

WEST POINT FOUNDRY

TRAILBLAZER OF INDUSTRIAL AMERICA



The United States industrialized in the 19th century. Industrialization occurs when a country's workforce shifts from agriculture to manufacturing. This process changed Americans daily lives, created new products, and altered the country's landscape. The West Point Foundry was one of the nation's first large industrial enterprises. It transformed a quiet section of Philipstown, New York into a busy hub of production. This exhibition explores the Foundry's role as a trailblazer of American industrialization.

This panel exhibition is funded through a National Endowment for the Humanities CARES Act Grant and the generous support of Putnam History Museum Members.



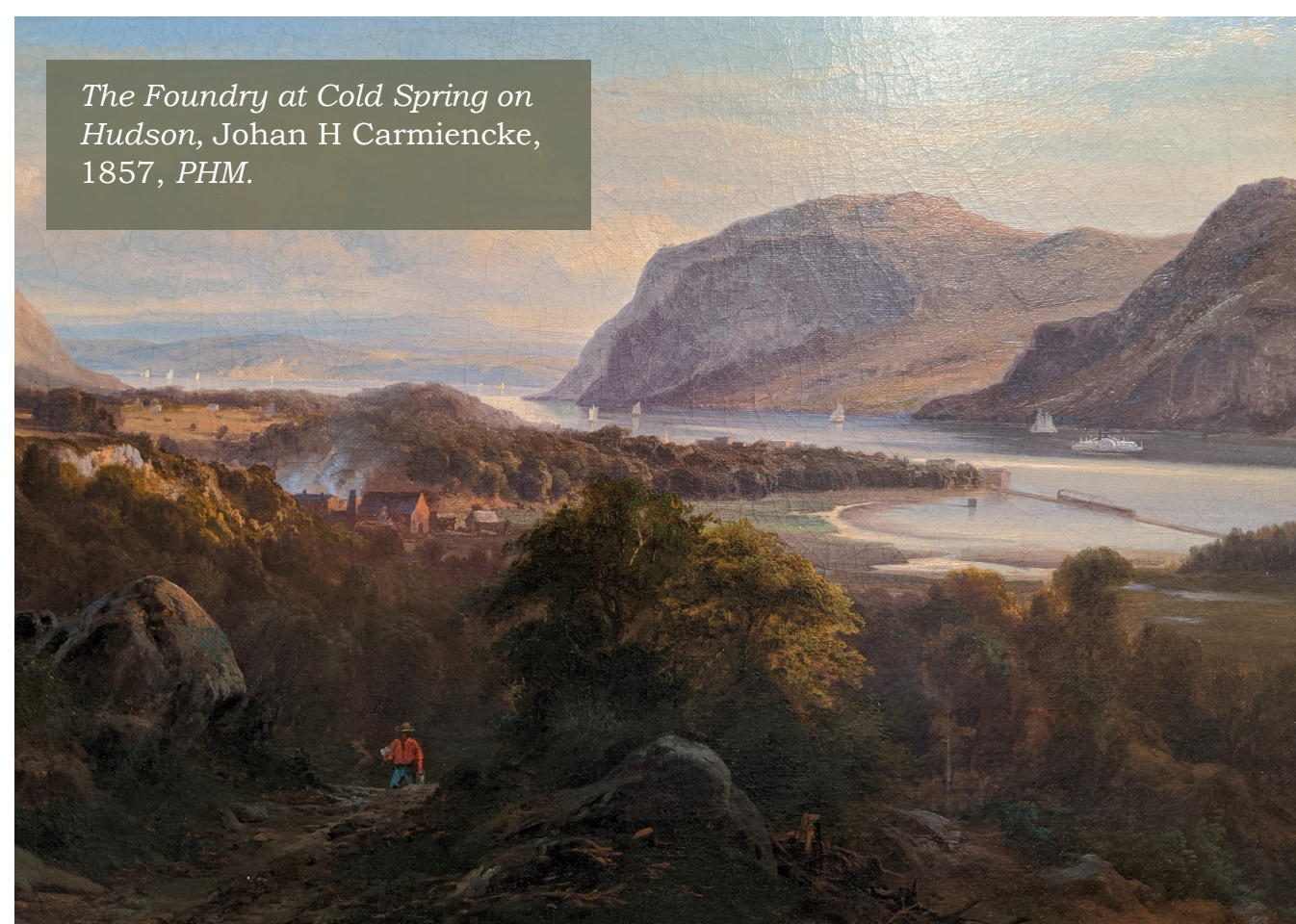
BEGINNINGS

Following the War of 1812, President James Madison called for an increase in cannon manufacturing to protect the country in future conflicts. The West Point Foundry was one of four ironworks built to fulfill this need, and the only one that was privately owned. It was established in 1817 by brothers Gouverneur and William Kemble, General Joseph Swift, and engineer James Renwick Sr.

CHOOSING A SITE

The site of present-day Cold Spring, NY provided the Foundry with the natural resources and river access that it needed for production. The water of Margaret's Brook powered machinery and the surrounding forest had ample wood for fuel.

Mines in what is now Fahnestock State Park supplied iron ore for melting. Finished products were loaded onto ships at Foundry Cove and brought down the Hudson River to New York City.



The Foundry at Cold Spring on Hudson, Johan H. Carmiencke, 1857, PHM.

PRODUCTS OF THE FOUNDRY

The West Point Foundry cast much more than cannons. The company built the first American-made locomotive, the *Best Friend of Charleston*, in 1830.

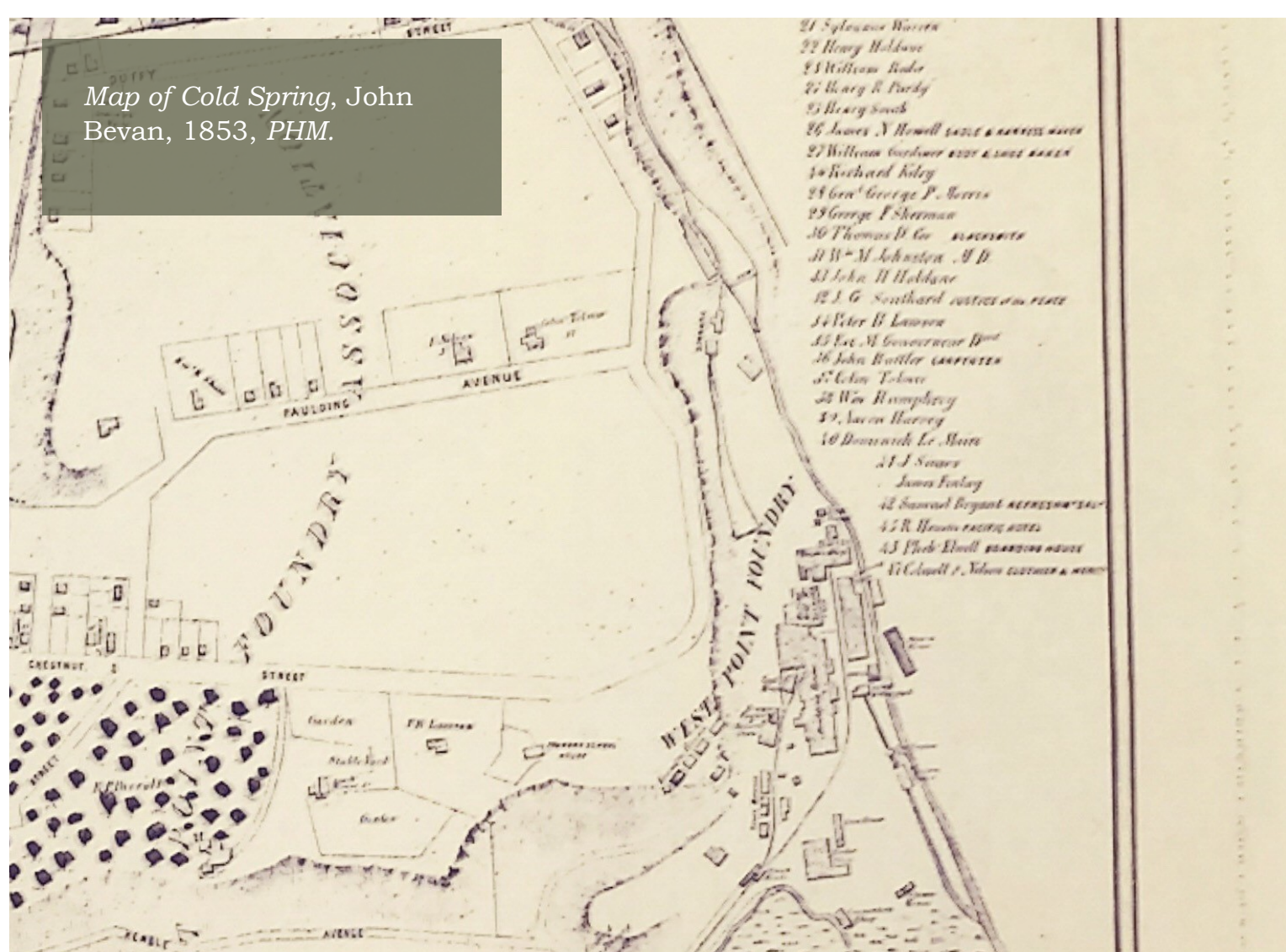


Best Friend of Charleston, PHM.

The Foundry also produced engines and boilers for some of the US Navy's first steam frigates, including the USS *Missouri* in 1841.



USS Missouri, PHM.



Map of Cold Spring, John Bevan, 1853, PHM.



Lowell Factory Girls, late nineteenth century.

INDUSTRIALIZING AMERICA — 1814

Boston Manufacturing Company opens a textile factory in Lowell, Massachusetts. They provided their young female workforce with education and housing, creating one of the first 'factory towns.'

VOICES OF THE FOUNDRY

Cold Spring resident Fred Dunseith on the early days of the Foundry.



A NEW KIND OF WORKPLACE

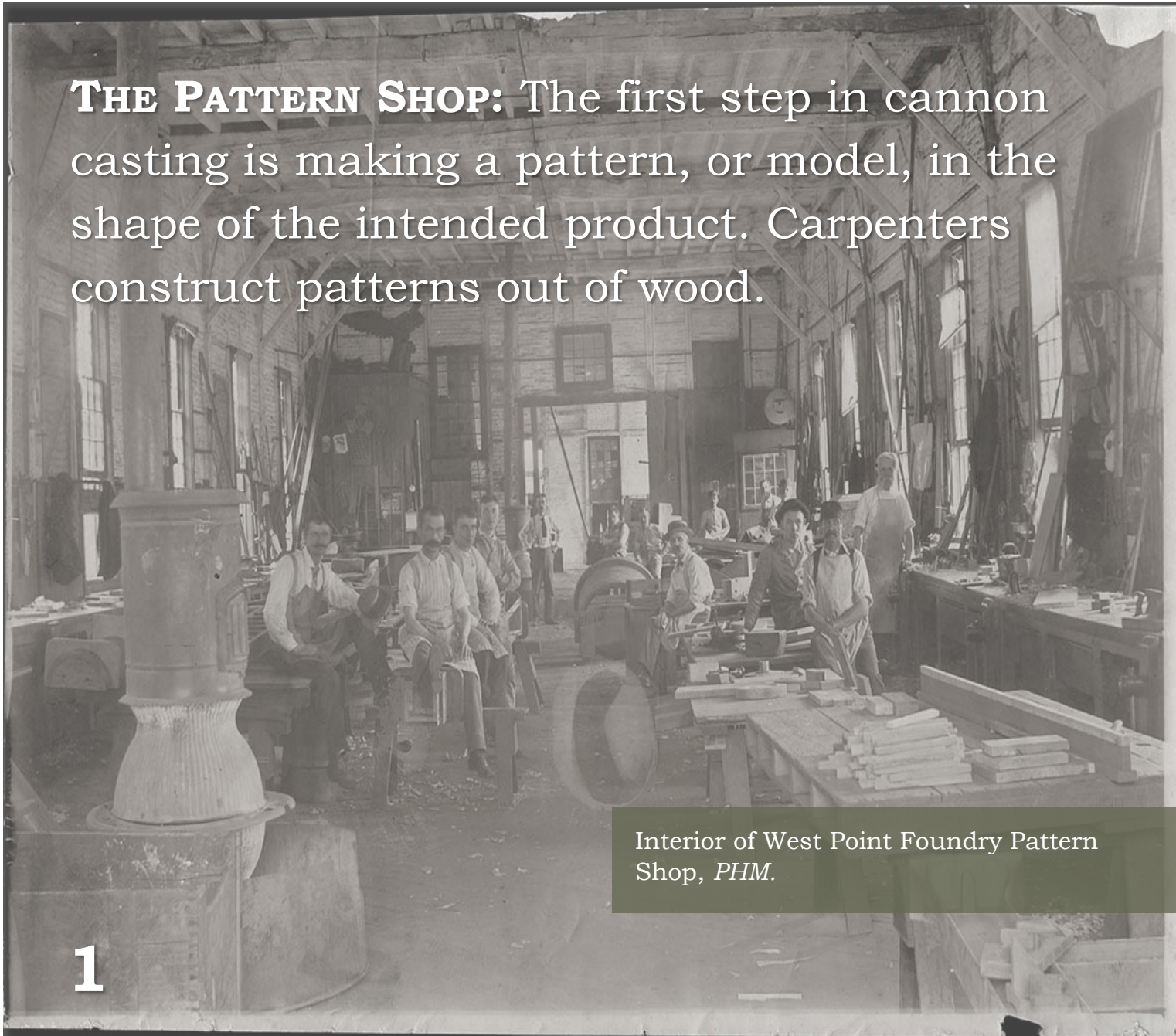
In the 1700s, iron products were made by small blacksmith shops. The West Point Foundry improved upon this method by centralizing production and constructing separate shops for each stage of the iron casting process. The Foundry's machinery was powered by a 36' backshot water wheel.



WPF water wheel, 1900, PHM.

CASTING A CANNON

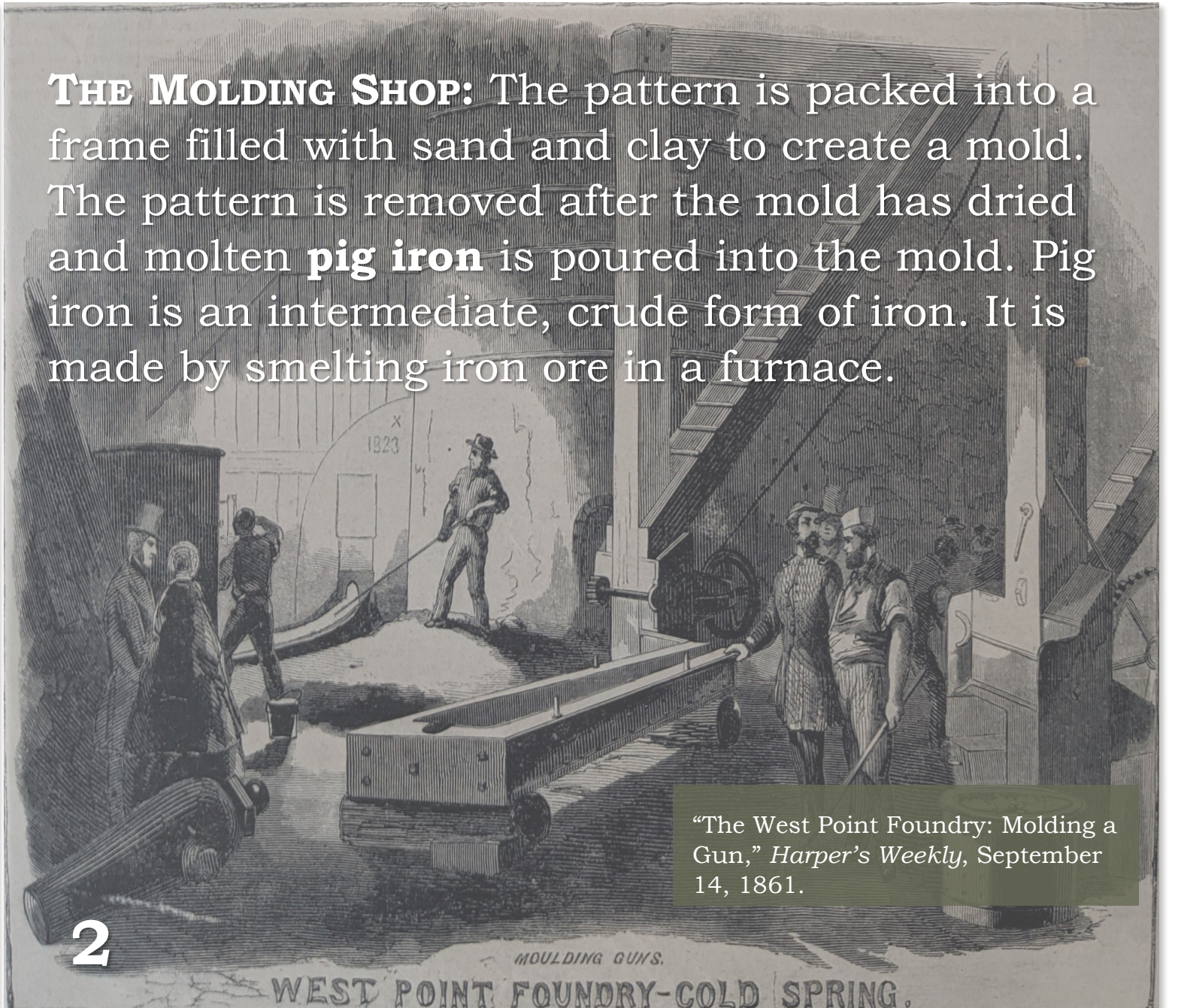
THE PATTERN SHOP: The first step in cannon casting is making a pattern, or model, in the shape of the intended product. Carpenters construct patterns out of wood.



Interior of West Point Foundry Pattern Shop, PHM.

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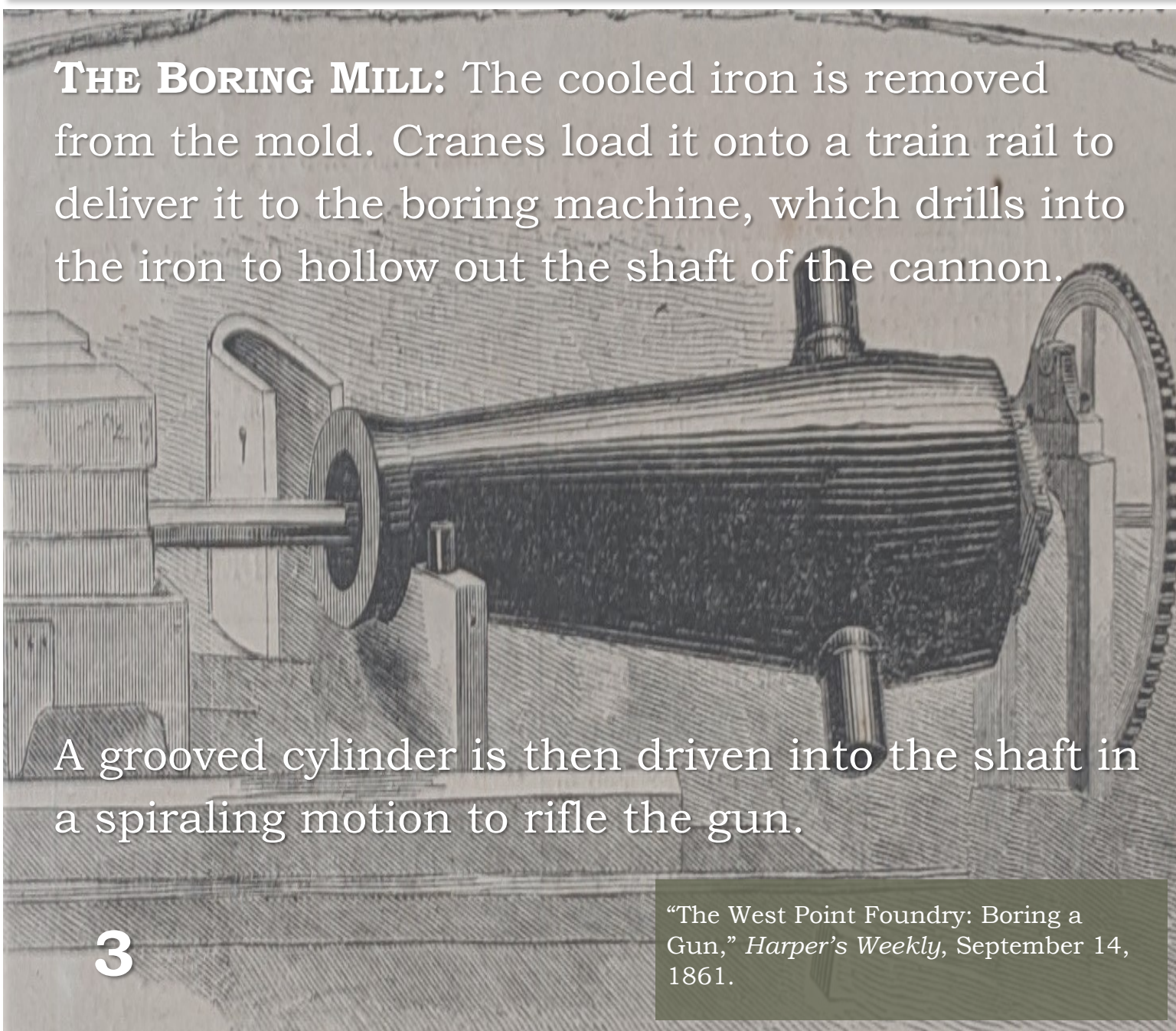
THE MOLDING SHOP: The pattern is packed into a frame filled with sand and clay to create a mold. The pattern is removed after the mold has dried and molten **pig iron** is poured into the mold. Pig iron is an intermediate, crude form of iron. It is made by smelting iron ore in a furnace.



"The West Point Foundry: Molding a Gun," *Harper's Weekly*, September 14, 1861.

2

THE BORING MILL: The cooled iron is removed from the mold. Cranes load it onto a train rail to deliver it to the boring machine, which drills into the iron to hollow out the shaft of the cannon.

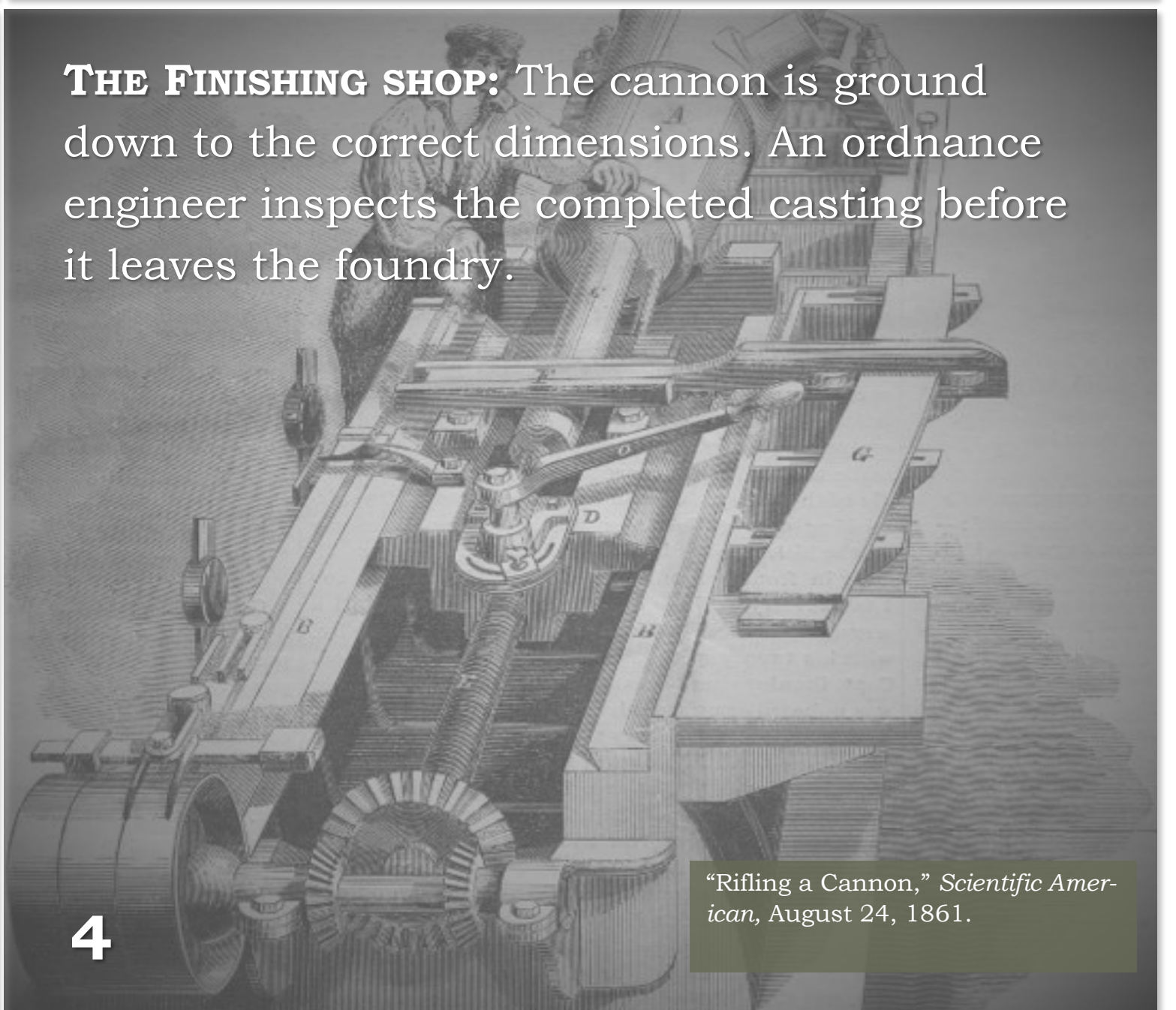


A grooved cylinder is then driven into the shaft in a spiraling motion to rifle the gun.

"The West Point Foundry: Boring a Gun," *Harper's Weekly*, September 14, 1861.

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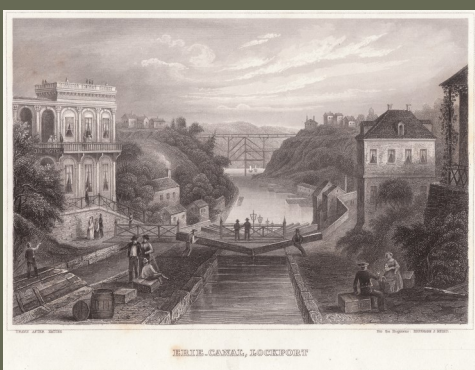
THE FINISHING SHOP: The cannon is ground down to the correct dimensions. An ordnance engineer inspects the completed casting before it leaves the foundry.



"Rifling a Cannon," *Scientific American*, August 24, 1861.

4

INDUSTRIALIZING AMERICA



Lithograph of the Erie Canal at Lockport, New York c.1855.

The Erie Canal opens. It is connected to New York City via the Hudson River and increases commercial activity in New York State.

VOICES OF THE FOUNDRY

Cold Spring resident Fred Dunseith describing a typical workday at the Foundry.



VERTICAL INTEGRATION

From 1827 – 1844, the West Point Foundry felled and burned nearby trees to make charcoal. The charcoal was used as fuel for a blast furnace tower near Margaret's Brook. A blast furnace forces air through the fuel to reach temperatures around 3000°F. Iron ore from Foundry-run mines was smelted in this furnace to produce the crude pig iron used for casting.



END TO END PRODUCTION

By creating its own fuel and harvesting its own raw materials, the West Point Foundry became one of the first **vertically integrated** companies in the United States. A company is vertically integrated when it oversees all stages of a product's production. The Foundry independently turned charcoal, iron ore, and water into finished goods.

Rising costs and local deforestation led the Foundry to purchase coal and pig iron from outside sources after 1844.



TOP: A blast furnace smelts metal. It is tower-shaped so that air can be forced in from below to heat the fuel to high temperatures. *West Point Foundry Blast Furnace*, John Gadsby Chapman, 1865, PHM.

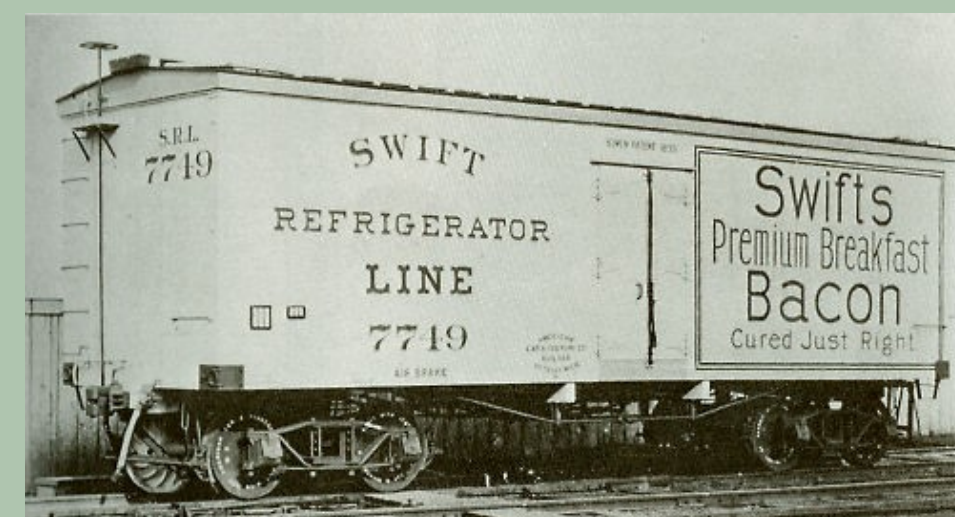
LEFT: WPF Pig Iron, PHM.

BOTTOM: Swift Refrigerated Car, 1899.

A SIGN OF THINGS TO COME

Many industrial companies utilized vertical integration later in the century. Gustav Franklin Swift applied this practice to the meatpacking industry. His firm Swift & Co. slaughtered and packed animals at plants in the Midwest, then used refrigerated train cars to bring the meat to butchers shops around the country.

Vertical integration was not perfect. Swift sold tainted meat to boost profits. In response, Congress passed the Federal Meat Inspection Act in 1906.



INDUSTRIALIZING AMERICA — 1851

The Hudson River Railroad opens. This line allowed for year-round transportation to New York City markets, especially during the winter when ice made the Erie Canal unnavigable.



Empire State Express, King's Guide to NYC Hudson River Railroad, 1893.

VOICES OF THE FOUNDRY

Cold Spring Resident Marvin Wilson explaining how the Foundry used natural resources to make pig iron in the blast furnace.



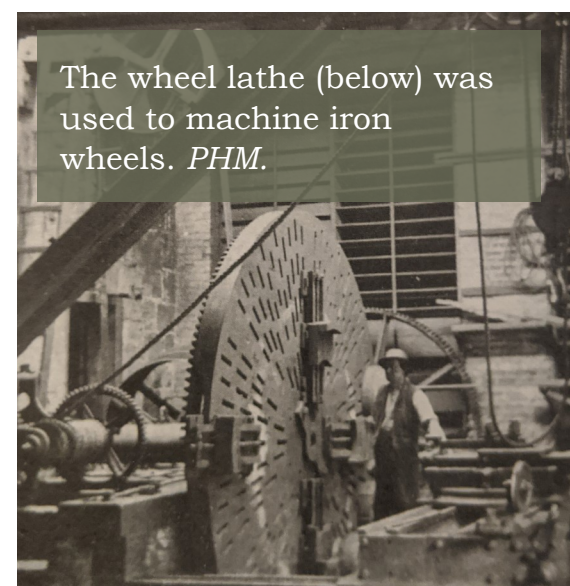
PATERNALISM

The Foundry required a large workforce to run its operation. At its peak, the company employed about 1,000 men and boys, many of whom were immigrants. In the 1860 census, foreigners and their American-born children made up 44% of Cold Spring's population.

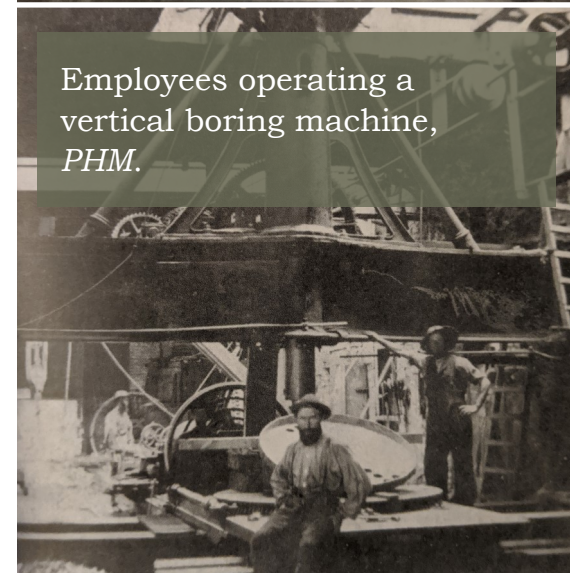
SECURING EMPLOYEES

Britain was home to most of the world's skilled iron foundry mechanics. To maintain control of the trade, Britain's government forbid them from leaving the country. Irish iron founder William Young managed to escape. Gouverneur Kemble hired him to oversee the secret recruitment of British mechanics for the Foundry.

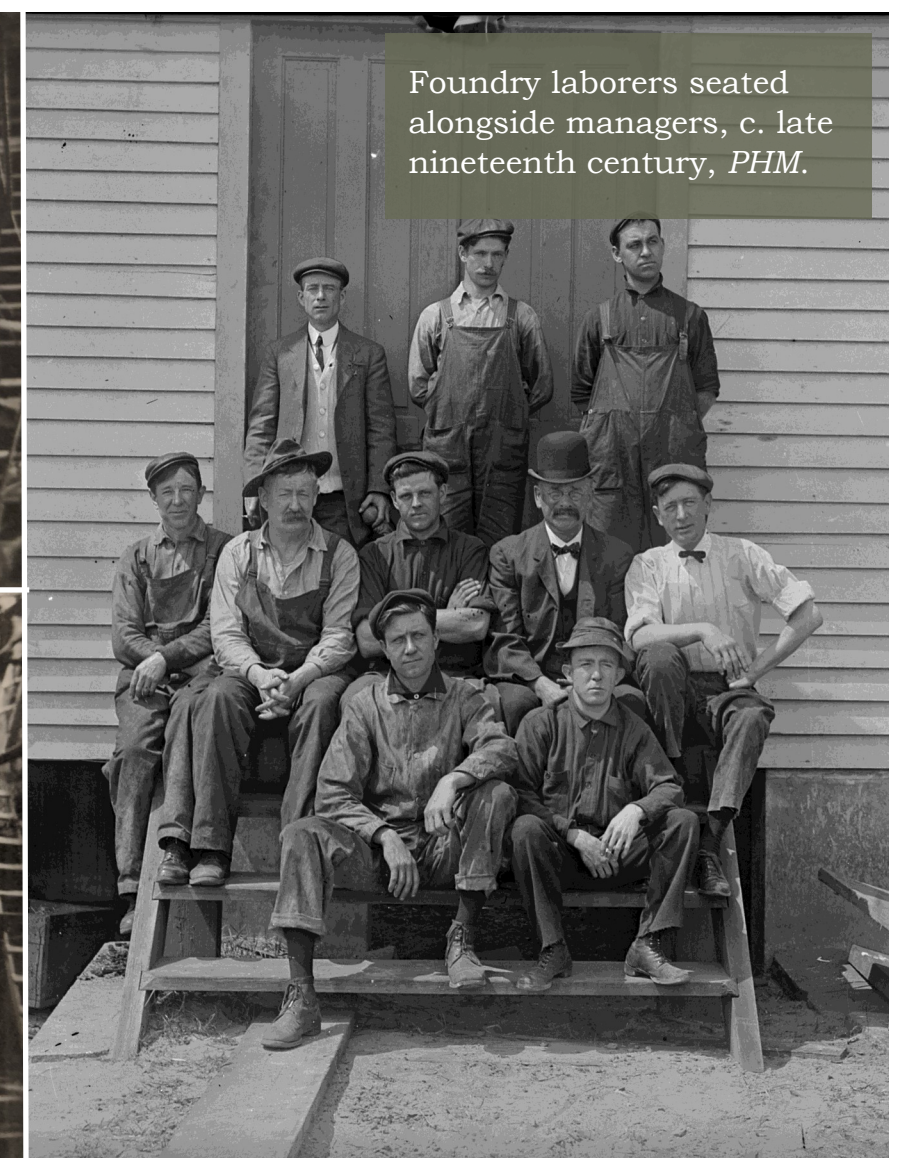
The Foundry also hired unskilled Irish, Scottish, and German immigrants. Kemble and the other managers oversaw these workers in a paternal manner. Managers in a **paternalistic** workplace act as a 'father figure,' providing employees with benefits like housing in exchange for control over their social and economic life.



The wheel lathe (below) was used to machine iron wheels. PHM.



Employees operating a vertical boring machine, PHM.



Foundry laborers seated alongside managers, c. late nineteenth century, PHM.



Foundry employees pose outside the machine shop, c. late nineteenth century. PHM.

“This institution is the life of Cold Spring Village [...] it feeds all, clothes all, and supports all.” – William J. Blake, *The History of Putnam County, N.Y.*

LEFT: Unskilled workers signed indenture contracts that banned them from marrying, drinking alcohol, or dancing. They received apprentice training in exchange for their service.

Thomas Lloyd's 1850 Indenture with Gouverneur Kemble and the WPF, PHM.

during all which time, the said Apprentice shall faithfully serve the said Gouverneur Kemble, his secrets keep, and lawful commands obey; he shall do no damage, nor see it done by others, without giving notice thereof; his goods he shall not waste, embezzle, nor lend; he shall not at any time absent himself from his service without leave; he shall not play at cards, dice, or any unlawful game, nor commit fornication, or contract matrimony, within the said term; he shall not frequent Taverns, Ale Houses, Dancing Houses, or Play Houses, but in all things demean and behave himself as a good and faithful apprentice during the said term.

And the said Gouverneur Kemble shall and will, on his part, use his utmost endeavor to cause the said apprentice to be taught and instructed in the said trade or art of *Finishing* and shall and will, during the said term, allow and pay for the board and lodging of the said apprentice, and for his clothing and other necessaries, at and after the rates following, that is to say,

for the first year of the said term *Fifty cents per day*
 for the second year of the said term *Fifty cents per day & subs*
 for the third year of the said term *an advancement as shall be*
 for the fourth year of the said term *merited not exceeding 6/4 cents per*
 and for the fifth year of the said term *day for each successive year.*

such sums to be paid quarterly, but to cease on the absence of said apprentice without permission; and shall and will also procure and provide for him one quarter's night schooling in each year of said term.

INDUSTRIALIZING AMERICA 1840 — 1860



New York welcome to the land of freedom, Frank Leslie's illustrated newspaper.

Nearly 3 million people immigrate to the United States from Ireland and Germany. Their labor helps fuel American industrialization.

VOICES OF THE FOUNDRY

David Wylie, an Irish immigrant who worked the Foundry's blacksmith shop, describes his workplace.

Listen to a reading of Thomas Lloyd's Indenture contract with the WPF.

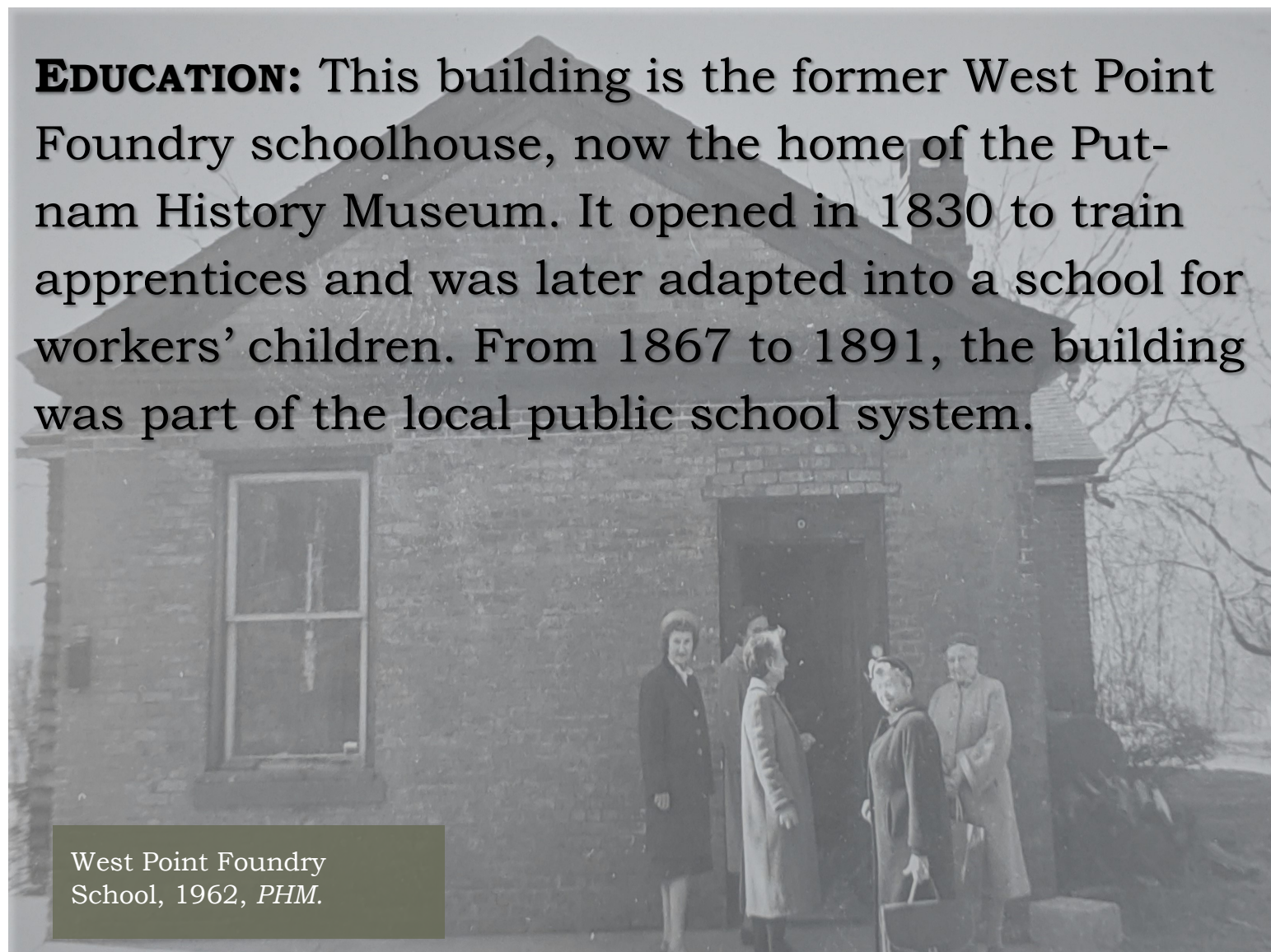


GROWING THE COLD SPRING COMMUNITY

The Village of Cold Spring incorporated in 1846 and grew alongside the West Point Foundry. As part of their paternalistic practices, Foundry owners built houses, churches, and a school for their employees.

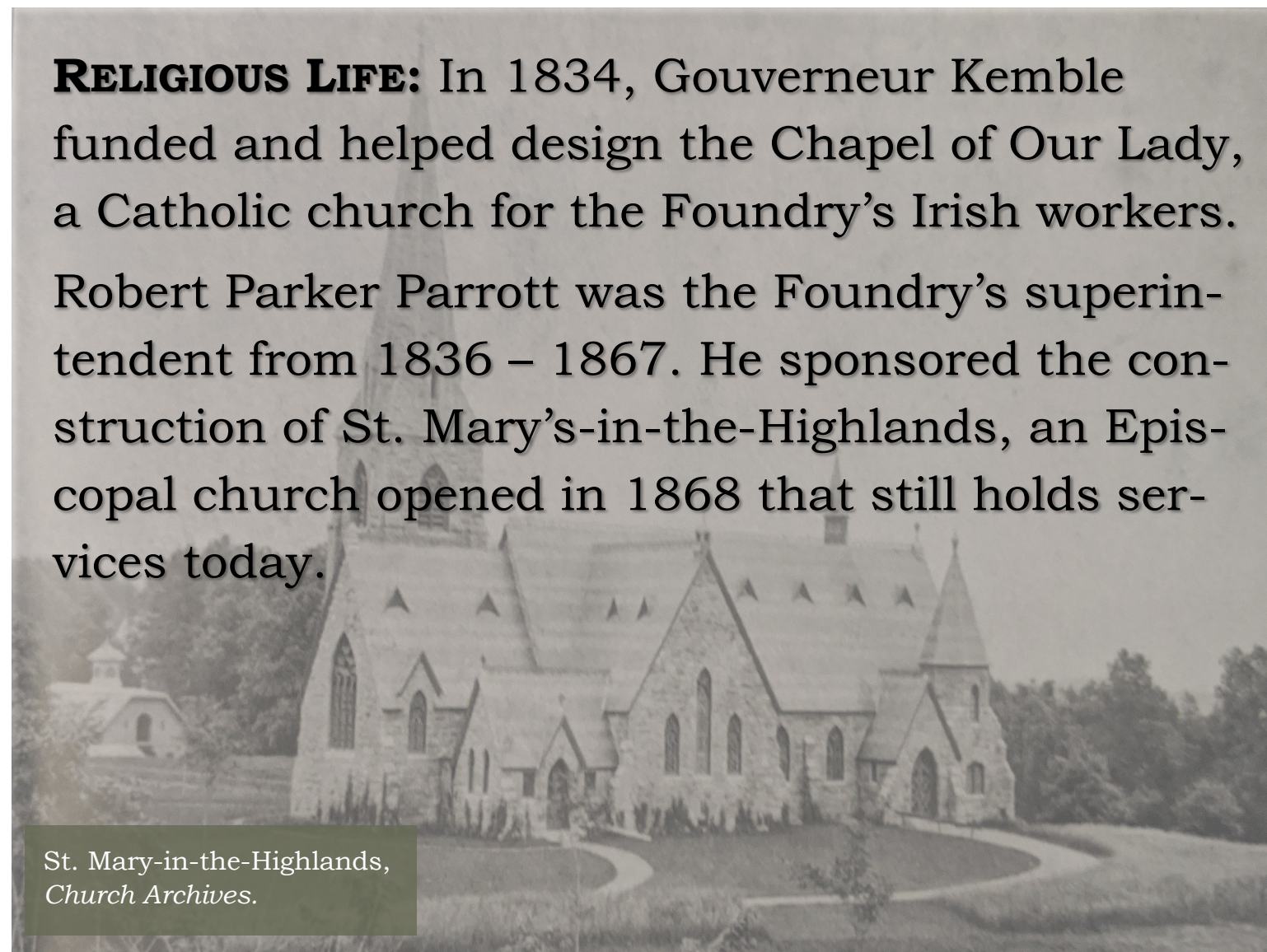
“Neat and tasty buildings, with comfortable homes and happy firesides, have been erected as the reward of constant application and honest labor.” – Highland Eagle

March 27, 1852



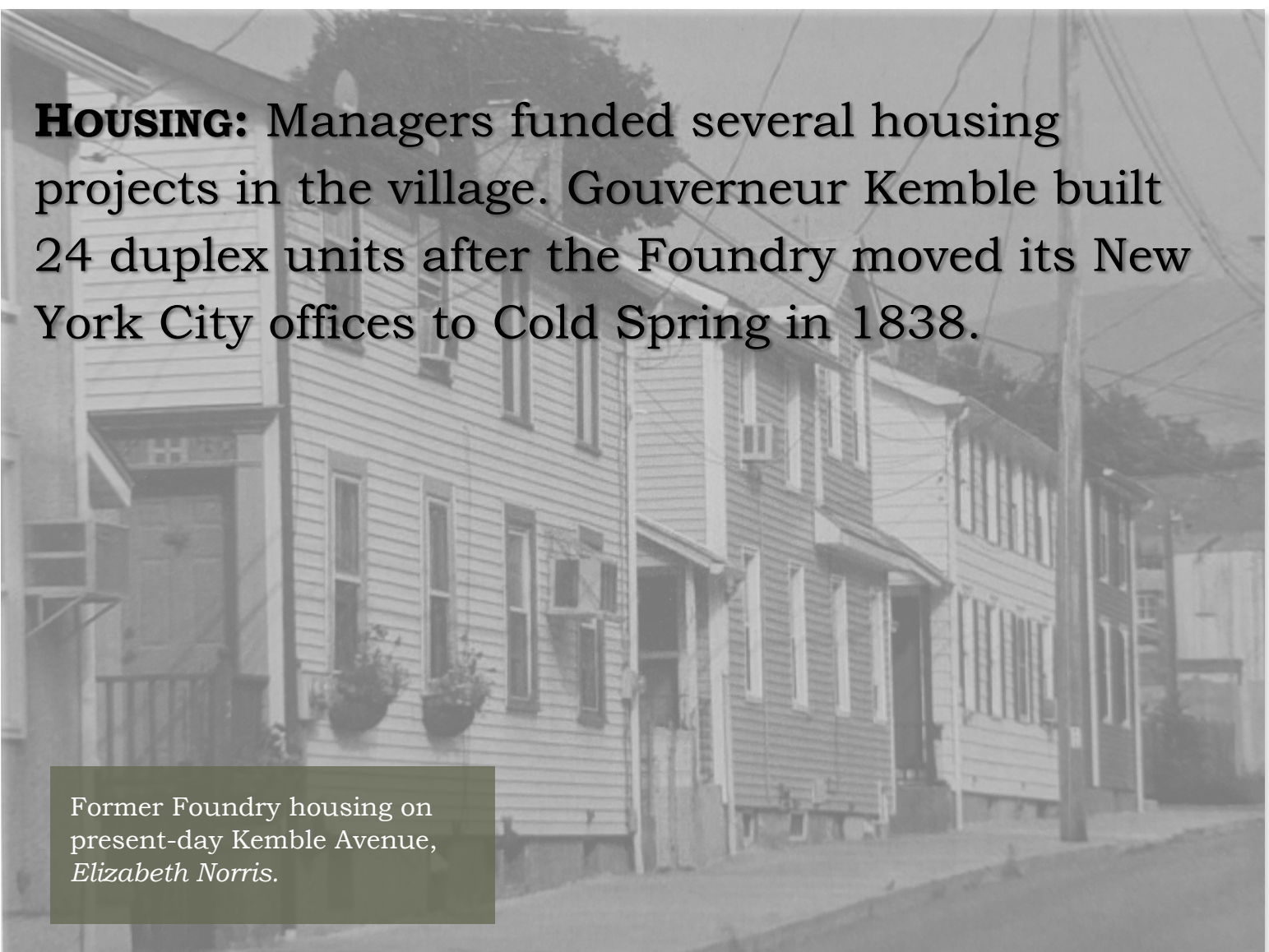
EDUCATION: This building is the former West Point Foundry schoolhouse, now the home of the Putnam History Museum. It opened in 1830 to train apprentices and was later adapted into a school for workers’ children. From 1867 to 1891, the building was part of the local public school system.

West Point Foundry School, 1962, PHM.



RELIGIOUS LIFE: In 1834, Gouverneur Kemble funded and helped design the Chapel of Our Lady, a Catholic church for the Foundry’s Irish workers. Robert Parker Parrott was the Foundry’s superintendent from 1836 – 1867. He sponsored the construction of St. Mary’s-in-the-Highlands, an Episcopal church opened in 1868 that still holds services today.

St. Mary-in-the-Highlands, Church Archives.

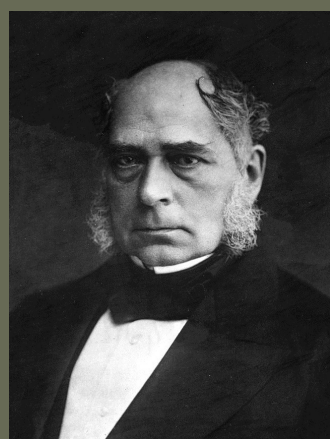


HOUSING: Managers funded several housing projects in the village. Gouverneur Kemble built 24 duplex units after the Foundry moved its New York City offices to Cold Spring in 1838.

Former Foundry housing on present-day Kemble Avenue, Elizabeth Norris.

No.	Occupants	Rent	Remarks
1	John Gordon	\$ 3 12	Occupies all the M ^o
	Isaac Main	1 12	
2	Edward Crichton	\$ 4 12	Occupies all the M ^o
3	James Miller & Gordon	A	
	Jane Stan	1 12	
4	William McSherry	\$ 12	A
	Mary McSherry	1 12	Occupies all the M ^o
5	William Dixon	\$ 12	Occupies all the M ^o
6	Bernard Duffy		Free
	of William Stan		Free
8	Sam ^l McSherry	\$ 12	Occupies all the M ^o
11	John Stan	\$ 12	Occupies all the M ^o
			Free

List of Workers Housing, 1827, WPF Association, PHM.




INDUSTRIALIZING AMERICA — 1857

Sir Henry Bessemer of England perfects the Bessemer process, a method for mass-producing steel. Steel becomes the manufacturing industry’s preferred metal by the late nineteenth century.


VOICES OF THE FOUNDRY

Cold Spring resident Marvin Wilson on the construction of workers housing.

Immigrant worker Thomas Wylie describing his home and family life in Cold Spring.



PUTNAM HISTORY MUSEUM
COLD SPRING, NY



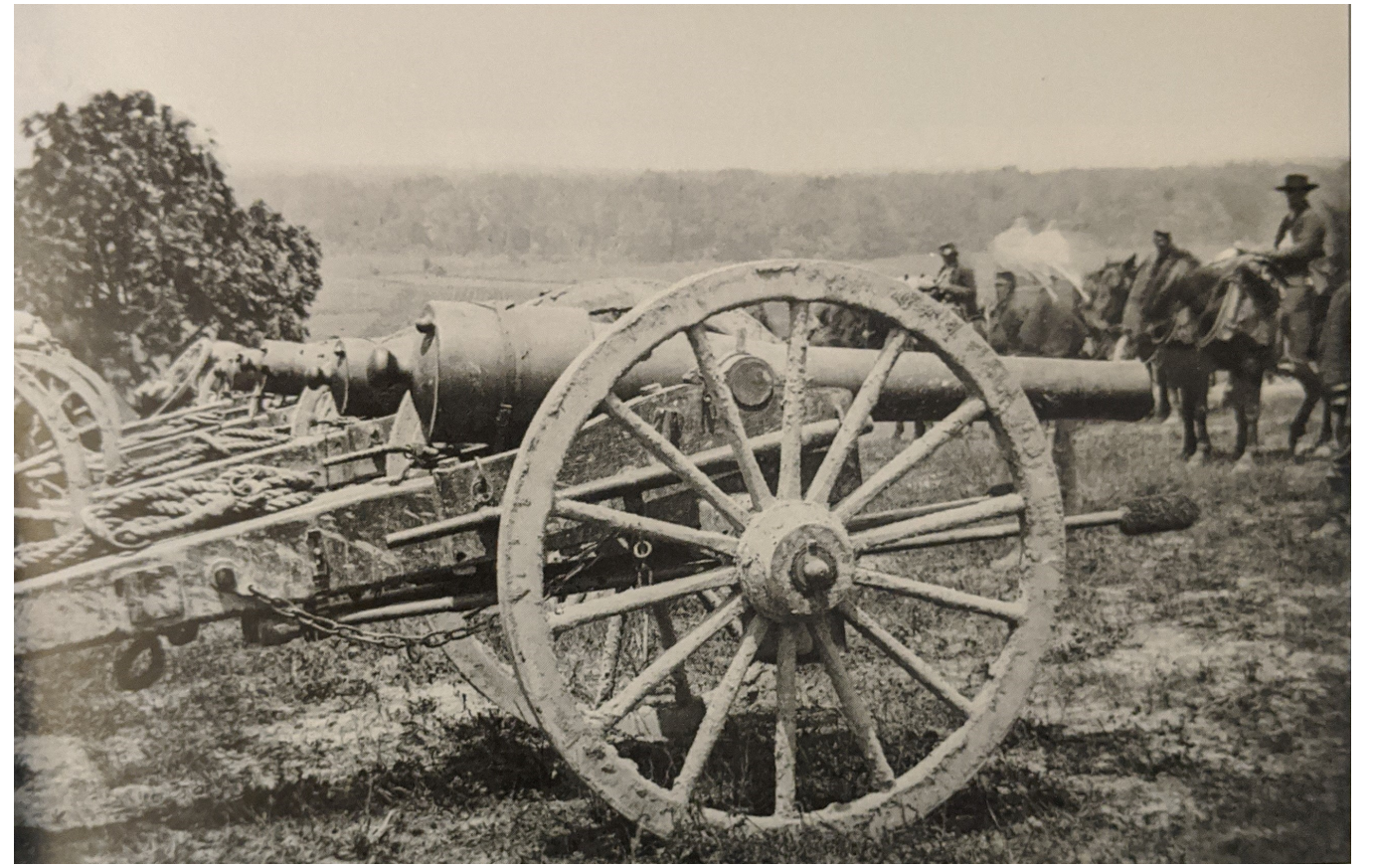
SUCCESS!

The Foundry prospered during the Civil War. In 1861, Robert Parker Parrott patented a rifled cannon called the Parrott gun. The cannon's rifling gave it better accuracy and range than other contemporary weapons. The Foundry's industrial system and organized workforce enabled it to produce Parrott rifles quickly and at an affordable rate.

The Union army purchased thousands of these guns and millions of rounds of munitions from the WPF. These sales earned the company the modern equivalent of \$40 million dollars. A growing Foundry workforce helped the population of Cold Spring peak at 3,100 in 1870.



The Foundry built a new administrative building in 1865 with its wartime profits. The building was designed as a symbol of success, but it would ultimately represent the beginning of the Foundry's decline. The administrative building is still standing today in Scenic Hudson's West Point Foundry Preserve.



LEFT: WPF Administration Building, late nineteenth century, PHM.

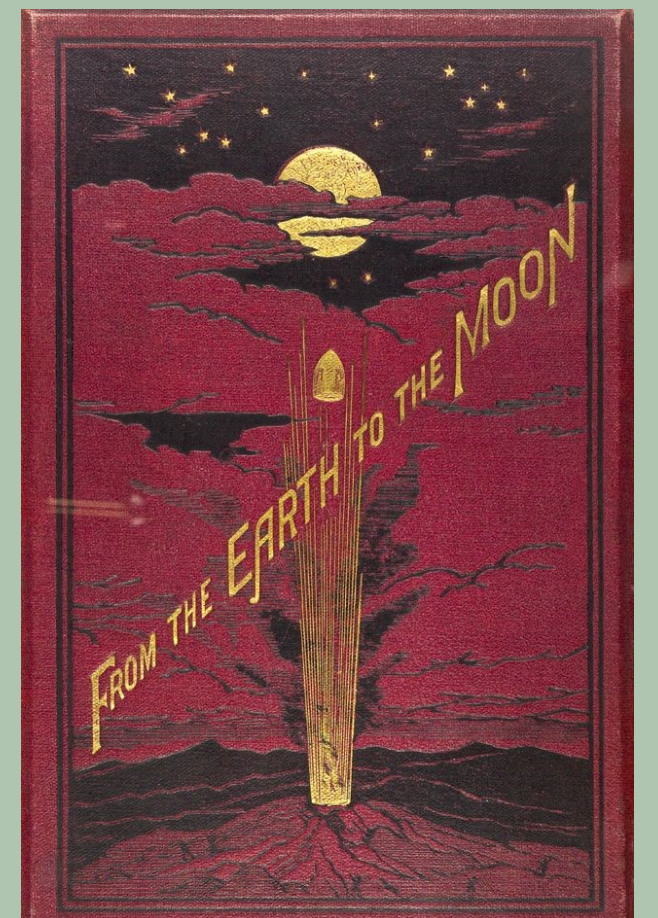
TOP: Parrott Rifles of the 1st New York Artillery in Fair Oaks Virginia during the Civil War, Library of Congress.

BOTTOM: Cover, *From the Earth to the Moon*, Jules Verne, 1865.

IN THE PUBLIC EYE

The Foundry was written about in major news outlets such as *Harper's Weekly* and *The Atlantic Monthly*.

Author Jules Verne used Cold Spring and the Foundry as inspiration in his book *From the Earth to the Moon*, referencing a manufactory in "Gold Spring" and guns made by "Parratt."



"Next!," Joseph Keppler, *Puck Magazine*, 1904.

INDUSTRIALIZING AMERICA — 1870

John D. Rockefeller incorporates Standard Oil Company. Rockefeller achieves a monopoly on oil, using mergers and vertical integration to control 90 – 95% of the industry.

VOICES OF THE FOUNDRY

New York Times journalist reporting on a worker strike at the West Point Foundry in 1864.

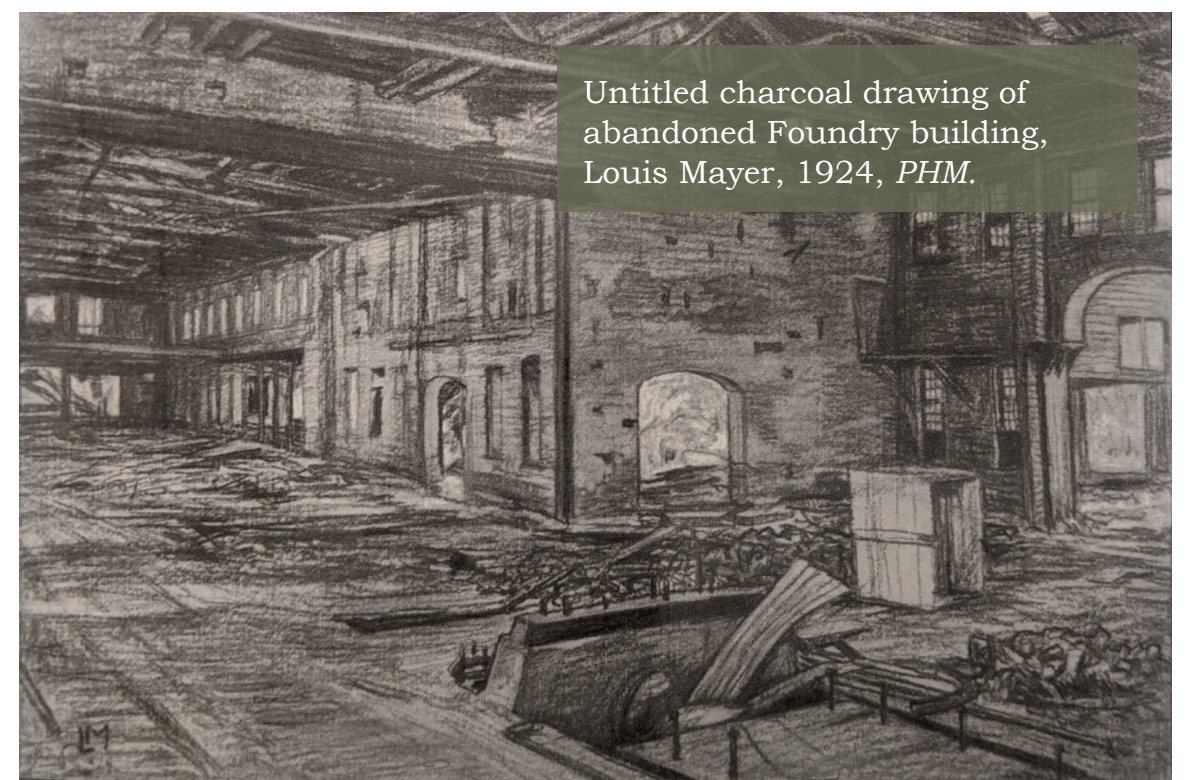


LEGACY

By the late nineteenth century steel was replacing iron as the preferred metal for manufacturing in the industrialized world. The West Point Foundry chose not to convert to steel production, leading to a decline in profits. In 1870, Gouverneur Kemble's nephews restructured the West Point Foundry as Paulding, Kemble & Company. They failed to revive the business. The J.B. & J.M. Cornell Company took over the site in 1898. The Foundry permanently closed in 1911.

The buildings, street names, and layout of present-day Cold Spring are a reminder of the Foundry's impact on the community.

The West Point Foundry helped pave the way for manufacturing sites operating across the country today. Its history is an essential chapter in the story of American industrialization.



Untitled charcoal drawing of abandoned Foundry building, Louis Mayer, 1924, PHM.

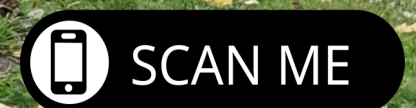


Former employee housing on Kemble Avenue, Elizabeth Norris.

TOP: Kemble Avenue street sign, Nicholas Capicotto.



Entrance to Scenic Hudson's WPF Preserve, Nicholas Capicotto.



INDUSTRIALIZING AMERICA — 1900

FOR MORE ON THE FOUNDRY



5th Avenue, New York City.

More than 1 in 3 Americans lives in a city and 20% of the US workforce is employed in manufacturing, including over 220,000 iron or steel workers.

Follow the QR link above for a guided audio tour of Scenic Hudson's West Point Foundry Preserve.

Visit our Youtube channel: bit.ly/2VvWosW to watch our series on the WPF hosted by PHM Chair Mark Forlow.

Visit www.putnamhistorymuseum.org for a virtual walkthrough of our indoor exhibition on the Foundry.