The day the GUPPY arrived in Coatesville was such an exciting time for NISHM. The museum collects anything related to the American steel industry - photographs, documents, and artifacts, including full-size steel products. The GUPPY is one of various steel products now on display at the museum, which also include a sonarsphere and a World Trade Center steel trident.

When NISHM acquired the 120” Mill Complex property in the Fall of 2016, our plans to expand the museum began. The 120” Mill and Motor House buildings will allow us to showcase large-scale exhibits and objects of iron and steel processes and products, just like the GUPPY. The submersible is a special addition to our collection and strengthens our ability to tell the whole iron and steel story.

I would like to personally thank all of the people and organizations involved with bringing the GUPPY home: Independence Seaport Museum, ArcelorMittal Coatesville, Diversified Mechanical, City Construction Company, and of course, the individual donors. I hope you will visit us soon to see the submersible!

With vision, objective study and appreciation, the history profession ought to be thriving, according to the History Relevance Campaign, a grassroots movement made up of public historians. Yet we need to find approaches to make history more popular and pertinent, and discover new ways of reaching a broader audience. In training for the future, we first need to look back to our past, to develop our ability to understand the present and plan for the future.

Museums need to provide vivid, engaging experiences for visitors and build a culture of continuous improvement through innovation, improvisation and maybe some trial and error. We present exhibits, public programs and activities that illuminate history and draw visitors into dialogues of what the history tells them about current issues.

How do we know what matters to our guests? We ask them!

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.

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.
The twelfth annual Rebecca Lukens Award will be presented to noted historic preservationist and museum management consultant, Janet S. Klein. Mrs. Klein proved vital in the seminal stages of the restoration of Terracina, the first historic home in the Lukens National Historic District. Established by the National Iron & Steel Heritage Museum to honor individuals who exhibit the qualities of Rebecca Lukens, the annual award will be presented to Mrs. Klein at a May 31st reception, in the Lukens National Historic District.

Mrs. Klein is a graduate of the University of Pennsylvania, mother of two, and wife of noted television management professional, Lew Klein. As a native of Philadelphia, Mrs. Klein is known in many historic arenas, but initially for her work inspiring and promoting Fairmount Park house tours for the Philadelphia Museum of Art. She is also credited with the creation of such projects as The Liberty Trail, for which she designed and promoted a 165-mile automobile route of historical attractions, installed road signs, and produced and distributed a corresponding color map and brochure. Her work with historic house tours grew as she became affiliated with the National Trust for Historic Preservation which provided technical assistance to 18 historic house museum agencies “to solve their problems of administration, interpretation, restoration, volunteers, marketing, fund raising, grants, financial management, and collections,” according to Mrs. Klein.

She was an early supporter of Terracina (the home of Isabella Lukens, daughter of America’s first female industrialist, Rebecca Lukens) through the William Penn Foundation Grant. “Terracina showed tremendous potential as an historic house museum with great heritage and a solid nucleus of supporters. I have great respect for the accomplishments of the Graystone Society and the National Iron and Steel Heritage Museum”.

On Friday, February 23, a cool, rainy day, the GUPPY submersible was transported from Independence Seaport Museum to NISHM. Shown is the GUPPY coming down 1st Avenue.

First the sonarsphere... then the World Trade Center steel tridents... and now the GUPPY! The sonarsphere came back to Coatesville in 2007. In 2010, NISHM brought home a collection of steel tridents from the Twin Towers. And this year, with the support from people like you, the GUPPY submersible was acquired and brought home, as well. All three of these products were made with Coatesville steel and are now on display at the museum.

Built by Sun Shipbuilding & Dry Dock Company (a subsidiary of Sun Oil Company) in 1970, the GUPPY was designed to be a practical, affordable submersible for ocean engineering, including inspection of oil rigs and drilling equipment and geological surveys. With a selling price of about $95,000 and weighing 5,000 pounds, the GUPPY was one of the lightest, most affordable submersibles available.

Lukens Steel Company manufactured the steel heads (bowl-shaped plates) that made up the GUPPY's pressure hull. Fabricated from HY-100 HSLA (high strength, low alloy) steel, the pressure hull had a yield strength of 100,000psi and an inside diameter of 66 inches. The GUPPY is small: just 11 feet long and 7.5 feet tall.

NISHM would like to thank all of the donors that helped bring the GUPPY home... we could not have done it without you! The GUPPY can be seen on museum guided tours, which are offered Monday through Saturday, at 10:00am, 12:00pm, and 2:00pm. Please come on by and see it!
Employees of Diversified Mechanical, City Construction Company, and ArcelorMittal Coatesville unload the GUPPY in the 120” Motor House, the submersible’s present home.

Photo by: Sam Radziviliuk

Bottom (clockwise from left):
1. The pressure hull, prior to machining. It was fabricated from two Lukens Steel Co, heads.
   Photo: Lukens Advertising Dept. Archives

2. The GUPPY being tested in a water tank during the final stages of construction at Sun Shipbuilding.
   Photo: Lukens Advertising Dept. Archives

3. The electric & communication cable and associated GUPPY storage containers arrive at the Motor House.
   Photo by: Sam Radziviliuk
**Early Rolling** - By the 1800s, Coatesville, Pennsylvania became the perfect location for an iron site. It had natural resources, access to power through the Brandywine River, and was located next to the first hard road in America. On July 2, 1810, Isaac Pennock completed the purchase of property, which he converted and established the Brandywine Iron Works & Nail Factory.

Dr. Charles Lukens, married to Isaac’s daughter Rebecca, leased the iron works in 1817. At the time, steam power was providing a new market for iron products. Dr. Lukens saw this as an opportunity to expand the business into the boiler plate market, so he modified the mill, which rolled America’s first boiler plate in 1818. Brandywine Iron Works’ reputation for quality boiler plate continued under Rebecca Lukens, who took over operations of the mill in 1825. She rebuilt the mill, upgraded the equipment, and established her site as a successful rolling business.

Rebecca Lukens’ immediate successors made very few changes to the technology, process, product, and operations of the mill. That changed in 1870, when the partners installed a new steam-driven 84” two high reversing plate mill. In 1890, the business incorporated as Lukens Iron & Steel Company.

**Changes and Competition** - In the late nineteenth century, three developments changed the rolling industry. First, a growing demand for steel that reduced the market for iron. Second, an emerging preference for wider plates by boiler makers and shipbuilders, who could reduce the number of riveted seams required in their products with wider plates. The third development was the emergence of local competition in Coatesville. In 1881, John and William Worth formed Worth Brothers. Over the next few decades, Lukens and Worth competed for the largest mills. In 1890, Lukens’ 120” rolling mill, driven by a Corliss steam engine, rolled its first plates. The 120” mill was the largest in the U.S. until 1896, when Worth installed a 132” rolling mill. In 1901, Lukens began construction on a three high 140” wide mill, which began operations in 1903 as the country’s largest plate mill. Just two months later, however, Worth commissioned a 152” wide plate mill. Once again the country’s widest title passed from one neighbor to the other.
The World’s Largest Plate Mill - In 1915, Lukens’ engineers and the United Engineering & Foundry Company began to design a one-of-a-kind 204” rolling mill, a four-high mill and the widest in the world. It had 34” diameter, 30-ton work rolls and 50” diameter, 60-ton backup rolls, all driven by a 20,000 horse power twin tandem compound steam engine. Several other factors were designed specifically for this mill, including a hydraulic ingot tilter.

The mill rolled its first plates in May 1918 and was widened to 206” in 1919, still the widest in the world. For more than forty years, Lukens in Coatesville, Pennsylvania, produced the widest plates in the world; steel that went into vast numbers of American bridges, skyscrapers, battleships, submarines, armor vehicles, and more.

After a 120”, partially automated mill was added in 1943, Lukens had three of America’s five four high rolling mills. Lukens began to electrify its mills after World War II – first the 120”, then the 206” in April 1950 with the installation of two 4,000 horse power DC motors. A new 140” rolling mill was installed in 1959 to relieve the load of the 206” rolling mill, which lost its status as the world’s widest mill in the 1960s, but remained the widest in the western hemisphere.

Lukens Steel Company was acquired in 1998 and the site changed ownership until 2006, when it became part of ArcelorMittal, the world’s largest steel company. Both the 140” and 206” mills operate in Coatesville today. Although the 140” is the workhorse of the Coatesville facility, the 206” operates weekly. The 206” mill rolls plates for bridges, skyscrapers, and military defense, especially armor plate for the U.S. Navy. Located at the longest, continuously operating steel site in America, the 206” rolling mill celebrates its 100th anniversary in 2018 as one of the widest and oldest operating mills in the world today.

Please keep an eye and ear out this fall… NISHM will be showing an exhibit about the history of rolling, the rolling process, and Coatesville’s 206” rolling mill.
Mary Ann Rossi

NISHM is happy to welcome Ms. Mary Ann Rossi to our Board of Directors. A partner at MacElree Harvey, a law firm in West Chester, Mary Ann is a woman of true distinction. She has been an active member in the community for many years, serving the Chester County Fund for Women and Girls, Legal Aid of Chester County, and Brandywine Health Foundation.

Ms. Rossi’s relationship with NISHM began in 2015. Because of her involvement at MacElree Harvey and in community organizations, she was the recipient of the 9th annual Rebecca Lukens Award. Since then, Mary Ann has been a consistent supporter of the museum. She joined the Board of Directors this year.

Iron and Steel Hall of Fame

NISHM’s next exhibit is the “Iron and Steel Hall of Fame.” The history of iron and steel is long – thousands of years. It is rich – full of amazing discoveries, life-changing inventions, important decisions, and keen individuals. What are those discoveries, inventions, and decisions? And who are the individuals that made them?

This exhibit reveals a sampling of the inventors, engineers, investors, and owners that made important discoveries and decisions. These men and women had the greatest influence on the iron and steel industry over the last few centuries. Some of the individuals included are Thomas & John Potts, Rebecca Lukens, Henry Bessemer, Andrew Carnegie, and Lakshmi Mittal.

The “Iron and Steel Hall of Fame” will be on display from late May through September.
Thank you to all of our New and Recently Renewed Members
(October 1, 2017 to February 28, 2018)

New Members
Ellen Endslow
James Fulton
Carol Haag
Ausmus Marburger
Theodore & Marilyn Pawlik

Renewing Members
(* denotes 5+ Consecutive Years, bold denotes 120° Mill Club member and above)
Paul Backenstose
Norman Bernard
Viola Bird
Alex Cann, Jr. *
Ted & Dolly Corbo*
Dorothy DiOrio
Ron Echoff
Allyn & Robert Greeney*
Maurice & Judith Hare*
Carol Holloway*
Skip & Barbara Huston*
Dale Krapf*
Joan Levenite*
David Nunn
Robert Olseski*
Marion Piccolomini
Barry Rabin
Matthew Skros
Christopher Trunk*
Kenneth Wyerman

Thomas Barnett*
John Bertram*
John & Felicitas Bowie*
Vivian Childs
Robert Coulter
Eleanor Donato
John Forese*
James Groome
Herbert Hoffman
Mary Ellen Hopson*
William T. Keen*
Harry Kreider*
Harry Lohr
Steven Nunn
Peter Patukas
Nancy Pitcherella
Dick & Nancy Saha*
Fred & Mary Ellen Smith*
Donald VanHorn*
Patti & Jim Ziegler

Louis Beccaria*
Patty Biffen
Susannah Brody *
Francis Cooper
Ross Davis
Judi Ebelhar*
John Graves*
Colin Hanna
Robert Holliday
Scott Huston*
John & Marion Kirwin
Edward Lawrence*
William McGrorty
Albert Nunn
Richard Pennock
Cynthia Quinn*
Mary Ann Shumway
Sharon Tandarich*
Thomas Walsh

We couldn't do it without you!
Winter Lectures

Winter programs at NISHM were a great success! First, at our “Meet Rebecca Lukens” living history event in January, guests were able to ask Rebecca Lukens (as portrayed by Susannah Brody) a variety of questions. To honor Black History Month, Thaddeus Stevens (as portrayed by Steve Anderson), spoke about his involvement in politics and abolitionism. And lastly, in March for Women’s History Month, local historian Dan Graham spoke about the women who made our region’s early iron industry a success. Each of these programs can be viewed at steelmuseum.org.

Upcoming Events

Spring

Rebecca Lukens Award Presentation
May 31 | $50
5:30pm - 8:30pm

Town Tours & Village Walks
June 21 | Free Admission
5:30pm - 8pm

Fall

Coatesville Remembers September 11th
September 11 | Free Admission
8am - 4pm

Fall Lecture 2
November 1 | $5, Members Free
6pm - 8pm

Fall Lecture 1
October 1 | $5, Members Free
6pm - 8pm

Holiday Open House: Santa, Trains & Music
December 7 | Free Admission
6pm - 8pm
Photographic Prints

Now you can own beautiful photos of NISHM grounds! The winning photographs of last year’s photo contest are now for sale in the museum store. Two prints are available: Graystone Mansion Entrance (color), taken by Paul Kempest, and Narrow-Gauge Locomotive (black and white), taken by Jewels McLean. $5.00 each

Meet You In Hell, Les Standiford

This is the riveting story of Andrew Carnegie and Henry Clay Frick, two of America’s biggest steel magnates, and the bloody steel workers’ strike that turned their partnership into a strong rivalry. This historical book captures the good and bad of steel manufacturing, the ways of big business, and the troubled relationship between Carnegie and Frick. $15.00

Your Home Away From Home!

At Graystone Mansion, history, architecture, and modern conveniences combine to create a timeless elegance. Built in 1889, designed by Cope and Stewardson, Graystone Mansion is a classic example of the American Collegiate Gothic style of architecture. The exterior gray stone and interior dark wood paneling, carved fireplaces, and grand staircase provide a magnificent setting for your special event. The extensive grounds include a large variety of flowers, trees, and other plants, which create a gorgeous backdrop for photographs. Host your next event here, and we promise that your event will be spectacular! Contact Sharon Tandarich at admin@hustonproperties.org if interested.
c1915 colored post card of Worth Brothers' Blast Furnace, Coatesville, PA. Worth Brothers was one of Coatesville's various steel companies. It rivaled Lukens Steel Company for the largest rolling mill in the U.S. in the late 1800s and early 1900s.