Rockwell Steel Furnace

From "The History of Colebrook" by Irving Manchester, pub. 1935, p. 56

The first cementation steel furnace in western Connecticut (according to John Boyd) [recent research indicates the first one was in Richard Smith's forge in Robertsville. This appears to have been dismantled and moved to Colebrook Center. Jacob Ogden, manager of the Smith forge, was married to Jerusha Rockwell, daughter of Joseph (on Smith Hill), so all of this technology remained in the Rockwell family. – RLG] was erected before 1800 in Colebrook by the Rockwell brothers, under the supervision of Mr. Jencks, an ingenious iron and steel worker from Taunton, Mass., which was in existence as late as 1872. James Boyd & Son erected the third steel furnace on Munro Street in Winsted in 1832 for converting their own iron into steel, which they were selling in large quantities to fork manufacturers, but the inducements held by the Colebrook concern made it more advantageous to have their iron converted there than to do it themselves. The Salisbury iron lacked the quality that produced good edged tools, but had an elasticity that made it desirable for carriage springs, fork tines and similar articles.

Francis W. Rockwell (born 1844), grandson of Reuben Rockwell and congressman from Massachusetts, in his book, *"The Rockwell Family"*, said he remembered in his youth watching the operations of converting iron bars into blistered steel, so called, in the old furnace at Colebrook at the foot of the hill west of "the store". Daniel Cobb and Phineas Williams were the experts employed. Large piles of wood stood nearby. The long, thin, narrow iron bars were placed in layers in the furnace, made, I think, of fire brick and good fire stone, with an arched top; charcoal dust was placed underneath and between the layers of iron bars. The whole was covered with clay or sand, to exclude the air. The great fire was started in the long vault below the furnace and at each end, and there were openings below to maintain an even fire. The process of carbonizing took eight or ten days and then the product was allowed to cool about a week. The fires were kept burning day and night. The process of cementation was discovered by drawing out a test bar. The bars were brought from forges to be worked up as determined at the forges. The furnace was enclosed in a large wooden building and may have cost perhaps $2,000. It required great care and good judgement to obtain the best results. This old steel furnace, as it was called, was evidently built with great care and was well arranged for its purposes.

Martin Rockwell Steel Works

[This was written at Rockwell Hall, 549 Colebrook Road.]

"(The grate bars spoken of below are partly on the shelf in this room and partly up in the garret; they look like pig iron.)

These grate bars were from the steel works of Martin Rockwell. It stood west of the store, on the flat place to the left of the barway. Luther Sparks and Daniel Cobb used to run the fires. Me. Sparks says the chamber for holding the steel bars was about 15 feet long, 5 feet wide and 5 to 6 feet high inside. Under the chamber was the fire arch, wide and high. The flames

went through holes in the sides of the fire arch, up through the hollow walls each side of the chamber, completely enveloping the chamber in one fierce sheet of flame for from 10 to 14 days. Very dry hemlock or slabs were used, whatever could give fierce flames. The pig iron was made in smelters elsewhere from Salisbury ore by other parties."

"Mr. Samuel Wolcott, who lives opposite the parsonage in North Colebrook, told me that one of the smelters (as they were called here0 stood neat the north end of Gen'l. Phelps' farm in North Colebrook, near the foot of "Knapps Hill" (the hill the sun sinks behind in July). The stack was very high ('Oh, almost as high as the top of the hill", the boys used to say.)

The pig iron was pounded into wrought iron in the Rockwell forges along the brook near the Carrington house. [This is opposite from the driveway to 36 School House Road.] The bars, almost 2 inches wide and ¾ of an inch thick, were placed in the chamber in layers with about ½ inch of charcoal between the layers and around each bar. Frequent layers of lime were laid in to keep the bars from all fusing together in one common mass.

After the bars were placed in the chamber, the ends of the chamber were bricked up solid, air tight, and the fires started. After about 10 days a brick was removed from time to time and a test bar taken out and tried."

"The whole mass must be raised to a white heat. Blisters would appear on the bars making them into what is now called 'blister, or German steel of a high grade. Cast steel was then unknown in commerce. The eminent success of Mr. Rockwell was in his ability to judge by the test when to stop the fires. Reuben Rockwell used to laugh and say, 'In one corner of the building containing the works was a room with no outside window <u>always</u> kept carefully locked up. In the room was a big smithy hogshead and in that hogshead the secret of making steel was kept.' The fact is that when the tests were made, everyone was excluded and in the bottom of the hogshead might have been kept some secret chemical used for making particular tests. But the joke was just as good for all that. Not even the workmen or other members of the family were trusted with the secret of how to make the test."

'I once heard Grandfather (Martin Rockwell) tell my father (Rev. Ralph Emerson) that they once spoiled a batch of steel. It was too hard for the men to make scythes of. He was sore perplexed, but had read in some 'foreign book' that un-slacked lime had a strong tendency to re-carbonize, so he placed the spoiled bars in the furnace again between layers of air-slacked lime and heated it up for 10 days. The result was the steel was made back into soft iron. Then he put the bars back in the regular way and made them, in another 2 weeks, into steel of excellent quality. His chemical theory may not have been correct, but the result was good.

Ralph Emerson
Sept. 1, 1900

<u>Note:</u> Martin Rockwell was born in 1772 and died in 1851; Rev. Ralph Emerson died May 20, 1863.