Iron in America: 1645 to 1850

The steel industry of the U.S. rose out of the iron plants of our colonial past. Here we take a brief historical look at the early days of ironmaking.

Ironmaking commenced in the British Colonies as early as 1645 at the Saugus Iron Works in Massachusetts, although the effort was never financially successful and closed in 1676. The site is now completely restored in tribute to America’s industrial heritage. A more successful metals operation was the Raynham Forge Plant near Taunton, Mass., which opened in 1656 and operated until 1880.

Other early furnaces were built at Braintree, Mass., in 1648 and at New Haven, Conn., in 1658. In 1716, Thomas Rutter built a bloomery forge to make wrought iron in Berks County, Pa., and in 1720, constructed the Colebrookdale Blast Furnace. Anthony Morris later built the famous Durham Furnace and Ironworks near Easton, Pa., on the Delaware River.

Early pioneers make headway

Another early iron pioneer was Peter Grubb, who discovered the iron ore deposit where he located the famous Cornwall Iron Mine in 1736. This open-pit mine became the largest source of iron ore in America until the debut of the great ore deposits of Michigan and Minnesota more than a century later. Grubb built the Cornwall Iron Furnace and the town of Cornwall itself for housing his Welsh workers in 1742, naming the town in honor of his father’s English birthplace. Between these very early iron plants and the time of the Revolutionary War, ironmaking spread to many of the New England Colonies.

Wherever bog iron ore or other iron-bearing minerals were found in conjunction with plentiful supplies of wood for charcoal, iron could be made, provided either a local population or water transportation to a ready market was also available. Ironmaking spread to New Jersey by 1710, with later operations at Oxford Furnace (1741-1882) and at the Pine Barrens in southern New Jersey where the 20,000-acre Martha Furnace operated as one of the biggest facilities ever constructed. Prior to the war, Peter Hasenclever’s Long Pond Ironworks was one of the largest such investments at approximately $250,000.

The Principio plant in Maryland was another substantial operation. At the time of its 1751 debut, it boasted four blast furnaces and two forges, with timber covering 30,000 acres. Principio was destroyed by the British Army in 1777, rebuilt for the war of 1812, and then destroyed by the British a second time. In 1836, the Whitaker brothers acquired it and restored it once again. The Principio Co. was absorbed into Wheeling Steel Co. in 1920.

Ironmaking expands into Pennsylvania and beyond

Pennsylvania had become the major iron-producing region by the time of the Revolutionary War. The availability of ore, wood for charcoal, limestone for flux, and the major waterways of the Susquehanna, Schuylkill, and the Lehigh-Delaware Rivers and their tributaries kept this region productive until—as happened earlier in England—wood for charcoal became scarce. These iron plantations produced from a few hundred tons to as much as 1000 tons, resulting in the ironmakers of colonial America turning out approximately 30,000 tons of iron in 1775 alone.
Iron production in the new United States increased from these 30,000 tons at the beginning of the American Revolution to 54,000 tons from 153 furnaces by the 1810 census. The slow growth was largely due to a general lack of industrialization in America: Per capita iron consumption hardly changed in this 35-year span. Another factor keeping growth in check was the relatively inexpensive iron imported from England. It was cheaper to make iron from coke in Britain and ship it to major East Coast port cities than to continue using charcoal in the inland U.S. plantations and then transporting finished iron to growing population centers.

Philadelphia and the canal systems

The beginnings of a solution to the English import problem came about because the city of Philadelphia was desperately seeking a way to prevent the influx of farm products and manufactured goods from areas north and west of the city using the Susquehanna River to ship from Baltimore. Philadelphia was the largest port in the new U.S. and its politicians were battling to maintain this position against New York City and nearby Baltimore. Top priority was to capture the local trade leaking out to New York at a reasonable cost, its value would soon sell itself, a belief shared by their ally Philip Hone, then mayor of New York City.

Technical expertise for the project came from Benjamin Wright, chief engineer of the Erie Canal. The logical route for the new canal was across the Delaware River into New York, northeast up the valleys west of the Shawangunk Mountains, down Rondout Creek to Kingston, New York, and then through the Hudson River. It was a natural waterway, even though it meant the canal went northeast when New York City was southeast.

Other canals were built on the Susquehanna, Schuylkill, Lehigh, and Delaware Rivers. The Union Canal system linked the Susquehanna and the Schuylkill with the coal fields above Reading, Pa. With the sudden availability of anthracite coal in southeastern Pa., the ironmasters soon learned to adapt it to their blast furnaces. The hard coal did not have to be processed to coke and was usable directly from the mine. Just as coke had revived the British iron industry a century earlier, anthracite coal accomplished the same result for the iron industry in southeastern Pa. The industry had been in a long period of decline because it was running out of wood. This strategy of improved water transportation with the fortuitous application of anthracite coal in ironmaking worked sufficiently well to allow this region to become the first major iron producer in America.

The passage of a half-century and a Civil War would occur before Pittsburgh would replace Philadelphia as the leader in ironmaking. During this time, Philadelphia would begin manufacturing the mill machinery and building the factories for products made of iron, thereby serving as a major incubator for the American Industrial Revolution.

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