

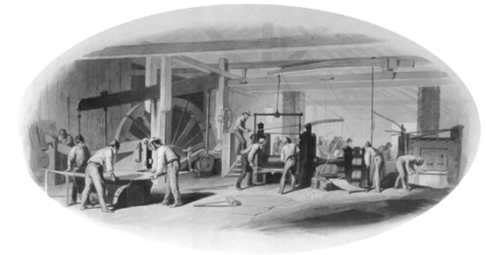
The History of the Valley Iron Works

Rich Smith

November 5, 2020



Valley Iron Works

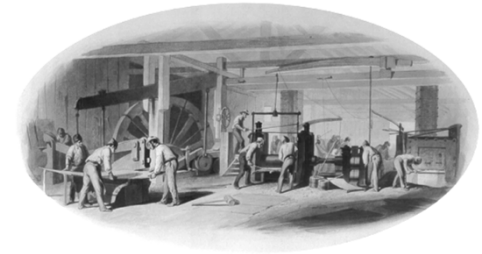


Where was the Valley Iron Works?

- Roofline that peeks over the guardrail of Route 82 between the Bypass and Coatesville
- Valley Hall, iron master's mansion, built by Joseph Pennock in the 1850's
- Most visible evidence left of the Valley Iron Works, which was located along the Brandywine directly across from the mansion

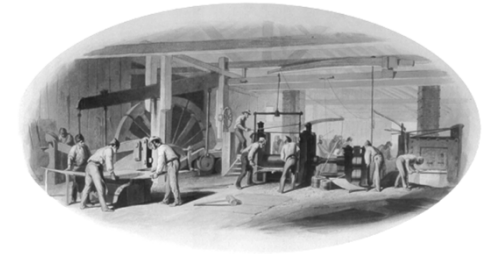


Valley Iron Works Overview

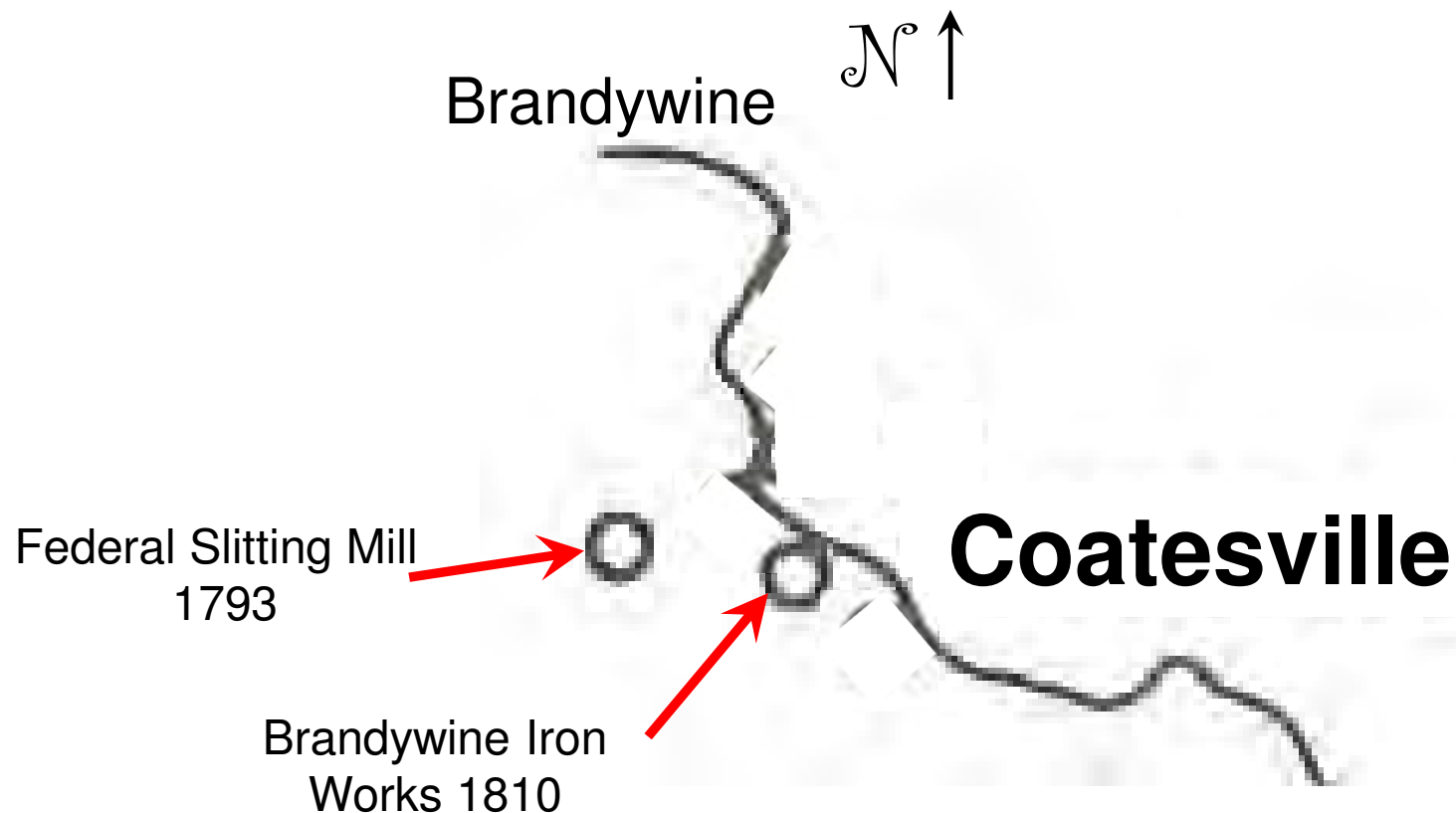


- Built in 1837 as the Caln Iron Works
- Operated, except for a few interruptions, until 1919 – a span of 82 years
- Controlled by two branches of the Pennock family for 50 years
- 1870's and 1880's – Pinnacle of its prosperity
 - Employed 200 men – by far the largest local iron works
 - Had one of the widest plate mills in the state
 - Rolled wide iron plates for locomotive steam boilers and ship hulls
 - Rolled iron plates for the “City of Peking” - Largest American steamship ever built (1874), and second in the world to the British vessel “Great Eastern.”
 - Rolled iron plates for the “Dauphin”, one of the first four ships of the “New Navy” – built with iron hulls

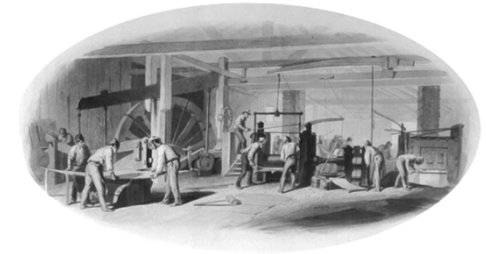
Coatesville Area Rolling Mills 1820



In 1820 there were 2 rolling mills in the Coatesville area



Early Iron Masters

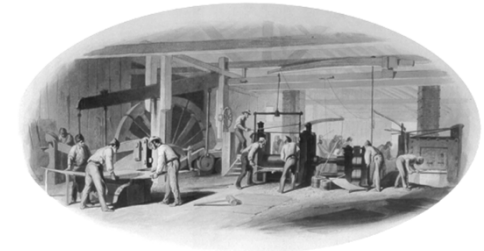


Isaac Pennock

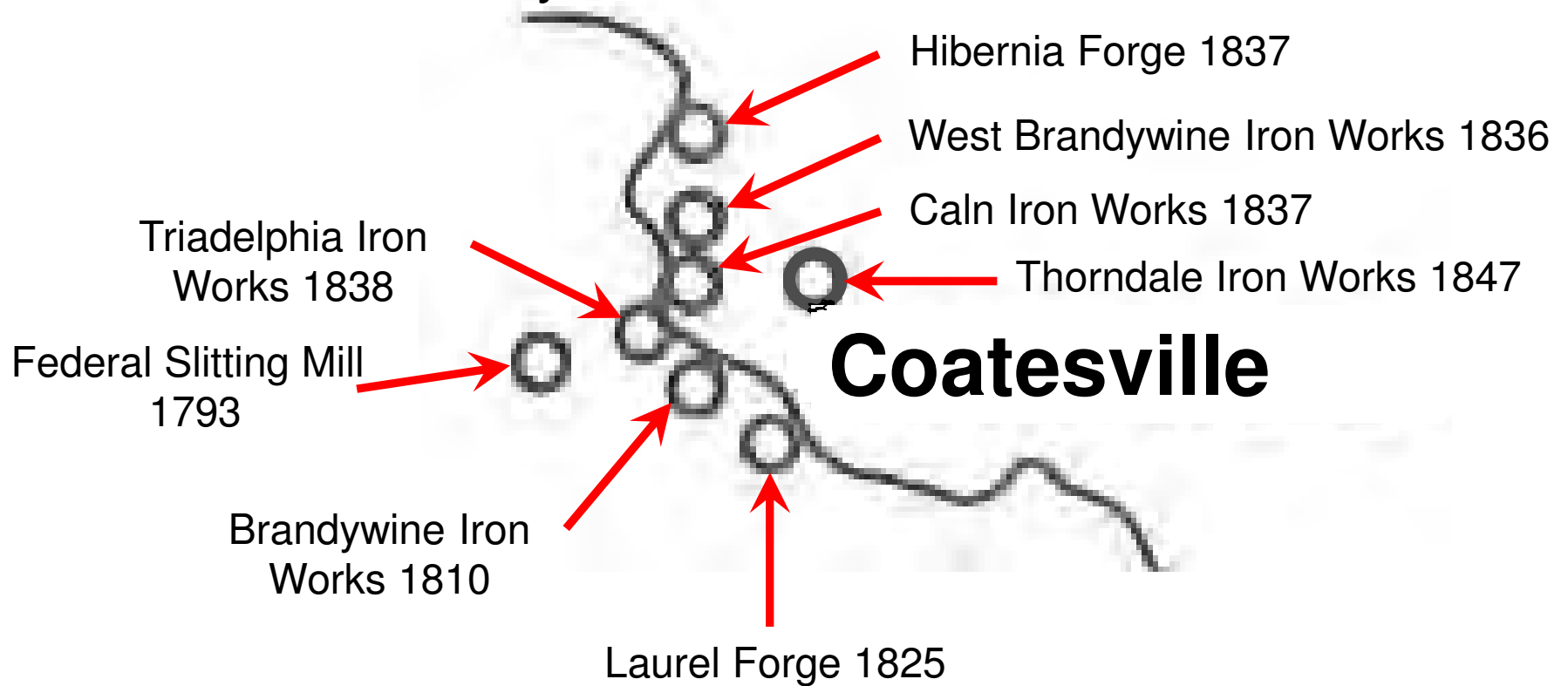
- Established the Federal Slitting Mill in 1793
- Located on the Buck Run 4 miles south of Coatesville
- Partnered with Jesse Kersey and bought 110 acres from Moses Coates in 1810
- Converted a saw mill into a rolling and slitting mill
- Named the Brandywine Iron Works and Nail Factory



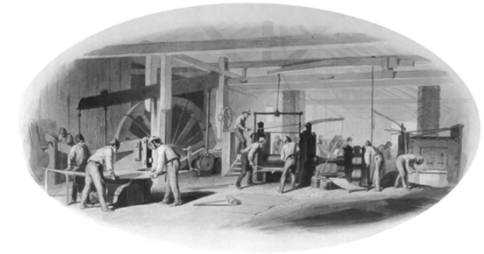
Coatesville Area Rolling Mills 1850



By 1850 there were 8 mills
Brandywine



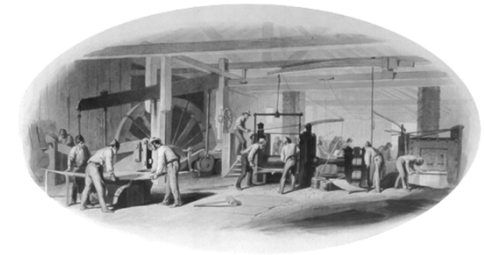
Coatesville Area Rolling Mills



Rolling Mill Longevity

Mill	Built	Abandoned	Years	Product
Federal Slitting Mill (Rokeby)	1793	1865	72	Boiler and Flue Plate
Brandywine (Lukens)	1810	2020	210	Boiler and Flue Plate
Laurel	1825	1888	63	Boiler and Flue Plate
West Brandywine	1836	1880	44	Boiler and Flue Plate
Hibernia	1837	1878	41	Boiler and Flue Plate
Caln (Valley)	1837	1919	82	Sheet Iron
Triadelphia (Viaduct)	1838	1942	104	Boiler and Flue Plate
Thorndale	1847	1893	46	Boiler and Flue Plate

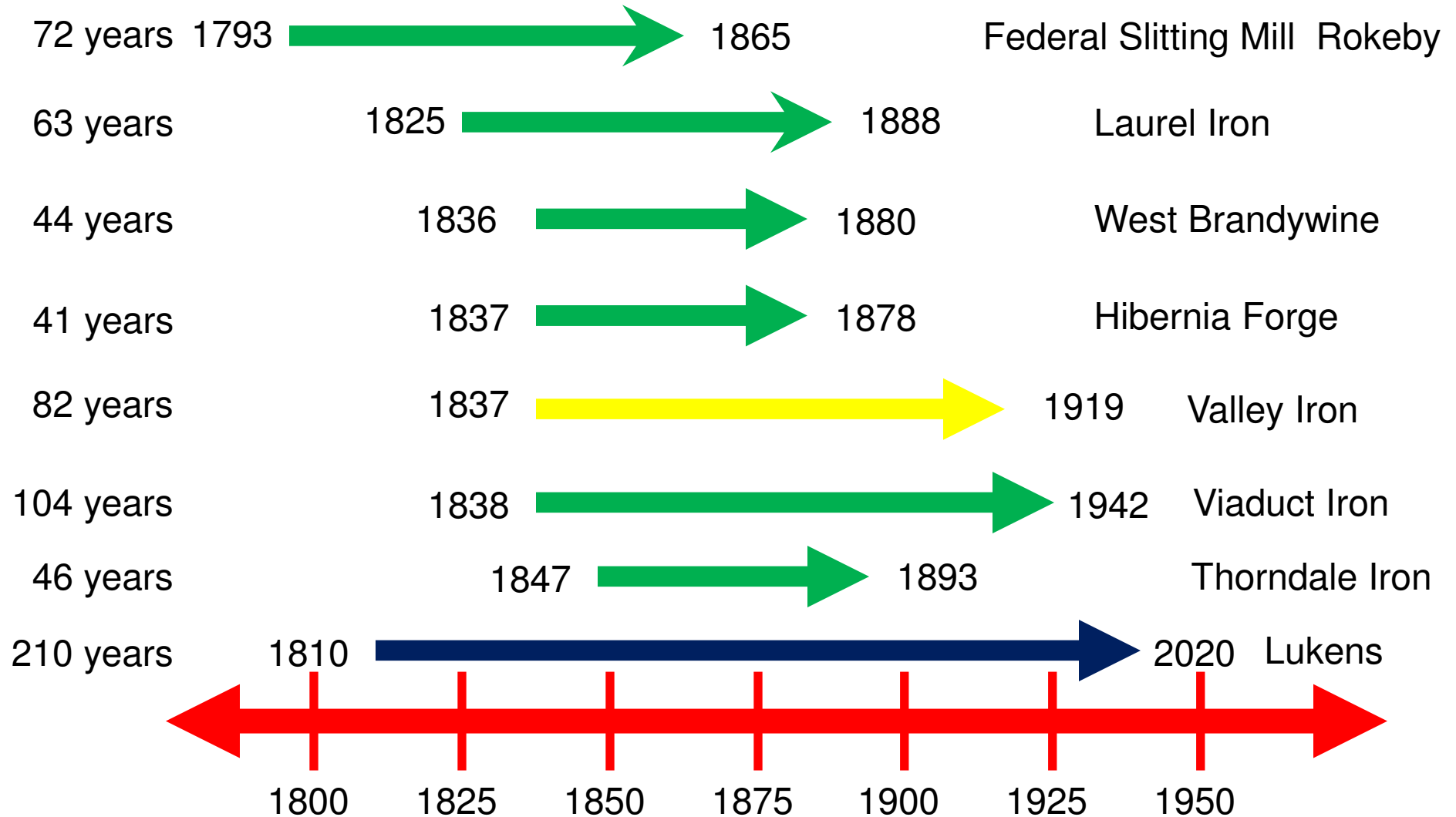
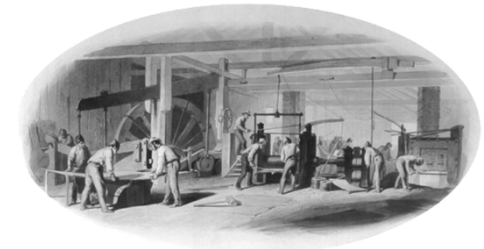
Coatesville Area Rolling Mills



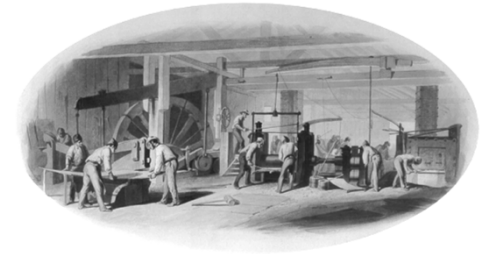
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Coatesville Area Rolling Mills Timeline



Early Iron Masters

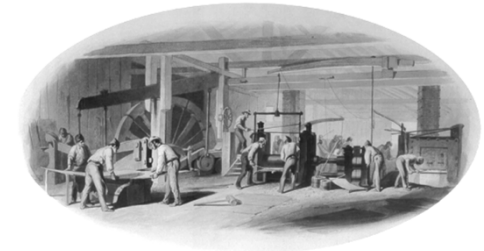


Martha Webb Pennock

- Wife of Isaac Pennock
- Mother of Rebecca Lukens
- Inherited the Federal Slitting mill, along with her children, when Isaac died in 1824
- Rebuilt the mill and named it Rokeby
- Sold Rokeby in 1837

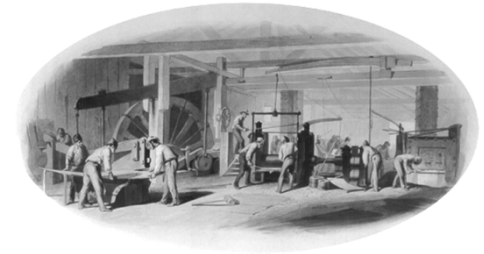


Federal Slitting Mill (Rokeby)



- Martha Pennock, along with her children, inherited the Federal Slitting Mill when Isaac Pennock died in 1824
- Rokeby Iron Works was sold in 1837 by Martha Pennock and her children, Rebecca Lukens, Sarah Pennock, Jesse Coates and Martha, his wife, James Penrose and Mary Ann, his wife, and George Pennock
- Bought by Thomas H. Gardner, George Fleming, James Riddell, and George Mitchell
- Assume that the proceeds of the sale were used to finance the building of the new mill, the Caln Iron Works, with the 7 acres Isaac owned and which was inherited by his daughter Martha, as the nucleus of the endeavor

Caln Iron Works

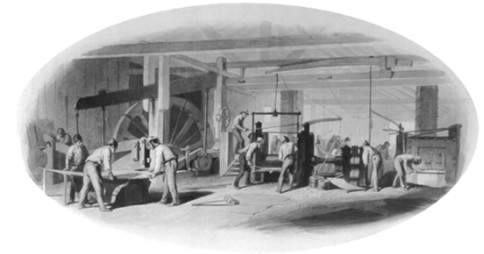


Martha Pennock

- Daughter of Isaac and Martha Pennock
- Married Jesse Coates, son of Moses Coates, for whom the city of Coatesville is named



Caln Iron Works

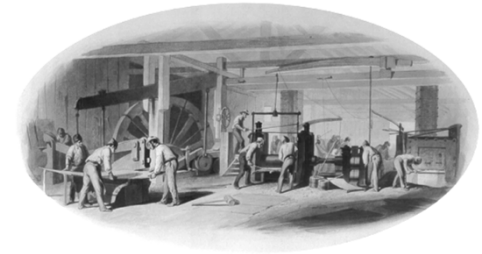


Dr. Jesse Coates

- Son of Moses Coates, and a medical doctor
- Born in 1796
- Married Martha Webb Pennock, daughter of Isaac and Martha Webb Pennock, in 1824
- Partnered with George Pennock, his wife's brother, to build the Caln Iron Works in 1837



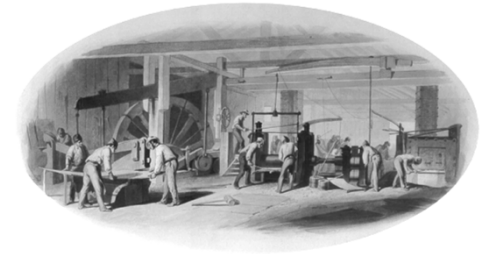
Caln Iron Works



George Webb Pennock

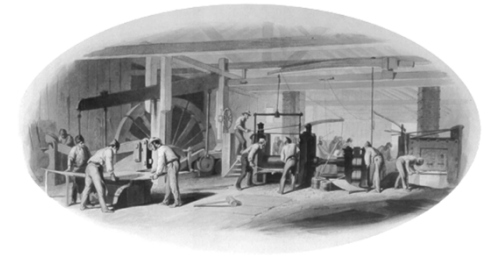
- Youngest child of Isaac and Martha Webb Pennock
- Born in 1811
- Only 13 when his father Isaac died in 1824
- Ran the Rokeby mill at age 22 after his older brother Isaac died in 1833
- Sold Rokeby in 1837
- Built the Caln Iron Works in 1837

Caln Iron Works Site Selection



- The 1830's saw rapid growth of the Pennsylvania iron industry
 - Protective tariffs favored iron industry profits
 - 77 blast furnaces built in the decade
 - 46 forges, bloomeries and rolling mills also built
- Brandywine provided good waterpower for operating a mill
- Philadelphia and Lancaster Turnpike, opened in 1794, provided good transportation
- Philadelphia and Columbia Railroad opened in 1834
- Samuel Hatfield added a rolling mill at his grist mill in Wagontown in 1836
- Hibernia Forge added a rolling mill in 1837
- Triadelphia Iron Works built in 1838

Myth Busters #1

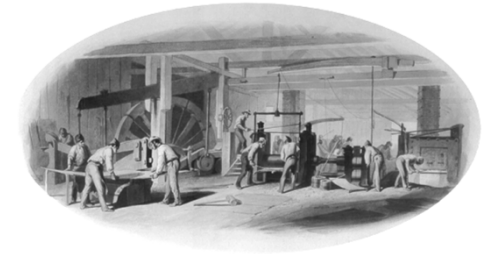


Myth

- Built in 1837 by Martha Pennock (Isaac's wife) for her son George and son-in-law Dr. Jesse Coates on the portion of Isaac Pennock's real estate which had been selected as her share of Isaac's estate by Dr. Coates' wife, Martha Webb (Pennock) Coates. (Source: Huston, History of Iron Industry in Chester County, 1943)

Fact

- Examination of land deeds revealed that 7 acres came from Isaac Pennock's estate, while 58 acres were purchased jointly by Dr. Coates and George Pennock, 20 acres were bought by George Pennock, and another 5 acres, on which the mill was built, were purchased by Dr. Coates, for a total of 90 acres.



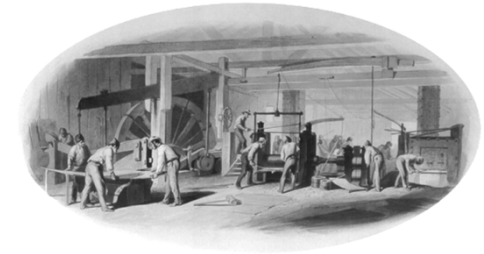
Myth Busters #2

Myth

- Built in 1847 by Dr. Jesse Coates and George Pennock, but never operated by them, being sold to Martha Pennock, wife of George Pennock, at assignees sale, before they were completed. (Coatesville Weekly Times (CWT) 5/6/1893)

Fact

- Started construction in 1837, completion delayed by the Panic of 1837, completed in 1838.
- Sold to Martha Pennock, wife of Isaac Pennock, at a Sheriff's sale for \$13,500 on April 16, 1842



Myth Busters #3

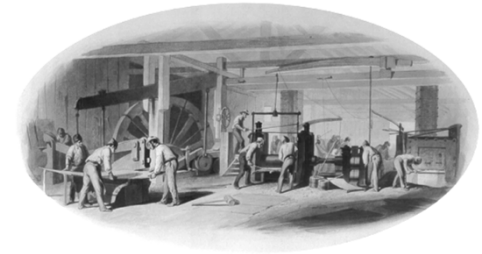
Myth

- Caln Iron Works was never operated by either George Pennock or Dr. Coates, but was leased. (Source: Huston and CWT 5/6/1893)

Fact

- Examination of tax records revealed that George Pennock and Dr. Coates operated the Iron Works in 1838 and 1839
 - Rolling Mill and 60 acres of land was assessed at \$1,000 in the name of Pennock and Coates (1838) and Coates and Pennock (1839)
- Leased to Francis Parke and John Parke from 1844 to 1848

Myth Busters #4



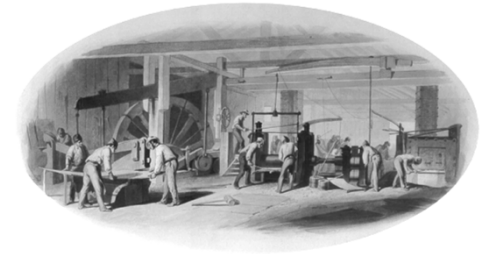
Myth

- Mrs. Pennock sold the Caln Iron Works to Joseph L. and Charles E. Pennock in 1853. (CWT 5/6/1893)

Fact

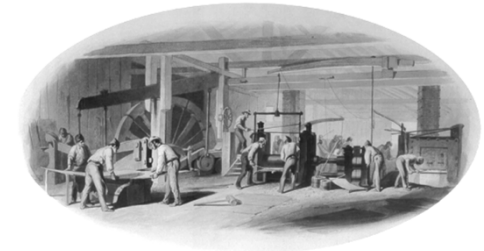
- Martha Pennock died in 1844
- Joseph L. and Charles E. Pennock purchased the Caln Iron Works for \$17,080 at a sale ordered by the Orphan's Court on November 16, 1853

Caln Iron Works' Challenges 1830's



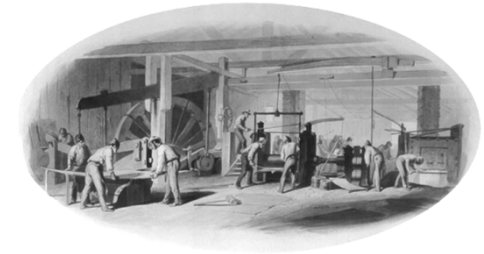
- The Panic of 1837 – a nationwide economic recession – delayed the startup of the Iron Works by at least a year
- Rebecca Lukens wrote, “All is paralyzed – business at a stand. I ... have even forbidden my agents to sell”
- The Panic caused “...a cessation of the extensive works about to have been established on the Brandywine, less than a mile from the village. We hope to see them completed ere another summer goes by.” (The Coatesville Star, 8/5/1838).
- Dr. Coates dissolved his partnership with George Pennock in 1839
 - Jesse and Martha Coates conveyed three parcels of land to George Pennock for the sum of \$6,567.88 (containing 5, 7, and 58 acres)

Caln Iron Works' Challenges 1840's



- The U.S. Census of 1840 shows that the Caln Iron Works was definitely up and running by 1840
 - Employed 12 men and produced 200 tons of sheet iron
 - Same # of men, half the tons of the other 6 area iron works
 - Produced sheet iron, not boiler plate

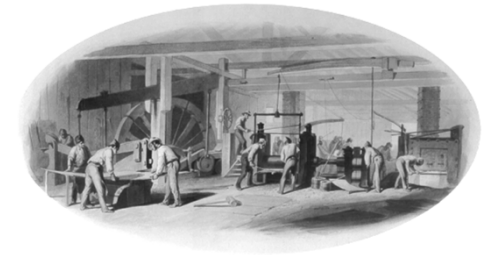
Comparison of Area Iron Works



Rolling Mill Data 1841

Mill	Established	Tons	Product	# of Men
Rokeby	1793	400	Boiler Plate	11
Brandywine	1810	400 100	Boiler Plate Nails	11 6
Laurel Forge	1825	200 300 60	Sheet Iron Bar Iron Nails	12 16
West Brandywine	1836	400	Boiler Plate	11
Hibernia Forge	1837	400 300	Boiler Plate Bar Iron	10 17
Caln	1837	200	Sheet Iron	12
Triadelphia	1838	400	Boiler Plate	12

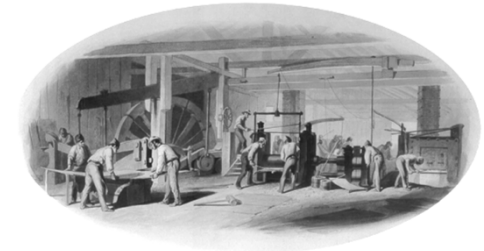
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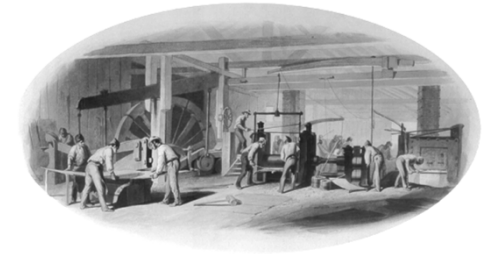
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Triadelphia	1838	400	Boiler Plate	12

Caln Iron Works' Challenges 1840's

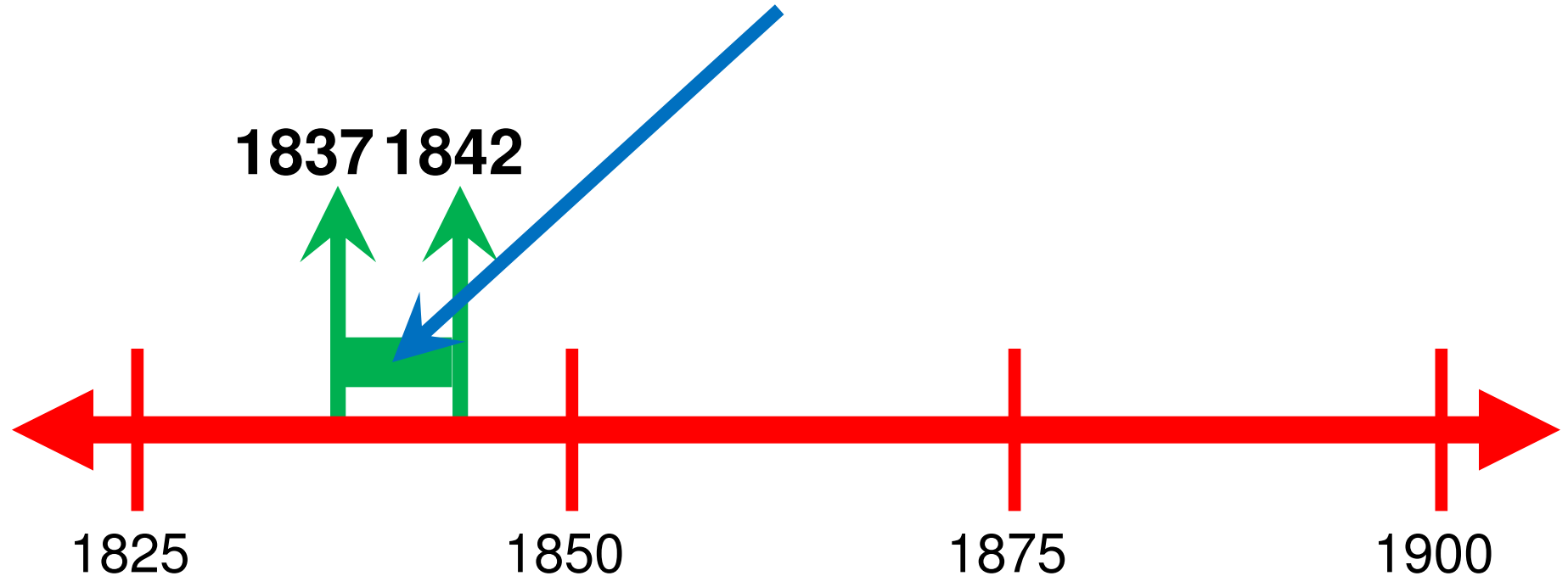


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 - Employed 12 men and produced 200 tons of sheet iron
 - Same # of men, half the tons of the other 6 area iron works
 - Produced sheet iron, not boiler plate
- Sheriff's sale April 16, 1842
 - Rolling Mill, new bar mill, 65 acres, and a row of new tenant houses
 - Result of a suit of Dr. Coates against George Pennock
 - Bought by George's mother, Martha, for \$13,500
 - George still owed money on the two tracts of land he purchased
 - \$500 of the \$1,000 for the 5 acre tract
 - \$1,670 of the \$4,670 for the 58 acre tract purchased with Dr. Coates
 - Also lost a 400 acre farm and a 100 acre farm to Sheriff's sales in 1842

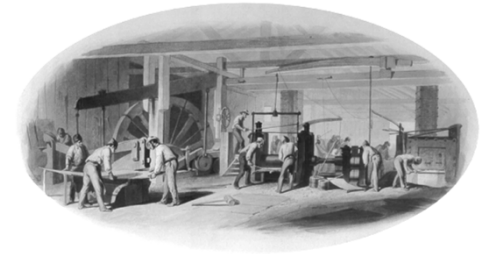
Valley Iron Works Timeline



The George Pennock and Jesse Coates Era

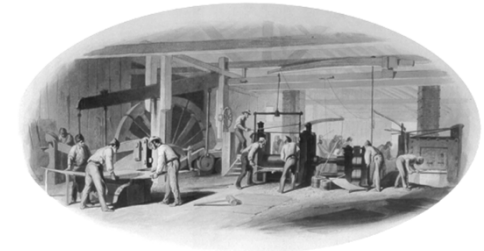


Caln Iron Works' Challenges 1840's



- Martha Pennock, George's mother, died in 1844
- Tax records for 1844 show Martha Pennock as the owner and Francis and John Parke as Iron Masters
 - Leased to Francis Parke and John Parke from 1844 to 1848
 - Two rolling mills, both water powered
- 1847 records show 8 stone houses and one frame house
 - Tenant houses built for workers
- 1849 data shows 2 mills, 2 puddling furnaces, 42 men and 1,400 tons capacity
- 1849 tax record shows Francis and John Parke crossed off, Mary Pennock listed, no tax assessed – no income
 - Caln Iron Works lies idle

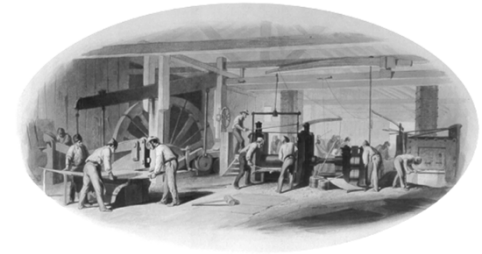
Comparison of Area Iron Works



Rolling Mill Data 1849

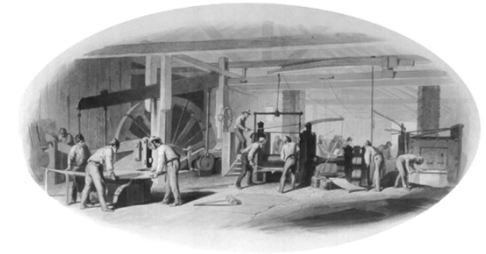
Mill	Built	# of Roll Trains	Tons	Product	# of Men
Rokeby	1793	1	875	Boiler and Flue Plate	22
Brandywine	1810	1	944	Boiler and Flue Plate	17
Laurel	1825	1	854	Boiler and Flue Plate	18
West Brandywine	1836	2	1,000	Boiler and Flue Plate	30
Hibernia	1837	1	450	Boiler and Flue Plate	16
Caln	1837	2	800 600	Boiler and Flue Plate Bar	42
Triadelphia	1838	2	550	Boiler and Flue Plate	20
Thorndale	1847	1	725	Boiler and Flue Plate	32

Caln Iron Works' Challenges 1850's

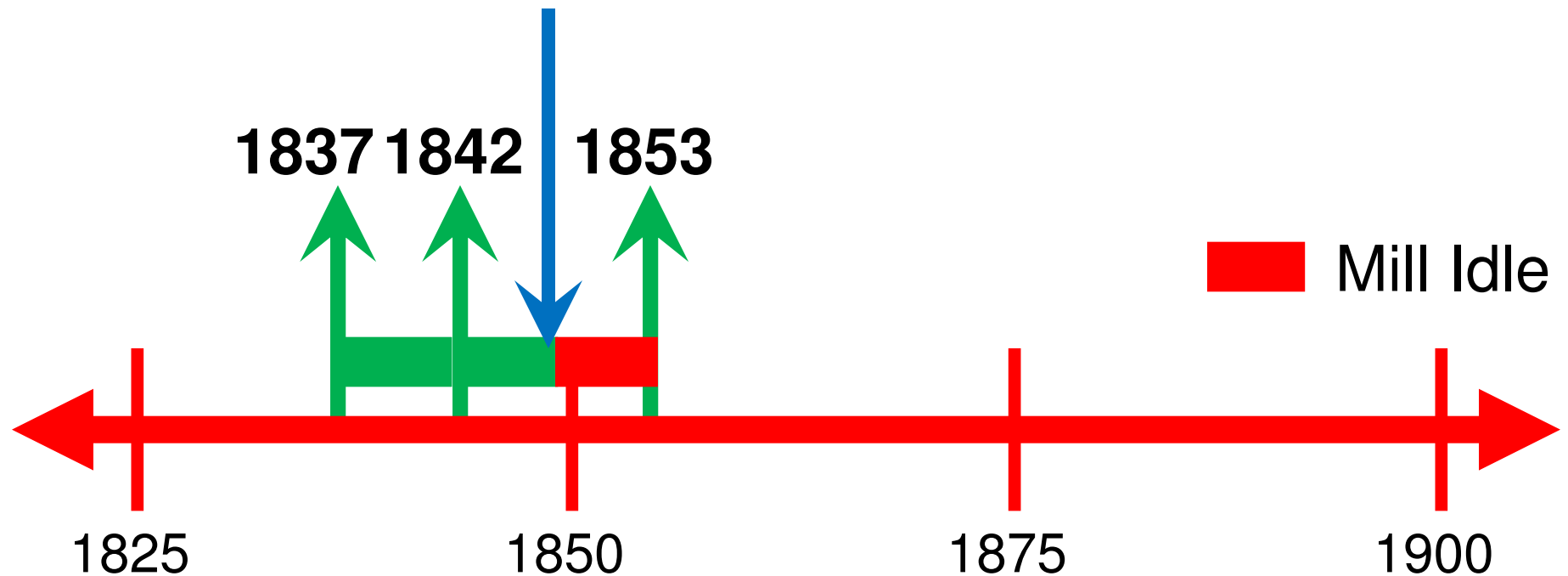


- Tax records for 1850 – 1852 no longer list Francis and John Parke
- Records show Martha Pennock's estate as the owners, no tax assessed – no income – no production
 - Mill sat idle due to litigation over Martha Pennock's estate
- 1852 – 1853 records list David McConkey, Agent for Martha's estate, no tax assessed
- The mill was offered for sale by order of the Orphan's Court in 1853 to settle Martha's estate

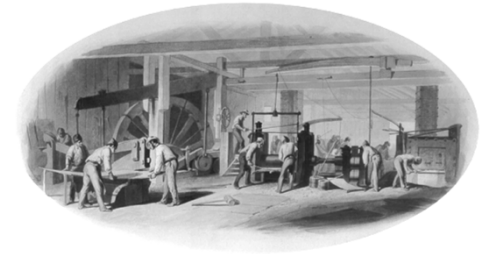
Valley Iron Works Timeline



The Martha Pennock Era

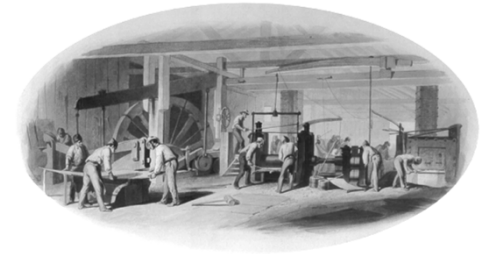


Caln Iron Works



- Bought by Charles E. and Joseph L. Pennock, and Augustus Boyd for \$17,080 on November 16, 1853
- Charles was 28 years old and his brother Joseph was 26
- Name changed to Valley Iron Works - Valley Township was formed in 1852
- Mill rebuilt after long period of inactivity and enlarged
- Operations resumed in late 1854, producing 124 tons
- Increased to 700 tons in 1855 and 900 tons in 1856
- Enlarged the mill again in 1857 and installed a second rolling mill for plate

Valley Iron Works – New Owners

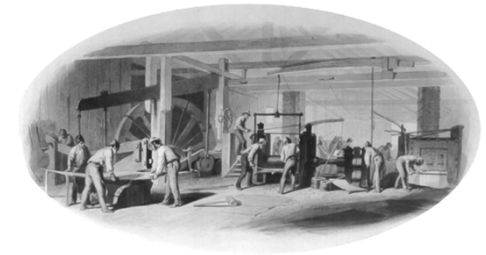


Charles E. Pennock

- Born August 30, 1825
- At age 24 ran Laurel Iron Works for 3 years, 1851-1853 with his brother Joseph
- Great grand nephews of Isaac Pennock
 - Their maternal great grandfather, Jesse Pennock, was Isaac's brother
 - Laurel lease taken over by James Penrose, husband of Mary Ann Pennock, Isaac's daughter



Valley Iron Works – New Owners



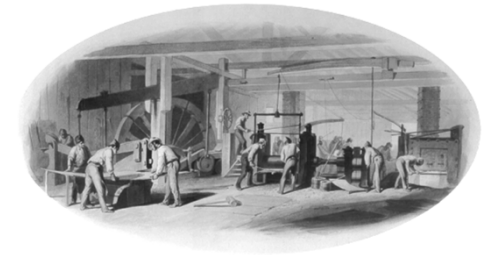
Joseph L. Pennock

- Born January 9, 1827
- Built Valley Hall, iron master's mansion, across from the mill in the 1850's
- Handled the financial side of the business



Residence of Mr. H. K. Kurtz, on First Avenue.

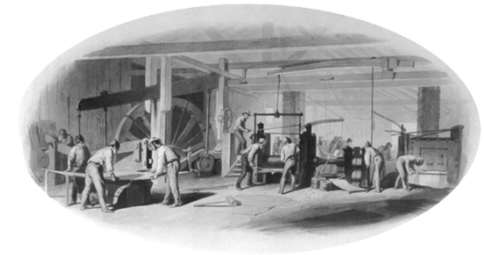
Valley Iron Works – Valley Hall



- Roofline that peeks over the guardrail of Route 82 between the Bypass and Coatesville
- Most visible evidence left of the Valley Iron Works



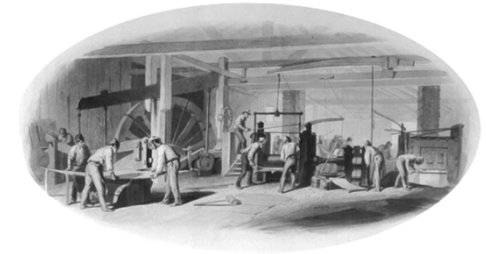
Comparison of Area Iron Works



Rolling Mill Data 1856

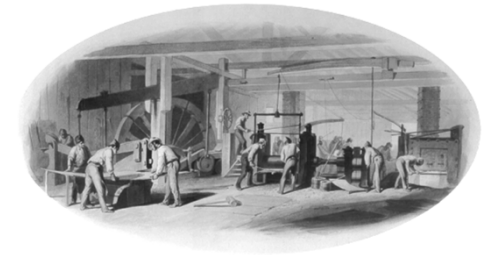
Mill	# of Roll Trains	Power	Tons	Product
Rokeby	1	Water	360	Boiler Plate
Brandywine	1	Water	789	Boiler Plate
Laurel	1	Water	750	Boiler Plate
West Brandywine	2	Water	1,065	Boiler Plate
Hibernia	1	Water	220	Boiler Plate
Valley	1	Water	900	Boiler Plate
Viaduct	2	1 Water 1 Steam	1,170	Boiler Plate
Thorndale	2	Steam	800	Boiler Plate

Valley Iron Works – 1860's

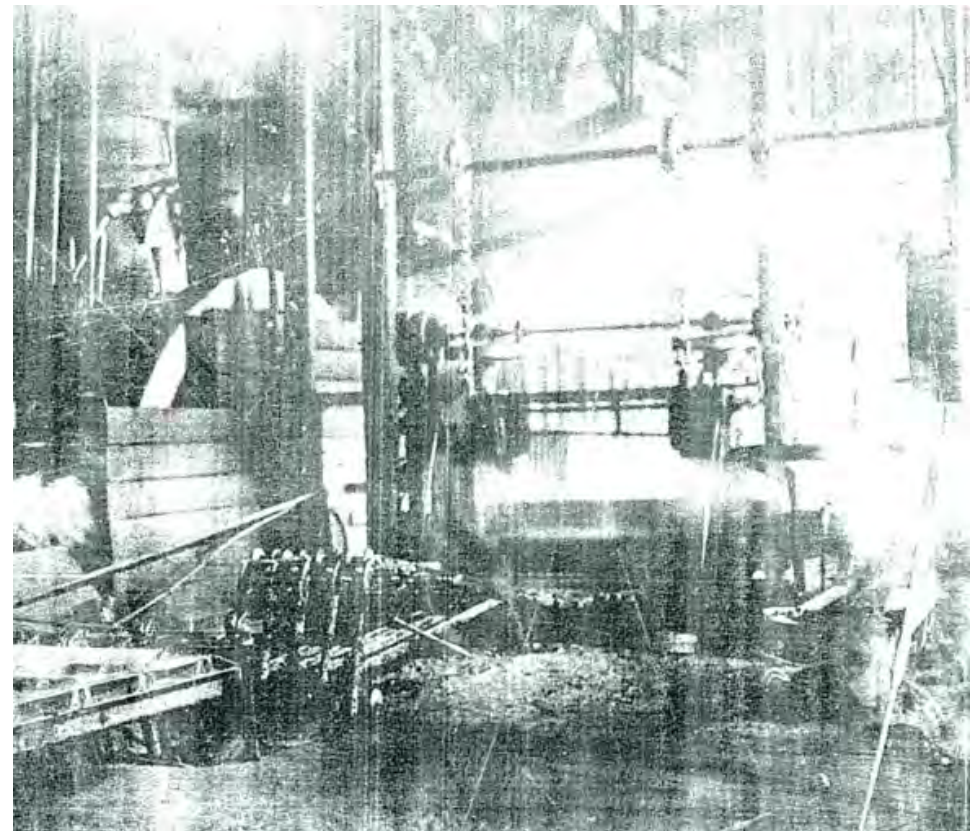


- The Civil War placed incredible demands on the iron industry, and all of the local mills prospered
- In 1862 the total production of the 8 local mills totaled 2,400 tons
- Total output increased more than threefold to 8,500 tons in 1864
- Valley Iron produced 567 tons in 1862 and 1,444 tons in 1864
 - Only the Viaduct Iron Works (2,350 tons) and Lukens (1,487 tons) produced more
- Augustus Boyd withdrew from the partnership in January 1860
- Valley Iron became a family business

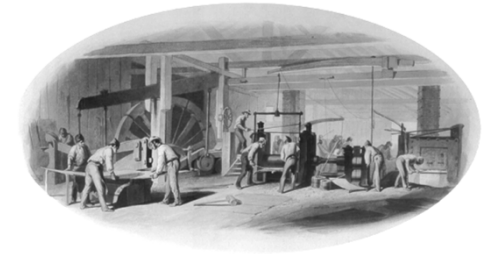
Valley Iron Works – 1860's



- The Pennock's used profits generated from war time demand to expand again
- Had two 72" wide mills
- Built an 86" wide 2 High Mill in 1865
 - Capable of rolling an 80" wide plate
 - One of the widest mills in the country



Valley Iron Works – 1860's

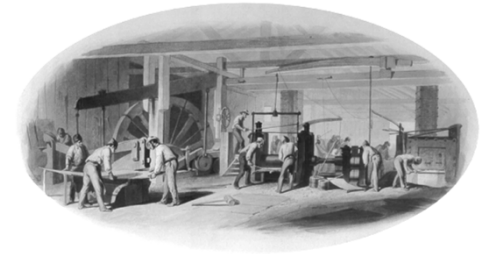


Tenant Houses

- 16 built in 1867, 10 more built in 1869
- Steel bridge across the Brandywine led to Cat Swamp and the station of Valley on the Wilmington and Reading Railroad

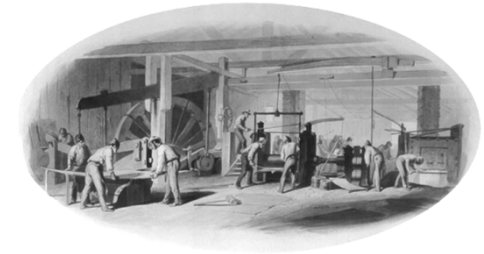


Valley Iron Works – 1870's



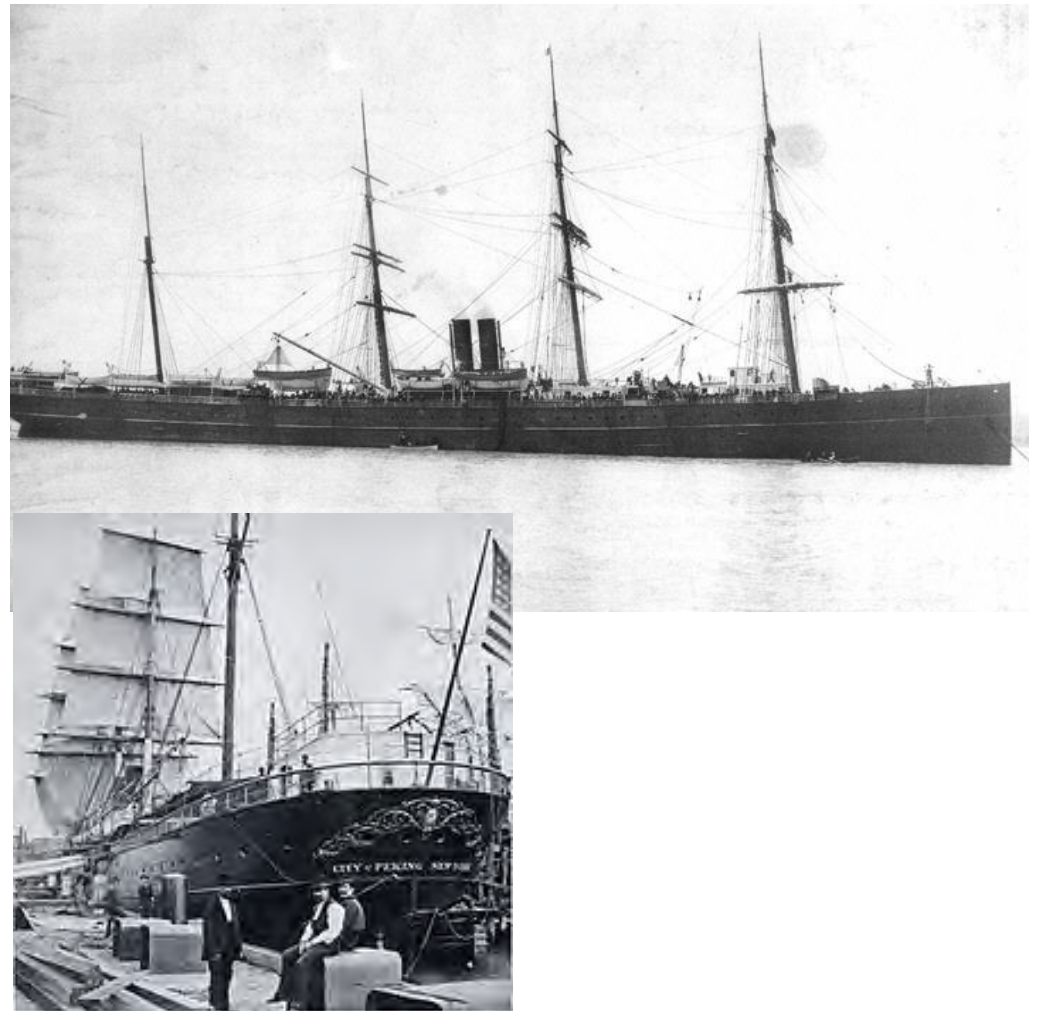
- The financial recession of 1873 affected the iron industry and all of the local mills
- The lack of business caused the Pennock's to reduce the wages of their puddlers by 50 cents per ton
 - Puddlers went on strike
- One of the few mills that never stopped operations during the recession
- Market rebounded in 1874
- Ship building along the Delaware River was booming
 - Large demand for wide plates rolled on Valley's mills
- Valley Iron supplied iron plates for the *City of Peking*

Valley Iron Works Highlights

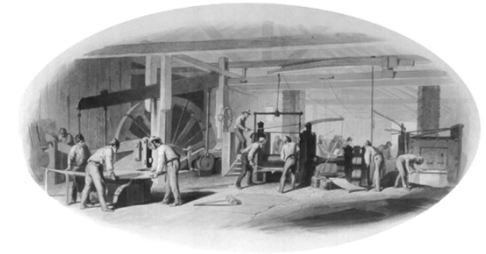


City of Peking

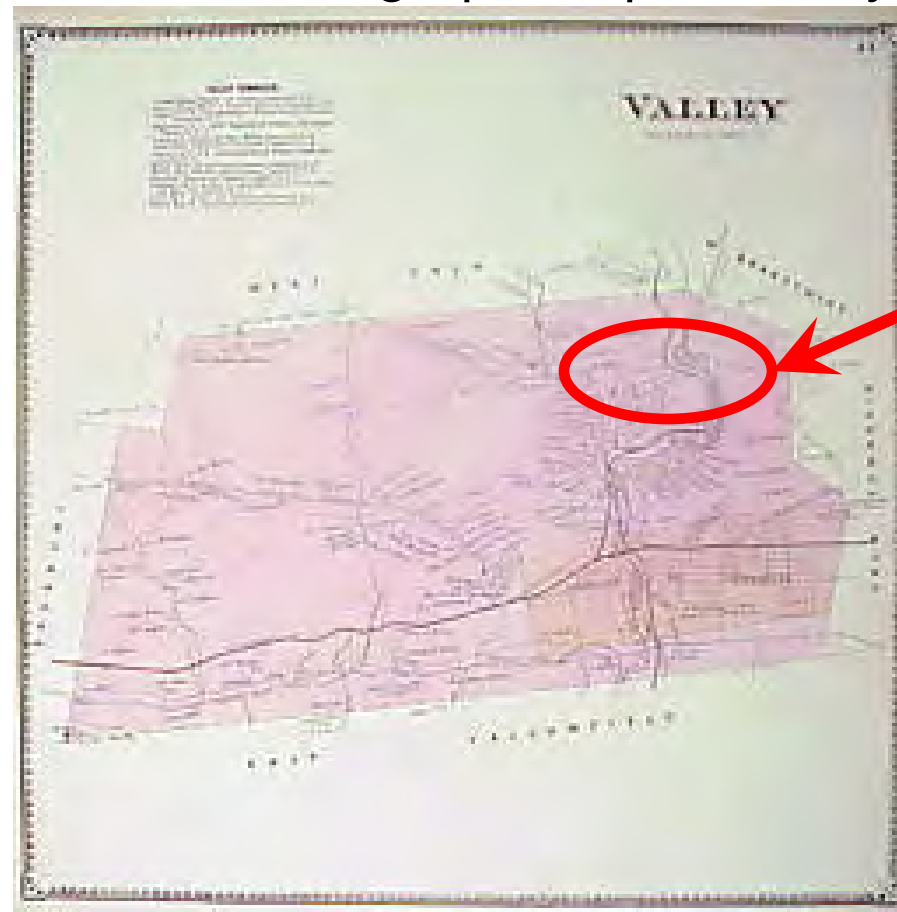
- Launched March 19, 1874
- Iron hulled mail steamship
- Built by John Roach and Sons, Chester PA
- Largest American steamship ever built
- Second in the world to the British vessel "Great Eastern."



Valley Township 1873

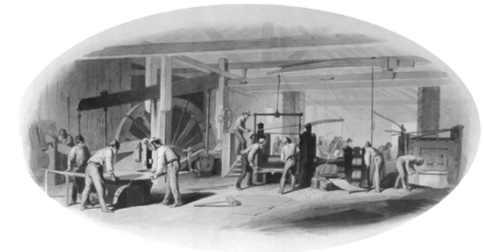


1873 hand colored lithograph map of Valley Township

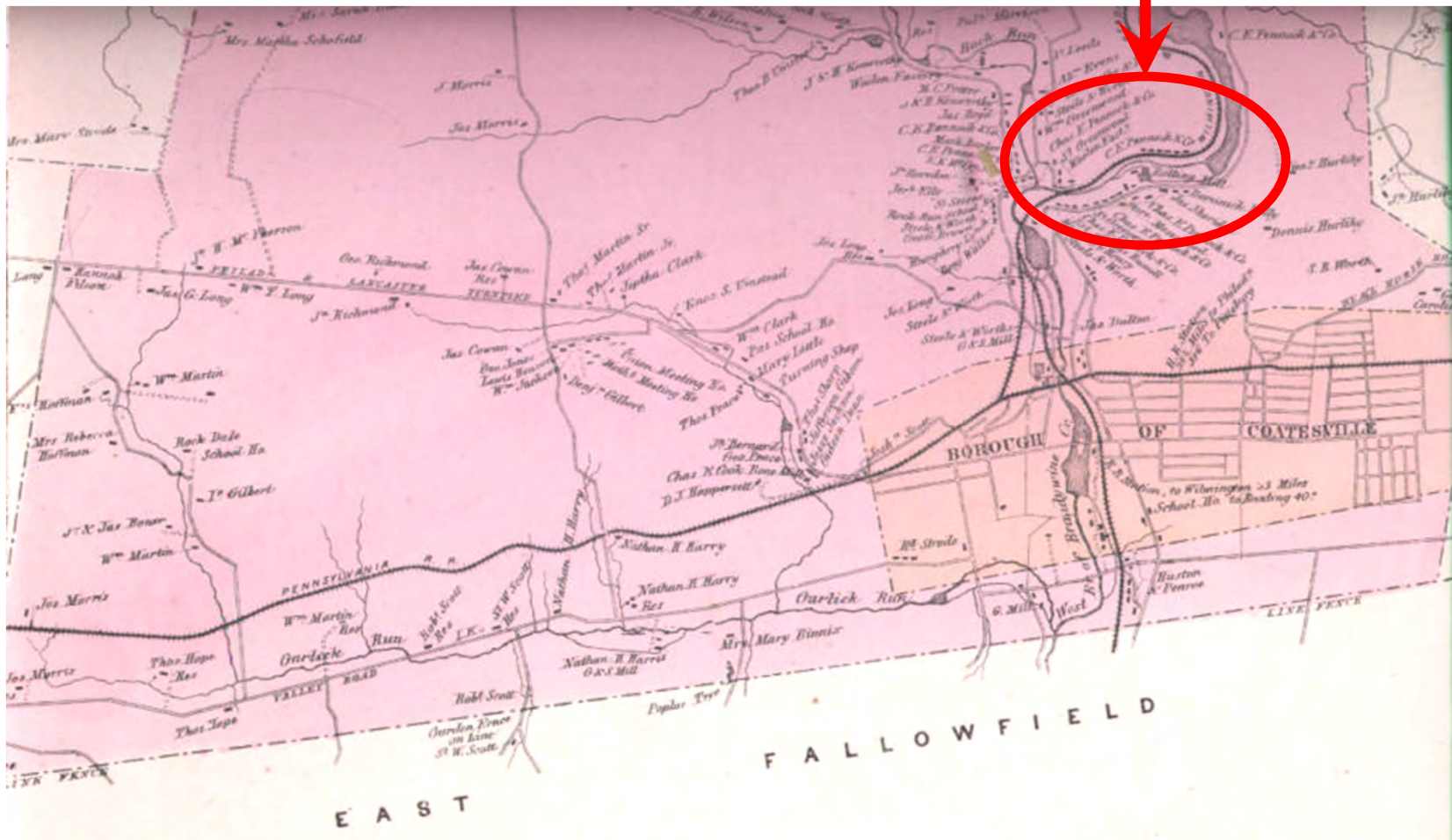


Valley Iron Works

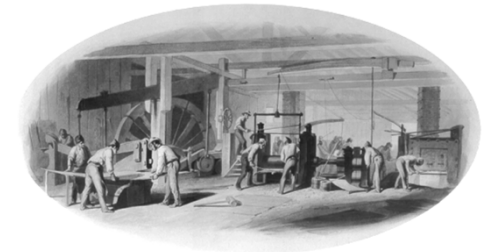
Valley Township 1873



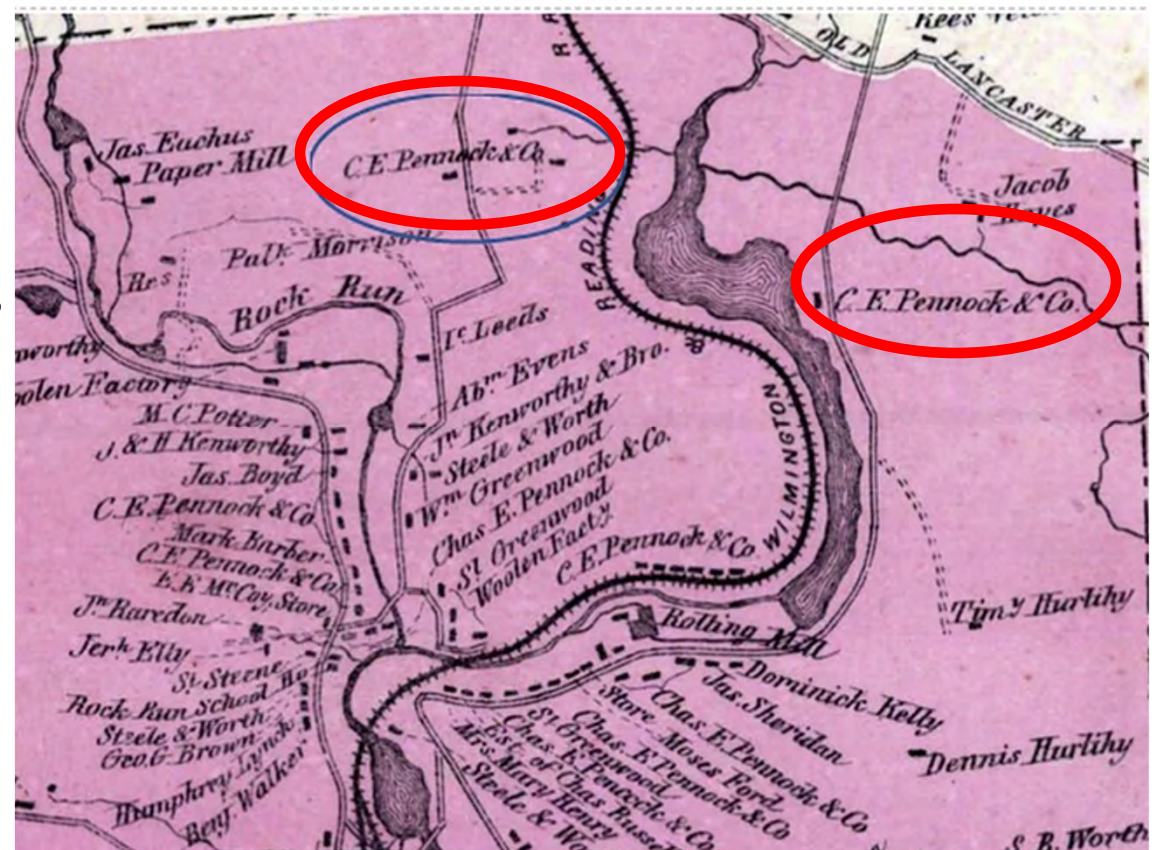
Valley Iron Works



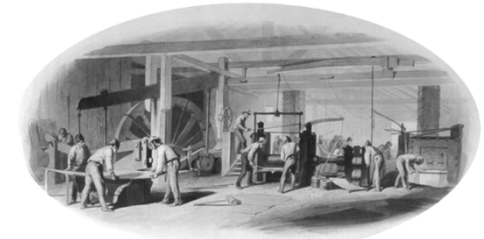
Valley Township 1873



- Owners of land and houses identified
- Most houses in Rock Run owned by iron works and woolen mills
- C. E. Pennock owned six houses
- Steele & Worth owned 3, Kenworthy – 3, Greenwood - 3
- C. E. Pennock purchased farmland surrounding iron works



Valley Iron Works 1876

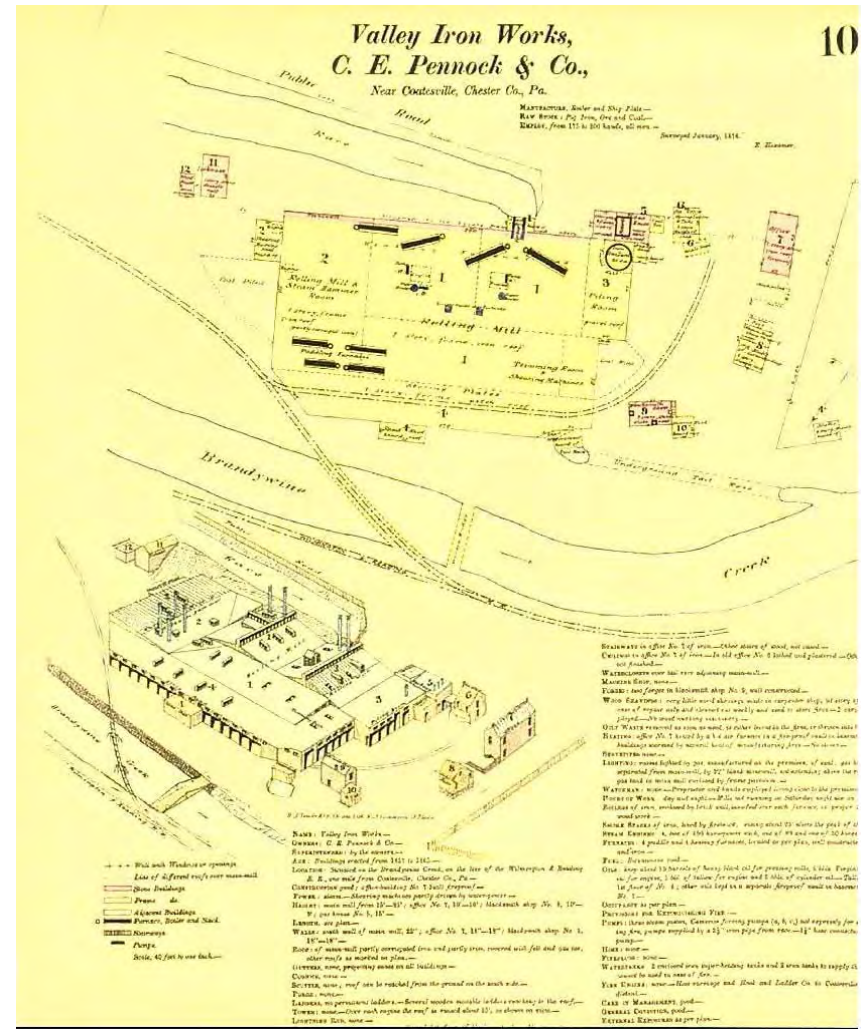


Hexamer General Surveys

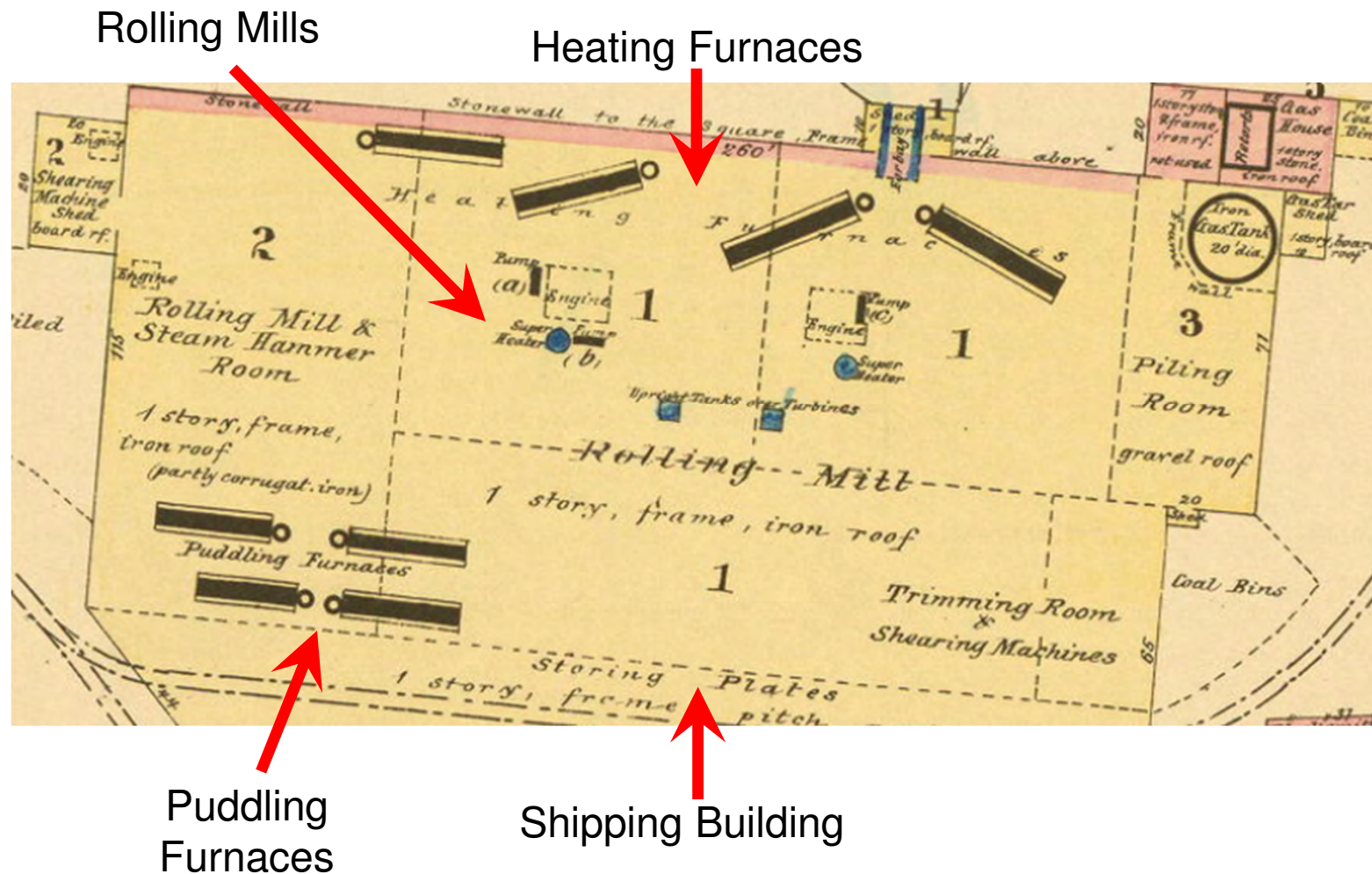
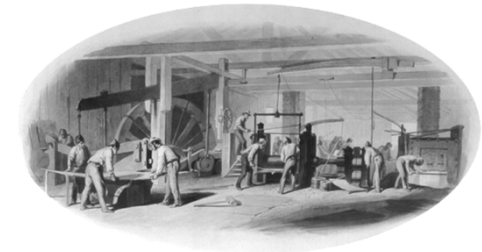
- Documented industrial sites around Philadelphia
- 1865-1896
- Detailed information about buildings for fire insurance
- Also contained some information about machinery

Image Metadata

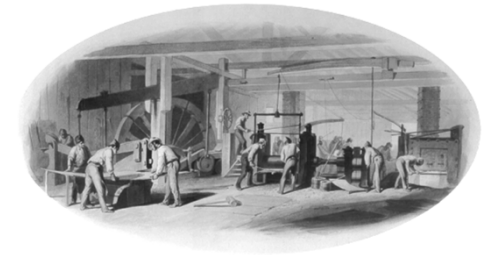
Plate(s)	1002
Date	1876
Facility Name	Valley Iron Works
Owner	Pennock, C. E. & Co.
Products Made	Iron Works



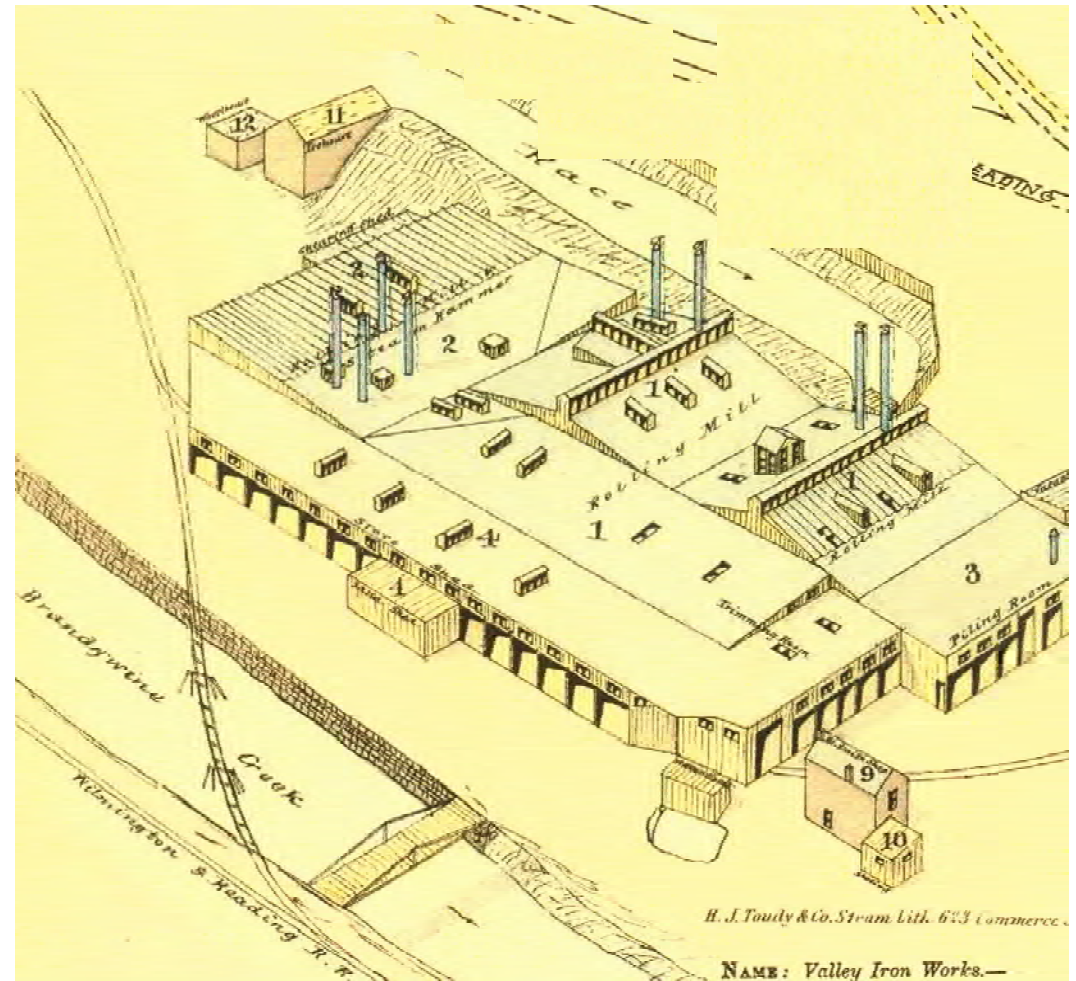
Valley Iron Works 1876



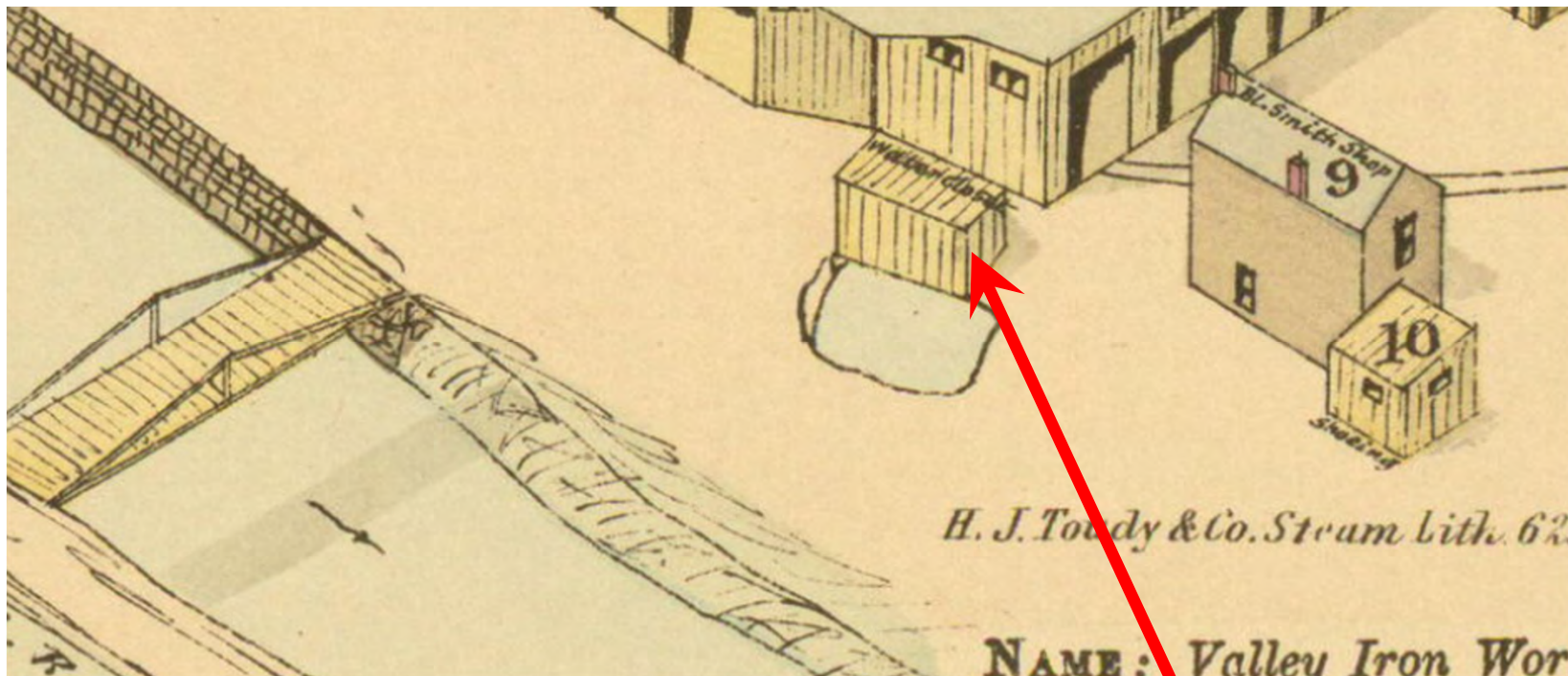
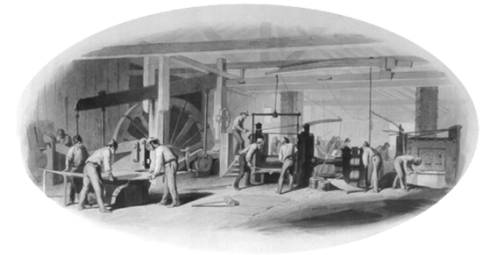
Valley Iron Works 1876



- Valley Iron had 4 rolling mills
- One was 110" wide, powered by a 450 hp steam engine
 - Considered to be the largest in the country
- Total Capacity – 7,000 tons per year
- Rolled plates for Dr. Huston that could not be rolled on his 84" wide mill



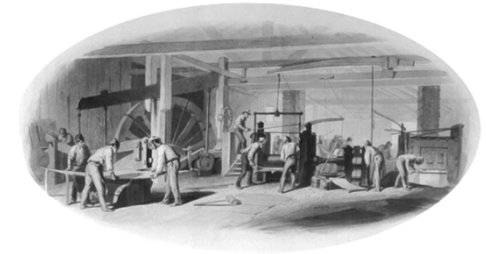
Valley Iron Works 1876



- Water closet located over the tail race

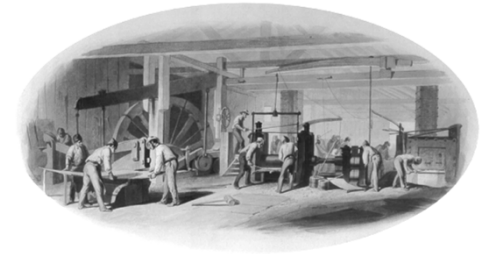
Water Closet

Valley Iron Works – 1880's



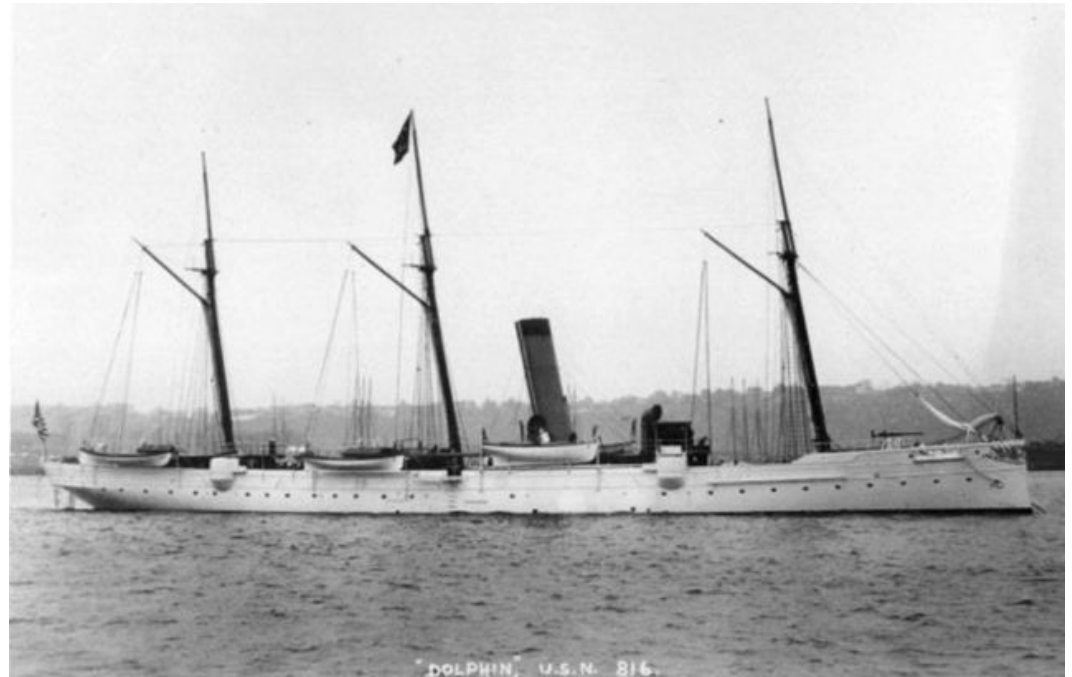
- Charles Pennock was active in political affairs
 - January 1881 he protested the importation of iron plate used in the manufacturing of boilers
- November 1881 – posted a sign at the iron works announcing that the mills would be closed on Thanksgiving Day
“but the wages of the men will be paid the same as though they were at work”
 - May be one of the earliest paid holidays in US history
- Employed 200 men, compared to 100 at Lukens, 150 at Viaduct
- William Pennock, Charles' son, and John Pennock, Joseph's son, joined the firm in April 1882
- Rolled first steel plate in October 1886
- Supplied iron plates for the USS Dauphin

Valley Iron Works Highlights

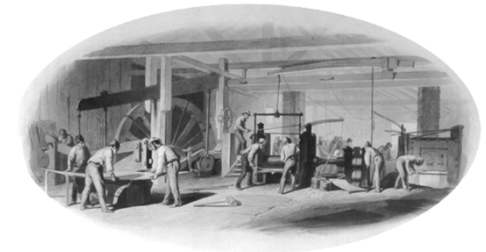


USS Dauphin

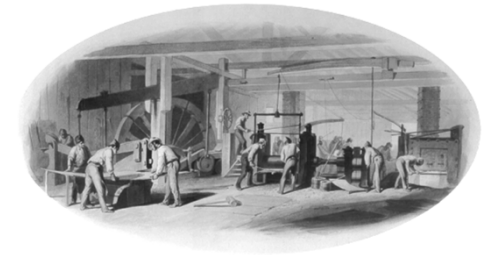
- Launched April 12, 1884
- Built by John Roach and Sons, Chester PA
- Part of the “New Navy”
 - One of the first 4 iron hull vessels
- Dispatch vessel
 - Courier for messages before the age of radio communications
- Also served as the presidential yacht for Chester Arthur



Valley Iron Works 1883



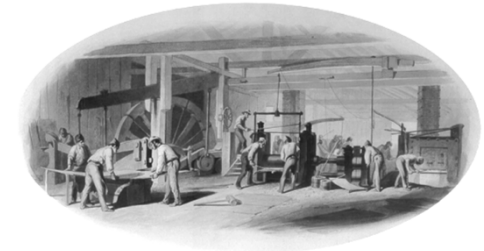
Valley Iron Works 1883



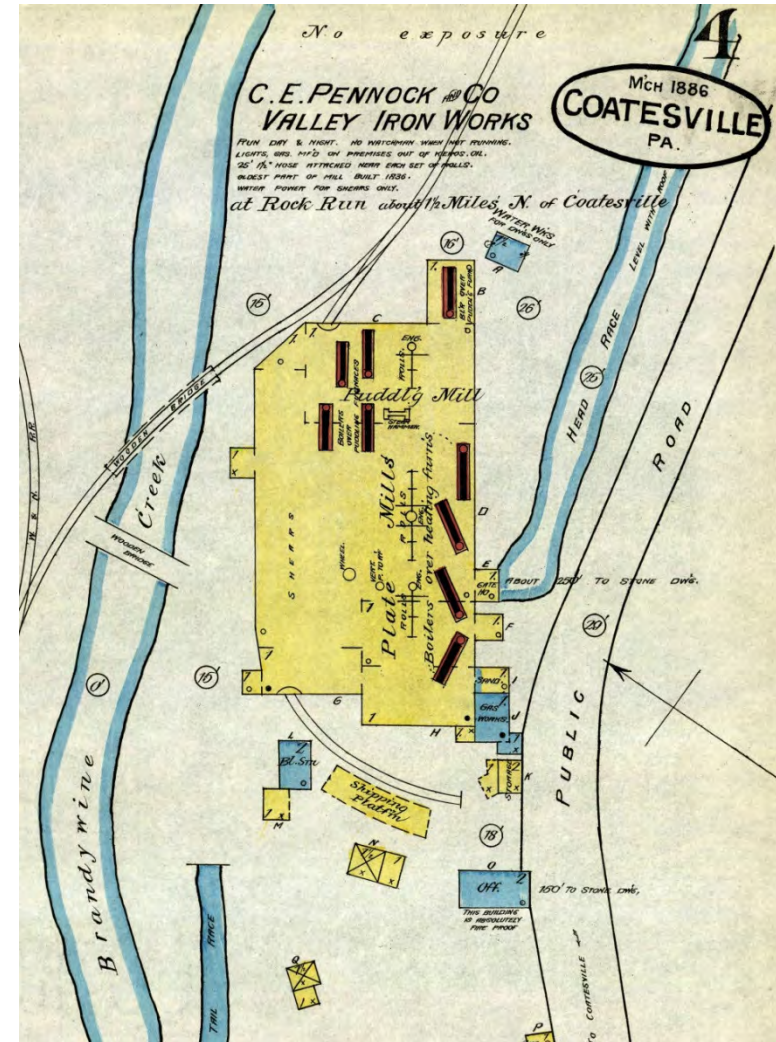
- Largest mill pond on the Brandywine in the area
- Later known as Kurtz's Dam
- Lined with boat houses and vacation homes



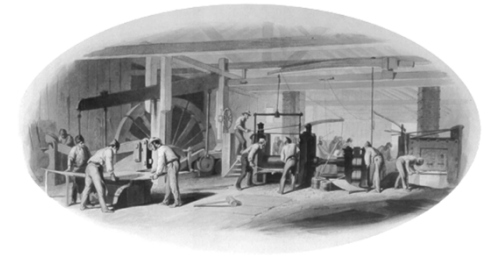
Valley Iron Works 1886



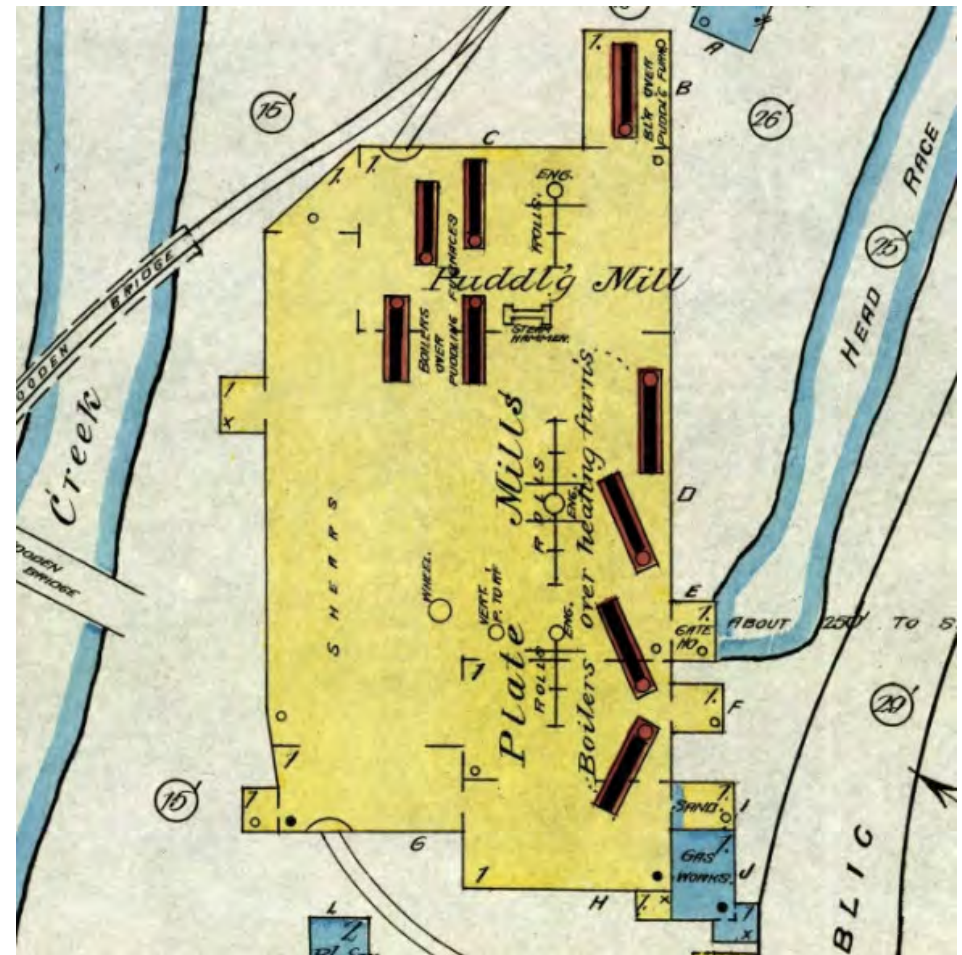
Sanborn Perris Map of Coatesville and surrounding areas



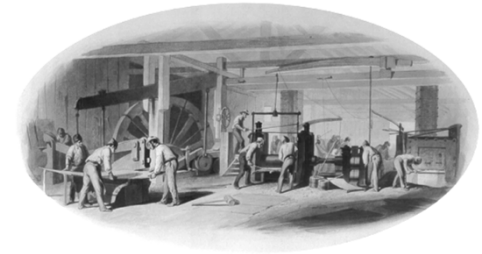
Valley Iron Works 1886



- Few changes since 1876
- Added one puddling furnace, now have 5
- Operating 4 heating furnaces and 4 rolling mills
- Two 72" wide, one 96" wide, one 110" wide
 - reported to be the widest in the state
- Total Capacity – still 7,000 tons per year



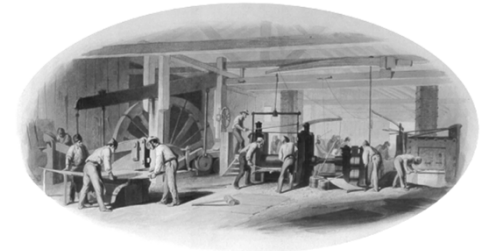
Changing Plate Market



Developments that changed the iron industry

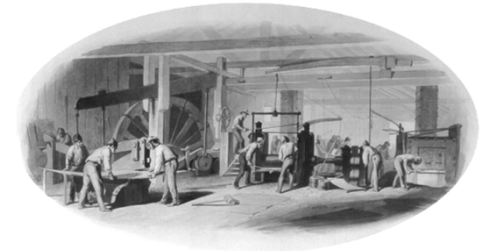
- Growing market for steel plates due to higher strength
- Increasing demand for wider plates for boilers and ships
 - Reduced the number of seams required
 - Seams were failure points
- Valley Iron mills were not strong enough to roll steel
- Puddlers demanded a 20% increase in pay in February 1886
 - Went on strike in March for 5 weeks, pay increased from \$3.50 to \$4 per ton
- Joseph Pennock died unexpectedly in 1887
- Valley Iron Works closed within 2 months

Valley Iron – End of Pennock's Reign



- For 34 years Charles Pennock ran the mills
- Joseph Pennock looked after the financial side of the business
 - Sales contracts and loans
- Joseph died unexpectedly on July 11, 1887
- Finances found to be in disarray
 - Revealed that Joseph Pennock had borrowed heavily in the previous two years
 - Debts totaled \$250,000
 - Owed Robert Hare Powell & Co., the oldest and largest coal mining firm in the US, \$203,000
- Charles Pennock forced into assignment (bankruptcy) in late August
 - Forced Robert Hare Powell & Co. into assignment

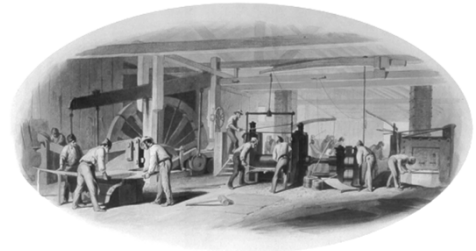
Valley Iron – End of Pennock's Reign



- The firm of Charles E. Pennock & Co. made an assignment to Colonel Augustus Boyd
 - Boyd was one of the original partners of Valley Iron Works from 1853 to 1860
- The firm gave a judgement note for \$203,000 to Powel & Co., preventing them from going bankrupt
- The estimated worth of the mill was between \$300,000 and \$400,000

Pennock & Co.'s Suspension.
The firm of Charles E. Pennock & Co. made an assignment on Monday to Colonel Augustus Boyd, of this city. The firm operates plate iron rolling mills at Coatesville, and has been doing a good business. The works were established in 1837, and are fully up to modern requirements. On July 11 Joseph L. Pennock, the member of the firm who attended to the finances and secured contracts, died, leaving the surviving partner to conduct both the financial and practical departments. The firm's affairs were more or less disordered in consequence of Mr. Joseph L. Pennock's death, and an assignment was found to be necessary. Before making the assignment, however, the firm gave a judgment note for \$203,000 to Powel & Co., thus securing that firm. There is no mortgage on Pennock & Co.'s plant, which is estimated to be worth between \$300,000 and \$400,000, and is, moreover, doing a profitable business, so that Powel & Co. are secured against loss in that quarter.

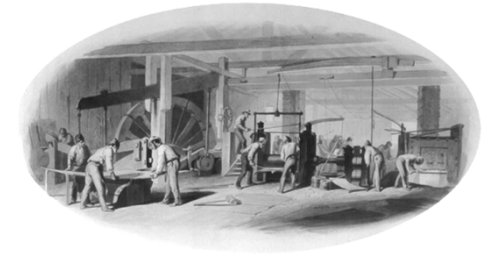
Valley Iron – End of Pennock's Reign



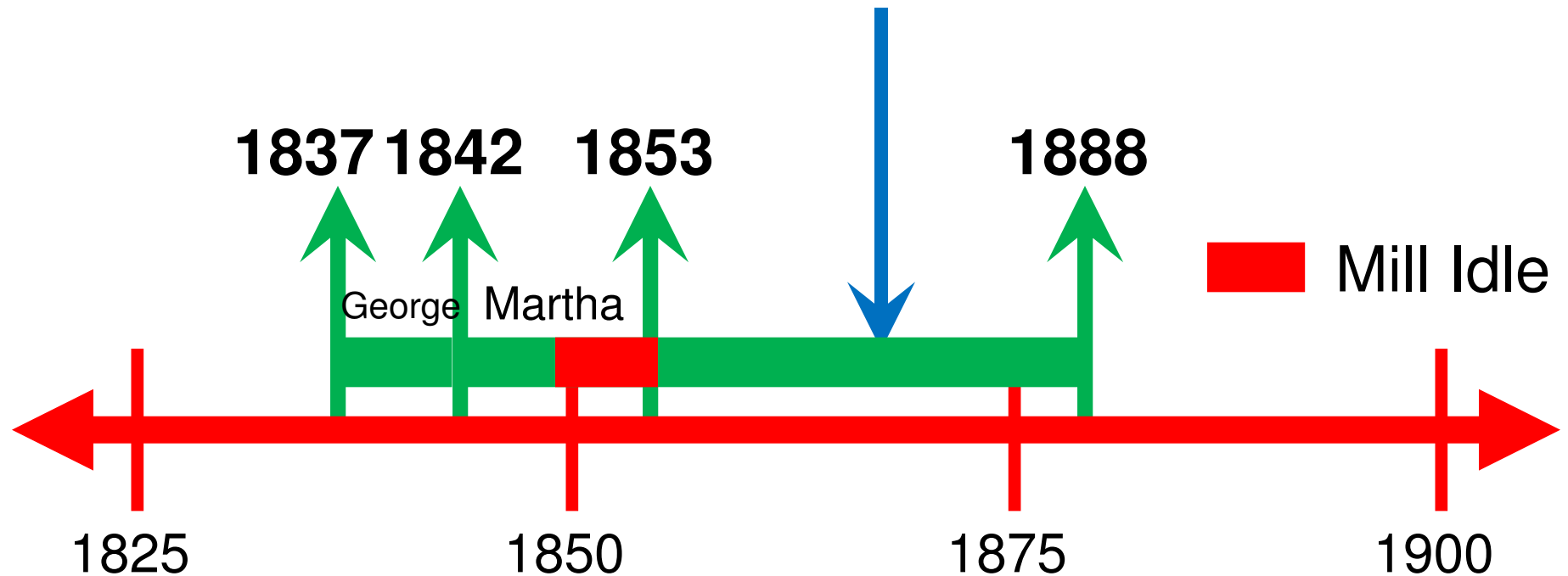
- Valley Iron works sold at public auction on February 16, 1888
 - 42 tenement houses
 - 140 acres
- Bought by William W. Kurtz for \$56,500,
 - Well below the estimated worth of the mill
- Joseph Pennock's widow said that she entered Valley Hall a happy bride and left it a heartbroken widow

ASSIGNEE'S SALE
ON THE PREMISES.
Assigned Estate of C. E. PENNOCK & CO.
M. THOMAS & SONS, AUCTIONEERS
VALUABLE
ROLLING MILL
KNOWN AS THE
"VALLEY IRON WORKS"
Furnaces, Engines and Machinery, Stone
Office Building, Stable, Gas Works,
Stone Mansion, 42 Tenement
Houses, and 140 ACRES,
more or less, in
VALLEY TOWNSHIP, CHESTER CO., PA.
One Mile north of Coatesville, on the Wilmington and
Northern Railroad.
THURSDAY AFTERNOON,
FEB. 16th, 1888
AT 2 O'CLOCK.
ON THE PREMISES
WILL BE SOLD AT PUBLIC SALE.
All that valuable Rolling Mill Property, known as the "Valley Iron Works," situate in Valley Township, Chester County, Penna., on the Wilmington and Northern R. R., about one mile north of Coatesville, containing about 140 acres of land more or less. The improvements consist of a large Rolling Mill, run by steam and water, with 3 pair of rolls for plate iron, 1 pair of puddling rolls, 4 heating furnaces, 3 double puddling furnaces, 4 engines, and all the machinery and appliances of a well appointed mill, all in running order, also, a stone office building, stable, stone smith shop, gas works boiler and fixtures, a large stone mansion house, 26 double frame and stone tenements, 3 single stone tenements, and 8 single frame tenements. This property must be sold to close the estate, and is worthy the attention of iron manufacturers. Parties desiring to view the premises before the sale, will be shown the same by CHARLES E. PENNOCK, on the premises.
TERMS.—CASH.
\$2,000 to be paid when struck off, and balance on transfer of deed within 30 days.
By order of A. BOYD, Assignee of C. E. Pennock & Co.
M. THOMAS & SONS,
AUCTIONEERS, No. 140 SOUTH FOURTH STREET,
Phila., Jan. 12, 1888.
STATE & SHIPBUILDING, Printers, 1014 & 1016 Chestnut Street.

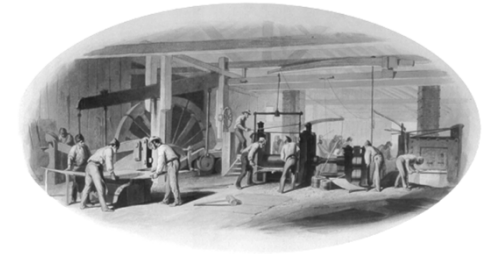
Valley Iron Works Timeline



The Charles and Joseph Pennock Era



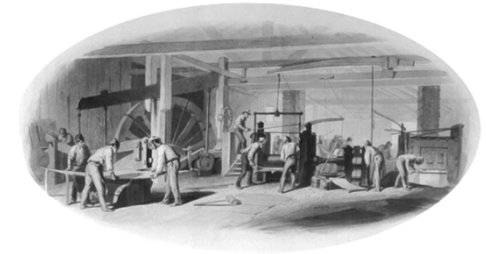
Valley Iron – The Kurtz Era



William W. Kurtz

- Banker from Philadelphia
- Organized the firm of W. W. Kurtz and Sons to operate the mill
- Appointed his son, Henry K. Kurtz, manager of the Iron Works
- Mills were enlarged and “remodeled for the manufacture of steel as well as iron”
 - Capacity of 20,000 tons/ year
- A large new rolling mill was reportedly ordered in January 1889, but never purchased
- Started the rolling mills in May 1889

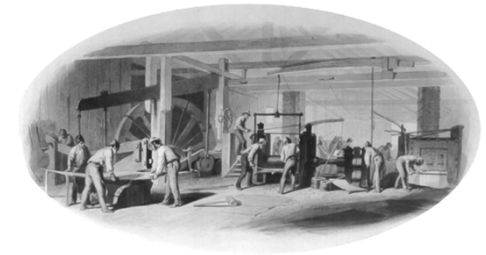
Valley Iron – The Kurtz Era



- March 1889 – a new railroad bridge built across the Brandywine
- October 1889 – the old puddle mill torn down and replaced with a new puddle mill
- Dam across the Brandywine was strengthened by reinforcing the front wall
- Mill pond became a major recreation area including fishing, boating and vacation homes



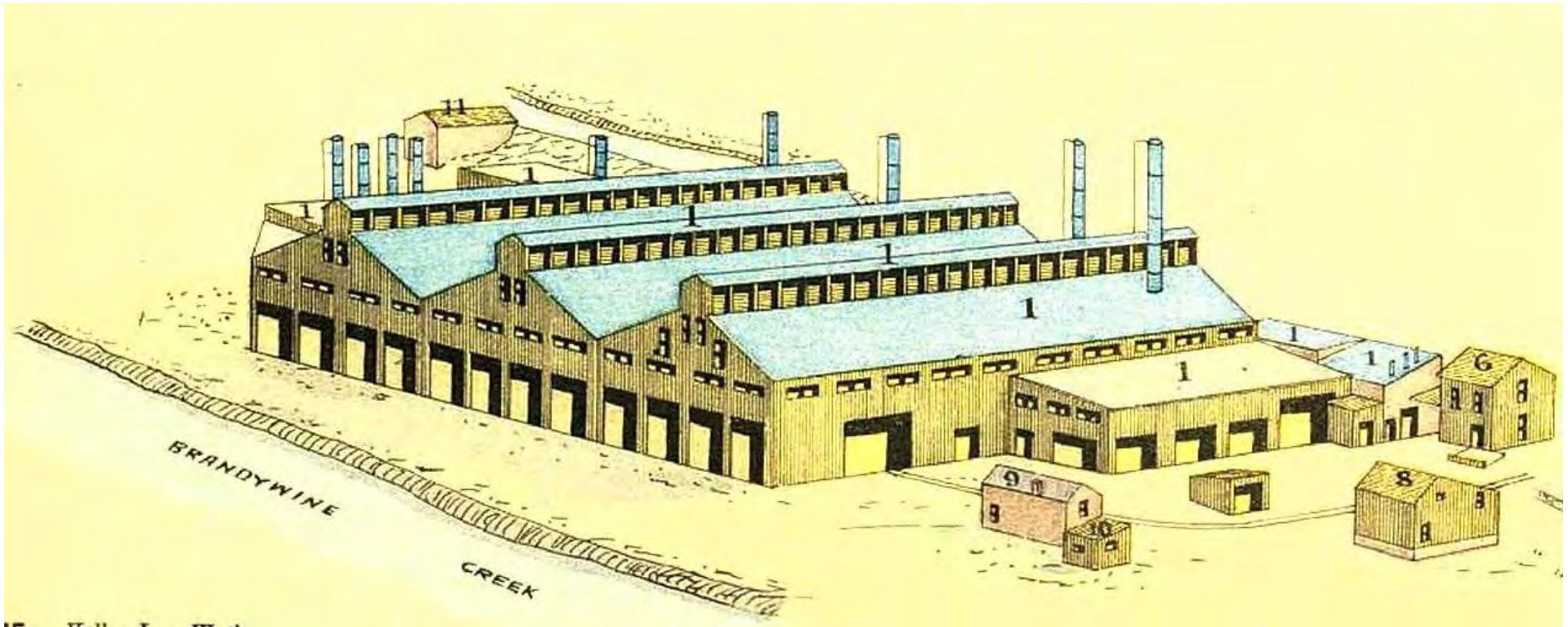
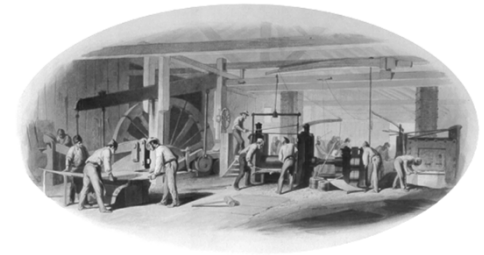
Kurtz Dam



- The mill pond was one mile long and a quarter mile wide, and lined with boat houses and vacation homes owned by people as far away as New York

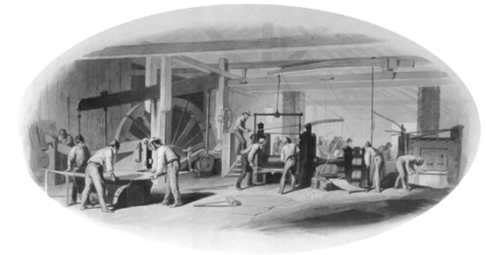


Valley Iron Works 1890



Hexamer General Surveys, Volume 24

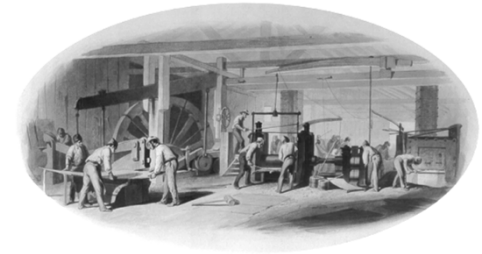
Valley Iron Works 1891



Coatesville Board of Trade

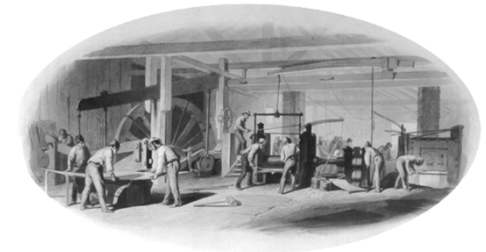


Valley Iron – The Kurtz Era

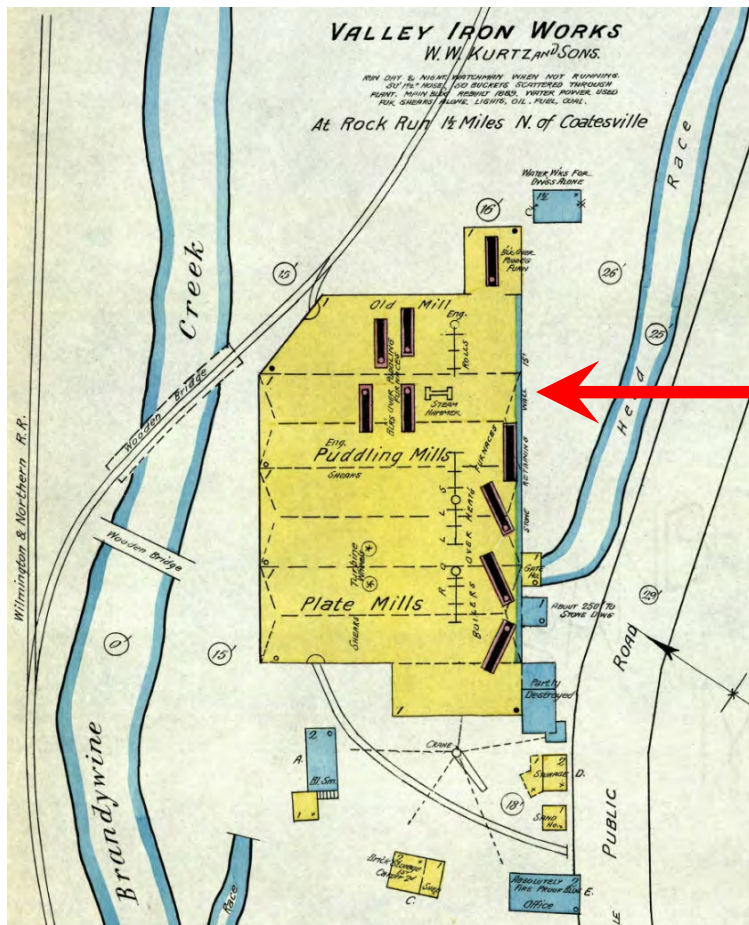


- Orders dried up in the fall of 1893
- Forced the mill to shut down on January 1, 1894
 - 150 employees let go
- Mills sat idle for 8 years
- Reportedly the Coatesville Iron and Steel Co. was formed in 1901
 - Never materialized
- Sold in September 1902 to the Saxton Furnace Company

Valley Iron Works 1896

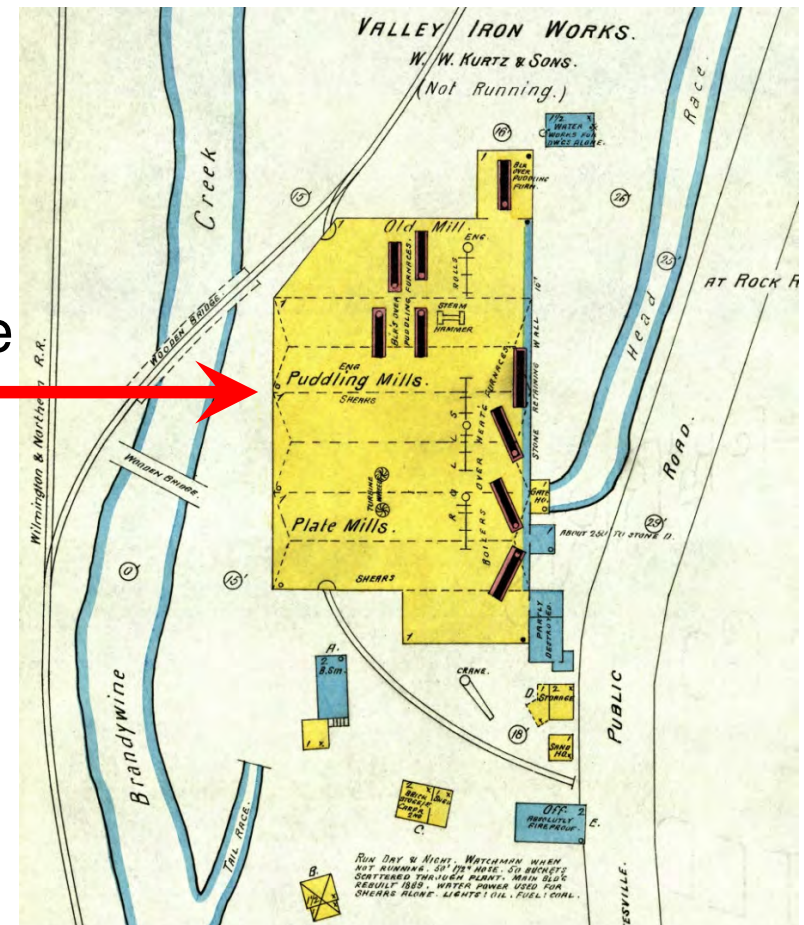


Sanborn Perris Map 1891

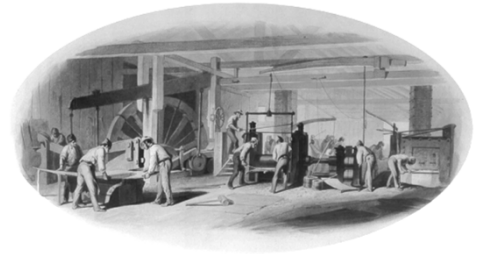


No
Change

Sanborn Perris Map 1896



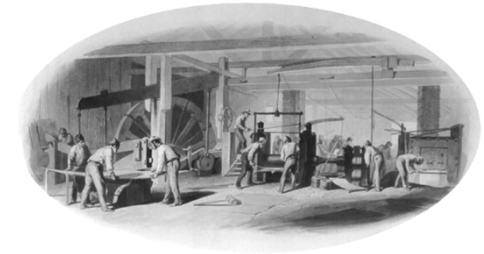
Valley (Kurtz) Iron Works 1898



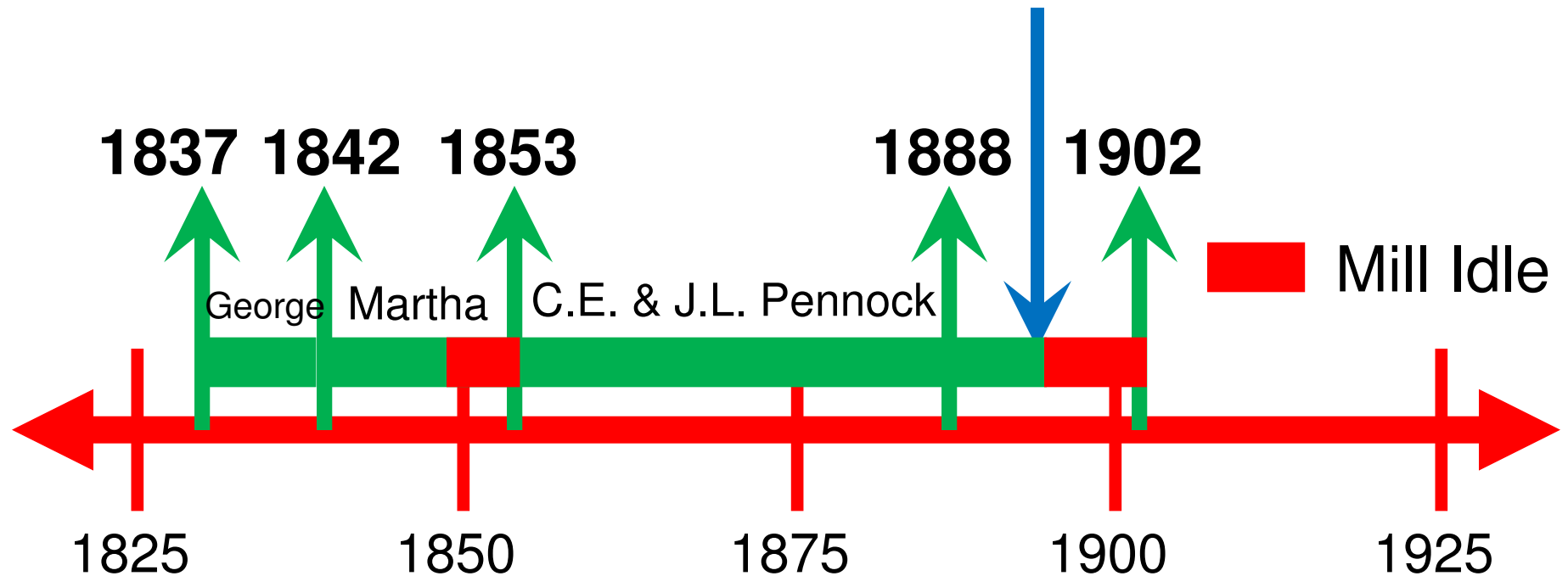
OLD KURTZ MILL, NEAR COATESVILLE, PA.

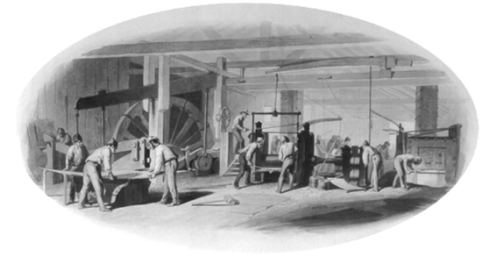
Pub. by Ewald's Jewelry Store

Valley Iron Works Timeline



The William and Henry Kurtz Era



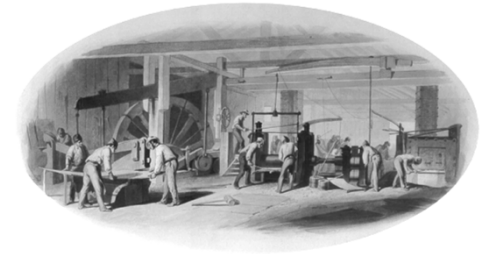


The New Owners

Saxton Furnace Company

- Two blast furnaces were built in Saxton, Bedford County in the 1880's by the Robert Hare Powel Company
 - Operated as the Powelton Furnaces
- Idled in 1889 or 1890 – due to Pennock financial bankruptcy?
- 1894 William W. Kurtz is the attorney for the bondholders
- 1896 William W. Kurtz is president and his son William B. is the Secretary & Treasurer of newly formed Saxton Furnace Company
 - Henry Kurtz is baby sitting the idled Valley Iron Works
- 1898 – “Idle for several years”
- One furnace operates in 1901
- Saxton Furnace Company fails in December 1903

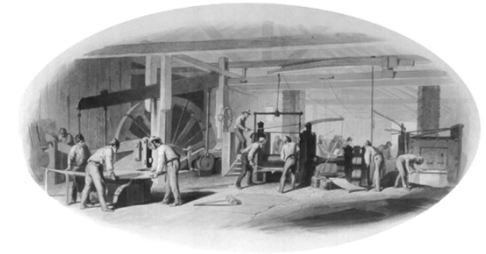
Valley Iron – End of Saxton Furnace Era



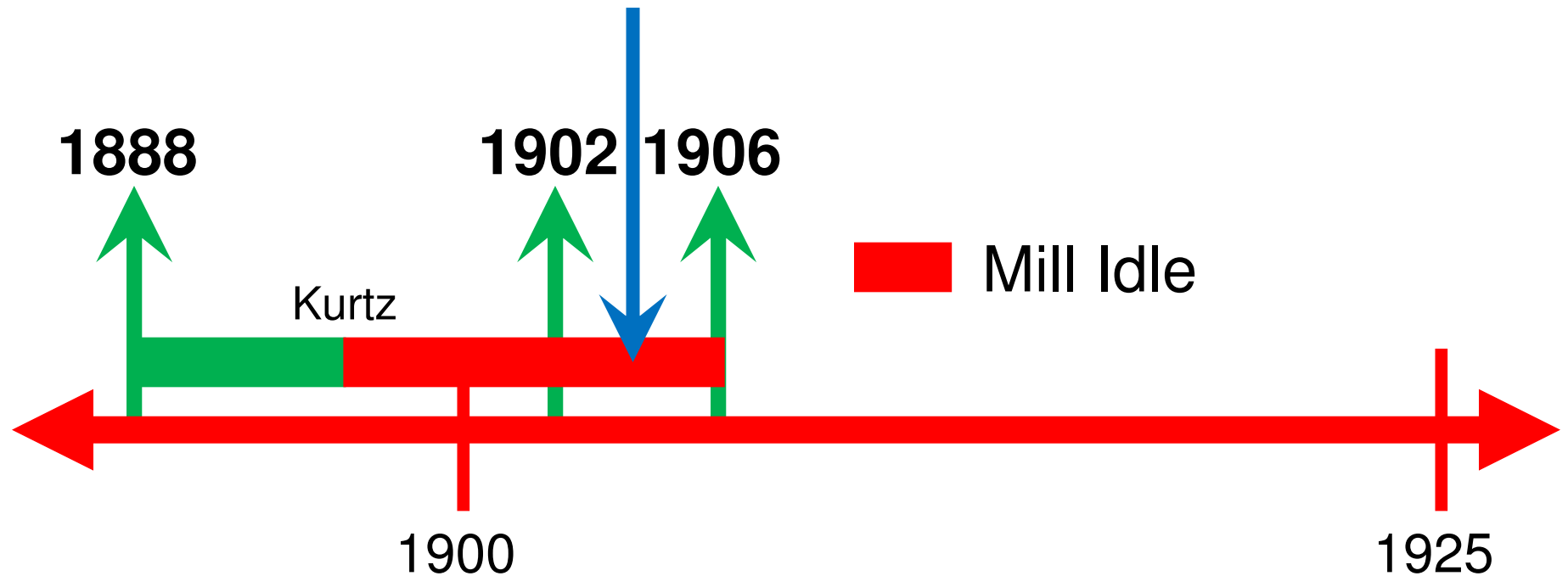
Saxton Furnace Company

- May have never operated the rolling mill in 4 years
- Sold at auction on September 20, 1906 in Philadelphia
 - A third party paid \$213,785 for the blast furnaces and rolling mill
 - Congressman James Thropp bought the blast furnaces – he already owned a nearby blast furnace in Bedford county
- Valley Iron Works purchased by the Worth Brothers for \$55,030
 - Included 63 tenement houses
 - Worth Brothers now owned about 100 houses

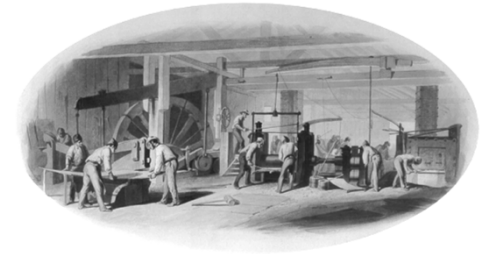
Valley Iron Works Timeline



The Saxton Furnace Era



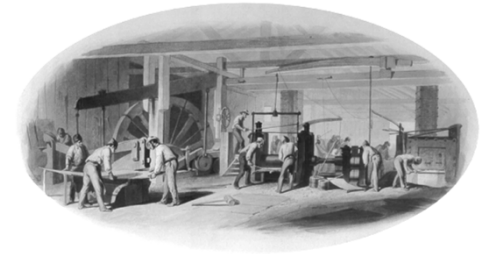
The New Owners



Worth Brothers

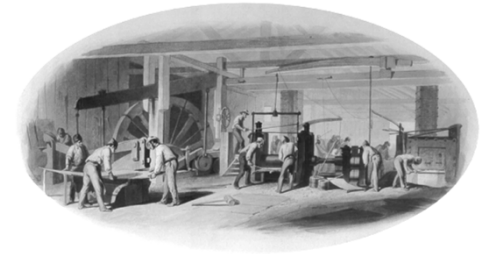
- Considered the rolling mills to be obsolete and unsuited for meeting the demands of the plate market
- The mill was completely revamped
- Became part of the Viaduct Iron Works, which included the Viaduct Forge and the Viaduct Tube Works

Valley Iron Works – 1907



- Mill converted to the manufacturing of charcoal iron skelp and sheet used to produce tubes at the Viaduct Plant
 - Similar to the Parkesburg Iron Company
 - Conversion took nine months
- Bloomery added with 10 forge fires and a large steam hammer
- Three plate mills converted into two skelp mills and one sheet mill
- 30"x96" and 30"x110" mills cut down to 22"x54" mills
- 24"x72" mill changed to a sheet mill
- 18"x72" mill converted to a muck bar mill
- Restarted June 10, 1907

Iron Tube Production

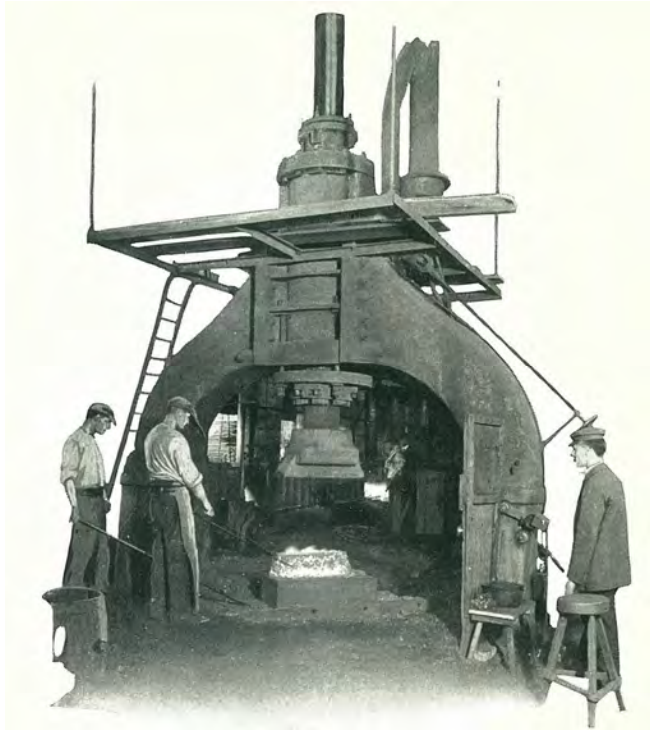
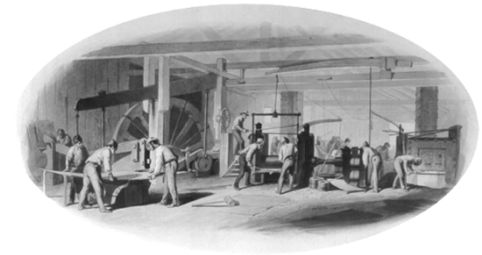


The forge fire is charged with charcoal and iron ore, pig iron, wrought iron, scrap or steel

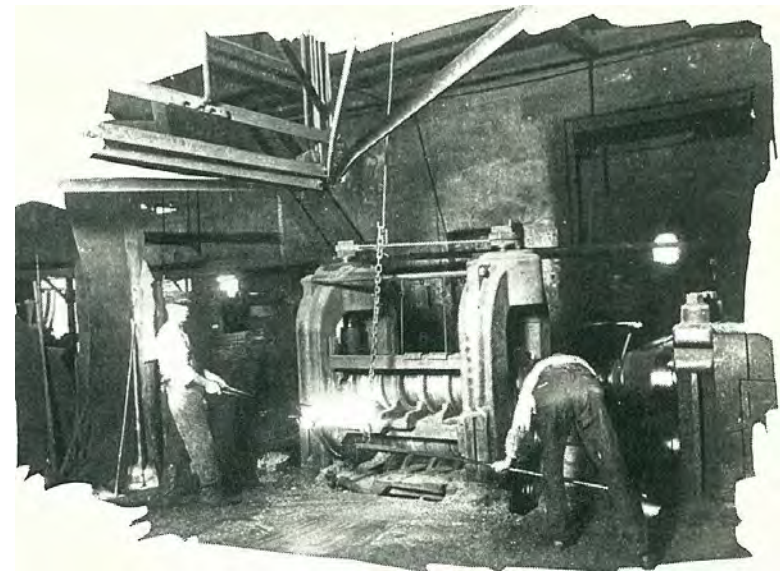


Impurities are oxidized, iron droplets and slag sink and form a sponge of pure iron with slag trapped inside

Iron Tube Production

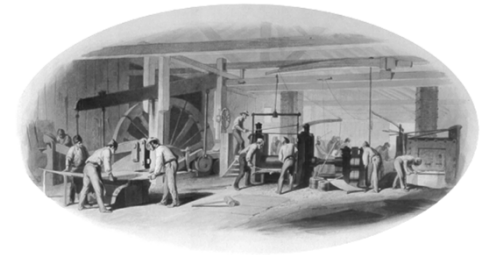


The molten slag is squeezed out of the iron as it is shaped, or shingled, under the heavy drop hammer to form a bloom measuring 6"x6"x30"



After shingling, the blooms are reheated in a charcoal fired furnace and rolled into bars about 7" wide and $\frac{3}{4}$ " thick

Iron Tube Production

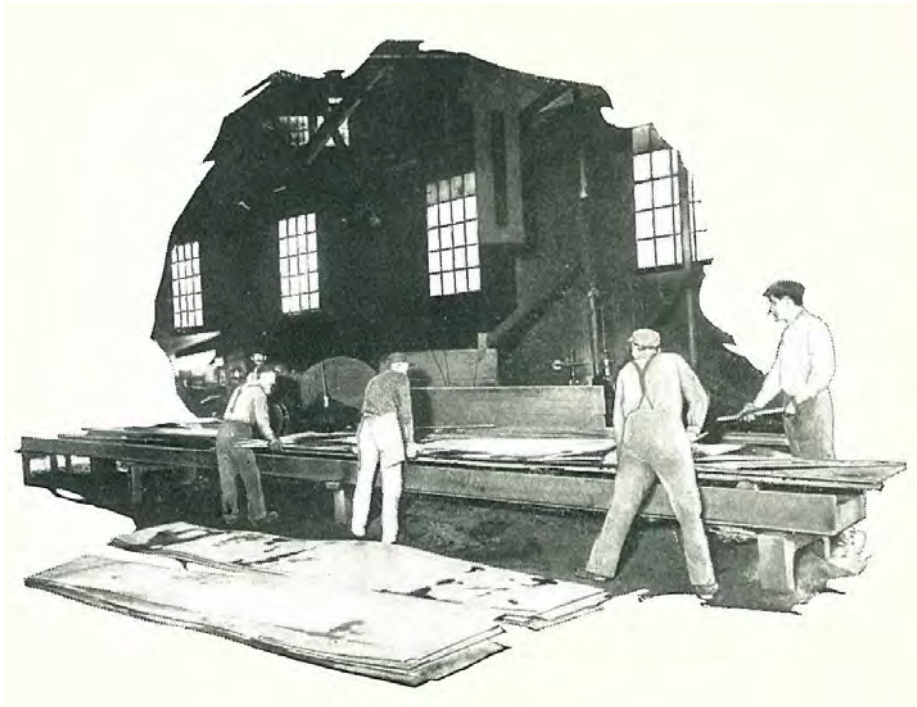
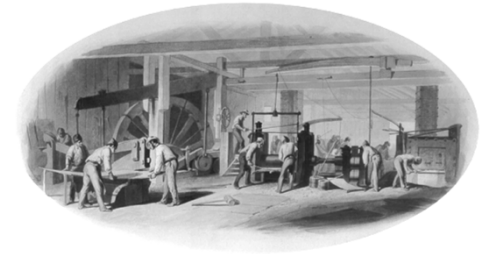


Bars are sheared into smaller lengths and “piled” to increase piece weight. Piles held together with iron wire are charged into a charcoal heating furnace.



During rolling to skelp plates the heat and pressure from the rolls weld the piles together. The drop hammer was also used to weld the piles together.

Iron Tube Production

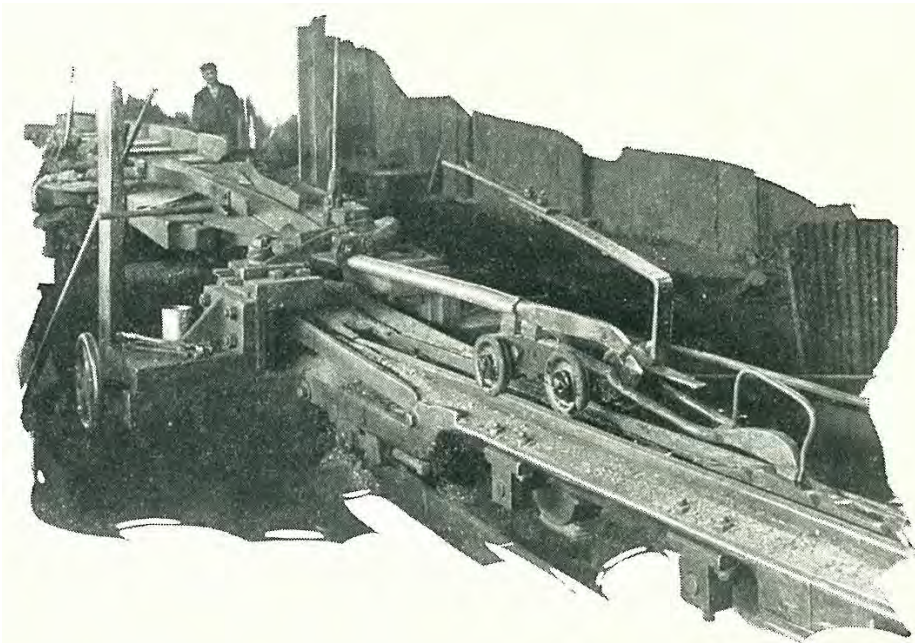
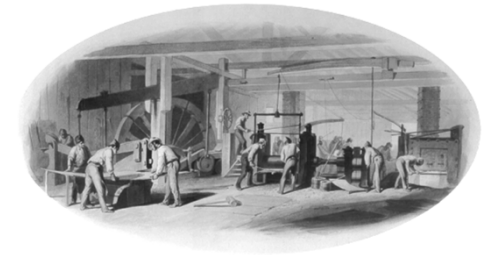


The skelp plate is cropped to length and sheared into strips, with extra width to allow for the lap weld

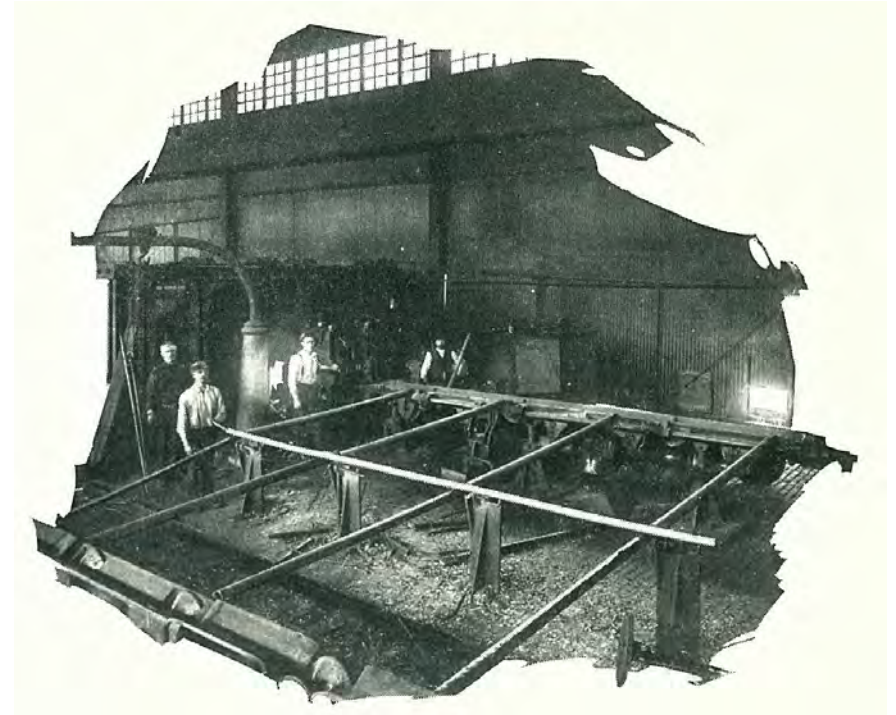


The skelp is carefully inspected to detect and remove any defects that could cause the tubes to fail in service

Iron Tube Production

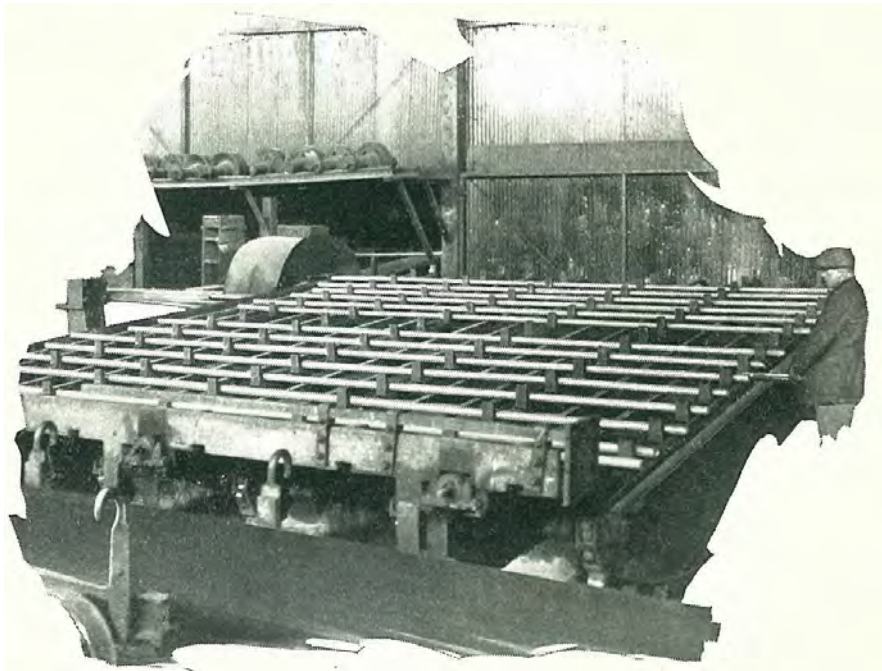
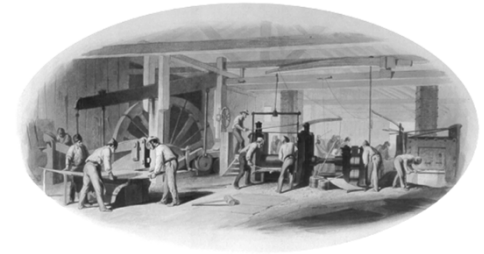


The strip edges are beveled, then the strips are heated to 2,000°F and pulled through dies and over a mandrel to form the tubes



The tubes are heated to 2,700°F and welded over a mandrel held on the end of a rod between fast moving welding rolls

Iron Tube Production

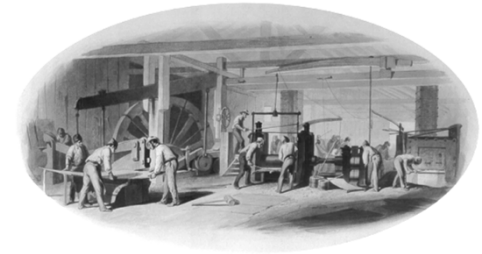


The tubes move slowly across a cooling table as the ends are measured for size and diameter



The tubes are cut to size by a large circular saw

Iron Tube Production

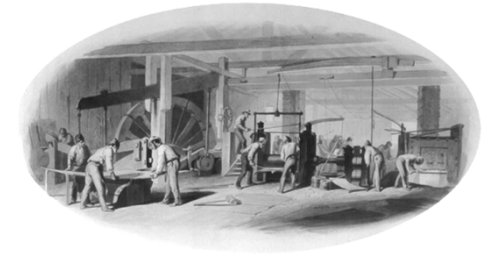


The cropped ends of the tubes are mashed to test for weld strength

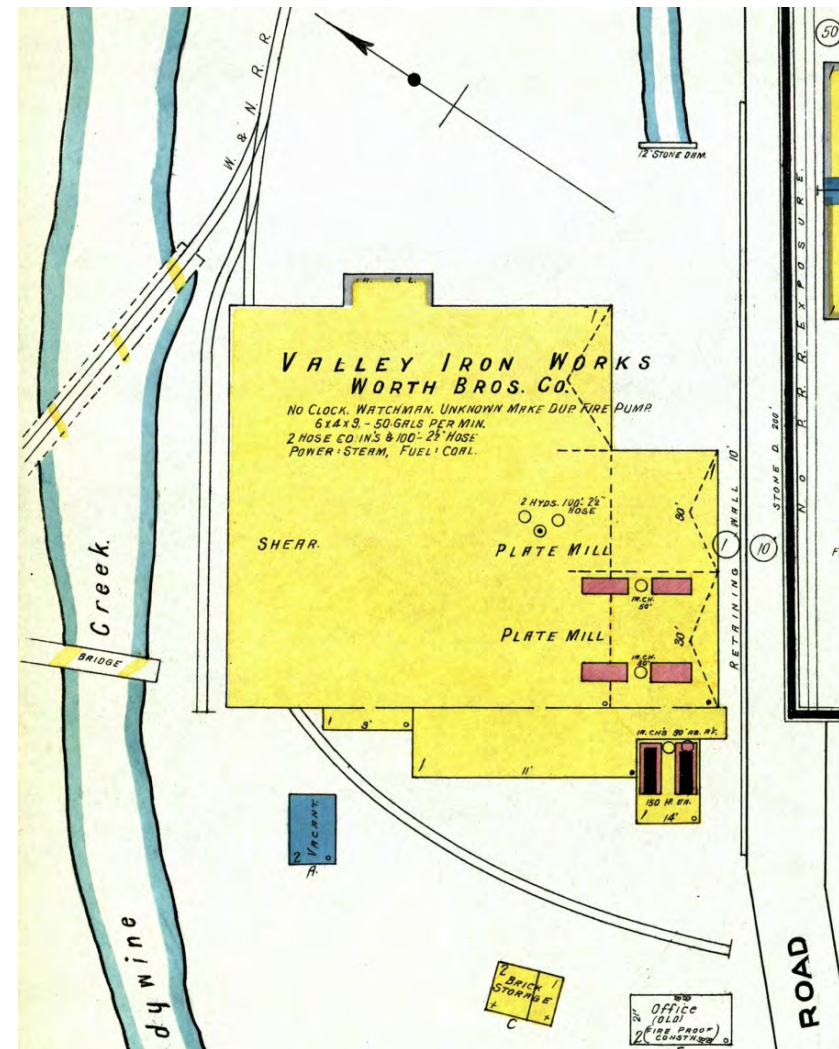


The tubes are hydrostatically tested at high pressure

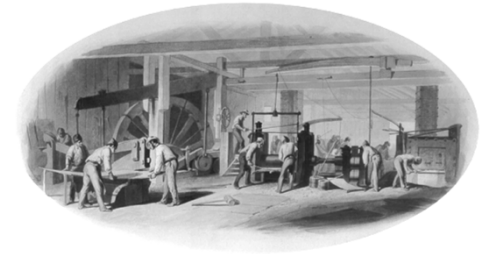
Valley (Worth) Iron Works 1909



- Sanborn Perris Map
- The Old Mill is gone
- The head race is gone – no water power
- The South end is expanded



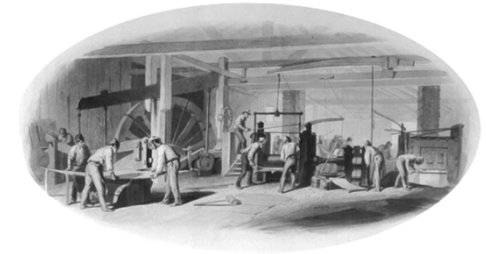
The Last Owners



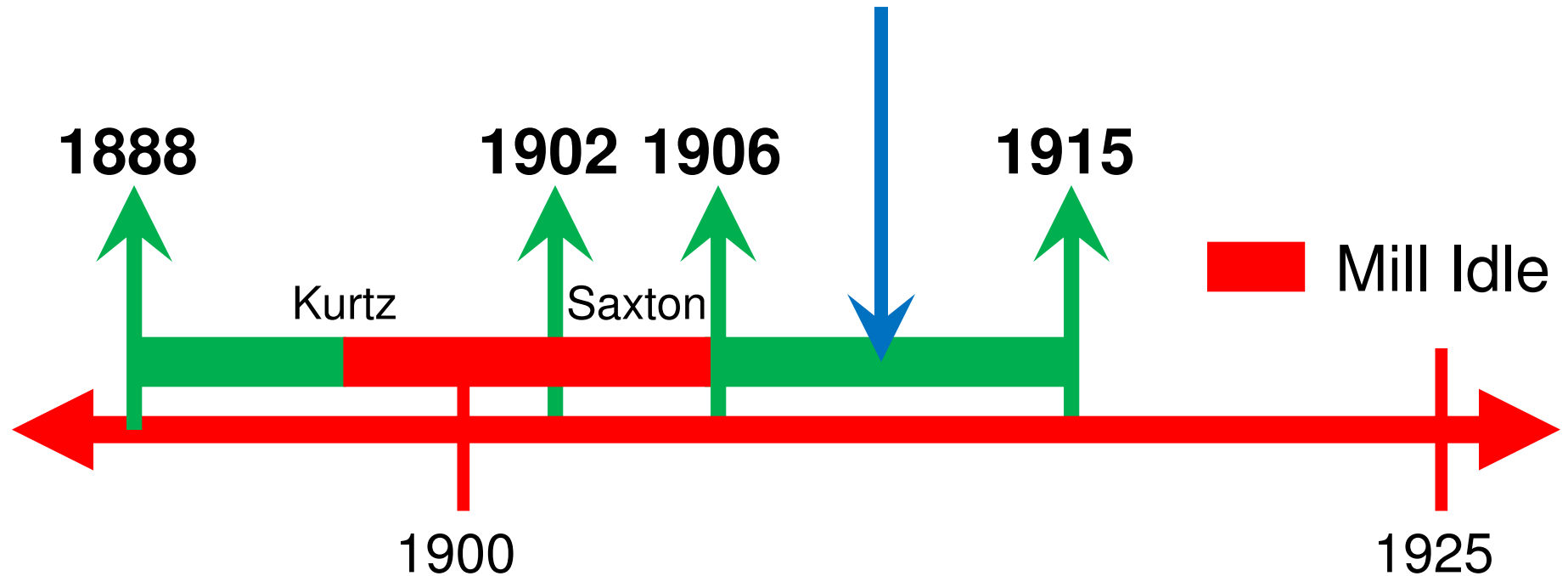
Midvale Steel Corporation

- The forges fires were extinguished in 1913
 - Restarted for a short time in 1915
- The Worth Brothers sold out to Midvale Steel in October 1915
- Midvale operated the mill for a short time
- The Valley Iron Works was finally shut down, then completely dismantled in 1919

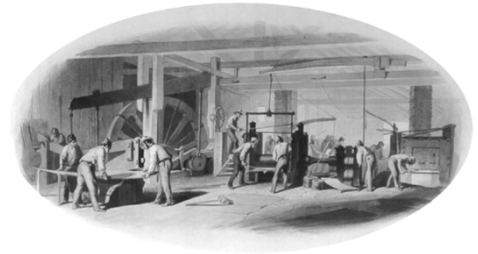
Valley Iron Works Timeline



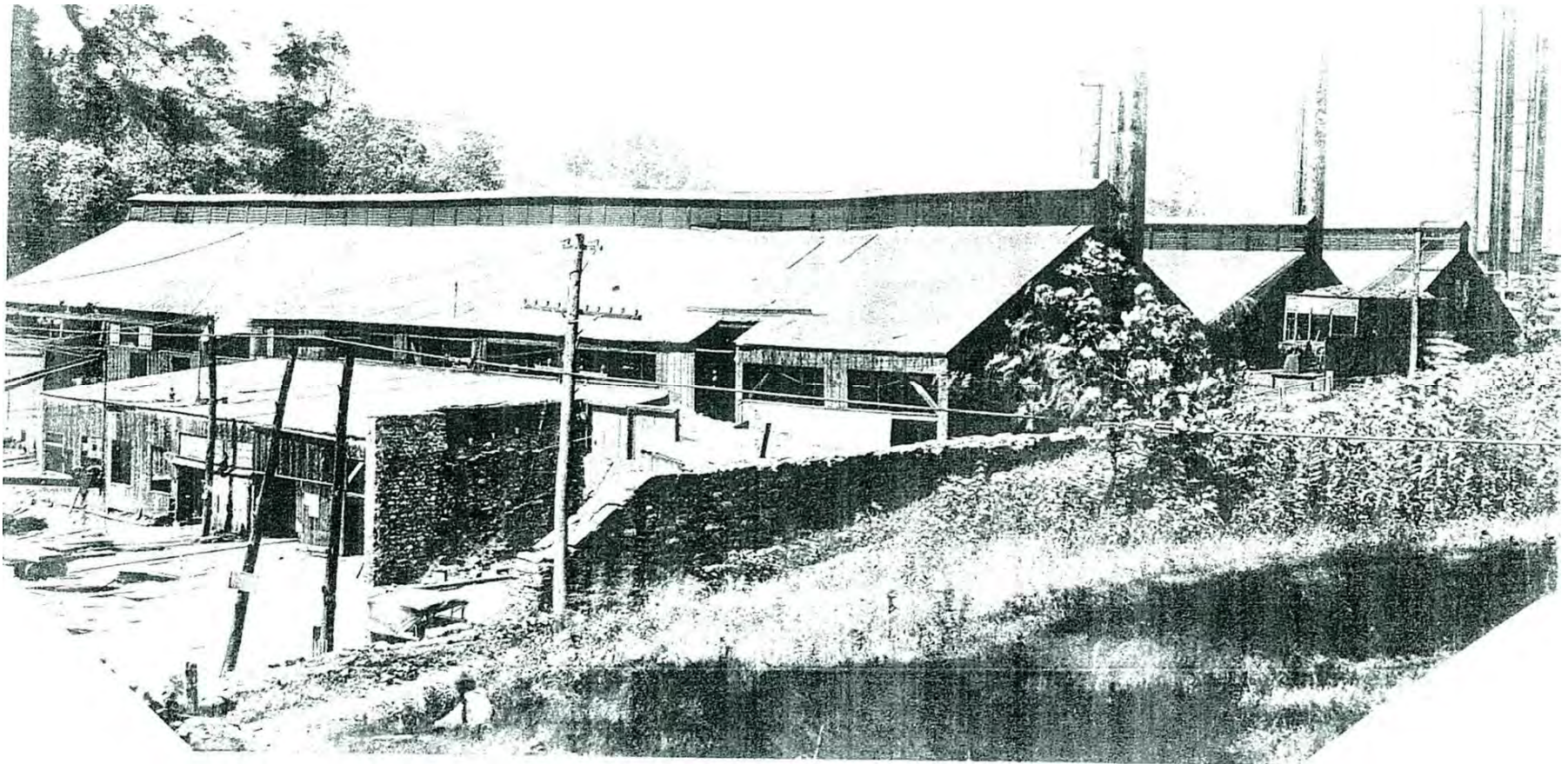
The Worth Brothers Era



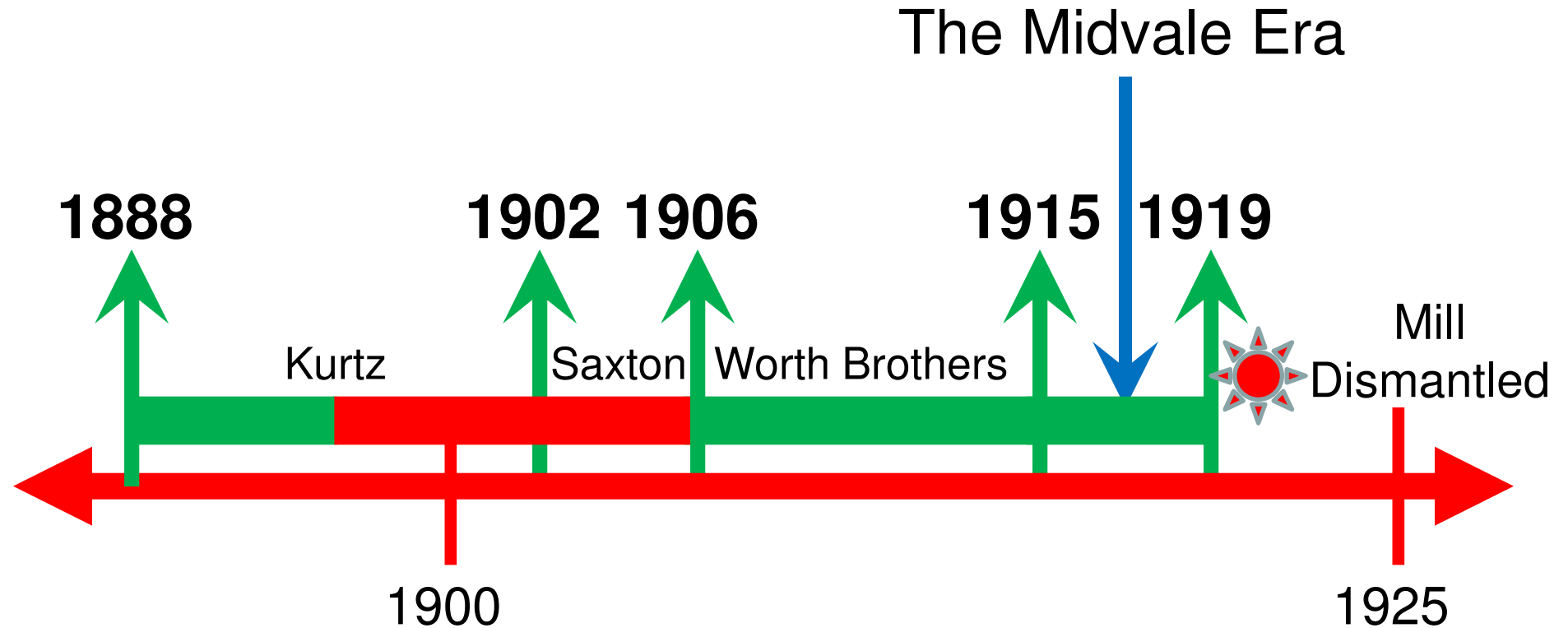
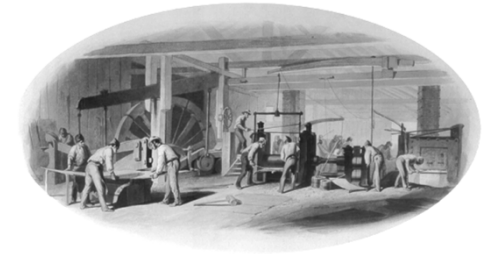
Valley Iron Works 1919



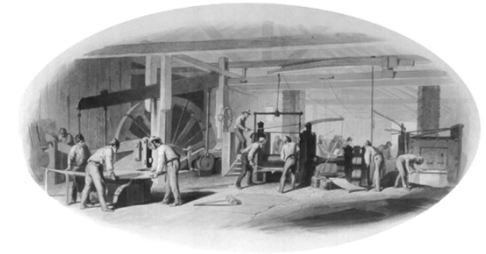
Midvale dismantled the mill in 1919



Valley Iron Works Timeline



Valley Iron Works 2017



Only existing remnants of the railroad and mill

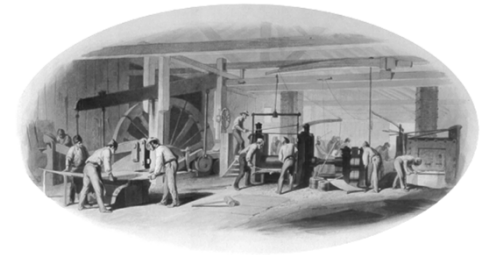
Railroad Trestles



Exit of Tail Race



Valley Iron Works Tenement Houses



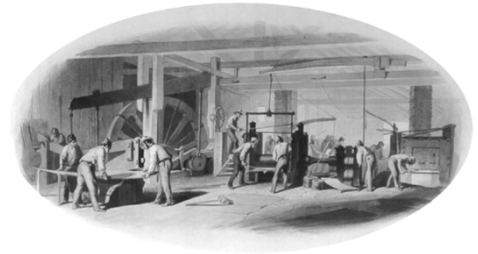
1870



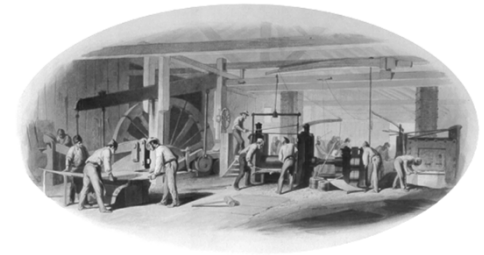
2020



Pennock's Iron Master's House 2020



The Boat Houses

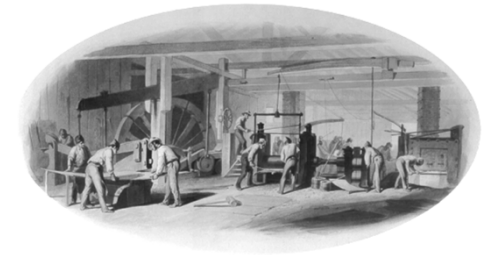


November 5, 2020

Rich Smith The History of the Valley Iron Works

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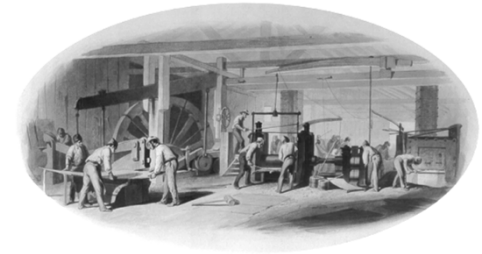
Valley Iron Works Mill Pond Site



Marriot Courtyard Hotel built on the site of the mill pond



Summary



- The Valley Mill was in existence for 82 years under 7 different owners/operators
- Controlled by two branches of the Pennock family for 50 years
- Reached its pinnacle of prosperity in the 1870's and 1880's
 - Employed 200 men – by far the largest local iron works
 - Had one of the widest plate mills in the state
 - Rolled wide iron plates for locomotive steam boilers and ship hulls
- Struggled under subsequent owners following the failure of C. E. Pennock and Co.
- Had a transformation to a tube producer, extending its existence for 13 years
- A few visual remnants serve as reminders of its location and importance to the iron industry in Coatesville