The President Pump and Its' Cornish Engine House

Mark Connar

SIA Annual Conference – Richmond Virginia
June 2, 2018

Photo – Upper Saucon Township Record Collection
The Elevator Speech

The existing President Engine House and the area surrounding the structure is a 19th century mining industry time capsule.

Protection, preservation, interpretation and recognition of this engine house and its surroundings is of vital importance because:

- It is the only structure and physical setting remaining of the earliest industrial age enterprise in the Lehigh Valley;
- The engine house is part of, arguably, the largest single cylinder stationary steam engine ever built anywhere in the world;
- The engine house is a unique structure which is the only surviving example in the United States.
King Arthur’s Castle in Saucon Valley

Photos – Connar Collection
Made in America –

“Largest Stationary Engine in the World”

Photos—newspapers.com/SMU Central University Library digital collection (top right)/philadelphiaencycolopedia.org (bottom left)
John West and the Perkiomen Copper Mines

Norris Works, Norristown, Penn.

The subscribers manufacture Mining Machinery as follows, viz: High and Low Pressure Pumping, Stamping and Hoisting Steam Engines, Pumps, Stamping and Crushing Machines, Winches, Ironblocks, Pulleys of all sizes, and every variety of Machinery for Mining purposes.

Thomas, Corson & West.

Feb. 10, 1854.

(6m)

Photos – Connar Collection/Historical Society of Montgomery County/newspapers.com
The West Family of Cambourne

Photos – courtesy of John Manley
“The President” - General Grant Pump

Photo – Ulysses S. Grant, 17th President of the United States, Library of Congress, LC-USZ62-13018DLC
The President – View from Mine Pit (West Edge)
The President – View from Mine Pit (Northwest Edge)

Photo – Miller, Lead and Zinc Ores in Pennsylvania
Typical Engine House Sectional

Photo – Nance, Engine Houses of West Cornwall
The President’s Floor Plan

Plan of “The President”

Drawing – courtesy of Damian Nance
The President
“It is the triumph of the rotative system as applied to a mine pump. I would not believe it would run so smoothly, if I had not seen it. It is worth coming across the Atlantic to see.”

John Kraft  
Chief Engineer – SA John Cockerill  
Seraing, Belgium  
1876
The President - Cylinder

“The Engine moves with out a jar and presents itself in highest testimonial to the company’s engineer, the designer of the engine Mr. West.”

Samuel Miller Riley, Lafayette College Senior Thesis, 1874
A 90-inch Cylinder

Photo – Lescohier, The Cornish Pump in the California Gold Mines/Trounson, Mining in Cornwall
The President – The Beam

Diagram – Scientific American Supplement 1 – August 5, 1876/Lehigh Zinc Co Records - Moravian Church Archives
The pump-rods are kept in position by guides. Part of the shaft is open, through which part the or near the bottom of the shaft is taken out. The pump rods are of yellow pine from Georgia. The shaft is lined with the same wood for the greater part of the distance down.
The President – The Flywheel

Fly Wheel, and Grand Axes. The Fly Wheel to be 30 feet in Dia; the Arms to be cast of the H form, to be bolted together by 3 in. Bolts; the metal to be 3 1/2 inches thick on the face, and 36 in. deep. The hollow of the H form to be filled in with four weights, held in by 2 in. Bolts; in one segment only in each wheel.
The President’s Boilers

On Right – Surviving Steam Drum from the President’s Boiler System

Photos – Steam Drums (upper and lower right) Connar courtesy of American Atlier Co/Cornwall Iron Furnace (top left)/archiveimages.co.uk (bottom left)
John West and Cornish Pumps in the West

Photos – Western Nevada Historic Photo Collection/Lescohier (top right)
Chapin Mine – Iron Mountain Michigan

Photos – ASME Chapin Mine Pumping Engine (left)/Iron Mining Museum, Iron Mountain Michigan
The President in Ruins

Photo – courtesy of Damian Nance
Surviving Cornish Engine Houses – Worldwide (UNESCO 2006)

Photo – UNESCO application – Cornwall and West Devon Mining Landscape
Surviving Cornish Engine Houses – Worldwide (UNESCO 2006)

No Surviving Engine Houses Were Identified In The United States When the UK Applied For World Heritage Status

Photo – UNESCO application – Cornwall and West Devon Mining Landscape
Surviving Cornish Engine Houses – Worldwide (UNESCO 2006)

The President Engine House is The Only Documented Cornish Pumping Engine House in the United States

Photo – UNESCO application – Cornwall and West Devon Mining Landscape
The President Today – Façade Facing the Boiler House

Photos – Connar, courtesy of Lehigh University
The President Then – Looking in the Cylinder Door

Photos – Connar, courtesy of Lehigh University/Riley Thesis – Lafayette College Special Collections
The President Today – West Facade

Photo – Connar, courtesy of Lehigh University
The President Then – Looking in the East Wall Door

Photos – Connar, courtesy of Lehigh University/Riley Thesis – Lafayette College Special Collections
The President Today – North or “Bob” Wall and

Interior View (facing North and East Walls)

Photos – Connar, courtesy of Lehigh University
The Ueberroth Mine– A location of scenic beauty

Photos – Connar, courtesy of Lehigh University
The Ueberroth Mine– A location of scenic beauty

Photos – Connar, courtesy of Lehigh University
Landmark Location - Pumping Technology

First Municipal Waterworks in the United States

Largest Stationary Single Cylinder Engine in the World

Photos – Connar, courtesy of Lehigh University (right only)
Landmarks in Mechanical Engineering

Largest Stationary Beam Engine in the World

Largest Beam Engine used in the Mining Industry in the World

Photos – Connar, courtesy of Lehigh University (right)/Steam Pumping Station De Cruquis, European Route of Industrial History
Landmarks in Mining Industry

Engine House in Australia

Engine House in United States

Engine House in Cornwall

Engine House in Mexico

Photos – Connar, courtesy of Lehigh University (top right)/UNESCO application Cornwall and West Devon Mining Landscape
Winter Scene – Ueberroth Mine and Its Cornish Engine House

Photo – Connar, courtesy of Lehigh University
What’s Next?

• Lehigh University has applied for a PA Historical and Museum Commission Preservation Grant to conduct a structural study of the engine house and to perform a cultural resource assessment as a prequel to future planning with Upper Saucon Township on the development of a heritage park.

• Lehigh students have been engaged in a cross discipline course to develop heritage park concepts and to “build” a virtual/augmented reality model of the President engine;

• Work was done in Fall 2017 to remove destructive vegetation on the building walls and a protective fence has been installed around the engine house and pump shaft.
The President Today

Photo – Connar, courtesy of Lehigh University
Chronology – The President Engine

• January 1869 – Contract Signed For Engine Build (Lehigh Zinc and Merrick & Sons).
• January 1872 – President Start Up Ceremony
• 1872 to October 1876 – Operating Period #1 (Lehigh Zinc Company)
• March 1884 to Unknown 1885 – Operating Period #2 (Friedensville Zinc)
• July 1885 – Engine Restarted for Demonstration to Philadelphia Water Authority
• March 1886 to September 1886 – Operating Period #3 (Friedensville Zinc)
• September 1890 to July 1891 – Operating Period #4 (Friedensville Zinc)
• July 1891 – One of walking beams broke
• March 1900 to August 1900 – Engine demolition
• July 1901 – President Boilers removed from site
The President Pumping Engine – Tell Me More

Contact:
Mark W. Connar
1480 Saucon Meadow Court
Bethlehem, PA 18015
610-248-6653
mwconnar@aol.com