

Geologic Site of the Month

November, 2003

The Iron Age of Maine, Part II
The Shapleigh Iron Company:
A Foray into Industrial (geo)Archaeology



43° 36' 3.00" N, 70° 53' 23.77" W

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Introduction

In part 1 of the "Iron Age of Maine" we featured the [Katahdin Iron Works](#), probably the most well known operation of its kind in Maine. Other localities were mentioned on that site, including the current site for this month. We will focus on the general history of some of these sites and how these early iron-making operations are known from documentation. We then will make a virtual visit to the location of the ruins of the Shapleigh Iron Company, and to the blast furnace once located there, and learn a little Maine and Massachusetts history by way of archaeology on our trip.



Figure 1. Ruins at the Shapleigh Iron Company, North Shapleigh, Maine.



Saugus Iron Works

The first successful and relatively large-scale iron works operation in America was founded at Saugus, Massachusetts in 1646, and remained a working business until 1668. The Saugus site has an historical connection to Maine. As reported on the website of the [Saugus Iron Works National Historic Site](#), in the aftermath of the Battle of Dunbar, 150 Scottish prisoners were sent to New England aboard the ship Unity through the owners of the Saugus Iron Works. On April 2, 1651, an account appears in the iron works papers for "a weeckes Dyett to ye 7th of 61 Menn." By June 9, 1651, the iron works has 38 men remaining on these rolls. The rolls continue to dwindle as these indentured workers are sold to others. The only surviving list of Scots by name is in the 1653 iron works inventory, and it lists 35 names.



Photo from Saugus Iron Works National Historic Site

Maine Geological Survey

Figure 2. Saugus Iron Works National Historic Site



Historical Background

In addition to the Scots mentioned above, there were many more Scots in New England that arrived on the Unity. Some of them went through the iron works and may have even worked with or for iron works employees. Of these, 26 men are reported to have relocated to Berwick, Maine. It was at about this time that the Chadbourne family developed a sawmill at the confluence of the Great Works and Salmon rivers in Berwick in 1654. One may wonder if any of the Scots from Saugus who came to Berwick may have been indentured servants at the Chadbourne sawmills, bringing with them to Maine the knowledge of iron-making skills and blacksmithing learned at Saugus. Also, might some of the common iron artifacts found at the [Chadbourne site](#) have been produced at the Saugus Iron Works?

Iron forges and foundries eventually developed out of necessity in Maine, a Province of Massachusetts until 1820. They must have been generally small operations in the 1700's, and may have been small bloomeries, possibly as a part of blacksmith shops. A document dated 1791 describing an appraisal conducted in 1760 of the Old Forge Iron in North Yarmouth establishes the industry in Maine prior to that year. The appraisal mentions the use of bog iron ore, and reads (sic); "A Copy of Apprisment Old Forge Iron - a copey of the old boog iron taken by good men of your own chusing as the coppey shows the value they mad of it in old tenor is 204-14-2" (old tenor means old currency, pounds, shillings and pence; document courtesy of Joel Eastman).

The earliest relatively large-scale blast furnace operation in Maine may have been at Fifteen Mile Stream in Clinton, reported in the History of Clinton, Maine, by C. E. Fisher. A forge was there as early as 1808 and a furnace as early as 1810, originally referred to as Peavey's Forge for one of its co-owners, and the furnace apparently nicknamed 'The Major.' A community known as the French Settlement near the site was probably erected as homes for the workers.



Historical Background

A letter written to the Clinton Advertiser in 1880 by John Totman, State Senator 1858-1859 and State Representative 1873, so noted the works in an exceptionally descriptive passage:

"This forge if in operation now would claim our attention. It was not only a furnace to melt the ore, but a forge to make bar iron. The great furnace and fire, the large bellows driven by water power, the melted iron run out in the sand, the men hammering the pig with sledges to make it hold together to put under the hammer, with a handle fifteen feet long and twelve by fourteen inches square, and the huge spokes in the driving shaft to lift the hammer about four times a minute. The hammer could be heard for miles. The pig, so called, was handled by four men with tongs and bars and placed under the hammer, and the shower of sparks and cinders cannot be forgotten as seen by my boy eyes. It proved unprofitable, and after the War of 1812, was abandoned, and caused the poet's lament -

*Their children are half frozen,
Barefooted every day;
And in each hut a dozen,
Their hair points every way.*

*When Peavey's forge was going,
They had something to eat;
But now the Major is done blowing,
They have neither bread nor meat.*



Historical Background

In Charles T. Jackson's three-volume set, *The Geology of the State of Maine*, he mentions the ore deposits at Clinton, but does not discuss the iron works that were in operation there only twenty-five years earlier. However, Jackson describes a visit in 1837 to the iron foundry and an examination of the ore found in the vicinity of Shapleigh and Newfield. The ore he refers to is called "[bog iron ore](#)" and is an iron-oxide precipitate found along stream banks and in bogs where it was excavated. The following information about the Shapleigh Iron Company, Samuel Huse and Company of Newburyport, Massachusetts, Proprietors, is extracted and paraphrased from Jackson's report.

The furnace was erected by a Portsmouth company in 1836 under the direction of Ironmaster Thomas Bates of Bridgewater, Massachusetts. It is of small size and with all buildings cost \$13,000. Originally put into blast January 14, by some accident the charge became chilled so that operations were arrested, but was put in working blast August 9, 1837, furnishing about one-and-one-half ton of ore per day. The blast lasted for seventeen weeks. The furnace is lined with English fire-brick, and the hearth is of talcose slate from Smithfield, Rhode Island. Formerly, seashells were carried from the coast to supply the furnace with lime for a flux, but since that time limestone sufficiently good for the purpose has been discovered in abundance in the immediate vicinity, and will save the expense of transporting shells. The iron will be sent to Boston by way of Wells or Kennebunk. The quality of the ore is considered as good as any in the New England States, and much resembles that found in the State of New Jersey. The ore yields about 40 percent of metal which is of good quality, and capable of being converted to bar iron and steel. About 800 tons of ore were on hand at the time I visited. The charge for smelting is as follows: 4 boxes of bog ore, 10 bushels of charcoal, or 5 baskets, 8 bushels of clam shells are used daily as a flux.



Historical Background

Jackson expended a great amount of effort in his volume promoting the development of the bog iron ore industry, stating "I trust that we may soon have a number of smelting furnaces in operation in Maine, and that no longer so large and valuable resources will be allowed to remain neglected, while the State is paying enormous sums of money to England, Sweden, and Russia, for her supplies of this indispensable metal."

Despite Jackson's promotions and favorable estimate of the ore quality, the quantity of ore supply for the Shapleigh Iron Company was insufficient. Jackson had stated that the ore had been traced for about 100 yards, and that its longitudinal dimensions had not been ascertained, but appeared to be a very expansive deposit. In a foreshadowing note from the owner, Huse, dated December 20, 1837, he states to Jackson that the company has "since discovered traces of more ore, which will increase the quantity, ... and perhaps for another furnace, for some years - but not so extensive a bed as may be found in some other parts of the United States."

The Reverend Amasa Loring wrote in A History of Shapleigh, published in 1854, that while the iron works operated "... it greatly increased the business of the place. But the ore bed proved to be small and the business unprofitable, therefore after a few years was abandoned. The building and water power are now employed as a box-making establishment, and a hat factory."



Historical Background

Not quite ten years later, Jackson was contracted to assay the ore deposit at the Katahdin Iron Works after it had been sold to David Pingree in 1846. The Katahdin works was the last large-scale iron producer in Maine. However, financial difficulties, distance from market, and equipment obsolescence ended the Maine iron industry when the Katahdin works closed for good in 1890. Jackson had died by 1880 before the close of the Katahdin works. After working until 1848 for several other states conducting geological surveys, he withdrew from geological employment. He never saw the expansion of the iron industry of Maine that he had hoped would arise in the 19th century.

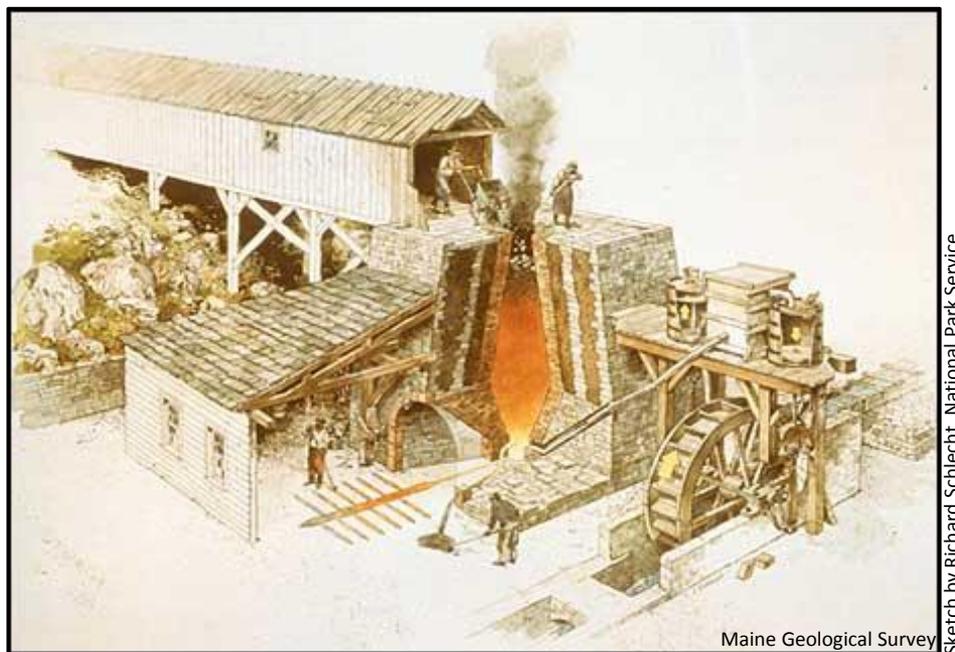


Figure 3. Rendition of a 19th century blast furnace, an image of how the Shapleigh iron works may have appeared.

North Shapleigh Iron Works

Below is a map by Richard S. Allen of the ruins at the site of the former Shapleigh Iron Company. Mr. Allen, of Lewiston, Idaho, maintains an avid interest in industrial archaeology and the study of American iron manufacture. In 1991, he visited the iron works site, and corresponded with Elwyn Lowe of North Shapleigh. Mr. Lowe is the local expert on the iron works, and graciously provided a copy of the map and his correspondence to the author, as well as directing him to the site. Also below are photographs of the site today.

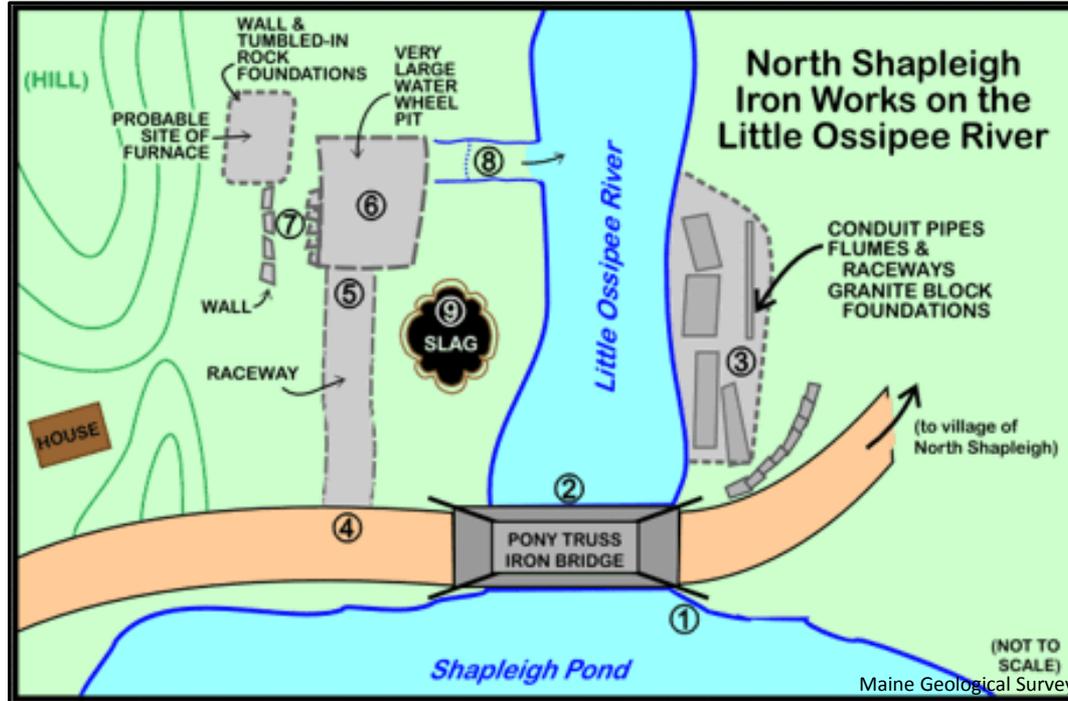


Figure 4. Aerial map of North Shapleigh Iron Works.

Views of North Shapleigh Iron Works



Photo by Thomas K. Weddle

Maine Geological Survey

Figure 5. Dammed river; the location of the bog iron ore excavation site is currently submerged (view to southwest).



Views of North Shapleigh Iron Works



Figure 6. View to north of river below dam. Along the river banks are granite block foundations, conduit pipes, and water raceways.

Views of North Shapleigh Iron Works

Photos by Thomas K. Weddle



Figure 7. Foundation and water raceways on east bank of river. They are not associated with the iron works. (Left) View looking south; a raceway occupied the low area behind the square opening into the large foundation, where a water wheel must have been situated. (Right) View to west of water discharge flume, heading into the river.

Views of North Shapleigh Iron Works



Figure 8. Wall of water raceway, west bank of river. View to north toward location of large water wheel pit associated with the iron works.

Views of North Shapleigh Iron Works



Photos by Thomas K. Weddle

Figure 9. (Left) Water raceway entry into water wheel pit. View to north; possible wall of blast furnace building in background of upper left corner. (Right) Closer view of raceway entry into wheel house foundation, view from outside of wheel house; army folding shovel for scale.

Views of North Shapleigh Iron Works



Photos by Thomas K. Weddle

Figure 10. (Left) Upper half of large water wheel pit, water raceway entry viewed from inside wheel house.
(Right) Lower half of wheel pit.

Views of North Shapleigh Iron Works



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Figure 11. (Left) View to west; wall of possible blast furnace building. Low area to right of wall is tumbled foundation, and probable site of the furnace. (Right) Closer view of wall.

Views of North Shapleigh Iron Works



Photo by Thomas K. Weddle

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Figure 12. Water discharge flume from wheel house foundation to river; view to west.



Views of North Shapleigh Iron Works



Photos by Thomas K. Weddle

Figure 13. (Left) Slag pile; view to south. (Right) Slag fragments; slag is a waste by-product of the smelting process. The glassy appearance and the pits on the fragment surface are due to rapid cooling and trapping of gas bubbles in the slag, respectively. Army folding shovel for scale.

References and Additional Information

Fisher, C. E., 1970, History of Clinton, Maine, Augusta, ME: KJ Printing.

Jackson, Charles T., 1839, The Geology of the State of Maine, Augusta, ME: Smith and Robinson.

Loring, Rev. Amasa, 1854, A History of Shapleigh, Portland, ME: Brown and Thurston.

National Park Service, 2002, [Saugus Iron Works: Life and Work at an Early American Industrial Site](#).

