

Limestone Quarries and Iron Mines of the Eastern Great Valley

Ronald A. Sloto

Introduction

Chester Valley, more commonly known as the Great Valley, stretches across much of East Whiteland and Tredyffrin Townships. The valley is underlain by carbonate rocks—limestones and dolomites—that were sediments laid down at the bottom of the ocean about 480 to 545 million years ago. These carbonate rocks are the source of fertile soils, as well as valuable mineral deposits. This fertile soil and relatively flat terrain of the valley attracted early farmers. Limestone and dolomite were used as a source of lime, which was produced by burning the rock in kilns with either wood or coal. The lime found a ready market for use by farmers as agricultural lime, and by builders as a component of mortar. The map on the facing page shows the locations of limestone and dolomite quarries and iron mines in the Great Valley. The number in parentheses after the quarry or mine name in the following headings refers to the location on the map.

Limestone and Dolomite Quarries

Cedar Hollow Quarry (1)

The Cedar Hollow quarry is perhaps the best known quarry in the Great Valley. Now abandoned and flooded, the quarry is south of Yellow Springs Road and east of Pennsylvania State Route 29 in both East Whiteland and Tredyffrin Townships. It is also known as the Warner Quarry because of its long period of ownership by the Warner Company. The quarry property is now the site of the Atwater Corporate Park.

In the early 1700s, Welsh farmers settled the Great Valley. They quarried the limestone and dolomite,

which they burned in bank kilns to produce lime. The kilns were six to eight feet in diameter and ten to fifteen feet high. The farmers generally produced only enough lime for their own use. In time, many lime producers purchased or leased property in Cedar Hollow, where they quarried stone and built kilns (*Massey, 1957, p. 68*).



Stock certificate of the Cedar Hollow Lime Company, issued in 1856. The vignette shows a train steaming past lime kilns and a quarry face. The certificate is for 100 shares of stock, issued to Edward B. English, the company treasurer.

After the Chester Valley Railroad reached Downingtown in 1853, a group of Philadelphia businessmen formed the Cedar Hollow Lime Company to quarry and burn lime on a large scale. William B. Paul was president, and Edward B. English was treasurer of the company. In December of 1855, the company purchased 90 acres along Yellow Springs Road and consolidated several small quarries into one large quarry. In 1856, the company issued \$250,000 in stock at \$20 per share. The Cedar Hollow Lime Company built a two-mile spur line to the Chester Valley Railroad at the Cedar Hollow station to enable them to ship lime by rail to Philadelphia. The lime was transported from the quarry to the railroad station using trains of



Above, the 1000 ton per day stone crusher of the Cedar Hollow Lime Company, circa 1900. A line of horse-drawn carts waits to be loaded. The quarry face is in the upper left of the photograph. Below, another view of the stone crusher, with the east kilns at upper left. *Both photos courtesy of the Warner Company, 1900.*



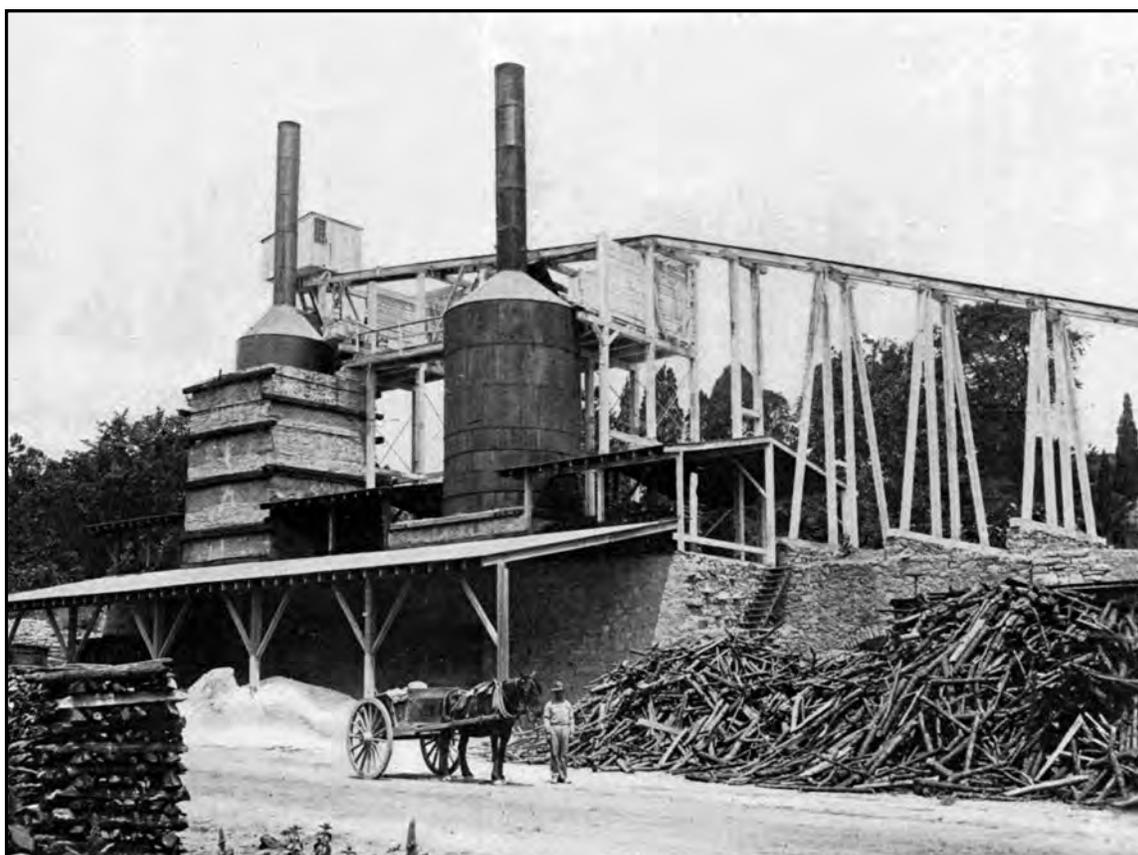
eight cars pulled by horses. From there, the lime was transported by railroad to Bridgeport and then shipped to Philadelphia on the Philadelphia and Reading Railroad (*Warner Company, 1900*).

In 1864, the company shipped about 100 carloads of lime per month. Within a few years, they supplied one-third of the lime used for building in Philadelphia. The lime was awarded a “premium for excellence” at the 1876 Philadelphia Centennial Exposition, and lime from the Cedar Hollow quarry commanded a higher price than any other lime sold in Philadelphia. By 1885, the Cedar Hollow Lime Company operated seven kilns (*West Chester Daily Local News, July 28, 1885*). Production was 1,200 to 1,500 bushels of lime per day when the kilns were operating. An eighth kiln was later constructed.

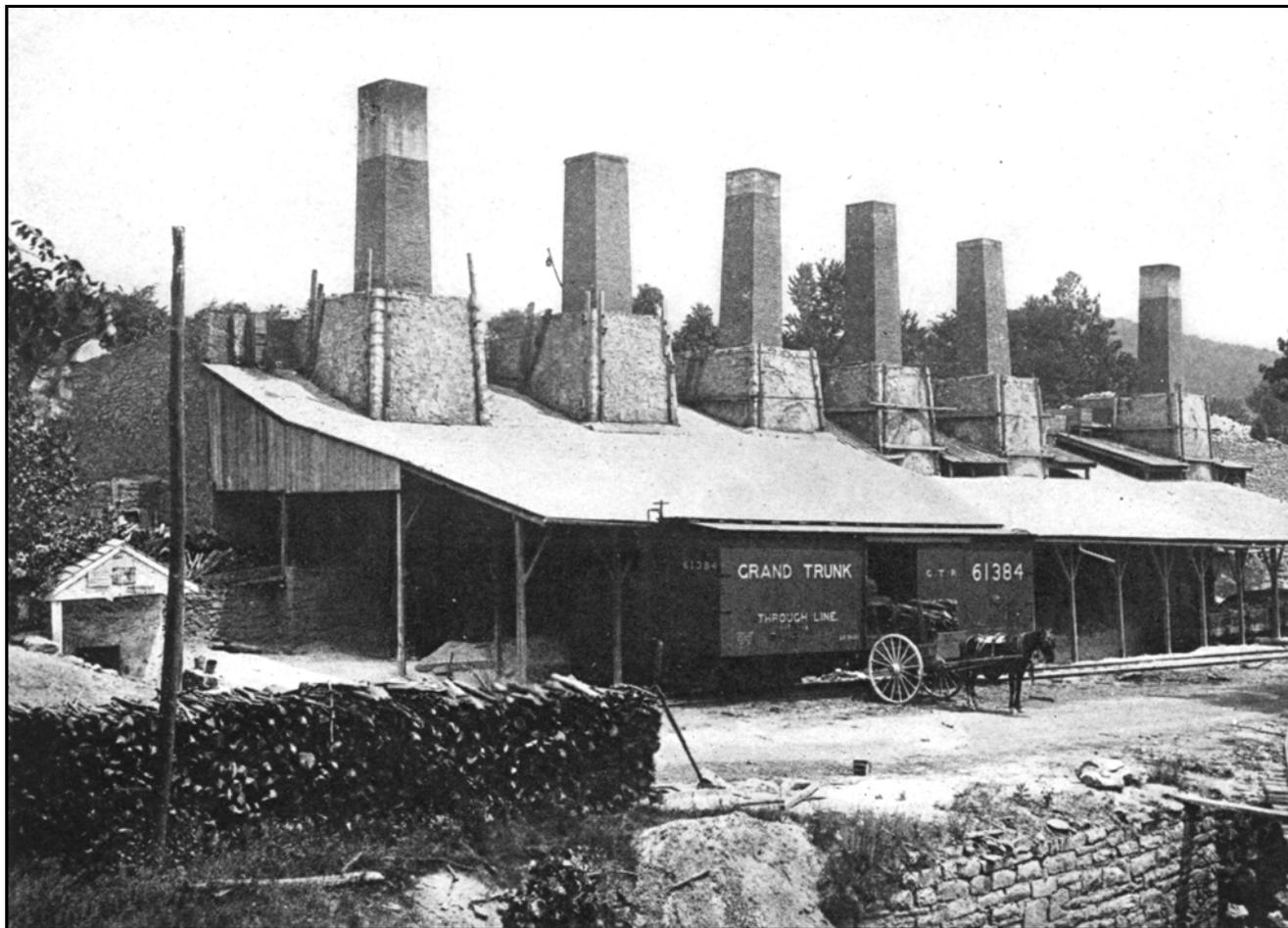
A *Daily Local News* reporter visiting the quarry on a Saturday afternoon in 1889 made the following observations:

“Men were working everywhere, some hauling wood to keep the eight large kilns burning; others were feeding the wood into the kilns, some were hauling cars over a branch railway by the aid of horses whilst others were getting out the lime stone from a breast of solid rock 90 feet high, and which looks as if it might furnish sufficient material for lime-making until the trumpet of Gabriel is blown. They are making 1200 bushels daily, and this is shipped away to New Jersey, Harrisburg, Wilkes-Barre, and other places. Forty men are employed and a row or two of neat houses give evidence of comfort, contentment, and peace among the families employed” (*Daily Local News, August 26, 1889*).

In the spring of 1898, the owner of over half the company’s stock died. His partners, who were elderly, decided to sell the company. The company was purchased by Captain Robert McCoy, an experienced quarryman, and Edward F. Kane, a Norristown



The west kilns of the Cedar Hollow Lime Company. The kilns, which had a capacity of 1500 bushels of lime per day, used large quantities of wood to create wood-burned lime. *Warner Company, 1900*.



East kilns of the Cedar Hollow Lime Company. A horse-drawn cart is being loaded with wood from a railroad car. Piles of wood for producing lime are in the lower left of the photo. *Warner Company, 1900.*

lawyer. In 1900, the Warner Company bought the McCoy interest, and the firm was incorporated under the name Cedar Hollow Lime Company. The capital stock of \$150,000 was divided into 1,500 shares. Alfred D. Warner and Edward F. Kane each held 748 shares. The directors of the company were Alfred D. Warner, Edward F. Kane, Charles C. Bye, Charles Warner, Fred Styer, and John J. Golden. Each of the last four held one share of stock. Alfred Warner was named president of the company and was given managerial rights. He placed his son Charles, a recent graduate of the Drexel Institute of Technology with a degree in engineering, in charge of the quarry.

When the Warner Company assumed control, the quarry itself was in excellent shape, but the plant and equipment were in poor condition. The kilns and the small portable crusher were obsolete. Charles Warner made many significant improvements. He installed a 24" gauge railway system with horse-drawn cars. The

loaded cars were hoisted to the top of the kilns and dumped. The old brick and steel kiln tops were replaced by open steel tops. Warner also built a modern 1,000 ton per day stone crusher. In 1903, Warner purchased the 128-acre Whiteland Company property, which adjoined the Cedar Hollow quarry, and the two quarries were consolidated. In 1904, Warner bought out the Kane family interest in the Cedar Hollow Lime Company and incorporated as the Cedar Hollow Company with a capital stock of \$170,000 (*Massey, 1957, p. 70-71*).

Sometime after 1912, Warner purchased the 29-acre "old" Catanach quarry property, which was adjacent to the Warner quarry. This quarry was first opened in 1870 by Jonas King, who started a lime burning business in Cedar Hollow on property owned by Joseph Todd. He continued producing lime until December 1883, when the property was acquired by Kerbaugh and Company (*West Chester Daily Local News,*

December 7, 1883), which operated the lime business as the Chester Valley Lime Company. Kerbaugh also owned the Pennsylvania Lime and Fluxion Stone Company, which was acquired by Adam A. Catanach of Philadelphia in 1882.

Charles Warner continued to modernize and expand the plant operations. He purchased small locomotives for transporting cars in the quarry. New horizontal patent kilns were built, and production increased to 3,000 bushels of lime per day. Warner also installed an electric power system, the first in the Cedar Hollow area. The Warner Company built houses for the quarry workers, which rented for \$7 a month. Electricity was an additional \$1 per month. Eventually, the Warner Company owned over 50 company houses. The Charles Warner Lime Company employed 200 men in 1919 and 185 men in 1928 (*Heathcote and Shenk, 1932, p. 128 and 132*).

By 1930, the Warner Company was operating 17 lime kilns. The company burned 10- to 12-inch diameter pieces of dolomite in the kilns. The smaller stone was crushed to 3/4-inch size and burned in the horizontal kilns. The finest stone was pulverized and sold as agricultural lime. Both lump and hydrated lime were manufactured. Some of the lime was sold for the extraction of magnesia (*Miller, 1925, p. 82 and 1934, p. 305*). In 1940, the Warner Company completed construction of a large rotary kiln, which was 300 feet long and 9 feet in diameter (*Daily Local News, March 24, 1986*). The kiln produced 390 tons of lime per day.

During World War II, the U.S. Government built a one million dollar magnesia processing plant on 9.1 acres of the Warner property. The plant was capable of producing 50 tons of calcium oxide or magnesium oxide per day. The magnesia was used to produce refractory brick for steel plants. The plant was sold to the Warner Company by the War Assets Administration in 1947.

In July 1990, the Warner Company was purchased by Waste Management, Inc. in order to obtain one of the company's former sand quarries in Bucks County for use as a landfill. On November 15, 1993, Waste Management closed the lime operation and laid off 60 workers. That day, which marked the end of over two centuries of lime production in Chester County, went unnoticed by the modern world. Quarrying for

Second Shift at the Warner Quarry

The author was employed at the Warner quarry as a heavy equipment mechanic in 1973. He was hired to work the second shift, which was created to accommodate a work-release program at the State Correctional Institution at Graterford. Each afternoon, a bus would arrive from the prison carrying a group of prisoners. The prisoners, all trusted inmates, would emerge from the bus wearing their prison jump suits and work the evening shift operating front-end loaders and driving the large quarry trucks. At the end of the shift they would board the bus for the return to Graterford. The only non-prisoners on the second shift were two mechanics and a foreman.

Working the evening shift with a group of inmates was an interesting experience. They always took their dinner break in the garage, which was the only lighted, unlocked building other than the wash-room/bathroom. They told stories of why they were in prison, such as, "Dude was cheatin' at cards, so I pulled out my piece and blew him away." One inmate said he had been in prison since 1943 and was having a difficult time coping with the modern world. He said he felt much more comfortable in prison.

One of the favorite inmate games was "jam the crusher." This game involved dumping a rock that was too large for the crusher, which caused it to jam. All work ceased and the inmates stood around while the rock was extricated from the crusher, which sometimes took an hour or two. This was a source of great aggravation for the foreman, who was rated by production during his shift.

Every so often the inmates were "furloughed" for a week. This meant they had to live at home (generally in Philadelphia) and find their own way to get to work on time every afternoon to demonstrate their responsibility and commitment to their jobs. Some of the furloughed inmates arrived with a brown paper bag, from which they would sip their beverage of choice all evening. They would keep the bag out of sight whenever the foreman was around. Some of the inmates boasted of crime sprees while on furlough, stating they would never be suspected of committing the crimes because they were in prison.

JOHN P. COGHILAN, President
 JOHN THEIL, Vice-President
 VALENTINE C. TROUT, Secretary and Treasurer

KNICKERBOCKER LIME COMPANY

MANUFACTURERS OF
Wood Burnt LIME



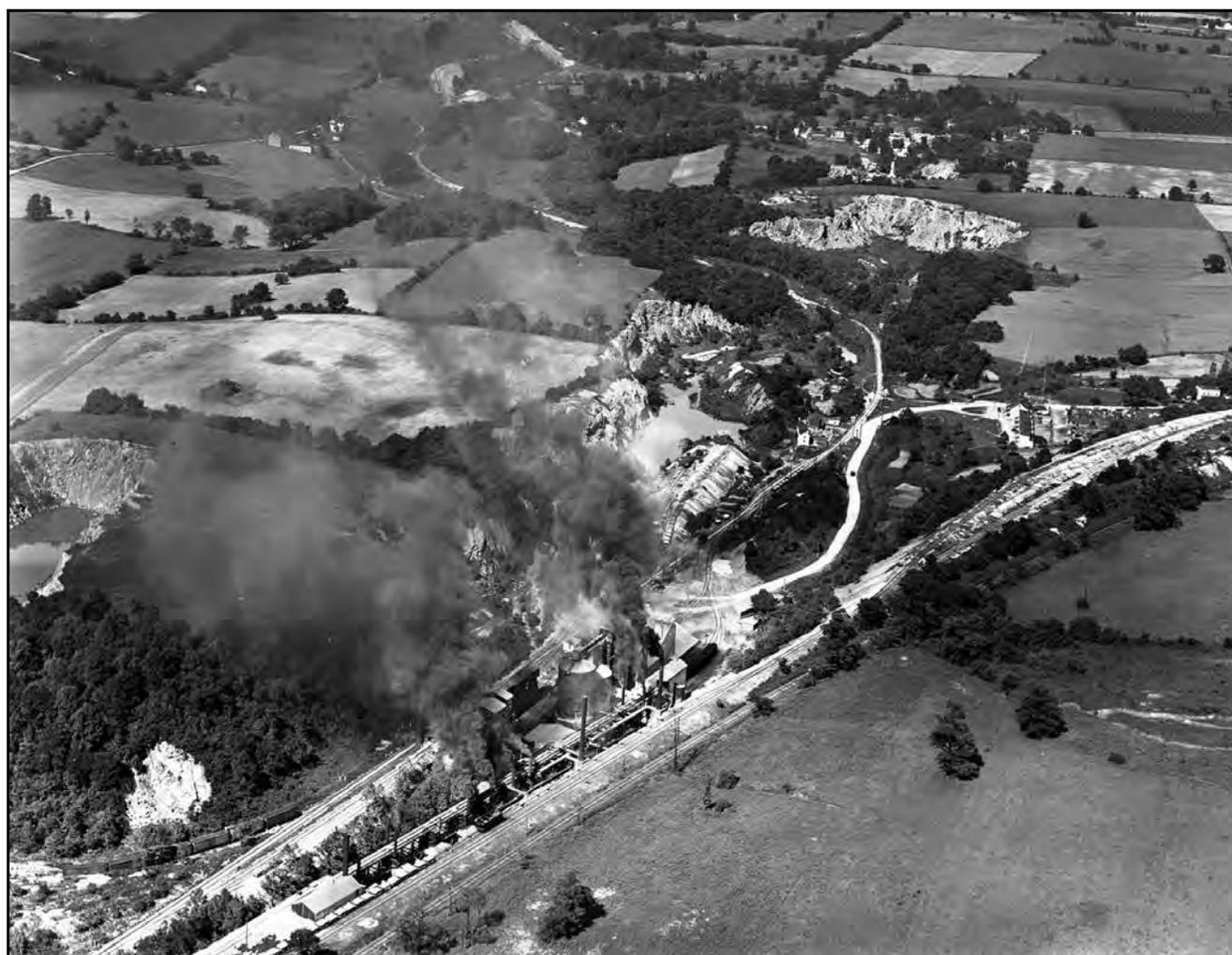
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 BRANCH DEPOT AMERICAN & DAUPHIN STS.

Building Lime	Slag and Pebble Grit	Hair and Fibre
Hydrated Lime	Bar Sand and Gravel	Mortar Colors
Concrete Stone	All-American Portland Cements	Cement Stains
Pebbles, all sizes	Atlas White Cement	Corner Beads
Ready Finish	Expanded Metal	Wall Ties
Plaster Paris	Hy-Rib	Keene's Cement
White Sand	Plastering Lath	Mixed Mortar

King's and Keystone Hard Wall Plasters
Knickerbocker Wall Plaster, neat and sanded

Left, an advertisement for the Knickerbocker Lime Company, 1915. From the T Square Club (1915).

Below, an aerial view of the Knickerbocker Lime Company plant and quarries, 1928. This photograph was taken by the Dallin Aerial Survey Company of Philadelphia. Courtesy of Hagley Museum & Library.



crushed stone ended on July 29, 1994. On January 1, 2000, the 388-acre quarry property was acquired by a developer. The quarry was allowed to flood, the quarry buildings were razed, the rotary kiln and crushers were dismantled, the old bank kilns were bulldozed, and the construction of office buildings was begun.

New Catanach Quarry (2)

The new Catanach quarry, which is currently operated by Glasgow, Inc., is the only active carbonate rock quarry in the eastern part of the Great Valley in Chester County. The quarry produces about one million tons of crushed stone annually. It also produces a small quantity of agricultural lime from the settling ponds. The new Catanach quarry is in East Whiteland Township, west of Route 29 and north of Flat Road. The new Catanach quarry is in the western part of the former Adam Catanach property. The quarry was acquired by Glasgow, Inc. in 1983. Previous operators of the quarry include the North West Magnesite Company (ca. 1957) and Martin Marietta, Inc. (1963-83).

Knickerbocker Quarries (3)

The Knickerbocker quarries were a group of quarries in East Whiteland Township on the south side of Valley Creek, west of Route 29. The Knickerbocker Lime Company of Philadelphia worked a number of quarries on the property. Some of them are now under the Knickerbocker landfill. It is not known when quarrying began.

Early quarry owners built a few houses around the kilns for the lime burners and their families. By the 1860s, the quarries and lime kilns were operated as the Knickerbocker Lime Company by William B. Irvine, president, and Andrew Carty, vice president. In 1883, Irvine and Carty ran a railroad spur to the lime works to expedite shipping. By 1885, eight carloads of lime per day were shipped to Philadelphia (*West Chester Daily Local News*, September 12, 1885). In 1886, the company operated five conventional lime kilns (*West Chester Daily Local News*, August 24, 1886) and by 1895, they operated nine patent iron kilns (*Chester County Democrat*, May 30, 1895).

In 1915, the Van Sciver Company purchased the Knickerbocker quarries and lime plant. In 1929, the Warner Company acquired the Knickerbocker opera-

tions when it purchased the Van Sciver Company for \$13 million. The Warner Company operated 11 kilns at the Knickerbocker Lime plant until May 1931, when the plant was closed. The Knickerbocker quarries were abandoned before the lime plant, and stone was shipped from the Cedar Hollow quarry to the plant for lime production (*Miller*, 1934, p. 82 and 304; *Bascom and Stose*, 1938, p. 109).

The Knickerbocker property was later acquired by Martin Marietta, Inc., which operated other quarries in the area. In the mid-1950s, Martin Marietta sold the Knickerbocker property to Theodore S. A. Rubino and Samuel A. Rubino who operated the site as the Knickerbocker Sanitary Landfill. During that time, many quarries on the site were filled. The landfill closed in 1981.

Dougherty Quarry (4)

The Dougherty quarry is a large flooded quarry in East Whiteland Township, north of U.S. Route 202 and west of Route 29. The ruins of a lime kiln on Route 29 near the quarry were visible for many years until they were destroyed by construction.

The Dougherty quarry was operated by Miles Riley in the 1850s (*Village Record*, June 12, 1855) and by John and Thomas Riley in the 1870s and early 1880s. It was known as "Riley's Banks" and later as the

CEDAR VALLEY
LIME WORKS.

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Having taken charge of the above works I
am prepared to furnish **FIRST-CLASS**

WOOD-BURNED LIME.

Lime furnished by the car load or wagon
load, or can be had at the kilns

AT ROCK BOTTOM PRICES.

—

A FULL SUPPLY ALWAYS ON HAND,
BUILDING AND LAND LIME.

—

Michael Dougherty,
8-4-18 PROPRIETOR.

Newspaper advertisement for Michael Dougherty's Cedar Hollow Lime Works, 1884. (*Malvern Item*, August 18, 1884).



The Dougherty quarry in 1985. Part of the Great Valley Corporate Center can be seen in the background. *Photo by the author.*

Riley's Banks Company. The Riley family quarried limestone and operated several lime kilns. The 1873 atlas (*Bridgens and others, 1873*) listed "Reily, Thos., extensive dealer in Lime."

Henry Jacob of Philadelphia purchased the property in June 1882 and operated two kilns. About 1884, Michael Dougherty acquired the quarry and lime business and operated it as the Cedar Valley Lime Works. The quarry was operated by Charles Dougherty until 1923, when it was purchased by Samuel Given (*West Chester Daily Local News, February 8, 1923*). Given operated the quarry for crushed stone until the 1930s (*Bascom and Stose, 1938, p. 109*). Given shipped some of the stone to the Johns-Manville Company for the extraction of magnesia (*Miller, 1934, p. 304*). Other operators of the quarry include the Valley Forge Stone and Lime Company (ca. 1944), Great Valley Lime Company (ca. 1948), Morelli Stone and Lime Company (ca. 1950), and the Valley Forge Stone Company (ca. 1958).

Around 2000, the Dougherty quarry property was purchased by Liberty Property Trust, Inc., which owns the Great Valley Corporate Center to the north and east. Liberty Property Trust developed the property under the name of Quarry Ridge. The large flooded quarry remains.

Dean Quarry (5)

The Dean quarry is a small flooded quarry in East Whiteland Township on the east side of Route 29,

south of Valley Stream Parkway. It was operated by John Dean from about the mid-1850s (*Village Record, March 28, 1854*) until 1883 (*West Chester Daily Local News, December 3, 1883*). The 1873 atlas listed "Dean, John, extensive dealer in Lime." The quarry, visible from Route 29, now serves as a pond that receives surface runoff water from part of the Great Valley Corporate Center.

Rennyson Quarries (6)

The three Rennyson quarries were in Tredyffrin Township, southeast of the intersection of Pennsylvania State Route 252 and old Cassatt Road, west-northwest of Howellville. Two of the quarries were filled and built over. The third quarry remains as a pond in front of an office building.

In 1869, Captain William Rennyson came to Howellville and began quarrying limestone along Swedesford road, east of the village. One of the quarries had been previously worked and was being used as a dump. By 1879, Rennyson had built eight large lime kilns among the quarries (*West Chester Daily Local News, December 1, 1879*). Rennyson was among the first to pulverize and bag lime for shipment. Workers bagged the lime by hand and were paid 60 cents an hour, a high wage for the day (*Burns, 1949, p. 39*). Rennyson employed about 60 men in his plant. A two-track siding connected the kilns with the Chester Valley Railroad. Railroad cars were loaded by running them under the long kiln sheds, level with the lower opening. The quarry complex also included a large stone stable for the 50 to 60 horses and mules used in the operation of the quarries. Eight stone houses were constructed in pairs in a row along Swedesford Road to house workers.

In 1874, Rennyson purchased land from Jacob C. Paxton and opened a new quarry for lime. William Johnson was the quarry foreman. Later foremen included William Showback and Henry Shainline. Shortly after beginning the excavation, the workmen broke into a cave that was later named the "Centennial Cave." The cave was about 90 feet long, 15 feet high, and partially filled with water up to 12 feet deep. The cave was full of white to brown stalactites and stalagmites, some as large as five inches in

diameter. Most were carried away by school boys visiting the cave. A report of one of the visits was published by the West Chester Daily Local News (December 15, 1874):

“Last Sunday a number of young men and boys from New Centerville and elsewhere came into the cave. They proceeded as far as the water would permit, breaking off all the stalactites they could reach. Many of the finest were beyond their reach. Fired with a noble ardor, these bucolic youths proceeded to do the best they could under these depressing circumstances. They gathered the fragments of rock made at the time of disruption, and with a perseverance, the full beauty and sublimity of which are not readily to be appreciated, they kept up their work; rocks flew and crystals fell, and when they left, the dome, shorn of its beauty, testified to the wondrous learning and culture produced by our noble common school system.”

The cave was destroyed by quarrying. The Rennyson quarries were abandoned around 1885.

Howellville Quarry (7)

The Howellville quarry is a large flooded quarry in Tredyffrin Township west of the intersection of Route 252 and Swedesford Road, just west of Howellville. The quarry also is known as the John T. Dyer quarry and the Lavino quarry. The Daylesford Lake residential development was built around the abandoned quarry.

The quarry was operated by William Johnson and Hugh Steen for crushed stone and by James Riley for manufacturing lime in the 1880s. Johnson erected two large crushers to produce crushed stone for roads and railroad ballast. Twenty-one men and 19 horses worked in the quarry. In 1885, Johnson and Steen produced 150 tons of crushed stone per day in four



The southernmost Rennyson quarry in 2007. The flooded quarry forms a pond in front of an office building. *Photo courtesy of the author.*

sizes (*Chester County Democrat*, May 14, 1885). Riley produced lime and delivered it using two four-horse teams pulling wagons; he also shipped it by rail. Riley provided limestone and white marble to the Bechtelsville Furnace in Berks County for use as a flux, and to other lime producers (*West Chester Daily Local News*, April 22, 1889).

Riley ran into financial difficulties, and Sim and Kinnear acquired the quarry in 1889. They used a steam drill for drilling dynamite holes for blasting.

STONE CRUSHER.

—

LIME.

—

The Stone Crusher, at HOWELLVILLE, CHESTER COUNTY, PA., is now running, breaking 150 tons per day, four sizes.

All orders promptly filled.

Fresh Marble Lime,

Suitable for land and other purposes, on hand at all times.

Parties desiring such stone or lime will be promptly served by addressing

JAMES RILEY,
Chester Valley P. O.,
Chester county, Pa.

June 5-84

Newspaper advertisement for the Riley (Howellville) quarry, 1884. *Chester County Democrat*, May 14, 1884.

Sim and Kinnear produced crushed stone ranging in size from “dust” to three inches (*West Chester Daily Local News*, April 22, 1889).

The quarry was later purchased and operated by the John T. Dyer Company (ca. 1892-1920), E.J. Lavino and Company (ca. 1921-1930), and Howellville Quarries, Inc. (ca. 1930-1940s). In 1921, E.J. Lavino and Company produced 3,000 tons of road stone per week (*Miller*, 1925, p. 81-82). Howellville Quarries, Inc. produced lime, fluxing stone, agricultural pulverized limestone, and crushed stone (*Miller*, 1934, p. 304).

Newspaper advertisement for the Sim and Kinnear (Howellville) quarry, 1889. *Daily Local News*, May 3, 1889.

In the 1920s, a large steel drum with rotating steel balls pulverized the limestone to powder. The powder was bagged and sold to local farmers. When the steel balls became worn and small, they were used by the quarry workmen to play bocce. In the late 1930s, a major thunderstorm knocked out electric power to the quarry. The pumps stopped, and the quarry began to fill with water. By that time, the quarry was not able to compete with the other quarries in the area, and it was abandoned. In 1969, Bituminous Services, Inc., the quarry owner, partially filled the quarry by bulldozing in the surrounding spoils piles (*Post*, 2005, p. 99-100).

W.E. Johnson Quarries (8)

The W.E. Johnson quarries are two flooded quarries in Tredyffrin Township between U.S. Route 202 and Route 252, east of Swedesford Road and northeast of Howellville. The Westlakes Office Park was built around the abandoned quarries. See the aerial photo on pp. 48-49 for a view of the area in 1937.

The quarries were owned in the early 1700s by Llewellyn David (the name was later changed to Davis) and remained in the Davis family for two centuries. Llewellyn David was the original settler of Howellville (*Post*, 2005, p. 100). When the Chester Valley Railroad was built, the tracks were laid between the quarries. In the 1880s, the quarry was operated by H.L. McGuiness for lime. A 35-foot-thick bed of low magnesia limestone on the south side of the quarry was worked separately for lime for many years (*Miller*, 1934, p. 303).

In 1917, the Davis family sold the quarries to Samuel and Emily Given. Both of Sam Given’s arms were blown off in a quarry accident, but he continued to run the quarries, which produced crushed stone (*Burns*, 1949, p. 39). In 1926, Given sold the quarries to W. Ellis Johnson. In 1923, Given purchased the Dougherty quarry at Valley Store in East Whiteland Township and continued to operate that quarry into the 1930s.

Johnson called the property the Blue Stone Farm because of the blue color of the limestone. W.E. Johnson, Inc. produced crushed stone and some building stone (*Miller*, 1925, p. 303). W.E. Johnson, Inc. was purchased by the Warner Company on February 15, 1957 (*Daily Local News*, February 16, 1957).

Brown Quarry (9)

The Brown quarry is east of Wilson Road and north of the Pennsylvania Turnpike. It is visible from the turnpike. Unlike the other abandoned quarries in the Great Valley, the Brown quarry is above the water table and is dry. A lime kiln (cover photo) stands near the quarry. Little is known about the Brown quarry. The only mention of the quarry appears in the 1823 will of John Brown, Senior:

“Whereas the best limestone quarry is on that part of land left to my daughter Jane I do therefore grant to my son John and to his children and their heirs the privilege of building a lime kiln near the quarry and to quarry limestone burn the same and haul it away with free privilege of passing and re-passing along the road leading there to for the purpose of hauling wood to the kiln for carrying and hauling the lime away provided that he and his children and their heirs shall keep and maintain one gate on the



Brown quarry, 2011. The Brown quarry is one of the few dry abandoned quarries in the Great Valley. The cover photo shows a lime kiln that stands near the quarry. *Photo courtesy of the author.*

road leading thereto. And shall at all times when using the said road the gates one of which shall be kept by those that occupy my daughter Jane's part as that their creatures shall not pass into any inclosure where they should not."

Iron Mines

The iron mines worked small residual deposits of iron oxides in the weathered zone of the carbonate rocks. Iron mines were often referred to as "ore banks." The ore consisted of limonite and/or goethite fragments and hollow concretions known as pipe ore or bombshell ore. Ore was dug from shallow pits in clay or other soil. The dirt was subsequently washed from the ore, providing the name "wash ore." The ore was loaded into carts and hauled by horse team to one of the local iron furnaces, where it was smelted into pig iron. The decline of small, local iron furnaces, coupled with the availability of cheap iron ore from the Lake Superior region, put an end to the Great Valley iron mines.

Henry Darwin Rogers, the first State Geologist of Pennsylvania, was tasked with mapping and describing the geology and mineral resources of Pennsylvania. Work began in 1836, and the massive, two-volume, 1,622 page *Geology of Pennsylvania* was published by Rogers in 1858. Rogers visited some of the

Great Valley iron mines in 1854 and provided brief descriptions in his *Geology of Pennsylvania*.

Coffman Mine (10)

The Samuel Coffman iron mine was in East Whiteland Township, north of Route 202 and east of Route 29. The mine, a steam engine, and an ore washer are shown in the 1873 atlas. Iron ore was dug from a white to yellow-brown clay derived from weathering of dolomite. The mine was abandoned before 1883. The Coffman mine was described by Persifor Frazer during the Second Geological Survey of Pennsylvania. According to Frazer (1883, p. 279), "*One of the largest ore banks is that of Samuel Coffman's. Nothing is showing here in the bank but clay (more or less like kaolin) and a few ore fragments.*"

Woodman (Roberts) Mine (11)

The Woodman iron mine was in Tredyffrin Township north of Route 202, between Wilson Road and Route 252 in the Chesterbrook development. The water-filled mine pit remained as a pond prior to development of the area. The mine is labeled as "Iron Mine" on the 1860 Chester County map (*Kennedy, 1860*) and as "Iron Ore" on the William Roberts property in the 1873 atlas; however, Rogers (1858, vol. 1, p. 216-217) referred to it as the Woodman mine. The Woodman mine was opened prior to 1854. According to Rogers, "*Woodman's ore-bank, on land of William Robert, situated about 500 yards W. of the Valley Forge Road and 500 yards N. of its forking with*



Bombshell ore from the Coffman mine. Bombshell ore was a hollow geode-like concretion of iron oxides. It was smelted at local iron furnaces to produce pig iron. *Photo courtesy of the author.*

in 1854 was 43 feet deep.” Roger’s description indicates that the ore was mined by the Phoenix Iron Company and hauled to their furnaces in Phoenixville.

Beaver Mine (14)

The Beaver iron mine was in Valley Forge National Historical Park in Tredyffrin Township, east of the Knox covered bridge. The remains of the mine are visible as a number of shallow depressions along the foot of Mount Joy. The mine was opened by Stephen Evans, Jr., possibly as early as the 1720s. In 1742, Evans formed a partnership with seven others (Owen Roberts, Andrew Bradford, George Plumly, Anthony Duche, William Coates, Matthias Holston, and Evan Jones) to mine the ore on his property. The property, including the mine, passed down to his son, Abijah Evans, who sold it to Devault Beaver in 1796 (*Brian Lambert, Valley Forge National Historical Park, written communication, 1992*). Rogers (1858, vol. 1, p. 217) noted, “Samuel Beaver has an ore-bank at the foot of the North Valley Hill, about half a mile S.E. of the head of the Valley Forge dam. This bank is of considerable size, and yields good ore.” The 1860 Chester County map is marked “iron mine” at that location.

Tarter and Johnson Mine (15)

The probable location of the Tarter and Johnson iron mine is in Tredyffrin Township northeast of the intersection of West Valley and Devon Park Roads. Tarter and Johnson began development of an open-pit iron mine in 1873 (*West Chester Daily Local News, September 15, 1873*). In 1880, William Johnson, the proprietor of the Howellville Hotel, leased the mine from a Mr. Heichter of Philadelphia. Johnson employed 12 men in the mine. Production was cited as 40 tons of ore per day. The ore was shipped to Norristown (*West Chester Daily Local News, February 18 and March 6, 1880*).

Jones and Beaver Mine (16)

The exact location of the Jones and Beaver iron mine is unknown. The mine was in Tredyffrin Township in the vicinity of the Great Valley Baptist Church. Rogers (1858, vol. 1, p. 217) stated, “Nathaniel Jones and Charles Beaver have ore-mines near the Baptist Church half a mile from Centerville. Buck and King have also opened a bank. All these three mines are in

considerable excavations.” The location of the Buck and King mine is unknown.

Acknowledgements

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Aerial photograph showing the quarries around Howellville in Tredyffrin Township in 1937.

A: Howellville quarry, the current site of the Daylesford Lakes development.

B: W.E. Johnson quarries, on either side of the Chester Valley RR. The racetrack of Alexander J. Cassatt's Chesterbrook horse farm is to the left of the quarries, on the current site of the Westlakes Office Park.

C: Rennyson quarries.

Courtesy of the Pennsylvania Bureau of Topographic and Geologic Survey, PennPilot Historical Aerial Photo Library.



About the author: Ron Sloto has a degree in Earth Science from West Chester University. He has worked for the U.S. Geological Survey for 37 years, all of it in Chester County. His specialty is groundwater-flow systems. He has been a mineral collector since the age of five when he found his first quartz crystal. He has a life-long love of history (and nearly majored in history in college!). His self-published book on Chester County Mines and Minerals is the culmination of 30 years of off-and-on research.