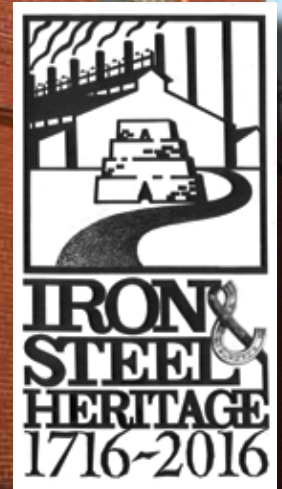


## 120" Mill Motor House



## PRESIDENT'S MESSAGE

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*Historical Advisor*

### Our Mission

The National Iron & Steel Heritage Museum is a not-for-profit educational institution whose mission is to promote an understanding of the iron and steel history of Coatesville, Chester County, Southeastern Pennsylvania and the region to audiences of all ages and interests by collecting, preserving, exhibiting and interpreting iron and steel's history and its relationship to the region and nation beyond.

### Front Cover:

The west end of the 120" Mill Motor House that will eventually house the National Iron & Steel Heritage Museum.

This has been such an exciting time for the National Iron & Steel Heritage Museum! We have acquired the 120" rolling mill and motor house buildings from ArcelorMittal, and we are proud to announce this great news. Gene DiOrio and I have been working over 20 years to acquire the buildings that will eventually house the National Iron & Steel Heritage Museum.

I would like to thank ArcelorMittal for their willingness to donate such a historic property to our museum. A special thanks goes to Ed Frey, General Manager of ArcelorMittal's eastern plate division, and his entire team, who made it a priority to transfer the buildings.



*Steelworker's Memorial (foreground) and 120" Mill Building (background)*

This acquisition adds immense exhibit space to our museum, which will allow us to showcase visitor displays, large-scale exhibits, and objects of iron and steel processes and products. It also allows us to provide a long awaited home for the tons of World Trade Center steel in our collection. Visitors will

be surrounded and awed by the people, process and products of America's iron and steel industry story.



*Scott G. Huston*

The mill and its industrial look compliments the current green space and houses and other buildings of the Lukens National Historic District by providing a home to tell the story beyond the managing family, and corporation. The mill provides us an opportunity to tell the story of those who worked, toiled and sacrificed to make American iron and steel, plus the process and products that create our country's infrastructure as well as defend it.

The larger impact of this acquisition and the expansion of the museum will positively affect Coatesville, Chester County, and the region. The National Iron & Steel Heritage Museum will create an important regional cultural resource and tourism destination, playing a vital role in the revitalization of Coatesville and adding to Chester County's economy. Increased tourism revenue, new jobs, and new educational opportunities will form an economic engine in Southeastern Pennsylvania.

The time has come for a truly national museum that will educate the public on the history and science of the American steel industry. I hope you will be a part of this future!

The National Iron & Steel Heritage Museum is a project of the Graystone Society, a 501(c)3 public charity registered with the Pennsylvania Bureau of Charitable Organizations. Contributions are tax deductible to the extent permitted by law.



## 120" Mill Complex Transfer Completed

The National Iron & Steel Heritage Museum is proud to announce the acquisition of two historic mill buildings, as a gift from ArcelorMittal Incorporated. The two buildings, known as the 120" Mill and the Motor House, will expand the museum area and will be key factors in the revitalization of Coatesville, by converting unused steel production buildings into a museum centered on the history and science of iron and steel making.

Built as part of the World War II war effort, the buildings were the site of Lukens Steel Company's 120" rolling mill. The plates rolled here were manufactured into our nation's battleships, aircraft carriers, submarines, tanks, bridges, buildings, and more. Production in these buildings halted in the 1980s. The 120" Mill and Motor House have been used as storage by the Coatesville steel site until the present day.

Lukens Steel Company envisioned the creation of a steel museum in the 1990s, and aimed to transfer these buildings to the Graystone Society. Due to numerous ownership changes, the plan was put aside until the recent actions of current plant manager, Ed Fry (General Manager, eastern plate division) and his ArcelorMittal Coatesville team.

With this acquisition, the National Iron & Steel Heritage Museum will: be an expanded national center that educates the public on the history of American steel; create a cultural resource and tourism destination that will help revitalize Coatesville; and provide a home for 450 tons of World Trade Center steel tridents, to be erected as they stood in the North Tower. We are so excited about our future... and hope you are too!

*Clockwise from upper left:  
Artist's rendition of the 120" Motor House transformed into National Iron & Steel Heritage Museum exhibit space.*

*(L-R) James Ziegler, NISHM Executive Director, Scott G. Huston, NISHM President representing The Stewart Huston Charitable Trust, Charles L. Huston III, NISHM Board of Directors representing The Huston Foundation, Edward Frey, General Manager ArcelorMittal Eastern Plate, Sheldon Gregg, Financial Secretary USWA Local 1165, Eugene DiOrio, NISHM Historical Advisor and Graystone Society Founder inside the 120" Mill Building.*

*Scott Huston signs the papers transferring ownership of the mill complex from ArcelorMittal.*



**Pennsylvania Iron & Steel: 300 Years of Industrial Might** THE NATIONAL IRON & STEEL HERITAGE MUSEUM

|                               |                              |
|-------------------------------|------------------------------|
| ● Alan Wood Steel Company     | ● Hopewell Furnace           |
| ● Bethlehem Steel Corporation | ● Hussey, Wells, and Company |
| ● Cambria Iron Company        | ● Lukens Steel Company       |
| ● Carrie Furnaces             | ● Midvale Steel              |
| ● Clay Furnace                | ● Parkesburg Iron Company    |
| ● Colebrookdale Furnace       | ● Pennsylvania Steel Company |
| ● Cornwall Furnace            | ● Phoenix Steel Corporation  |
| ● Coventry Forge              | ● Rutter's Bloomery          |
| ● Coventry Steel Furnace      | ● Sarum Forge                |
| ● Durham Furnace              | ● Scranton Iron Furnaces     |
| ● Edgar Thomson Works         | ● United States Steel        |
| ● G.O. Carlson, Inc.          | ● Valley Forge               |
|                               | ● Worth Brothers Company     |

## PENNSYLVANIA IRON & STEEL: 300 YEARS OF INDUSTRIAL MIGHT

In honor of Pennsylvania's 300th anniversary of iron and steel making, NISHM's current exhibit celebrates this long and rich history. From its origin in 1716, with the establishment of Rutter's Bloomery, to the more than thirty steel sites in operation today, Pennsylvania's iron and steel industry led the state to be considered the top iron and steel making location in the nation and world.

The exhibit, on display through April 2017, introduces the visitor to some of Pennsylvania's most historically significant iron and steel sites, with the first nail factory, the first rolling mill, and America's first steel company. Included in the exhibit are United States Steel Corporation (1901), the largest business enterprise ever launched in America; Bethlehem Steel Corporation (1904), once America's

second largest steel producer; Coventry Forge (1717), Chester County's first iron site; and local sites like Hopewell Furnace (1770), Phoenix Steel Corporation (1790), Parkesburg Iron Company (1872), G.O. Carlson Inc. (1937), and various others.

Visitors will also find on display a variety of iron and steel industry artifacts and memorabilia, including, among other items, a cast iron stove, iron spikes, business receipts from the 1800s, employee badges, lunch boxes, and steel-toe shoes. The exhibit is included in the cost of museum admission and tours. Please come and see it!

*Clockwise from upper left: Lukens Steel Company employee badges, tags, and patch; Map and list of Pennsylvania historic sites; Hopewell Furnace National Historic Site.*

# 300 YEARS OF IRON AND STEEL IN PENNSYLVANIA

## THE HEART OF THE IRON INDUSTRY - 1716 TO 1860s

### **An Iron Industry is Born**



*Mid-1700s map of Pennsylvania*

Pennsylvania's iron industry began in 1716 when Thomas Rutter built the state's first iron site. At Rutter's Bloomery, located on the Manatawny Creek, iron ore was heated and hammered into bars, which supplied the blacksmith trade. Then in 1720, Rutter and his partners opened the Colebrookdale Furnace, Pennsylvania's first blast furnace. It produced pig iron and supplied it to Rutter's nearby refinery forge, which heated, hammered, and refined the pig iron into bars for making tools and hardware.

Various factors determined the location of colonial iron sites: adequate supply of iron ore, an abundance of wood for charcoal fuel, access to water power, and hills or mountains nearby to charge the furnace. Because of the Schuylkill River, available natural resources, and accessible markets, Chester County became the heart of the early American iron industry.

### **Iron Leads to a Revolution**

If bar iron did not go to local blacksmiths or to Britain, it went to secondary iron works. At rolling and slitting mills, bars were heated, flattened between rolls, and slit into narrower strips, which were cut into proper lengths for nails. At plating mills, bars were heated and hammered into thin sheets, which were tinned and made into utensils like pans and coffee pots.

In response to the rise of secondary iron works, England passed the Iron Act of 1750, which restricted the erection of new secondary iron works in the colonies. The Act was not successful: it went unobserved, new works were built, and colonists continued to produce the iron articles they needed.

In 1775, on the cusp of the Revolutionary War, the colonies were the world's third largest iron producer. Led by Pennsylvania, the iron industry greatly supported the struggle for independence. Pennsylvania furnaces made ordnance, kettles, and other supplies for



*Battle of the Brandywine*

*(Library of Congress)*

the Continental Army. If the colonies' iron industry had not reached such a high stage of development, American military efforts would have been hindered.

### **A Prosperous Ironmaking State**

As the newly independent American nation emerged, Pennsylvania's iron industry both prospered and expanded. A new era of manufacturing began: larger quantities of pig iron and bar iron were produced for domestic use,



*Brandywine Iron Works and Nail Factory, early 1800s.*

exports of pig iron increased, and secondary iron manufacturers (slitting mills, plating mills, naileries) increased in number.

According to an 1810 Pennsylvania census, the state had 44 blast furnaces, 78 forges, 50 plating mills, 18 slitting mills, 175 naileries, and a number of bloomeries. Pennsylvania's blast furnaces produced 26,876 tons of iron in 1810, about half of America's total. New works were built and Pennsylvania's production of pig iron in 1830 was eight times larger than 1820.

## **Changes Lead to Efficiency**

The middle of the nineteenth century witnessed a multitude of changes in processes, technology, transportation, and labor. Skilled industrialists replaced plantation masters. European immigrants expanded the workforce. Steam power displaced water power. Improved means of transportation could bring the raw materials to industrial centers.

Furnaces could be built almost anywhere.

Two of the most influential changes in the 1800s involved the introduction of puddling furnaces and the use of mineral fuels. Puddling was a way to convert pig iron into wrought iron by heating and stirring it in a furnace. This process kept impurities from the fuel separate from the iron, creating a purer and stronger iron that could be mass produced.

By the 1830s, mineral fuels like anthracite and bituminous

coal, began to replace charcoal in furnaces. Coke, the product after impurities are removed from natural coal, was used successfully in the mid-1800s. Mineral fuels were cheaper than charcoal and led to the manufacture of better quality and cheaper iron. All of these advancements and changes led to the rapid development and growing efficiency of the American iron industry.

## **Iron and War, Again**



*Civil War cannon and soldier, 1860s.  
(Library of Congress)*



*Late 1800s mine. (Library of Congress)*

The growing efficiency of America's iron industry greatly impacted the Civil War, which demanded different types of iron products: from ordnance and railroad supplies to swords and horseshoes. Pennsylvania sites manufactured guns, cannon, and other armament to support the Union Army. The Phoenix Iron Company in Phoenixville manufactured the Griffen Gun, a 3-inch ordnance rifle that helped lead the North to victory. Pennsylvania iron works helped construct ironclad war vessels like the Monitor and the Merrimac.

New furnaces were built and existing ones were enlarged to meet war demand. American iron production increased from 731,500 tons of pig iron in 1861 to 1,136,000 tons in 1864, and Pennsylvania manufactured a large portion of that output. During the Civil War era, Americans also began to experiment with a new metal: steel. In the decades following war, this new

5 metal would become central to American industry.

*(Continued in next issue of Boilerplate)*

# NISHM VISITS THE NATIONAL MUSEUM OF INDUSTRIAL HISTORY

On October 20, NISHM visited Bethlehem, PA where we took tours of the National Museum of Industrial History and the Hoover Mason Trestle. Shown here are photos from the museum and blast furnace visits. Keep an eye and ear out for our 2017 bus trips!



## 2016 SPONSORS



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 Charles & Barbara Huston | Peter & Ruth Nunn | Scott Huston | Fred Travaglini 6

# COATESVILLE REMEMBERS SEPTEMBER 11TH

On Sunday, September 11, NISHM commemorated the fifteenth anniversary of September 11, 2001. In the morning, we rang bells and announced the events of that tragic morning to visitors seeking quiet reflection among the World Trade Center steel tridents.

In the afternoon, we held a formal program that featured guest speaker Dan O'Deens, a Ground Zero responder, and thoughts from local and county officials. Visitors enjoyed a wonderful presentation and then viewed museum exhibits and September 11th documentaries.

NISHM holds a commemoration event each year on September 11th. We also look forward to honoring that historic day with the erection of our 450 tons of World Trade Center steel in the future.



Ground Zero responder Dan O'Deens



## BBQ

Despite the cool, wet weather, guests enjoyed the Community and Steelworkers Barbecue at NISHM on Saturday, October 1. Delicious barbecue food from Harry's and socialization between steelworkers, their families, and community members, created a fantastic event. Current steelworkers also received pins for their years of service at the Coatesville steel site. We hope you will join us for our barbecue next year!



Bob Coulter enjoys the food catered by Harry's Hotdogs.



James Ziegler and Charles L. Huston III present Matthew James with a 45 year service pin.



Charles Hossack, Evelyn and Dan Walker reminisce.



# UPCOMING EVENTS

Check For Updates at [SteelMuseum.org](http://SteelMuseum.org)



## HOLIDAY WEEKEND FESTIVITIES

At the Holiday Open House, Friday December 9th, 5 to 8 pm, visitors can stroll through candle-lit grounds, see our historic property all decorated for the holidays, listen to carolers and the Lukens Band, and slip their wish to Santa. We ask for canned goods or gently used children's books donations for admission. We'll see you there!

On Saturday December 10th, 10 am to Noon, enjoy a full pancake breakfast with Santa. \$5 per person, call 610-384-9282 to reserve your spot.



## WINTER - 2017

### Rebecca Lukens Birthday Celebration

**January 5** | 6pm to 8pm | \$5 Admission, Members Free

### Black History Month Lecture

**February 2** | 6pm to 8pm | \$5 Admission, Members Free

### Women's History Month Lecture

**March 2** | 6pm to 8pm | \$5 Admission, Members Free

## THANK YOU TO ALL OF OUR NEW AND RECENTLY RENEWED MEMBERS

(JULY 1 TO OCTOBER 31, 2016)

### NEW MEMBERS

Andy Dinniman

Jeff Lohr

Harry Lohr

Susan & Stephen Rollins

### RENEWING MEMBERS

(\* DENOTES 5+ CONSECUTIVE YEARS)

Thomas Barnett\*

Gene Bickert\*

Barbara Cohen

Kathi Cozzone

Ron Echhoff

Colin Hanna

Charles Hossack\*

Cheryl Proudfoot\*

Sharon Tandarich\*

Evelyn Walker

Louis Beccaria\*

Louis & Geraldine Branson

Charles Pennock Collings\*

Eleanor Donato

Rebecca Glover

Maurice & Judith Hare\*

Harry Krieder\*

M. Cynthia Quinn\*

Rose Terriman\*

Howard & Christine Wright

John Bertram

Vivian Childs

Jack Conner\*

Judi Ebelhar\*

Allyn & Robert Greeney\*

Robert Hennessey\*

Robert Olseski

Richard & Nancy Saha\*

Christopher Trunk

WE COULDN'T DO IT WITHOUT YOU!



*Charles L. Huston, III, descendant of Rebecca Lukens, stands next to the recently acquired ingot mold.*

## INGOT MOLD ADDED TO DISPLAY

Recent months have brought many new items into the collections of the National Iron and Steel Heritage Museum. The narrow-gauge locomotive and car display, carrying objects used in the melting process, was recently completed with the addition of an ingot mold. Other objects on the cars include scrap pans, an ingot, and a slab. The locomotive, cars, and objects are on display daily off the visitor parking lot.

Other items received recently include a Fireman's helmet from Gary Steel Co., a Pittsburgh Steelworks 1912 Almanac, a 1904 post card of Adrien Furnace- Rochester & Pittsburgh Coal & Iron Company, and an All Service gasmask Model S. Of local interest is a cast iron damper made by the Parkesburg Iron Company. We are always glad to receive Coatesville and other steel industry related items to add to our collections.



*Martha Skiadas and Fran Ciarrocchi working on the fall planting project.*

## FALL PLANTING SEASON

The beautiful grounds of the Lukens National Historic District are full of amazing plants and trees. In the spring, look for more colorful flowers that were recently planted at Graystone Mansion.

Under the wonderful autumn sky of early November, Museum Board Member Martha Skiadas and Volunteer Fran Ciarrocchi rolled up their sleeves and shared their gardening prowess in the garden beds along South First Avenue and Harmony Street.

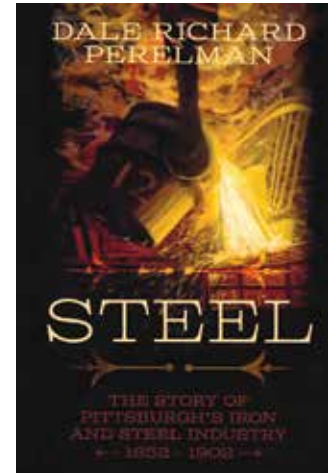
90 Narcissus Trumpet and 100 Jonquilla Golden Echo daffodils were planted. Two orchid hydrangeas and a Plum Magic crepe myrtle will now also grace the grounds of Graystone Mansion.

Many thanks for great teamwork!

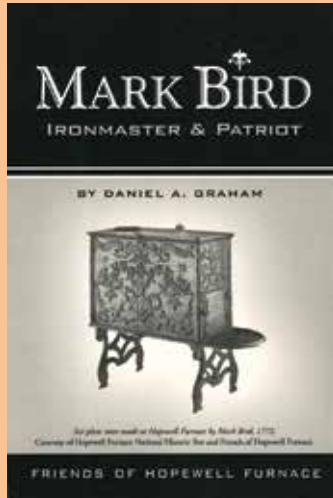
## STEEL: THE STORY OF PITTSBURGH'S IRON AND STEEL INDUSTRY 1852-1902

"Steel" portrays the growth of the iron and steel industry in smoke-filled Pittsburgh during the 19th Century. This fast-paced saga tells the story of millionaire steel titans Andrew Carnegie, Ben Franklin Jones, Henry Clay Frick, Henry Phipps, and Charles Schwab--strong-willed men who often plotted and schemed against each other--yet united against their underpaid and undervalued pro-union immigrant workforce. The juxtaposition of the haves and the have-nots produced bloody battles which exploded throughout Western Pennsylvania's plants, mines, and railroad yards.

\$20.00



## MARK BIRD: IRONMASTER & PATRIOT



This work captures the American Revolutionary spirit of Hopewell Furnace's first ironmaster and founder who served as George Washington's quartermaster and provided needed supplies to Washington while he encamped at Valley Forge during the harsh winter of 1777. The book not only contains the complete Bird biography, but also illustrations of Revolutionary War cannon making, original Mark Bird correspondence, a complete bibliography of sources, and photos of Mark Bird's ironmaking pieces and other relevant historic locales.



\$15.00

## CALL FOR VOLUNTEERS!

NISHM is looking for volunteers on Saturdays for office help, and possibly tours. Two shifts are available: 10:00 a.m. to 1:00 p.m. and 1:00 p.m. to 4:00 p.m.

Not available on Saturdays? We are always looking for volunteers during the week and for events. Please contact LeAnne Zolovich, Educational Services Manager, at 610-384-9282 or [education@steelmuseum.org](mailto:education@steelmuseum.org) if interested!



Ross Davis and Sam Slokom help to hang the 300th Anniversary of Iron and Steelmaking in PA exhibit.

THE NATIONAL  
**IRON & STEEL**  
HERITAGE MUSEUM



*Lukens Steel Company had an intra-plant railroad system, which used tracks and train cars to carry scrap and products throughout the plant. Shown here is a railroad team circa 1890. From left to right: Charles Clark, stockyard foreman; Jesse Hartsock, engineer; John Weaver, stocker; Lee Rich, stocker; N. Peterson, stocker; Charles Thompson, crane runner; and W. Brickus, conductor.*