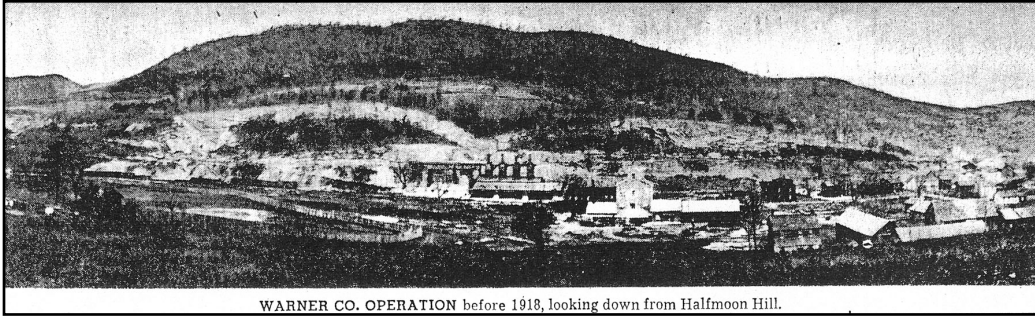


# BELLEFONTE INDUSTRIES

## American Lime and Stone

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WARNER CO. OPERATION before 1918, looking down from Halfmoon Hill.

THIS PHOTOGRAPH, WHICH WAS TAKEN PRIOR TO 1918, ILLUSTRATES PLANT NO. 30 (LONG WHITE ROOF JUST RIGHT OF THE CENTER OF THE PICTURE) BEFORE IT WAS MADE OBSOLETE BY THE CONSTRUCTION OF PLANT NO. 19 AND CONVERTED FOR USE PRIMARILY AS A STORAGE FACILITY. IT ALSO ILLUSTRATES PLANT NO. 20 (CENTER OF THE PHOTOGRAPH) ON THE NORTH SIDE OF BUFFALO RUN WITH ITS OLDER STYLE SHAFT KILNS. PLANT NO. 20 IS NOT LONGER PRESENT. (PHOTO FROM THE CDT, 8-11-1956)

A. G. MORRIS, A. A. STEVENS, AND J. K. MCLANAHAN, WHO HAD BEEN ACTIVE

in the area's lime industry for many years, founded the American Lime and Stone Company in 1901. The company immediately began purchasing land in the Bellefonte area, and had acquired twenty tracts by 1904, including several established quarries and kilns. Between 1901 and 1922, the company operated nine plants in the Bellefonte area. By 1934 the American Lime and Stone Company owned 86 tracts of land in Centre County, most which were located north and west of Bellefonte, along Spring Creek and Buffalo Run between Milesburg and Coleville. These lands contained high quality limestone, as well as access to water and the railroad.

The property that is currently occupied by Graymont's Bellefonte Plant was utilized for the manufacture of glass from approximately 1867 to 1903. However, the Bellefonte Glass Works was destroyed by fire prior to 1904, and in 1905 the Bellefonte Window Glass Company sold the property to the American Lime and Stone Company. After purchasing the Bellefonte Glass Works in 1905, American Lime and Stone began construction of a new, modern facility on the site of the former glassworks, while continuing to operate existing facilities throughout the area. Plant Nos. 19, 20, and 30 existed in the vicinity of the former Bellefonte Glass Works. Plant No. 20, which stood on the north side of Buffalo Run, is no longer present. By 1944 Warner Company, who had been managing the American Lime and Stone Company since 1922, held all of the capital stock in American Lime and Stone Company and required the company to convey all of its assets to Warner Company to satisfy the company's debts. Thus, the American Lime and Stone Company

### What is the Historical Resources Series?

Under a local history grant from the Pennsylvania Historical and Museum Commission, Bellefonte conducted research and documentation of the industrial heritage of the Spring Creek waterfront. As part of this project, Pennsylvania Historic Resource Survey forms were completed to document each surviving industrial resources and evaluate its significance. The Eagle Silk Mill was determined eligible for inclusion in the National Register as a contributing element of the Bellefonte Historic District.

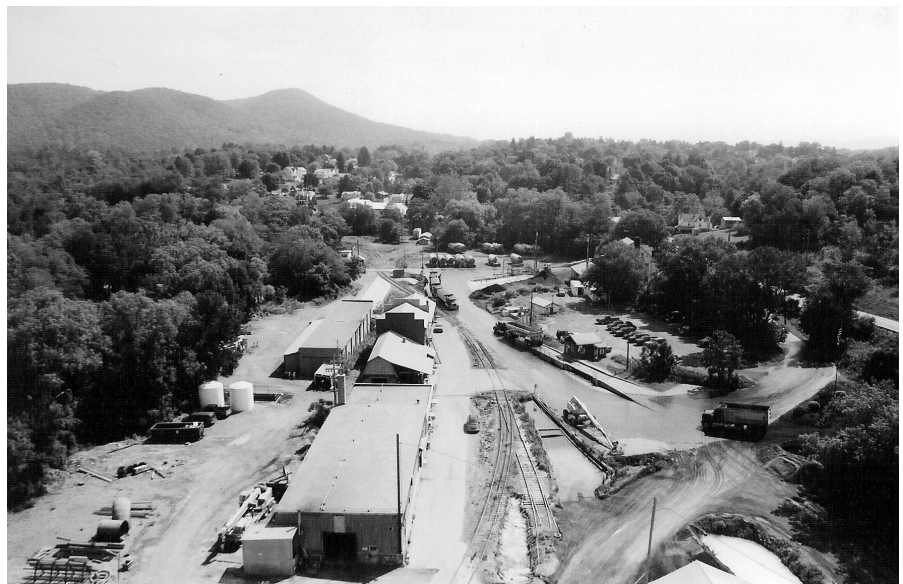


*Photograph of the Warner Company facility in 1953. This view, taken looking southeast at the mine shaft and associated structures and across Buffalo Run to American Lime and Stone's Plant No. 19, provides a good overview of the property as it appeared during the mid-1950s. (Photo from the Fred Smith Collection)*

conveyed 82 tracts of land with all of their improvements to Warner Company that year. The facility continued to evolve under the ownership of Warner Company. (left) Then in 1967, Warner Company sold 33 tracts of land to the Bellefonte Mining Corporation, and in 1986 they sold an additional 41 tracts of land to the Bellefonte Lime Company, which later became Graybec Lime, Inc. and is currently known as Graymont (PA). Graymont (PA) currently operates the facilities described below.

#### PLANT NO. 30

The group of buildings located north of the railroad spur and west of Thomas Street was known historically as Plant No. 30. This group of buildings was among the first to be built by the American Lime and Stone Company on the site of the former glassworks. By 1922, Plant No. 30, which consisted of two long, narrow buildings, one on each side of the railroad spur and joined across the tracks at the second level, was identified as an "Abandoned Hydrating Plant." The abandoned one- and two-story masonry buildings were modified, and currently serve as storage space, office space, and a maintenance shop.



*Photograph of the Warner Company facility in 1953. This view, taken looking southeast at the mineshaft and associated structures and across Buffalo Run to American Lime and Stone's Plant No. 19, provides a good overview of the property as it appeared during the mid-1950s. (Photo from the Fred Smith Collection)*





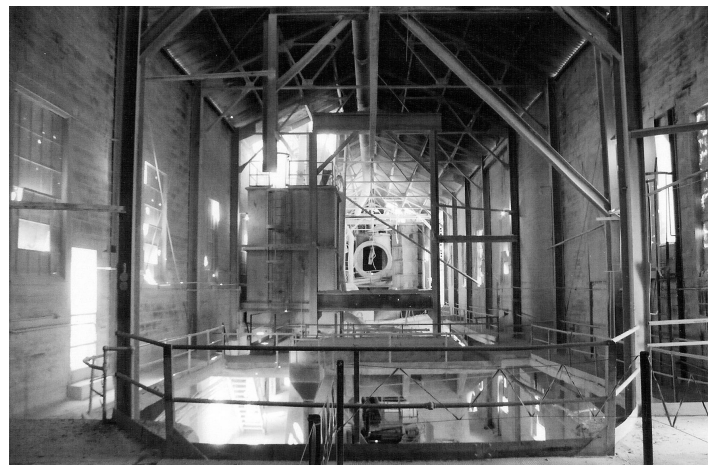
*American Lime and Stone's Plant No. 30. This was the first lime-burning facility built on the property by the American Lime and Stone Company following the destruction of the Bellefonte Glass Works by fire in 1904. By 1922 this facility had been identified as "abandoned." The buildings were then modified for use as storage buildings and workshops, the function that they continue to serve today*

#### PLANT NO. 19

Plant No. 19 was largely constructed during the 1920s and 1930s, although improvements to the facility have occurred continuously. The Bellefonte plant of Graymont (PA) Inc. is comprised of many buildings and structures that have been constructed

over the past 80+ years. Most of the buildings are "fireproof" poured reinforced concrete structures. However, some of the buildings are concrete block, tile, or brick, while others have steel frames with either concrete or metal cladding. With the exception of small sheds and the office building, very little wood is used in the facility due to its limited strength and tendency to burn. The primary elements of the facility, which are described below, include the rotary kilns, storage bins and bunkers, hydrating plant, separator building, bagging room, and system of conveyors that move the limestone and burned lime through the facility. Other important elements are the coal storage bins, coal mills, power plant, control rooms, quality control laboratory, dust collection system, and acid treatment plant, among others.

*Interior of the gable-roofed building that used to house Kiln No. 1, which was installed in approximately 1922-1923 and was removed in approximately 1966-1967.*



For many years quarrying was done along the Bellefonte Ridge, and in 1921 a mine was opened. Mine levels at 200, 400, 600, and 960 feet extend for about 2 miles from the shaft. Limestone was lifted out of the mines, and carried across Buffalo Run on a trestle. However, the mine was closed in 1987 because it became too expensive to keep water out of the mine and bring the limestone up to the surface. Quarrying and mining are not done in Bellefonte today. Instead, the limestone is acquired in Pleasant Gap, and is brought to Bellefonte via the Nittany and Bald Eagle Railroad. Trains comprised of 12 cars serve the facility twice per day, with each of the train cars carrying approximately 90 tons of stone. Once it arrives in Bellefonte, crushed

limestone pours out the bottom of each car and is wet to minimize the dust as it falls down onto a conveyor, which is part of an elaborate system of conveyors and pipes that carries it across the site to the appropriate storage or processing location.

### **Graymont**

Approximately 1,500 tons of limestone are processed each day at Graymont's Bellefonte plant. Since lime loses approximately half of its weight during processing, daily production at the facility is approximately 700 tons of lime. Since approximately 1930, lime has generally been burned in efficient rotary kilns rather than the older shaft kilns. Rotary kilns are huge hollow cylinders lined with firebricks that rotate continuously and are heated to a temperature of between 2400 and 2600 degrees. Limestone is fed continuously into the kiln at one end, and as the stone moves slowly downward through the kiln over a period of about 2.5 hours, it is burned and converted to lime. The lime then spends about one hour cooling in the satellite cooler tubes at the opposite end of the kiln so that the pebble lime can be dropped onto conveyors without damaging them.



*This group of buildings includes the 100-foot hydrating plant in the rectangular building in the center, the "12-foot classifier" where the pebble lime is sorted by size in the round building on the right, and two 75-foot lime storage bunkers on the left. All of these structures were built between 1922 and 1931, when the American Lime and Stone Company was under the management of Warner Company.*

Five rotary kilns have been used in Plant No. 19 since its establishment in 1922. Kiln No. 1 was installed in 1923. (p. 3) Kiln No. 2 was added between 1923 and 1931, and Kiln No. 3 was installed between 1931 and 1949. Kilns No. 4 and 5 were erected in 1956 and 1965, respectively. Coleville Road, which used to pass through the area in the vicinity of Kiln No. 5, was moved to the south when these most recent kilns were installed. The first two kilns (No. 1 and 2) were housed under gabled canopies, which trapped the heat but served to keep rain off of the kilns. In the event of a power outage, the cold rain on the hot steel can cause warping of the kilns and result in severe damage. Now that the kilns are not under cover, the plant has a back-up diesel generator to keep the kilns turning in the event of a power failure. Only kilns No. 4 and 5 are currently in use; the others have been removed.

The rotary kilns are fueled by coal, which is brought to the plant by truck from Western Pennsylvania and Ohio and is stored in outdoor bins or a large metal coal bunker until needed. The lump coal is then ground into a fine powder and is fed into the kilns, providing a high, consistent level of heat to burn the lime. Approximately 260 tons of coal are burned at the plant each day. Because of the increasing cost of coal,



which has recently risen from about \$45 or \$50 per ton to \$80 per ton, Kilns No. 4 and 5 in Bellefonte will probably be removed in the near future and replaced by newer kilns at Graymont's Pleasant Gap facility. Kilns No. 4 and 5 require nearly one ton of coal for every 2.5 tons of lime produced, while new kilns can produce six or seven tons of finished lime for every ton of coal used.

The vast majority of the lime sold by Graymont's Bellefonte facility is pebble lime, or simply burned limestone. Once it is burned and cooled, the finished pebble lime is classified or graded by size in the machine/structure known as the "12-foot classifier." Lime that is too coarse falls to the bottom of the classifier and is pulverized before it is able to pass upwards through the classifier. Once it has been sorted by size, the pebble lime can be bagged or stored for bulk sale. Several bunkers and storage tanks for finished lime are present on the property.

A small amount of the finest ground pebble lime produced at this facility is hydrated after burning. Hydrated lime is a dry powder obtained by treating quick or pebble lime with sufficient water to satisfy its chemical affinity for water, and chemically converting its oxides to hydroxides. The hydrating process simply involves mixing the lime with just the right amount of water to cause a chemical reaction, then drying it to approximately 220 degrees, at which temperature it turns into a fine powder.

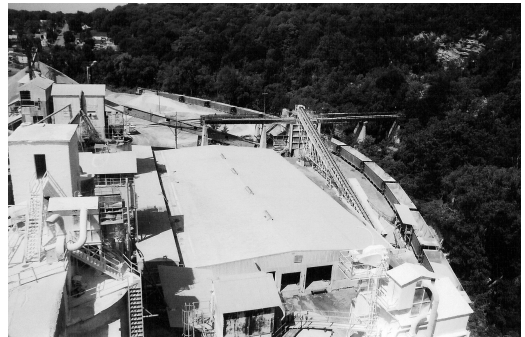
Although it used to be packed into barrels for sale, today finished lime is either bagged or loaded in bulk into trucks for transportation to market. Hydrate and pebble lime are both bagged in 50-pound bags, each at a station manned by two men, a stacker and a bagger. Each pair can bag between 80 and 100 tons of lime per day. The bags are stacked and stored in the bag wareroom until needed. The vast majority of the lime, however, is shipped in bulk by trucks that are filled with lime that is poured from the storage bins into the tops of the trucks.



*American Lime and Stone Company's office building, constructed in 1922 on the north side of Coleville Road*



*The 120-foot concrete storage bunker known as No. 6 in the center of this photograph was built in 1936. It has a maximum capacity of 10,000 tons but currently holds about 7,000 tons of finished lime. The area where lime is weighed and loaded into trucks for bulk*



*This area of Plant No. 30 generally comprises the "shipping and receiving" component of the facility. The mine in Bellefonte, which was located on the north side of Buffalo Run on the far right side of the photograph, is no longer active. Instead, limestone is brought in from Pleasant Gap via the railroad, where it is unloaded using the conveyor shown on the right side of the photograph. After the limestone is burned, it is returned to this area, where it is loaded into trucks for bulk shipment or is bagged in the wareroom shown in the center of the photograph for sale in fifty-pound bags.*

An office building, which is now used as a file storage facility was erected on the north side of Coleville Road in 1922. Several other buildings and structures are present on the property, all of which serve an important role in the processing of lime, an activity which has taken place in Bellefonte since the eighteenth century and continues today.