

# The Valley Forge Asbestos Insulation Works

Peter Segal & Mike Bertram



Ehret Manufacturing Plant, 1910. *Photo Courtesy of Valley Forge National Historical Park.*

Between the 1890s and 1970s, in the center of what is now Valley Forge National Historical Park, there was a major manufacturing operation that made asbestos insulation. In 1895, Michael Ehret, a roofing manufacturer from Philadelphia, built a new factory next to the limestone quarries in what is now parkland. The Ehret Magnesia Manufacturing Company made asbestos insulation products at the factory. In the latter part of its existence the company merged and was part of the Baldwin-Ehret-Hill Company and then the Keene Corporation.

## The Manufacturing Process

The process by which the asbestos insulation was produced is not well documented. It probably went along the following lines: The limestone in Valley Forge Park is dolomitic limestone, a mixture of calcium and magnesium carbonates. The limestone would have been crushed. The magnesium salt would have been dissolved by acid and then precipitated as a slurry. The slurry would then have been mixed with asbestos fibers and extruded into a pipe shape. The “pipes” of insulation would have been cut into appropriate lengths and dried in a kiln. The sections of insulation were then given a paper cover and split lengthwise.

## The Plant in the 1970s

Peter Segal worked a summer job at the Keene works in Valley Forge in 1970 and 1971. In an interview in 2009, Peter said that he and a number of friends worked at the site. Bill Epps, now a dentist, worked in the



Aerial photograph of the Ehret Manufacturing Plant, 1924, from the Dallin Collection. *Courtesy of the Hagley Museum and Library.*

laboratory measuring the tensile strength of the pipe insulation and the composition of the asbestos slurry, as well as taking other quality control readings. Richard Sneller worked with Peter cutting the asbestos pipe insulation while another friend worked in packing. They were attracted to the work plant by the high wages, due to it being a union shop. Peter does not remember which union was involved.

The magnesia binder and asbestos fibers mixture was extruded into pipe shapes of about 36 inches in length, and of various diameters. The leftover slurry from the process was piped into settling ponds to the north of the building. These ponds can be seen in aerial photographs of the time. The pipe insulation was then stood upright on carts of about seven feet in length and four feet in width. These carts were then slowly conveyed through large ovens, which were probably heated by gas or oil. There were two parallel tracks for the carts to move through the large ovens, which were 75 to 100 yards long. These ovens were operated continuously.

After cooling, the insulation was split in two using a band saw. A paper coating was then pasted onto the outside of the sections. There were two stations, one for small diameter pipes and one for the larger diameters. The insulation was then moved to the warehouse where it was packaged into boxes. Trucks delivered the insulation to customers, as the original rail line was no longer being used. There was a hard-hat policy in place but no special precautions for handling asbestos dust.

The only entrance to the plant was from County Line Road. The offices were in the south end of the main building. The post-heating operations took place in the north end. The building had a central courtyard and there was a walkway over the courtyard. The building had been originally built in the 1920s. It was run down with trash and junk dumped into the courtyard. North of this building was a warehouse where the finished product was stored.

The plant ran a two-shift system. Peter worked on the second shift. There were eight to ten people working each shift. Additionally, there were around six people in the office and laboratory. There were probably less than 25 people working in the plant in total. Some of the permanent workers commuted from distant areas, such as North Philadelphia. They were known by nicknames such as Cowboy and Prince.

Details of the Ehret insulation products can be found online at:

<http://www.asbestos.net/exposure/products/ehret/ehret-pipe-covering>

### The Present Situation

The Ehret property was purchased by the National Park Service in the late 1970s. The asbestos waste was capped with soil and one of the old quarries was converted into parking areas. In 1997 it was discovered that some of the asbestos waste was leaking out of the containment areas (see the EPA description at this website:



These images of an Ehret Insulation catalog and an Ehret label were obtained from eBay.



A 1958 aerial photograph showing quarries filled with asbestos waste (white areas). Photo from <http://www.pennpilot.psu.edu>

<http://www.epa.gov/reg3hscd/npl/PA9141733080.htm> ). A Park Service description of the site can be found at: <http://www.nps.gov/vafo/parkmgmt/asbestosbackground.htm>.

In 2010, a plan was agreed between the National Park Service and the State of Pennsylvania to extract and dispose of contaminated soil and then recap the containment areas (see <http://www.nps.gov/vafo/parkmgmt/asbestos.htm>). The cost of the work will be shared between the two organizations. Hopefully the areas will then be reopened for public access.



The Ehret property entrance in 1976. *Photo by R.T. Toland.*

### **Polluting the Schuylkill**

An article in The Daily Republican of January 20, 1912, described a hearing in the Collegeville court of Justice Yost:

Norristown, Jan. 19 – The hearing before the Montgomery County Court in the case of the Commonwealth vs. George B. Hurdle, summarily convicted before ‘Squire Yost, of Collegeville, on the charge of polluting the Schuylkill river, on an appeal to the county court, was concluded yesterday afternoon. The defendant is the superintendent of the Ehret Magnesia and Asbestos Company, of Port Kennedy. The Commonwealth charged that the waste left after the magnesia was extracted from the dolomite, which consisted of lime and chalk, was allowed to flow into the river, polluting the water and killing the fish and fish food.

For the defense, John Seybold and Harry Stone testified that on October 26th last they had filled an aquarium with water taken from the Schuylkill near the point where the waste entered the river and put six minnows in the jar. They replenished the jar with the same kind of water three times a week. On December 4th, they placed five more minnows and a sunfish in the jar. One minnow died, but the rest survived and aquarium and fish were exhibited in court. They state further that the water had not been changed since the first of the month, but the fish were not affected by that fact and were as lively as ever.



Another 1976 view of the plant and environs. You can see the bell tower of Valley Forge Memorial Chapel on the horizon. *Photo by R.T. Toland.*

W. F. Currier, an expert Philadelphia chemist, said he had made seven tests of water which he had taken from the river at and near this point and found no trace of caustic lime at all. He stated that there was nothing deleterious in the waste that came from the works. He found chalk. The only effect of this, he said, was to harden the water a little. He made the assertion that the water benefited by this waste as it has a tendency to neutralize the acids which entered the river from the coal fields.

Michael Ehret, aged 74 years, the principal owner of the works, said he had over \$500,000 invested in this works and that they employed about 230 men with a yearly pay roll of \$100,000.

The case will be argued next Friday.

The outcome of the case was not reported by the paper. It should be noted that at this time, the Schuylkill was already widely polluted by coal waste, while the hazards of asbestos were not known.



Waste piles near the Ehret site. *R.T. Toland, 1976.*

### **Environmental Protection Agency Hazard Summary for Asbestos**

Asbestos has been used in building materials, paper products, plastics, and other products. Exposure mainly occurs in indoor air where it may be released from these materials. Effects on the lungs are a major health concern from asbestos, as chronic (long-term) exposure to asbestos in humans via inhalation can result in a lung disease termed asbestosis. Asbestosis is characterized by shortness of breath and cough and may lead to severe impairment of respiratory function. Cancer is also a major concern from asbestos exposure, as inhalation exposure can cause lung cancer and mesothelioma (a rare cancer of the thin membranes lining the abdominal cavity and surrounding internal organs), and possibly gastrointestinal cancers in humans. EPA has classified asbestos as a Group A, known human carcinogen.

The EPA began giving warnings about asbestos hazards in the 1970s.