

Saugus Iron Works

NATIONAL HISTORIC SITE • MASSACHUSETTS



National Parks Centennial 1872-1972

☆U.S. GOVERNMENT PRINTING OFFICE: 1972—483-433/24
REPRINT 1972

Daily, the water wheels, bellows, and forge hammer turn, blow, and clang in a dramatic re-creation of the historic technology of 17th-century Saugus Iron Works. On the south bank of the Saugus River at tidewater and about 10 miles north of Boston, Saugus Iron Works today is a careful—though partly conjectural—reconstruction based on archeologically excavated foundations and traces of the major portion of New England's most sophisticated and integrated ironworking plant. Visitors of 1648, viewing the then newly built works, must have been as impressed by its size as by the roar of its furnace, the power of its water wheels, the clashing of its huge hammer, and the mill.

Saugus in its heyday was more than a blast furnace producing crude pig iron and cast ware. From its associated forge came bars of wrought iron from which could be fashioned the tools and hardware needed on colonial farms and in colonial enterprises. Saugus also manufactured products: wrought iron hoes and shovels, hinges, and other hard goods. From its rolling and slitting mill—the first in this country and one of only a dozen or so in the world—came the rod iron that could be shaped into nails much needed in the colonies.

The Saugus works, also known as Hammersmith after the town that grew up around it, was probably the most ambitious industrial undertaking in British North America during the 17th century. It was built at a time when Britain's iron industry was struggling amidst the continuing depletion of her charcoal timber reserves to keep pace with the demands of a growing population and an increasingly industrial economy. The rich, seemingly unlimited natural resources of America invited exploitation to meet these demands and to provide a reserve of much-needed exports. (The needs of the British iron industry figured prominently in the London Company's decision to sink thousands of pounds sterling in early, abortive attempts to produce iron in Virginia. These needs had also been an important argument by those urging settlement of the western shores of the Atlantic before 1607.)

Massachusetts held great promise for the manufacture of iron, but there was neither the capital nor the skill in the Bay Colony to erect and operate the type of works necessary to guarantee the success of the enterprise. John Winthrop, Jr., son of the Massachusetts Governor and a man of great intellect and persuasion, undertook to overcome these difficulties. In 1641 he sailed for England with a group of associates to raise the money and collect much-needed skilled workers. There his reputation in science and his influential contacts helped to convince a group of capitalists to invest in opening up the iron resources of Massachusetts.

By 1643 Winthrop had secured the necessary financial backing, a supply of tools and materials, and a group of workmen. By 1645 a blast furnace had been set up at Braintree, south of Boston, where pig iron was produced for the next 2 years. The Braintree works eventually failed, however, and by 1646 skilled craftsmen under the direction of Richard Leader were building the ironworks on the banks of the Saugus River in Lynn that came to be called Hammersmith. By September 1648, Governor Winthrop reported, the ironworks was turning out 8 tons of iron a week.

The iron-making process began at the furnace where the bog iron ore was reduced to cast iron. The brittle cast-iron pigs were then converted at the forge into tough bars of wrought iron, which could be made into tools, nails, and other hardware. The forge had three fires (two "finery" fires and the "chafery" fire) and one huge hammer. Waterpower operated small bellows to fan the fires and lift the hammer. At the finery fire the pigs were melted, worked into a ball of iron, then shaped and refined under the blows of the hammer into "blooms," then into "anconies." At the chafery fire the anconies were converted, by blows from the hammer, into bar iron—the chief sales item at the works. Some of the wrought bar iron was rolled and cut into rods from which nails could be cut by the difficult rolling and slitting process, also waterpowered.

Today the ironmaster's house and the reconstructed furnace, forge, and rolling and slitting mill remind us of the men who operated the Saugus works. Their lives were never easy, and the workers themselves, brought from England and Scotland for their skills and brawn, not their temperance, clashed frequently with Lynn's Puritan society.

The Saugus works itself had a difficult time. It was in and out of operation several times before being finally shut down about 1670. A lack of capital was a special problem, and a shortage of skilled labor and management, lawsuits, and high production costs continually plagued operations.

Perhaps Saugus' most important contributions to the growth of the English colonies were made elsewhere. Its workmen left Lynn and used their skills in other towns, because the need for iron products grew with the colonies. These men exploited New England's rich resources by erecting other smaller plants, usually bloomeries, and producing wrought iron directly from ore in sites scattered over the region. While these were usually business failures, America's resources would continue to tempt men to exploit them until, at the time of the Revolution, the colonies were producing nearly as much cast iron as the mother country. And it had all started at Saugus.

