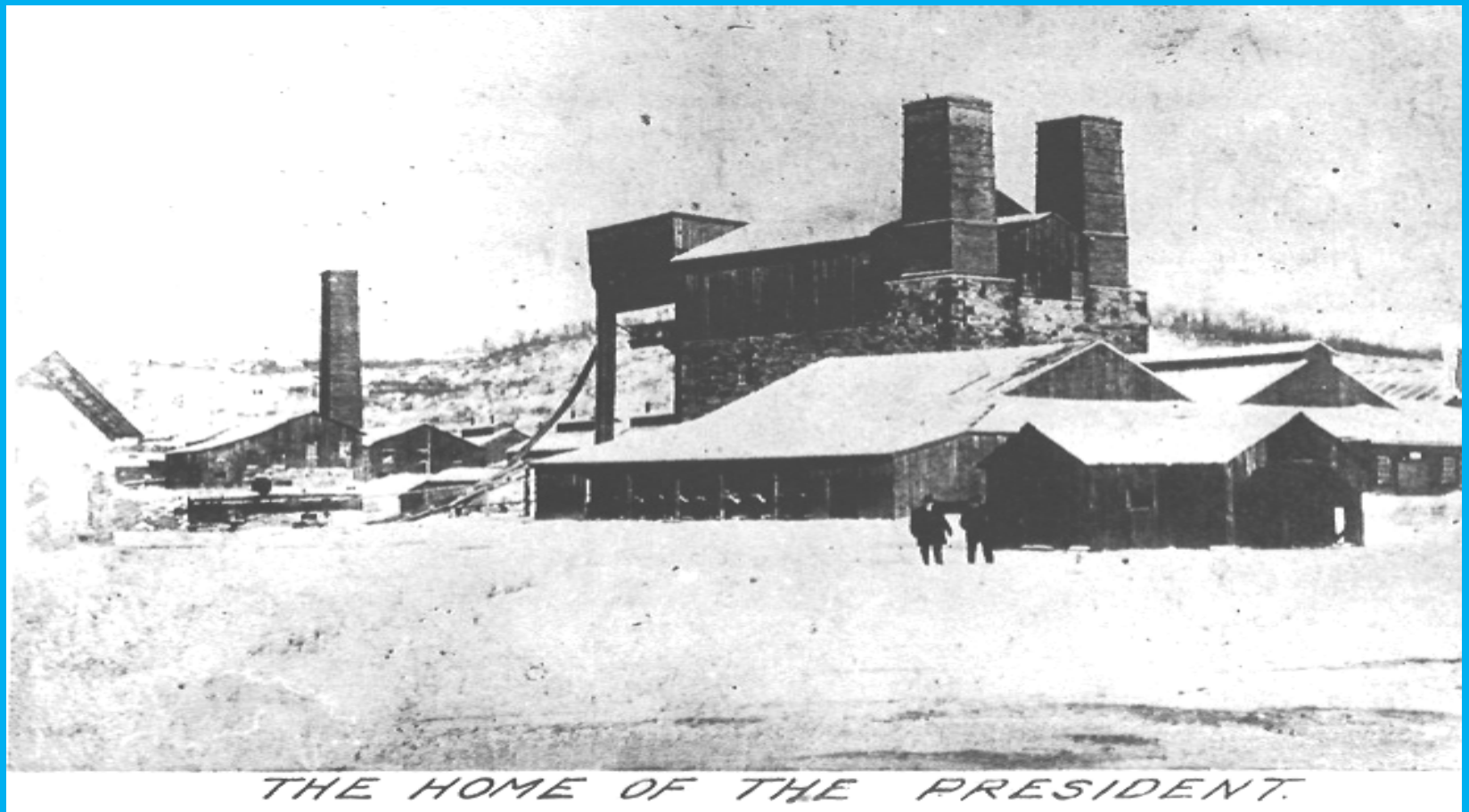


Photo – Upper Saucon Township Record Collection

Mark Connar

SIA Annual Conference – Richmond Virginia
June 2, 2018

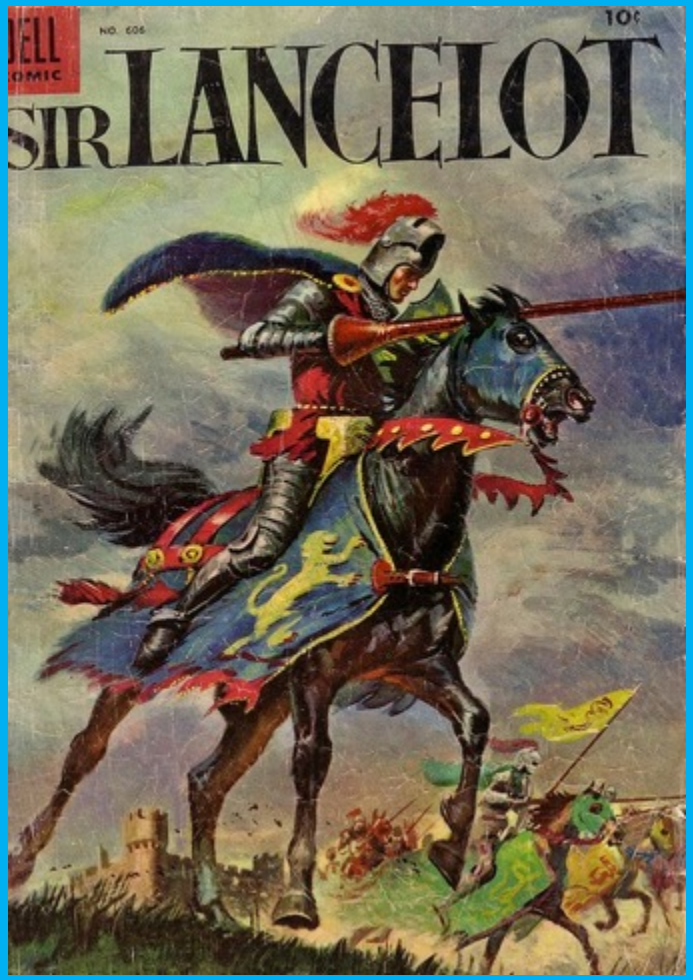
" The Elevator Speech"

- **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"

The New-York Times.

NEW-YORK, SATURDAY, APRIL 26, 1873.—TRIPLE SHEET.

ZINC MINING.

The Lehigh Company's Mines at Friedensville, Penn.—The Largest Stationary Engine in the World.

The South Australian Advertiser.

ADELAIDE, MONDAY, MAY 12, 1873. PUBLISHED DAILY—PRICE T

THE LARGEST STATIONARY ENGINE IN THE WORLD.

A recent number of the *Mining Journal* gives an interesting account of the starting of the Lehigh Zinc Company's mammoth engine,

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.

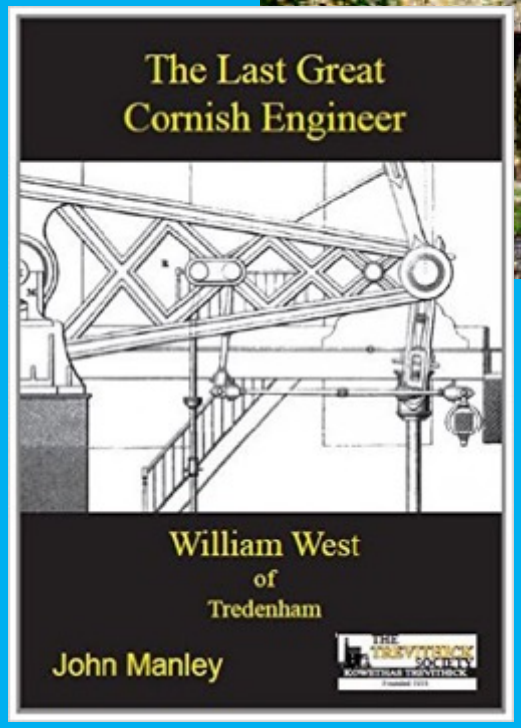
THE subscribers manufacture **Mining Machinery** as follows, viz: High and Low Pressure Pumping, Stamping and Hoisting Steam Engines, Pumps, Stamping and Crushing Machines, Winches, Ironblocks, Pulleys of all sizes, and every variety of Machinery for Mining purposes

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)

Photo – Connar, Source Unknown

The President – View from Mine Pit (Northwest Edge)

Photo – Miller, Lead and Zinc Ores in Pennsylvania

Typical Engine House Sectional

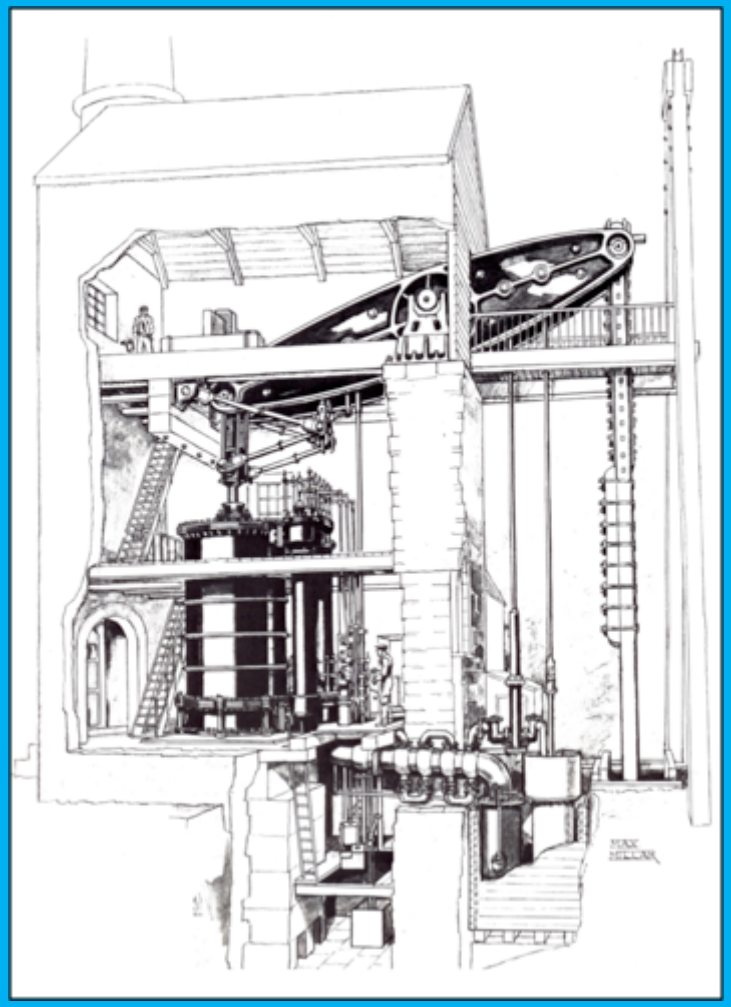
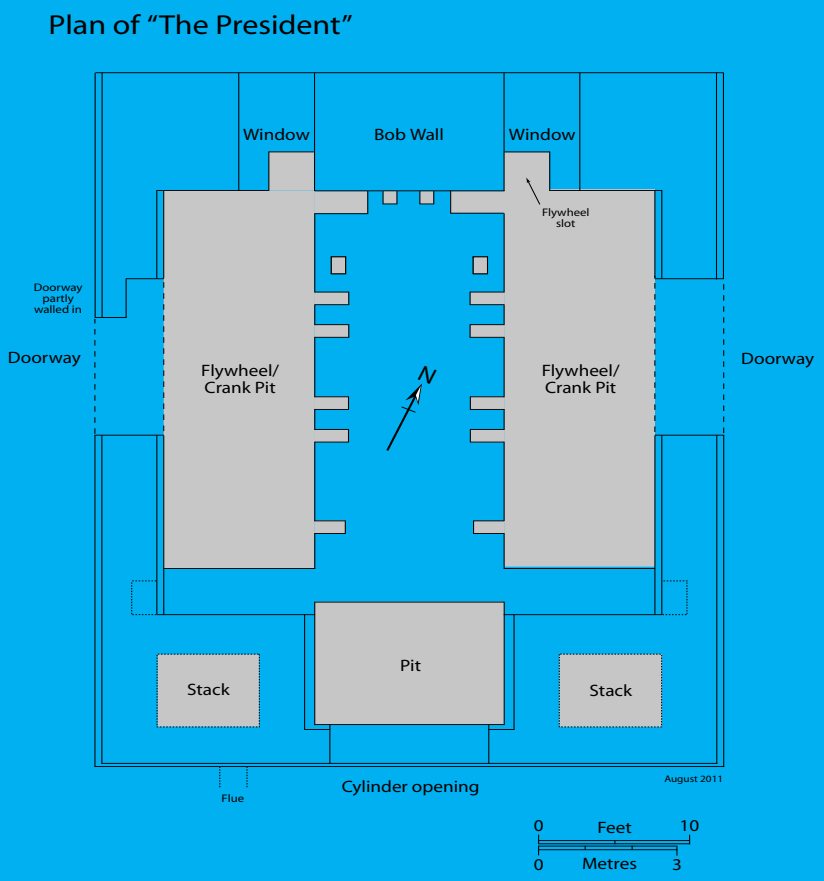


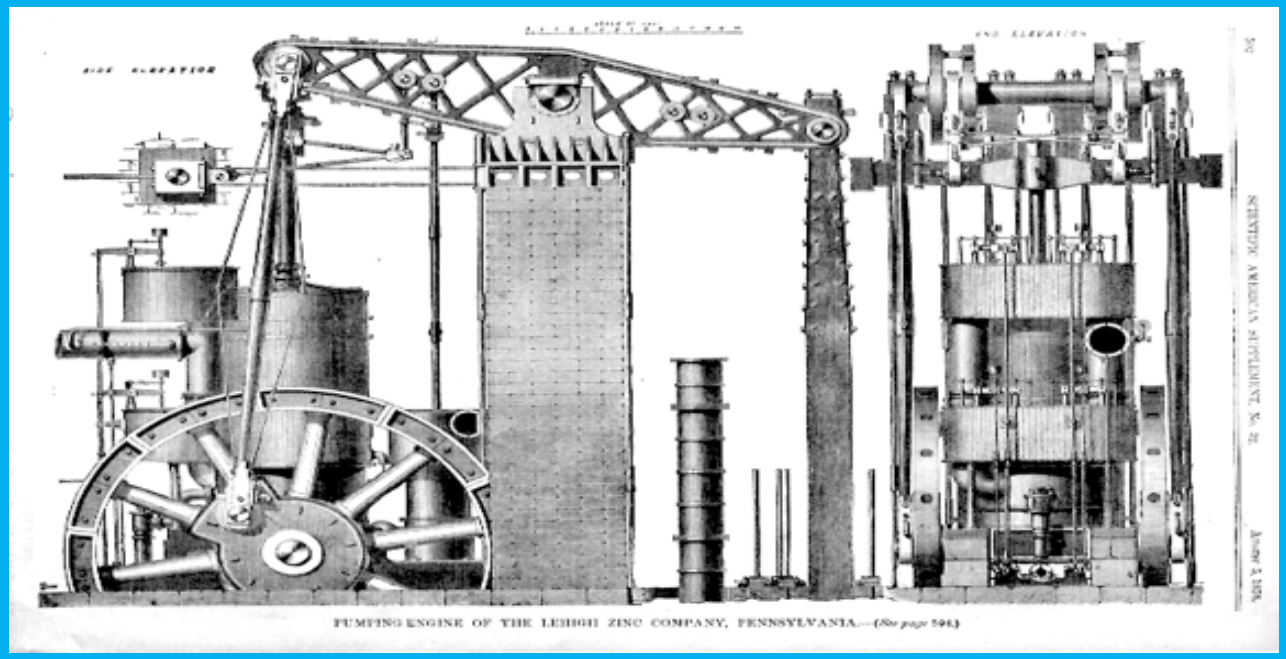
Photo – Nance, Engine Houses of West Cornwall

The President's Floor Plan



Drawing – courtesy of Damian Nance

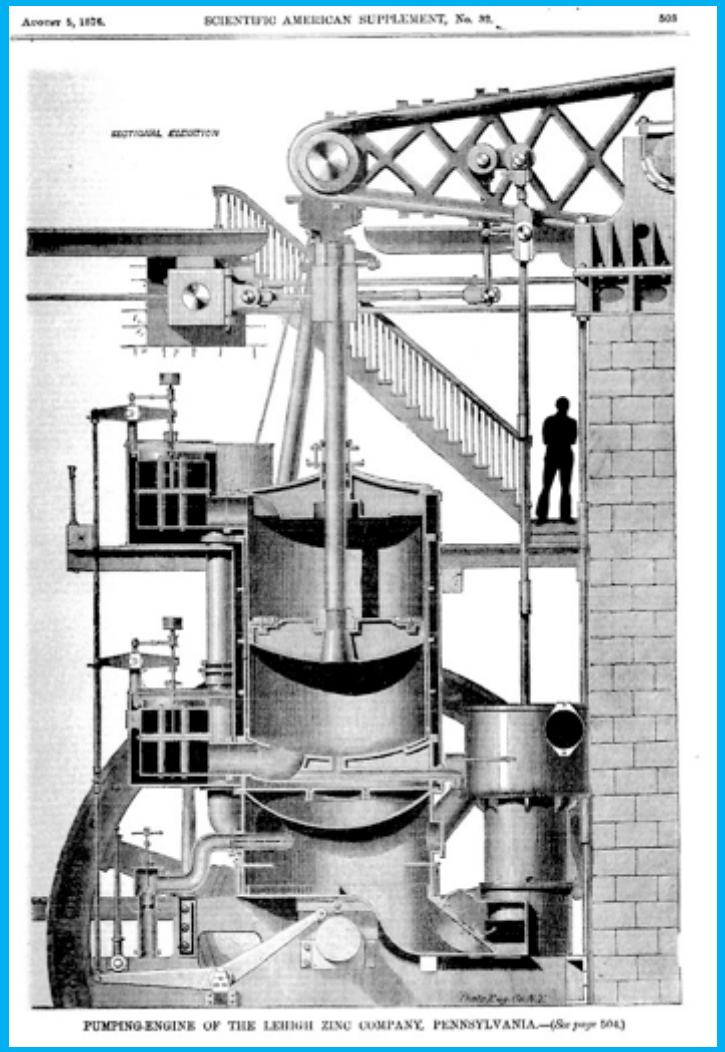
The President



PUMPING ENGINE OF THE LEHIGH ZINC COMPANY, PENNSYLVANIA.—(See page 594.)

Diagram – Scientific American Supplement 1 – August 5, 1876

The President

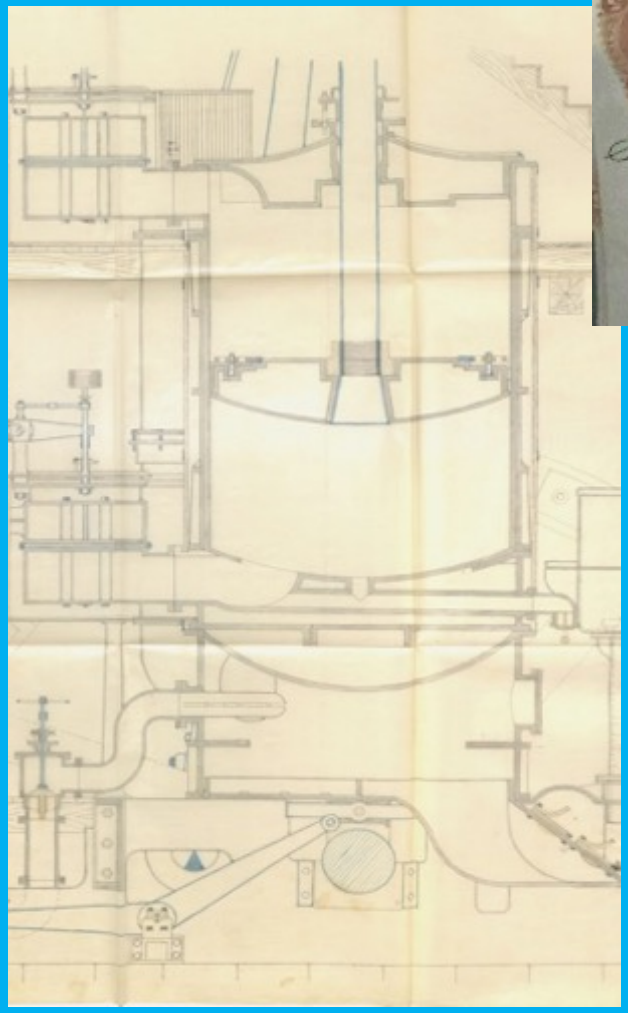


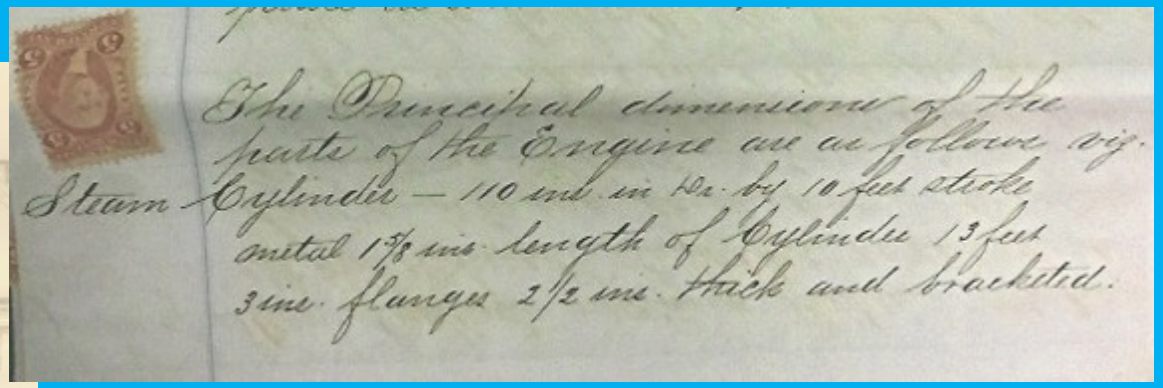
"It is the triumph of the rotative system as applied to a mine pump. I would not believe it would run so smoothly, if I had not seen it. It is worth coming across the Atlantic to see."

John Kraft
Chief Engineer – SA John Cockerill
Seraing, Belgium
1876

Diagram – Scientific American Supplement 1 – August 5, 1876 (modified with figure added); quote from letter to Charles Pratt & Co. from F.L.Clerc, 1899 (Lehigh University Special Collections

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

Drawings and Text Excerpt Photos – courtesy of Lafayette College Special Collections and Moravian Church Archives

A 90-inch Cylinder

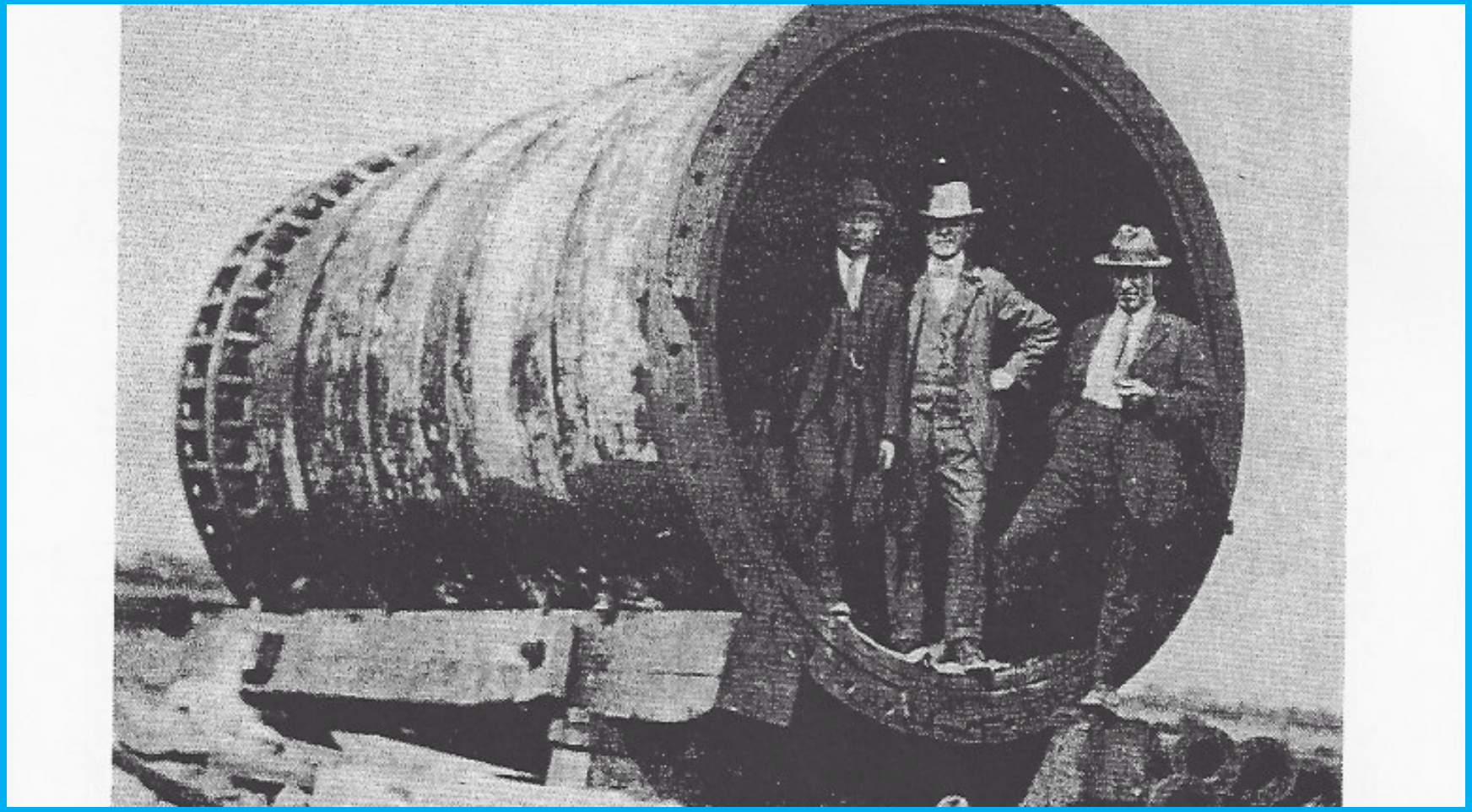


Photo – Lescohier, The Cornish Pump in the California Gold Mines/Trounson, Mining in Cornwall

The President – The Beam

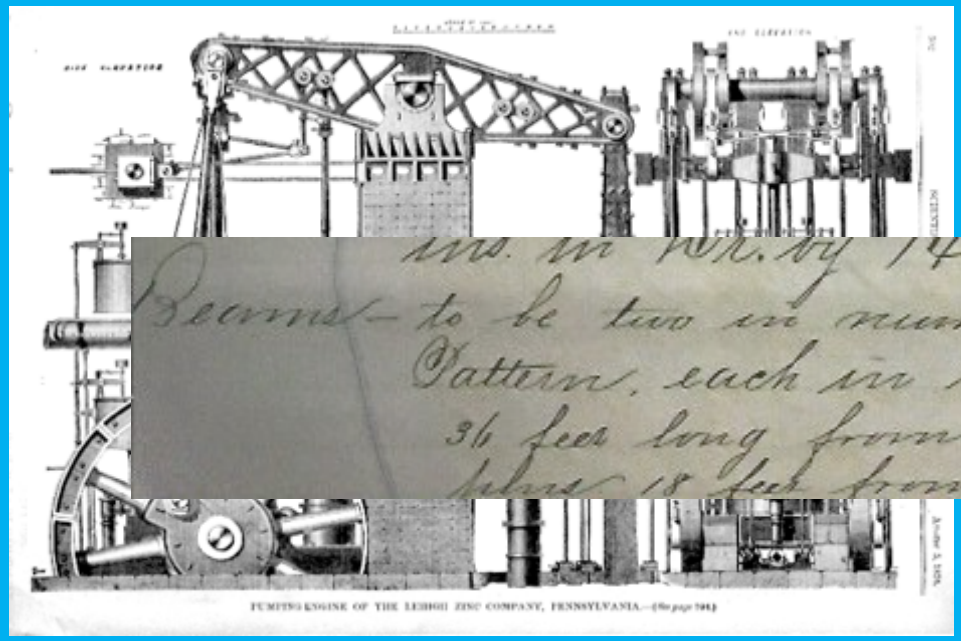
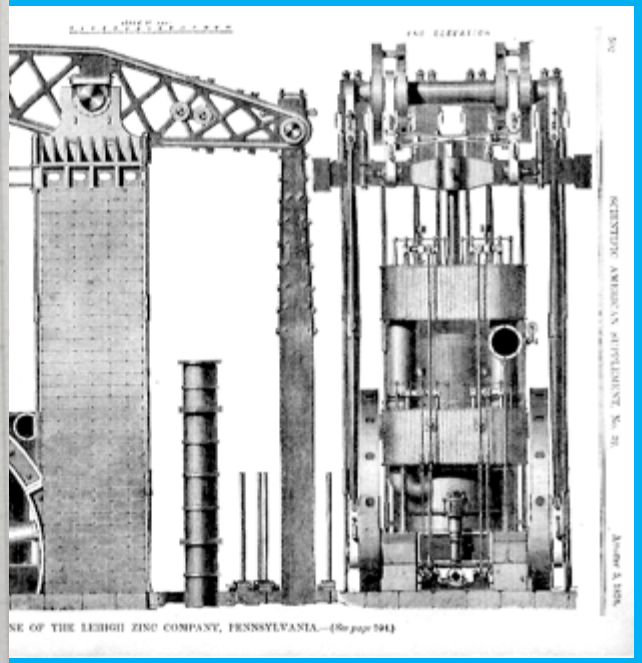


Diagram – Scientific American Supplement 1 – August 5, 1876/Lehigh Zinc Co Records - Moravian Church Archives

The President – The Pump Rod

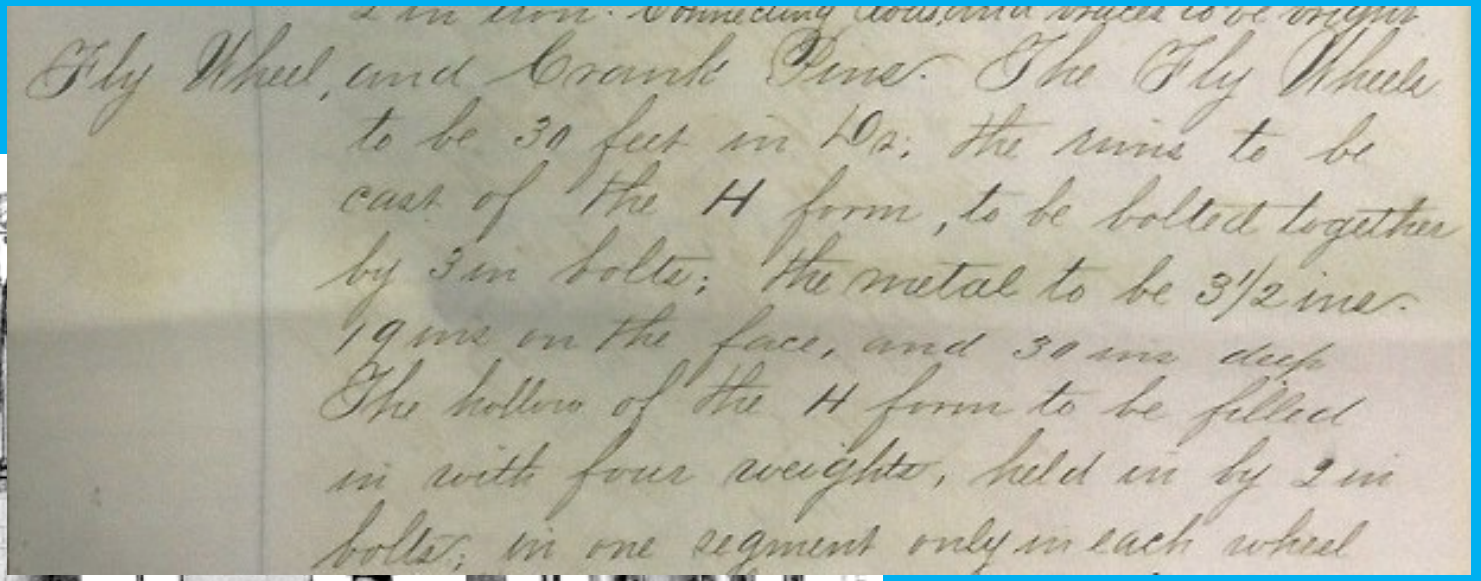
The pump-rods are kept in position by guides. Part of the shaft is open, through which part the ore near the bottom of the shaft is taken out. The pump rods are of yellow pine from Georgia. The shaft is lined with the same wood for the greater part of the distance down.



NE OF THE LEHIGH ZINC COMPANY, PENNSYLVANIA.—(See page 941)

Diagram – Scientific American Supplement 1 – August 5, 1876/Riley Thesis – Lafayette College Special Collections

The President – The Flywheel


Fly Wheel, and Crank Pins. The Fly Wheels
to be 30 feet in Dia: the rims to be
cast of the H form, to be bolted together
by 3 in bolts; the metal to be 3½ ins.
19 ins on the face, and 30 ins 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

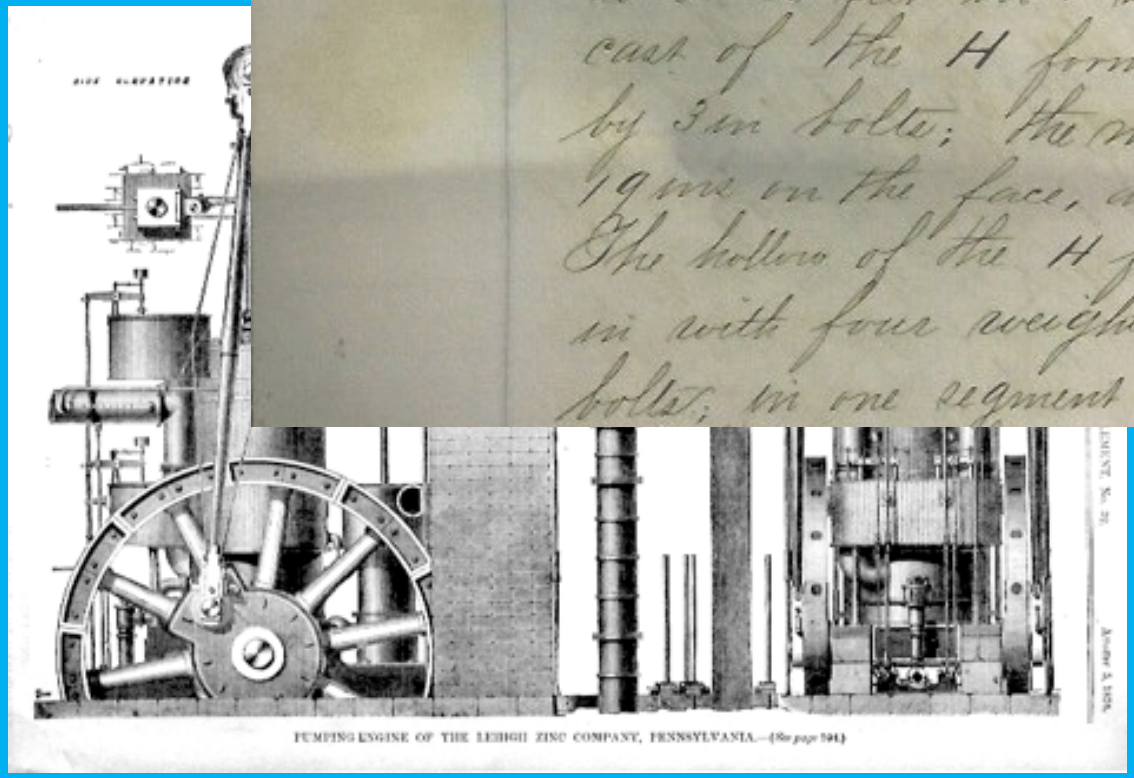

PUMPING ENGINE OF THE LEHIGH ZINC COMPANY, PENNSYLVANIA.—(See page 594)

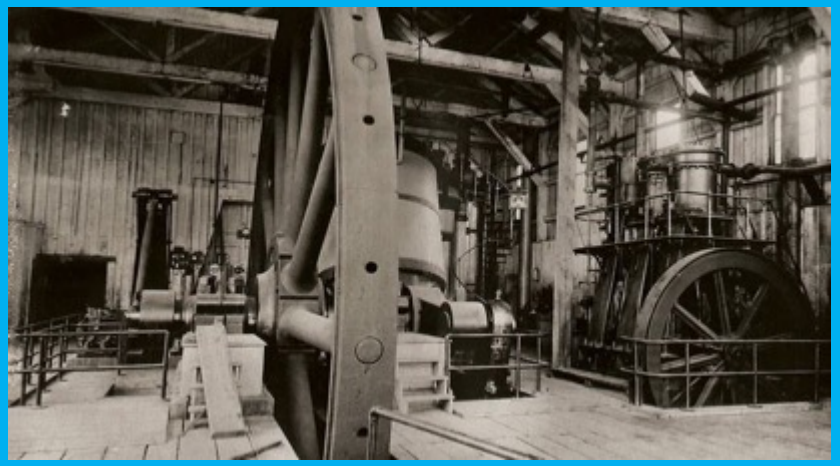
Diagram – Scientific American Supplement 1 – August 5, 1876/Lehigh Zinc Co Records - Moravian Church Archives

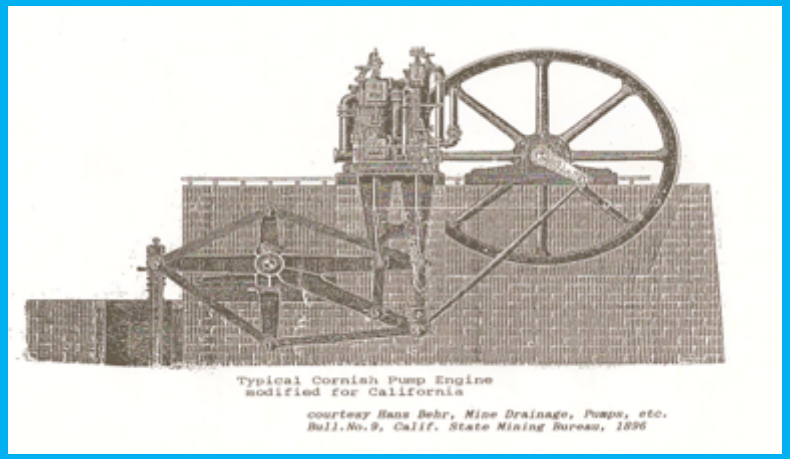
The President's Boilers

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)

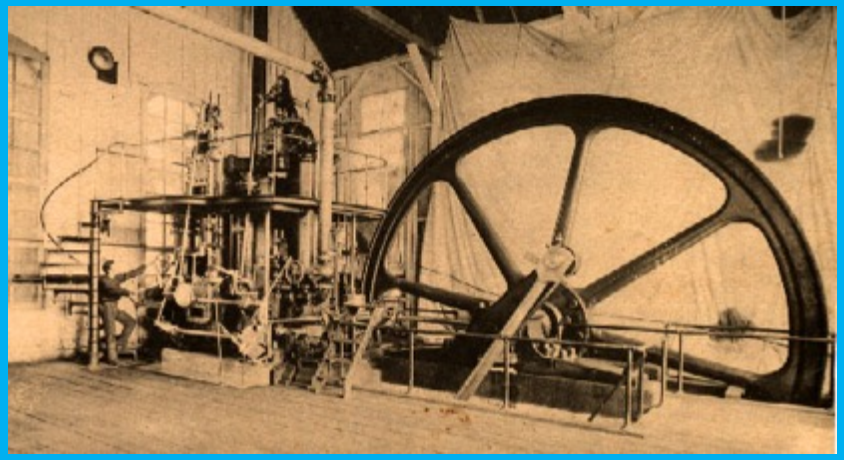
John West and Cornish Pumps in the West





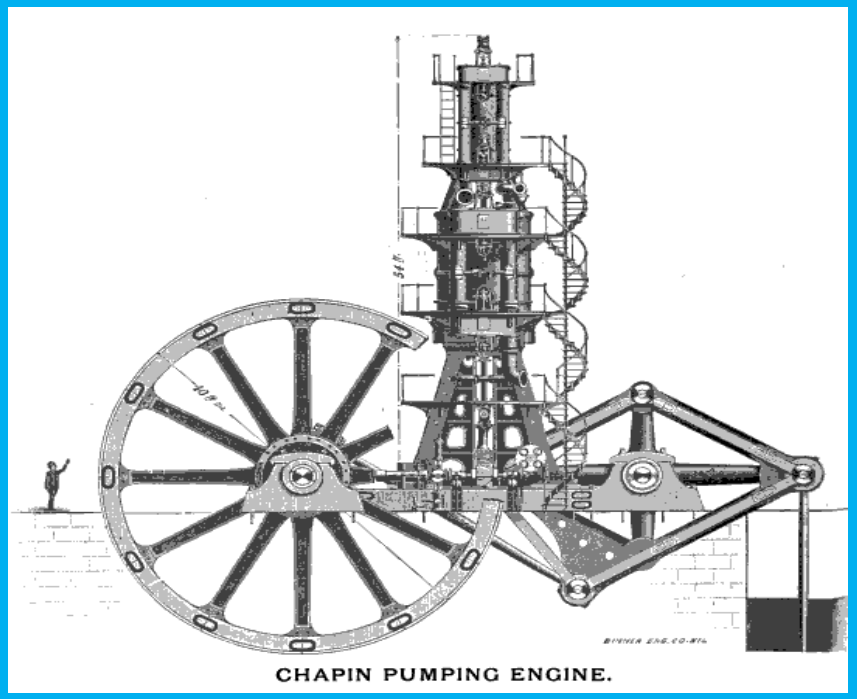
Typical Cornish Pump Engine
modified for California

courtesy Hans Behr, Mine Drainage, Pumps, etc.
Bull.No.9, Calif. State Mining Bureau, 1896



Photos – Western Nevada Historic Photo Collection/Lescohier (top right)

Chapin Mine – Iron Mountain Michigan

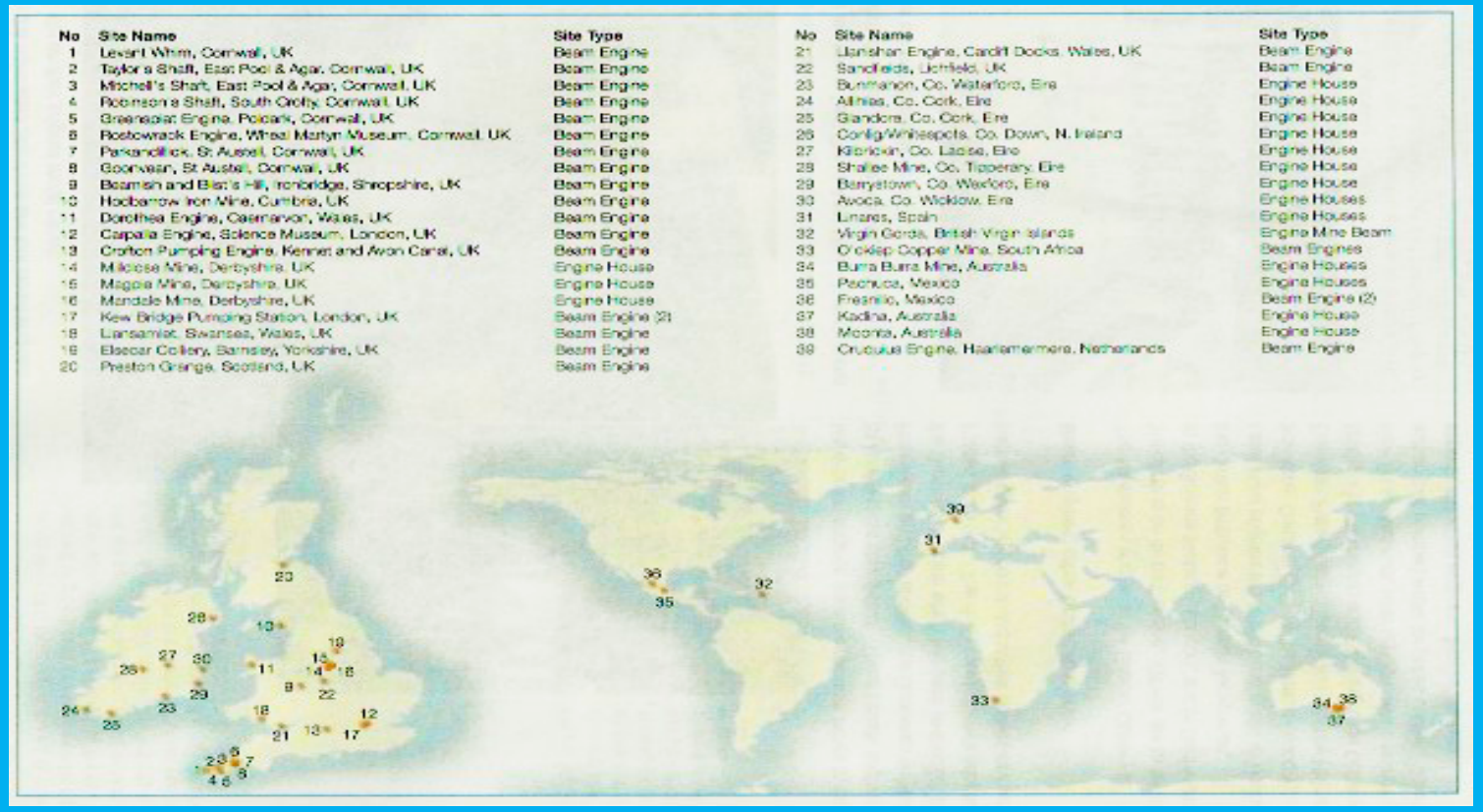


Photos – ASME Chapin Mine Pumping Engine (left)/Iron Mining Museum, Iron Mountain Michigan

The President in Ruins

Photo – courtesy of Damian Nance

Surviving Cornish Engine Houses – Worldwide (UNESCO 2006)

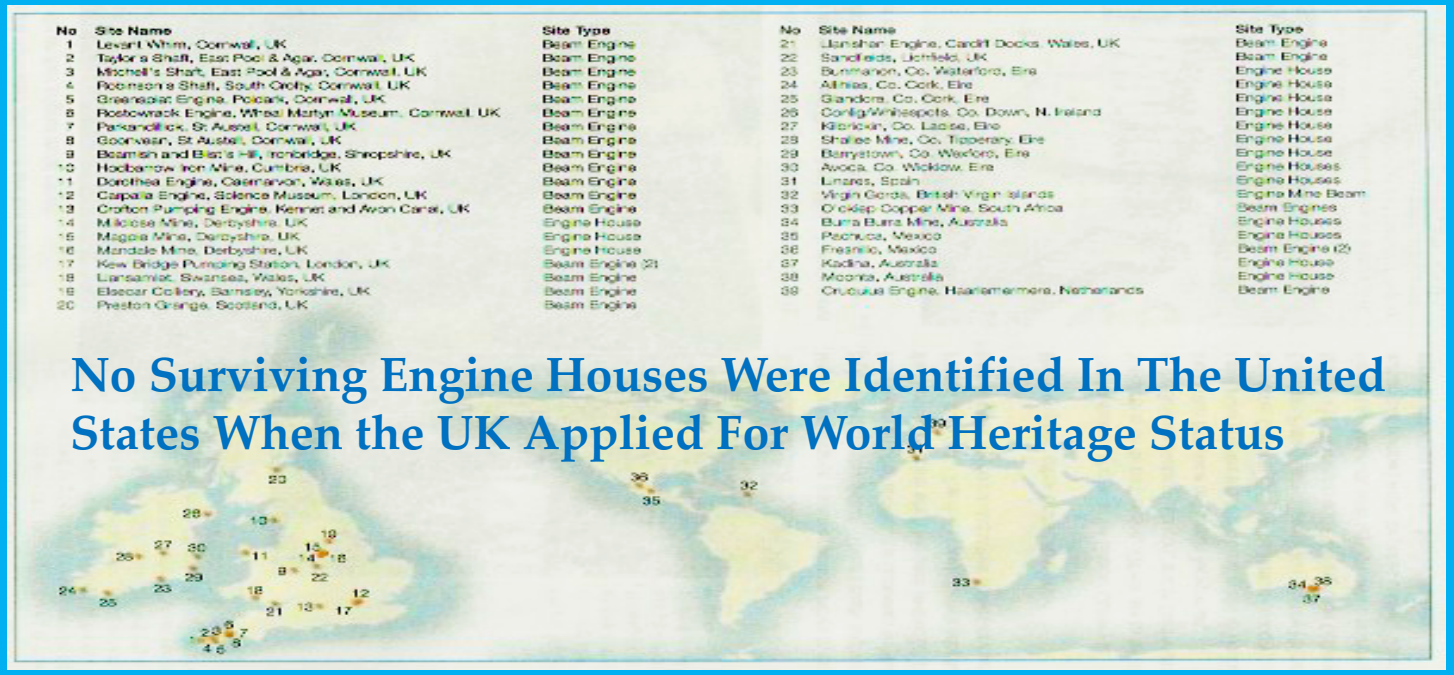


No	Site Name	Site Type
1	Levant Whim, Cornwall, UK	Beam Engine
2	Taylor's Shaft, East Pool & Agar, Cornwall, UK	Beam Engine
3	Mitchell's Shaft, East Pool & Agar, Cornwall, UK	Beam Engine
4	Robinson's Shaft, South Crofty, Cornwall, UK	Beam Engine
5	Greenside Engine, Polcark, Cornwall, UK	Beam Engine
6	Rostowrack Engine, Wheal Martyn Museum, Cornwall, UK	Beam Engine
7	Parkandillick, St Austell, Cornwall, UK	Beam Engine
8	Goonvean, St Austell, Cornwall, UK	Beam Engine
9	Bedlam and Bet's Hill, Ironbridge, Shropshire, UK	Beam Engine
10	Hodbarrow Iron Mine, Cumbria, UK	Beam Engine
11	Dorothea Engine, Caernarvon, Wales, UK	Beam Engine
12	Capalla Engine, Science Museum, London, UK	Beam Engine
13	Crofton Pumping Engine, Kennet and Avon Canal, UK	Beam Engine
14	Middose Mine, Derbyshire, UK	Engine House
15	Magpie Mine, Derbyshire, UK	Engine House
16	Mandale Mine, Derbyshire, UK	Engine House
17	Kew Bridge Pumping Station, London, UK	Beam Engine (2)
18	Llansamlet, Swansea, Wales, UK	Beam Engine
19	Elsecar Colliery, Barnsley, Yorkshire, UK	Beam Engine
20	Preston Grange, Scotland, UK	Beam Engine

No	Site Name	Site Type
21	Llanishen Engine, Cardiff Docks, Wales, UK	Beam Engine
22	Sandfields, Lichfield, UK	Beam Engine
23	Bunmahon, Co. Waterford, Eire	Engine House
24	Allihies, Co. Cork, Eire	Engine House
25	Glandore, Co. Cork, Eire	Engine House
26	Conlig/Whiteabbey, Co. Down, N. Ireland	Engine House
27	Kilbricken, Co. Laoise, Eire	Engine House
28	Shallee Mine, Co. Tipperary, Eire	Engine House
29	Barrystown, Co. Wexford, Eire	Engine House
30	Avoca, Co. Wicklow, Eire	Engine Houses
31	Linares, Spain	Engine Houses
32	Virgin Gorda, British Virgin Islands	Engine Mine Beam
33	O'okiep Copper Mine, South Africa	Beam Engines
34	Burra Burra Mine, Australia	Engine Houses
35	Pachuca, Mexico	Engine Houses
36	Fresnillo, Mexico	Beam Engine (2)
37	Kadina, Australia	Engine House
38	Moonta, Australia	Engine House
39	Oruoua Engine, Haarlemermere, Netherlands	Beam Engine

Photo – UNESCO application – Cornwall and West Devon Mining Landscape

Surviving Cornish Engine Houses – Worldwide (UNESCO 2006)



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5	Greenspan Engine, Polcark, Cornwall, UK	Beam Engine
6	Rostowrack Engine, Wheal Martyn Museum, Cornwall, UK	Beam Engine
7	Parkandillick, St Austell, Cornwall, UK	Beam Engine
8	Goonvean, St Austell, Cornwall, UK	Beam Engine
9	Bedlam and Bedlam Hill, Ironbridge, Shropshire, UK	Beam Engine
10	Hodbarrow Iron Mine, Cumbria, UK	Beam Engine
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12	Cappalla Engine, Science Museum, London, UK	Beam Engine
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20	Preston Grange, Scotland, UK	Beam Engine
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22	Sandfields, Lichfield, UK	Beam Engine
23	Bunmahon, Co. Waterford, Eire	Engine House
24	Allihies, Co. Cork, Eire	Engine House
25	Glandore, Co. Cork, Eire	Engine House
26	Conlig/Whitespots, Co. Down, N. Ireland	Engine House
27	Kilbrickan, Co. Laoise, Eire	Engine House
28	Shallee Mine, Co. Tipperary, Eire	Engine House
29	Barrystown, Co. Wexford, Eire	Engine House
30	Avoca, Co. Wicklow, Eire	Engine Houses
31	Linares, Spain	Engine Houses
32	Virgin Gorda, British Virgin Islands	Engine Mine Beam
33	Cricklepit Copper Mine, South Africa	Beam Engines
34	Burra Burra Mine, Australia	Engine Houses
35	Pachuca, Mexico	Engine Houses
36	Fresnillo, Mexico	Beam Engine (2)
37	Kadina, Australia	Engine House
38	Moonta, Australia	Engine House
39	Cruquius Engine, Haarlemermere, Netherlands	Beam Engine

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)

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9	Bedlish and Bloss Hill, Ironbridge, Shropshire, UK	Beam Engine
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38	Moonta, Australia	Engine House
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The President Engine House is The Only Documented Cornish Pumping Engine House in the United States

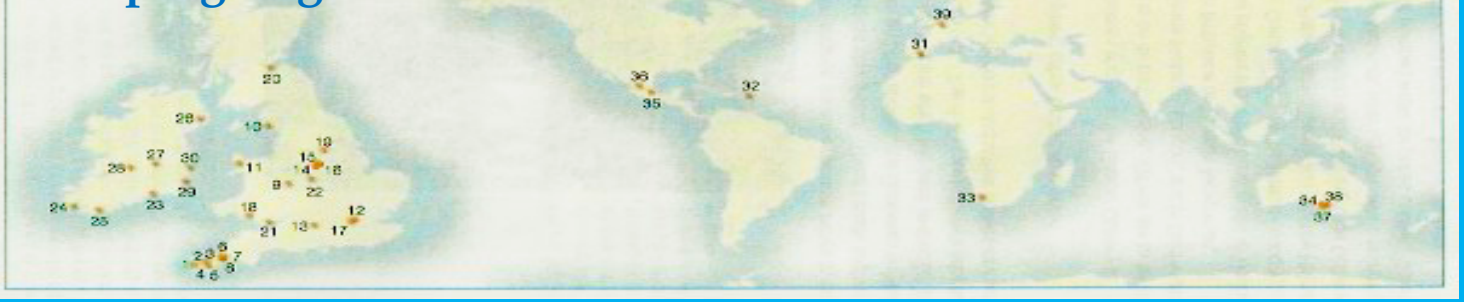
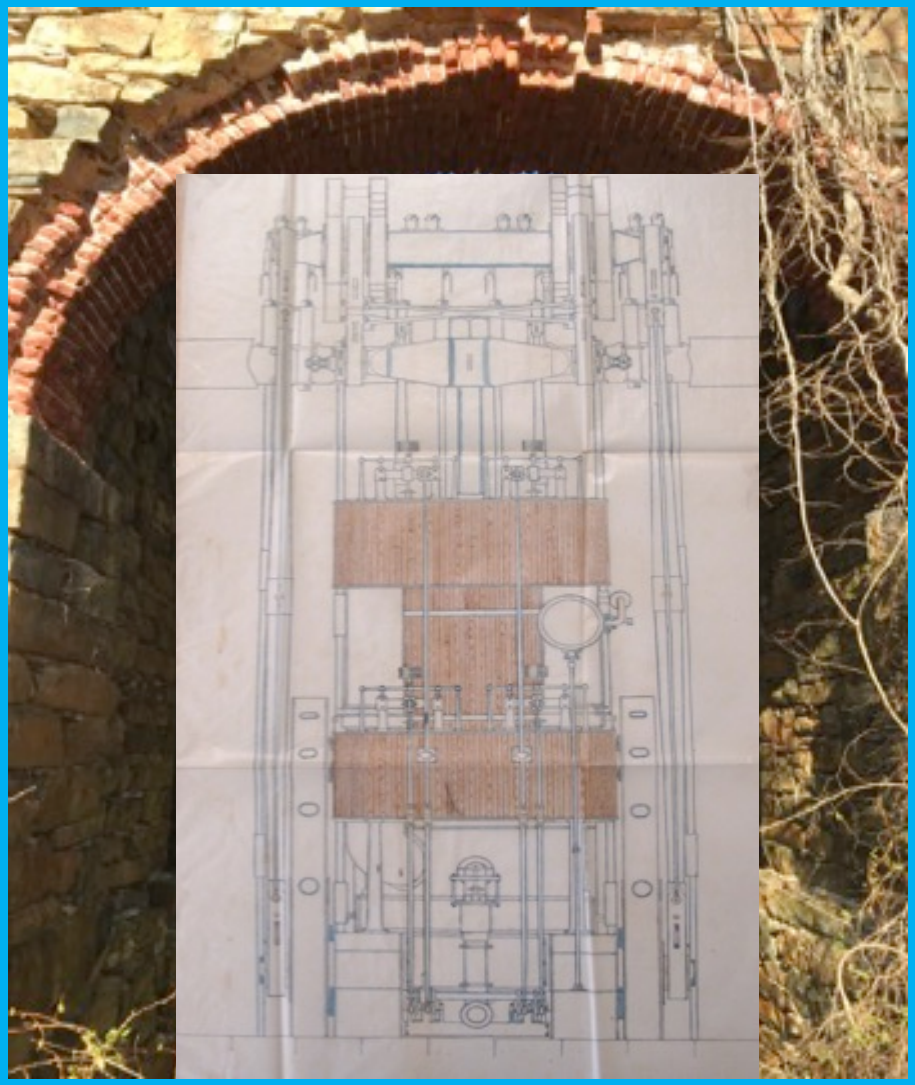


Photo – UNESCO application – Cornwall and West Devon Mining Landscape

The President Today – Façade Facing the Boiler House

Photos – Connar, courtesy of Lehigh University

The President Then – Looking in the Cylinder Door

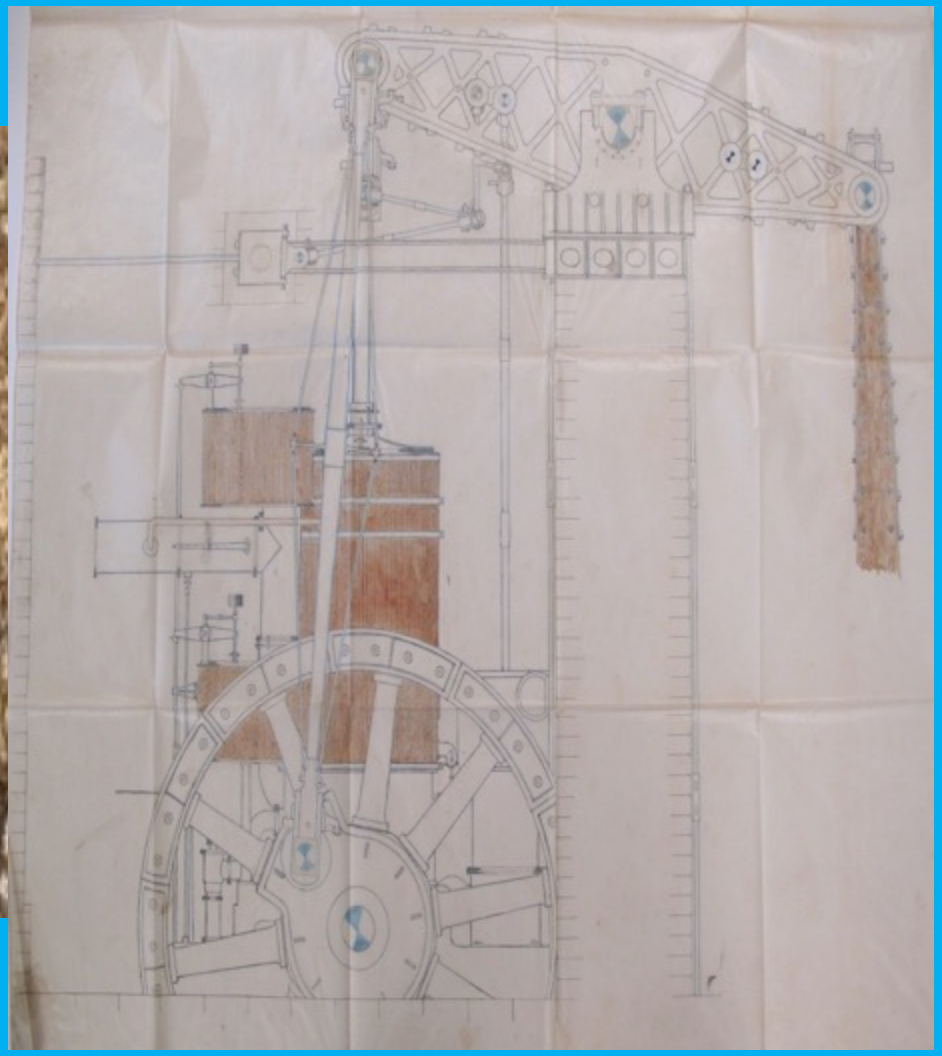


Photos – Connar, courtesy of Lehigh University/Riley Thesis – Lafayette College Special Collections

The President Today – West Facade

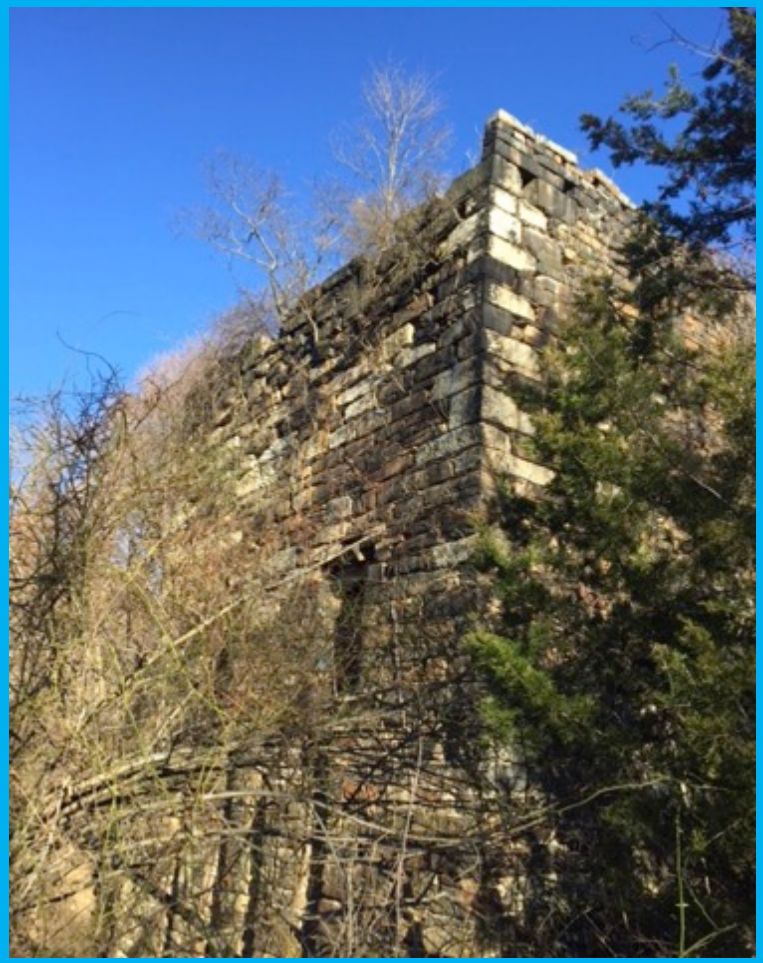
Photo – Connar, courtesy of Lehigh University

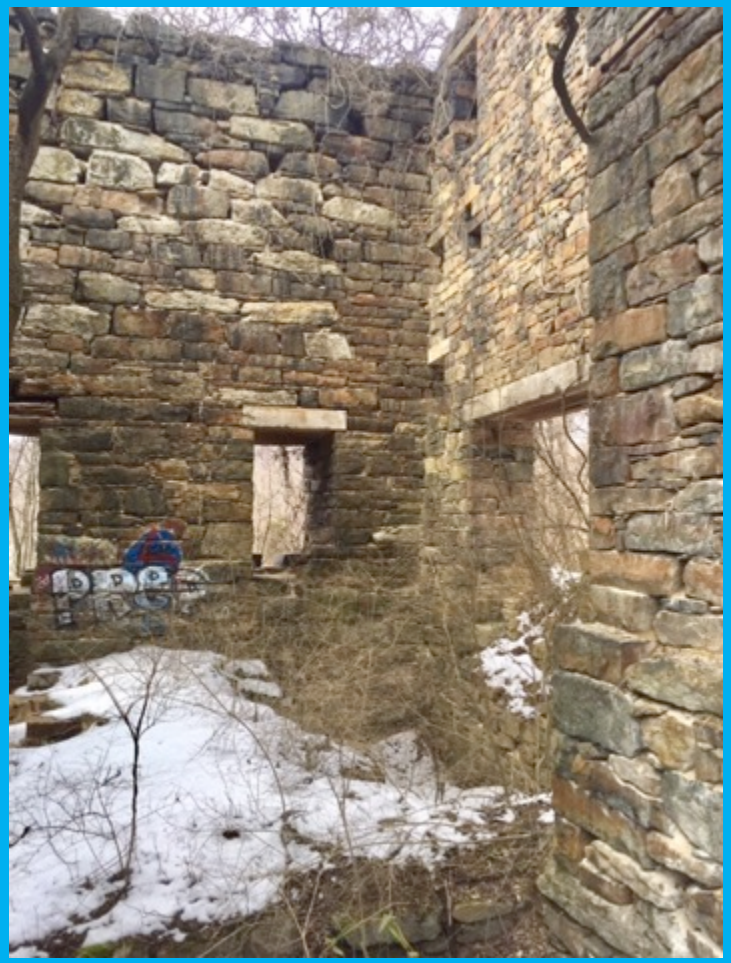
The President Then – Looking in the East Wall Door



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

The Friedensville Mines – A Heritage Park Opportunity

Photos – Connar, courtesy of Lehigh University, Lafayette College, Moravian Church Archives, American Atelier Co

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