters of this area still remain an unwritten chapter in the history of Pennsylvania iron manufacture.

Dr. Harman has devoted much time and effort to investigating the old iron communities of Westmoreland County and has here-with presented some interesting material regarding the location and history of these early iron furnaces. His contribution is important not only to the history of his own community but also to the history of the rise of the iron industry in Pennsylvania.

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SIXTEEN stone-stack smelting furnaces are known to have operated in Westmoreland County. One of these, Valley Furnace, used coke as fuel for at least part of the time it was in operation. There is no known evidence that any of the others used anything but charcoal.

Names and dates of erection of these furnaces are chiefly from secondary sources. There are bits of fairly accurate information in two histories of Westmoreland County, one by George D. Albert and one by John N. Boucher. C. S. Wardley has mimeographed a summary of the “Early History of Coke and Iron in Western Pennsylvania”; Mr. Wardley credits his information to Volume 74, Second Pennsylvania Geological Survey, 1875-1885, which, in turn, very definitely was not written on the spot in those portions which give locations of these furnaces. Deed books in the Westmoreland County Recorder of Deeds Office seldom mention the
names of the furnaces when describing the lands on which they were erected, nor do they give dates when they were erected nor the periods in which they were operated. Newspapers occasionally carried advertisements showing only that the furnace mentioned was in operation at that particular time, and the nature of its wares.

Of these sixteen furnaces there are visible remains of only nine today. Using the U. S. Geological Survey maps, scale 1:62,500, zone system B (reading to the right, and then upward) the sixteen furnaces were located, to the nearest 100 yards, at the following points:

1. Westmoreland, 1792 . . . 1167000-1964000 on Somerset Quadrangle
2. Hermitage, 1803-1806 . . . 1166400-1971900 on New Florence Quadrangle
3. Washington, 1809 . . . 1169300-1966400 on Somerset Quadrangle
4. Mount Pleasant, 1809 . . . 1146800-1958100 on Donegal Quadrangle
5. Mount Hope, 1810 . . . 1154400-1948800 on Donegal Quadrangle
6. Baldwin, 1810 (or 1818) . . . 1180600-1983200 on New Florence Quadrangle
7. Hannah (Unity), 1810 . . . 1177400-1982400 on New Florence Quadrangle
8. Fountain, before 1812 . . . 1157400-1952500 on Donegal Quadrangle
9. Ross, 1815 . . . 1177300-1980700 on New Florence Quadrangle
10. Lockport, 1844 . . . 1174100-1988800 on New Florence Quadrangle
11. Laurel Hill, 1845-49 . . . 1180300-1985600 on New Florence Quadrangle
12. Ramsey, 1847 . . . 1140800-2005400 on Freeport Quadrangle
13. Conemaugh, 1847 . . . about 1186700-1991000 on Johnstown Quadrangle
14. California, 1852 . . . 1166500-1965200 on Somerset Quadrangle
15. Oak Grove, 1854 . . . 1167400-1972800 on New Florence Quadrangle
16. Valley, 1855 (or 1850) . . . 1170100-1974400 on New Florence Quadrangle
1. **Westmoreland Furnace.** A pile of rubble, some ten to twelve feet high, is all that remains of Westmoreland Furnace, the first built in the County. This rubble and a bit of slag is by the road just across the small stream listed Furnace Run on the map but more commonly known as McGinnis Run—a name that distinguishes it from the Furnace Run just north of the Lincoln Highway in this same vicinity. The tumble of rocks is some seventy-five yards below the house occupied by the gamekeeper of the Rolling Rock Club. The approach is by the strictly private Speedwell Road. Furnace lands at one time totalled at least 3,087 acres.

The sites of this furnace and of California are in dispute. Aged local residents disagree. Younger residents are more inclined to speak of this rock pile as California Furnace, possibly because the stream is sometimes called Furnace Run and at other times California Run—and this is the only furnace that remains along the stream. L. C. Walkinshaw in his *Annals of Southwestern Pennsylvania* makes a statement, due perhaps to a not unusual carelessness, that California was built on the site of the earlier Westmoreland. J. N. Boucher in his *History of Westmoreland County* reproduces photographs of both furnaces. Backgrounds of the photographs indicate that Westmoreland stood at the site described above. Further, the ruins of the furnace on the alternate site in 1935 were higher, with one corner standing stone upon stone, than were the tumbled rocks in Boucher's 1906 photograph entitled "Westmoreland."

2. **Hermitage Furnace.** On July 24, 1935, a steam shovel was at work just below the Hermitage, one-time home of General Arthur St. Clair, along Pa. Route 711 slightly less than two miles north of Ligonier. Where the shovel dug through a twelve-inch layer of slag, and where now a garage stands, was the site of Hermitage Furnace. Nothing remains today to mark it.

3. **Washington Furnace.** A real estate development has blotted out all construction connected with Washington Furnace except part of the stack itself. The firebrick bosh is filled in within a few feet of the top; two sides of the stack indicate the 30-foot square base and the set-back construction. The top can be reached by climbing the tumbled stones which constituted the other two sides. In 1935 the stone-walled tailrace was fairly well preserved, as were the near-by abutments where Furnace Run was bridged.
About seventy-five yards down stream on the slag pile was a "chill" seven feet long and twenty-four to thirty inches thick. Some time the blast had failed or some other mischance had caused the molten contents of the hearth to cool and harden. An aged local resident remarked: "My father said it took all the horses they could gather to drag it here. . . . Yes, they had to tear a big hole in the furnace wall to get it out."

4. Mount Pleasant Furnace. Just slightly less curvature at one point in the Pennsylvania Turnpike would have spared the stack of Mount Pleasant Furnace. It lies under the berm of the new road. It was small, of uneven dimensions, somewhat crudely built. Its outer walls were built with at least three setbacks. The bosh was not symmetrical, nor centered in the stack but rose almost vertically from the front arch. Water from Freeman's Falls operated the blast.

5. Mount Hope Furnace is today but a twelve-foot pile of jumbled stones, easily reached from a township road following Roaring Run. Near-by is an extensive slag pile. Unburned charcoal and globs of metal in the slag indicate that probably this furnace was not operated with the utmost efficiency.

6. Baldwin Furnace. A two-mile climb up a road, which could be driven in an automobile, were it not blocked off in State lands, is required to reach Baldwin Furnace. The stack, of two setbacks construction, and several near-by retaining walls, still stand. One can see inside the bosh, but loose stones make close inspection somewhat hazardous. The approach is via New Florence, past Laurel Hill Furnace, up Baldwin Run to the State parking lot, and then a walk up the valley road.

7. Hannah Furnace may be a misnomer. Albert gives no name when he mentions a furnace on Tub Mill, just below Ross Furnace, built by John Benninger about 1810. Boucher names it Hannah and places it on Tub Mill not far from Bolivar. The Second Geological Survey Report states that "about the same time [1810] Mr. Benninger built Hannah Furnace on Tub-mill Creek at the base of Laurel Ridge . . . and soon afterward built a forge at Bolivar . . . ." Investigation gives a different story: Westmoreland County Deed Books show that Benninger in 1791 patented land just below where Ross Furnace was built at a later date. In 1811 Benninger bought a small adjoining tract on which a forge had been built. In the meantime, on June 2, 1808, he had sold to Philip
Bier and Thomas Gaghagen for $1,500 a tract of 105 acres, part of his first holding. A month later Gaghagen sold his interest to Archibald Elliott for $400. To satisfy judgments totaling more than $6,500, Sheriff Alexander Johnston seized this land, exposed it to public sale on July 2, 1810, sold it to merchant Boyle Irwin of Pittsburgh, and on August 24, 1810, gave him a deed with the words, "on which land is a Furnace called 'Unity' and some small cabins." Part of this 105 acres later passed to Charles C. Bassinger.

In the *Historical Atlas of Westmoreland County* (Reading Publishing House, 1876), Bassinger is shown as the owner of 50 acres on which is located a sawmill. Divisions of the land subsequently brought 51 acres containing the furnace site and the sawmill site into the hands of John Milton Gamble. On September 11, 1949, Mr. Gamble pointed out the sawmill site, but knew nothing about a furnace. There was a well-defined millrace and wheel pit; there were massive hewn rocks such as would never have been required for a sawmill of the type then in use; and there was a bed of charcoal slag extending 50 to 100 yards to the east and north. Mr. Gamble had always assumed that the slag had been hauled from Ross Furnace—but in no instance is there evidence that the main slag pile was anywhere but in the immediate vicinity of these Westmoreland County furnaces. A reasonably safe assumption would be that the marked sawmill site was the earlier site of Unity (or Hannah) Furnace. The name Hannah, used by Boucher and in the *Second Geological Survey Report*, may stem from the fact that the Hanna family held extensive lands in this vicinity; the wife of John Dennis, owner of land on which the forge was erected and which was once part of the furnace tract, was also named Hannah. Or perhaps the furnace carried different names under the rapidly changing ownership.

8. *Fountain Furnace* was built with two setbacks. It was thirty feet square and at least thirty-two feet high. A road on the south, passing under the charging bridge, reduces the height on this side by six feet. Two sides, showing one arch, remain. A walled draining ditch (could it have been a tailrace?) emerges from the southwest corner. One can climb the rubble and see the top six feet of the sandstone bosh. The furnace can be reached by walking two miles from the site of the former Fountain School, a mile northeast of Jones Mill; or by using a jeep one can drive to within a third of a mile of the furnace site on Camp Run.
9. **Ross Furnace.** Remaining stacks thus far described have all shown the setback construction. Ross furnace differs. Thirty-two feet square at the base, the stack tapers regularly to the top. Remains of the stack are kept in excellent condition, but only the outer walls and the upper part of the bosh are left. The bosh probably had a diameter of about nine feet. The stack stands at No. 1 green on the Ross Mountain Club golf course, just across the fence from a public road, opposite the head of Tubmill Reservoir.

10. **Lockport Furnace.** At Lockport, Joseph Hooker Hysong, aged eighty-three in 1947, pointed out from his porch the site where, he claimed, Lockport Furnace once stood. It was at a spot some sixty yards before one reaches the Lutheran Church and about thirty yards up the hill to the left. Just to the left and rear of the church building was a heap of firebrick which conceivably might have been a part of Lockport Furnace. Other slightly younger residents claim that it stood a few rods lower, just back of the church building and directly on the right of way of the railroad. Mr. Hysong recalled that blast was provided by a steam engine, that the local supply of ore was soon exhausted, but that the furnace continued to operate for some time on imported ores.

11. **Laurel Hill Furnace.** The stone stack of Laurel Hill Furnace is the best preserved of the stacks in the county. It has four arches, tapers symmetrically to the top, is built of massive cut stones, well braced with iron tie rods. The bosh is intact, although the hearth has been removed. The bit of rubble within the stack is not sufficient to prevent climbing easily into the interior. Ore for this furnace (as for Baldwin) came chiefly from tunnels into the hills above Baldwin. Traces of an extensive slag pile are in the pasture just across the road. Numerous charcoal-burning beds, roughly circular and forty to sixty feet in diameter, are scattered through the wooded hills to the rear of the furnace. This stack can easily be reached by automobile, turning from Pennsylvania Route 711 on a cinder road along the southern edge of New Florence. It stands in the open and lends itself to afternoon photography.

12. **Ramsey Furnace.** The railroad and flood waters of the Kiskiminetas have removed all traces of Ramsey furnace. Mr. Harry J. Smeltzer, born in 1861, hauled lumber, about the beginning of this century, into Avonmore, unloading it from the railroad here at the furnace. He was accustomed to eating his lunch
seated against the furnace for protection from the wind. The stack, as he recalled when pointing out where it once stood, was about thirty feet square, was of about the same height, and had four arches. Ore was obtained from the Huff farm, just two properties back over the hill. Directly opposite the furnace the Kiskiminetas was dammed and canal boats used the slack water to cross the river here to enter the locks and go down to Pittsburgh. There was also a "sluice" from the dam, on which boats could come right up to the furnace and load the iron pigs for Pittsburgh.

13. Conemaugh Furnace. Mr. Sellers of Seward, in 1947 aged seventy-three but spry enough for fifty-three, thought he could go directly to the stone stack of Conemaugh Furnace; but careful searching then and on numerous later occasions failed to discover any traces of furnace stack or slag pile along the narrow hillside of Conemaugh Gap. As Mr. Sellers remembered, the furnace stood directly opposite the mouth of Ginger Hollow Creek, and just above the Conemaugh Furnace Station of the railroad. County Deed Books show that the varying partnerships operating the furnace owned at least 2,700 acres in St. Clair Township in addition to two tracts in Cambria County, and that the furnace was located in a narrow tract of 129 acres beginning 396.7 perches (1.24 miles) northwest of the Westmoreland-Cambria line, and extending along the Conemaugh for 420.7 perches (1.315 miles) northwestward. This would place the furnace opposite the mouth either of Clark Run or of Findley Run—and either now might be Mr. Seller's Ginger Hollow Creek.

14. California Furnace. Three-quarters of a mile down McGinnis Run (or Furnace Run or California Run, the name varying with the years) from Westmoreland Furnace stood California Furnace. In 1935 one corner stood to a height of about fifteen feet; the rest was rubble, showing no outline of bosh and giving no hint of the size of the stack. The property was then owned by Mr. Thomas Roberts of Turtle Creek, Pennsylvania. The slag pile was extensive, and ore pits showed in the field above the furnace to the north. Stones from the stack were reputedly used in building a highway bridge at Laughlinton. The site of the stack has since been built upon, and can be reached only by the private Speedwell Road.

Midway between California and Westmoreland on the eastern bank of the run was found a low pile of fire-reddened and slag-
coated blocks of sandstone. Secondary sources claim that a forge was operated in connection with Westmoreland.

15. Oak Grove Furnace. Forty yards north of Wilpen Road, just across Mill Creek from the village of Oak Grove, stood Oak Grove Furnace on the site occupied in 1935 by the barn of Mr. Fred L. Robb. It was midway between the house and the present barn. Some stones from the stack had been used in the foundation of the earlier barn, and some traces of ore pits are found on the low hills to the west.

16. Valley Furnace. The dirt road to Valley School from Hillview, a cluster of three or four houses on Pa. Route 711, passes over the slag pile of Valley Furnace. The slag has a glassy texture, and there is no evidence of unburned charcoal. Reputedly this furnace used coke, burned in piles on the ground and using local coal. There are extensive ore (and possibly limestone) diggings running in both directions approximately along the 1,400-foot contour. The stack measures thirty-six feet square at the base and has four arches. It is unusual in that it is built of uncut stones, smaller than normally found in local furnace construction. At times one can crawl through a break in the bosh and stand inside. The bosh, built of firebrick, measures eleven feet at the waist and is supported on 4½ x 8 inch iron bars. The main working arch, facing the road, is thirteen feet wide. The top of the stack has been torn down and, so local residents say, the stone was used in building the nearby Valley School. The stack is best photographed on an overcast day with time exposure.