



## **SPA Iron Furnace Mini Trip (June 10-12, 2022)**

**The Iron Furnace Industry** was the seventh trip sponsored by the Society. This year members visited three iron furnace complexes and one foundry. Attendees gathered at the Best Western Plus Reading Inn & Suites on Friday afternoon/evening. After supper, everyone gathered in the hotel meeting room for a briefing and schedule review, followed by a social time.

After breakfast on **Saturday morning**, attendees carpooled to our first stop, the **Joanna Furnace Historical Site** (<https://haycreek.org/joanna-furnace/>), located in Berks County, and managed by the Hay Creek Valley Historical Association. Cathy Spohn and members of the John Shrader Chapter #21 served as our interpreters.

The furnace was a cold blast, single stack, charcoal furnace most of its existence, operating between 1791 and 1898. At its height, the furnace complex included the furnace, a store and office, a charcoal house, a blower/engine house, blacksmith shop, a wheelwright shop, barns and stables, tenant houses, a carriage house, and an ironmaster's mansion. The furnace complex exemplifies early industrial development in Berks County.

Attendees spent the morning exploring the remaining and reconstructed buildings. While at the site, students from Kutztown University of Pennsylvania were testing the location of the ironmaster's residence. The crew chiefs discussed the goals of their investigation and the students and crew chiefs explained what excavation had thus far disclosed about the mansion.

Lunch was catered by Moe's Southwest Grill. After lunch, the group departed for its next stop, Hopewell Furnace National Historic Site.



The furnace and casting house and the office building/store have been restored.



Inside the casting house with the furnace in the background.



Charcoal house.





SPA members at the Joanna Furnace.

**Hopewell Furnace** became a National Historic Site in 1938 and is administered by the National Park Service ([Hopewell Furnace National Historic Site \(U.S. National Park Service\) \(nps.gov\)](https://www.nps.gov/hopewell)) ([Hopewell Furnace National Historic Site \(U.S. National Park Service\) \(nps.gov\)](https://www.nps.gov/hopewell)). The site today consists of a reconstructed charcoal furnace, the casting house, the ironmaster's mansion, charcoal house, the water wheel, the office and store, barns, tenant houses, a reconstructed collier hut, and the ruins of an anthracite furnace. The iron furnace operated from 1717 until 1883. The decline of Hopewell, which ended with its final blast in 1883, began in 1844 – the end of stove castings at the furnace. The National Park Service interpretive program emphasizes the first half of the 19<sup>th</sup> century, when the furnace complex was most profitable.

Our visit started with a film in the Visitor Center. Later the group was treated to a ranger led demonstration on molding and casting in the casting house. Members learned how to make a mold using a box, sand, and the necessary tools. Once the impression was made and the mold read for casting, plaster of paris was poured into it to create the casting. The remainder of our time was spent exploring the complex/plantation.



Furnace, casting house, and charcoal house.



Different view of furnace, casting house, charcoal house and covered way.



Stabilized ruins of anthracite furnace.



Water wheel assembly.

Supper that evening was at a Craft Brewery and Pub. Everyone ate outside at tables and had a very enjoyable experience.

Later that evening Brian Fritz discussed history of Iron making, beginning with the Old World model of production and its transfer to the American colonies. The title of his talk was ***“From British Plantation-Style Iron Making to the American Integrated Urban Ironworks: the 19<sup>th</sup> Century Transformation of the Iron Industry across Pennsylvania”*** helped put in context the American plantation model of iron production. Brian used Shade Furnace located in Allegheny Mountains of Somerset County in his discussion of the American model. Brian emphasized an

American plantation style iron furnace complex required not less than 4000 acres of woodlands to feed a furnace.

**On Sunday morning**, Chuck Williams discussed the vital tasks of ore and charcoal procurement and production in a lecture entitled “*Charcoal and Ore for the Furnaces: Perspectives from Northwestern Pennsylvania.*” Chuck talked about the history, archaeology, and landscape legacies of the colliers (charcoal producers) and ore miners with an emphasis upon Clarion County. Chuck talked about the lifestyle of these little known workers, including the dangers associated with each occupation. Chuck reemphasized the amount of land that a plantation needed in order to produce sufficient charcoal and ore. A single furnace firing or blast would consume an entire acre or more of wood charcoal.



Chuck Williams and Brian Fritz.

The first stop of the day was the **Historic Poole Forge** (<http://historicpooleforge.org/>). The forge started operation in 1775 and operated until 1852. The forge refined pig iron from the nearby furnaces such as Hopewell, Joanna, and Cornwall, which was then sold to blacksmiths or

transported to markets in Philadelphia for distribution elsewhere. Today the site is part of a county park. Still remaining is the iron master's mansion, a lime kiln, the paymaster's building (now a bed and breakfast) and some tenant houses. While there, the group enjoyed lunch.



Forge hammer.



The paymaster's building.



Iron forge master's mansion.

The final stop of the tour was **Cornwall Iron Furnace**, a state historic site (<https://www.cornwallironfurnace.org/sitemap.htm>). The cold blast furnace operated from 1742 until 1883, having experienced a number of technological changes over its 100 plus year history. Or visitation began with a film in the visitor's center, formally the charcoal barn. After the film, the group was taken on a tour of the furnace complex. Also owned by the state are the roasting oven, a blacksmith shop, the wagon shop, and the abattoir (smokehouse and butcher shop for the estate). Other intact building exist, but these are outside of the boundaries of the state site. In the m-d 19<sup>th</sup> century, Cornwall's iron plantation contained industrial, residential, and agricultural activities. The ore mine, which continued to operate until 1973, is located just south of the state property. After touring the complex, the field trip was over.



Exterior of Furnace complex and casting house. Note the furnace chimney in the background.



Furnace and casting room.



Group examining the vent used to load the furnace with fuel, ore, and limestone.



Group outside of furnace building.