

THE DAWES BROTHERS OF PHILADELPHIA

AND

THE HAGLEY SLITTING MILL

1798 - 1799

By  
Douglas J. Earle  
June, 1969

## THE HAGLEY SLITTING AND ROLLING MILL

The first attempt to manufacture iron products at the site that later came to be called the Hagley Works was made by John Gregg, who had inherited the property from his father. Between 1779, when he received the site, and 1783, when he sold it, Gregg built there a forge, a slitting mill, a rolling mill, and a sawmill, along with other incidental buildings and improvements.<sup>1</sup>

Rumford Dawes purchased the property in 1783 for £3,195<sup>2</sup>, probably with the intention of renting or leasing it out as income property, but the buildings and machinery seem not to have been in good condition, and no person could be found to rent the property. By 1787, the Dawes brothers were advertising that the mill would be "put in good repair" for a qualified tenant.<sup>3</sup>

The brothers were Philadelphia merchants, occupying a counting house and store on the Water Street wharf near Market Street,<sup>4</sup> and while it is possible that they dealt in iron and iron products, they probably knew little about the daily operation of an iron manufactory. Nevertheless, when they realized that they were not able to rent out their property, they started an extensive rebuilding and improvement program at Hagley, with the hope that an able manager could be found to operate the iron mill.

The original slitting mill had been slightly improved by the Daweses soon after the purchase from Gregg in 1783, but it was not until

after 1794 that reconstruction began in earnest. That year saw a new roof installed on the slitting mill, and in 1796 a furnace - "built in the best Manner and well bound with Bars of Iron" - was installed in the mill. Also in this year the frame, floor, and the sills of the mill were rebuilt, and the machines made "sound and in good repair." The two water wheels, built a few years earlier, were reported to be in fine condition. Close to the mill was a coal shed of stone, and next to it was a stable reported to have been "in every respect well finished."<sup>5</sup> By the time of the 1798 tax survey, the value of the buildings on the property was \$6,600.<sup>6</sup>

By 1798-1799, the period covered by the Dawes letterbook, the operation of the iron mill had assumed the preeminent position among the Daweses business pursuits. Over one half of the entries in the letterbook are directly related to the operation works or to its products and supplies. The Dawes brothers had hired a reliable manager, John Rowland, who was given responsibility for the whole property; he was valued enough to get at least one pay raise out of the brothers.<sup>7</sup>

Under Rowland's supervision the mill produced several varieties of finished and semi-finished iron. The Dawes sheet iron was in demand for making stoves and stovepipes because of its thinness and even quality. It was said that the stovemakers of Philadelphia gladly bought their sheet iron from the Dawes brothers for £78 per ton, even though imported sheet iron could be obtained for £10 or £15 less.<sup>8</sup> The mill made iron rods in several sizes that were used to make nails, spikes, and sheathing, and that sold for between £39.10s. and £48 per ton, depending on the size and the distance they were to be shipped.<sup>9</sup>

Also available were iron hoops in sizes ranging from three-quarters to two-and-three quarters of an inch wide, which were used to hoop barrels, hogsheads, and rim wagon wheels. These sold for between £47.10s. and £51 per ton, again depending on the size and shipping distance. Iron plates were fabricated by the mill on several occasions, and once two plates weighing 19 pounds each were sent to a prospective customer as a sample of the quality that could be expected from the Hagley mill.<sup>10</sup>

The Dawes brothers were not adverse to experimenting in their mill. One attempt of this type was made when they tried to roll three tons of steel into sheets suitable to be cut into sawmill blades. Both Rumford Dawes and the owner of the steel made special plans in order to personally direct this operation.<sup>11</sup> A few months later the brothers made another attempt. Writing to a customer they said:

We could reply to your note of this morning to our R.D. with more pertinence if we had been in the practice of Slitting Steel--The General Idea is that it will destroy the Cutters--yet we believe that our Workmen can do it--and have no objection to make trial--The Bars of Steel should be three Inches wide & about half an Inch thick--The price will be governed by the quantity--if small it will of course be higher--Suppose thirty Dollars per Ton would be in proportion to cutting Iron--as the hardness will injure and dull the Cutters as well strain the Rolls and take two passes to cut as much Steel as one pass would of Iron--

If you choose to furnish one Ton we will send it to our Mill & Cut it, as ordered, then a better judgment can be formed...

We lately rolled some Steel for saw blades which being so much harder than Iron broke one of the Rolls.<sup>12</sup>

Of the five main products of the mill (nail rods, barrel hoops, sheet iron, iron plate, and sheathing) the nail rods had probably the highest demand. To a customer the brothers wrote that "We are Sorry to find Nail Rods are Dull Sale with you they are quicker sale with us

than any other Iron we now Manufacture."<sup>13</sup> In a letter to John Rowland, the Daweses ordered him to make 35 or 45 tons of nail rods alone, and to have them ready to be shipped as soon as the roads were passable.<sup>14</sup> Their customers often ordered the rods in 10-ton lots,<sup>15</sup> and in one two-month period over 16 tons were sent to one man.<sup>16</sup> There were many letters stating that the mill had run out of nail rods, but that other products were available.

The brothers had customers for their iron in New York, Baltimore, Alexandria, Wilmington, Dover, New Castle, and Philadelphia. The goods sent to New York and Virginia were sent by boat, while the Maryland shipments usually went overland to Elkton, where the goods were picked up by the purchaser. During the rainy season goods were shipped by shallop to Elkton and Baltimore. On occasion customers would pick up their iron at Hagley, but this was not very common.

Goods were usually sold on sixty to ninety days credit, depending on the customer's reputation and his account balance. Shipping charges were included in the price when the iron was sent overland, but the customers in New York usually paid their own freight costs. There are several examples of direct barter trades being made for iron. In one instance, the Daweses offered to trade nail rods at  $\text{\textsterling}47.10\text{s.}$  per ton for corn at 3s. 6d. per bushel, delivered at New Castle.<sup>17</sup> Another time, they offered to trade twenty to fifty tons of finished rods for the same quantity of "good Russia or Swede Iron" with the finished rods valued at \$23 per ton extra.<sup>18</sup> Another selling method used was through commission agents. Solomon Townsend, a regular New York customer, was offered a commission of 20s. per ton to sell a shipment of hoops valued

at £46 per ton. Sometimes the Daweses would offer unfinished iron to other mills. Swedish iron, "well drawn long Bars about 1/2 inch wide & half Inch thick", was sold at \$102.67 per ton, and "some of the Common Run of good Pennsylvania Iron mostly flatt Bars" could be had for the same price.<sup>19</sup> Once, the Daweses were able to supply one of their regular customers with sheet iron from one of their "Brother Manufacturers" when they could not furnish any themselves. They charged less than the current market price for this iron, but the price was still higher than that charged for Dawes sheet iron.<sup>20</sup>

The Dawes mill was supplied with its semi-processed iron by nearby forges and by occasional shipments of European iron. Their requirements were rather limited. A forge in Chester County was directed to supply "Ten tun mill Iron three Inches wide & half Inch thick with two Tuns of Slabbs to Make Sheet Iron--both to be well Drawn & of Good Iron" delivered at Hagley within two weeks, for which \$100 per ton would be paid.<sup>21</sup> Another supplier was cautioned that only iron between two feet and two feet-six inches long, by eight inches wide, and three quarters of an inch thick would be acceptable, and as this would be rolled into sheets, the iron was to be "tough and drawn clear of Flaws."<sup>22</sup> A forge master in Lancaster was informed that his last shipment of iron had been part copper, and he was warned to "avoid such Metal it will give thy Iron a bad Name & ruin our Custom."<sup>23</sup>

Imported iron, though often of high quality, was sometimes not suitable for the Hagley mill. "Swede Iron Seldom comes wide enough to Slit into Rods..." and although "The flatt Russia Iron generally comes the proper width, the quality is not always such as we should approve."<sup>24</sup>

The brothers noted that Swedish iron marked with an (L) was very good, and that sable Russian iron from "the new manufactory set up at Archangel" was also of high quality.<sup>25</sup> Russian iron of uncertain quality was usually sold for around \$90 per ton, but the freight from Baltimore would add as much as 30s. per ton to the cost of the iron.<sup>26</sup>

Along with the problem of maintaining a supply of good iron there were several outside factors that influenced the operation of the mill. During the busy summer season the Hagley mill often would be unable to fill orders because "the Forges that supply us with Iron have for want of Water been prevented from making Iron", hence none was available.<sup>27</sup> To a Baltimore merchant the brothers wrote that "when we get it [the iron] here we have always sufficient Water in the Driest Season to drive our Mill and nothing but the want of Bar Iron prevents us from immediately furnishing your order."<sup>28</sup>

The pace of business seems to have been somewhat uneven. During the war scare of 1798-1799, almost the entire supply of iron was at one time absorbed by cannon foundries, which drove the price up over 20% in just a few days.<sup>29</sup> The yellow fever epidemic of 1798 reduced business to a near standstill, few merchants would give or accept notes of credit, and merchants and bankers fled out to the countryside around Philadelphia. An unstable money supply also caused problems for the Dawes brothers and other merchants. Debtors could not pay off their bills, and with notes of their own coming due the Daweses were hard pressed at times to obtain cash.<sup>30</sup> "We have never found it so difficult to raise money", they told their nephew early in 1799.<sup>31</sup>

There are few other sources than the mutilated letterbook of

1798-1799 that tell of the operation of the Hagley mill, hence this incomplete account. The mill was offered for sale in 1803 as a location "Equal to any other for carrying on an extensive manufactory of cut nails, scythes, spades, shovels, hoes, axes, &c.," which indicates that the Dawes brothers might have diversified the mill's products somewhat since 1799.<sup>32</sup> In 1808 the property was offered to Stephen Girard as a possible location for a cotton mill, but he turned down the offer.<sup>33</sup> In 1811 the Dawes brothers wrote to Girard asking for an extension on a debt owed him because they had not been able to produce anything for some eight months. During that period six pairs of rollers had failed, leaving the mill inoperable.<sup>34</sup> In 1813 the mill and the property were finally sold to Thomas Lea, who in turn sold the property to E. I. du Pont six days later. After du Pont took possession a survey revealed that the wheels, gearing, and shafts were obsolete and rotted away, and no use could be made of them.<sup>35</sup> It was then decided that the land could be better used for powder mills, and the iron rolling and slitting machinery was sold for scrap.<sup>36</sup>

#### OTHER ACTIVITIES OF THE DAWES BROTHERS

The Dawes brothers were not large-scale merchants, but they probably were successful in a middling way. They were part owners of a brig, and either individually or in partnership owned lands in Wilmington and in New Castle County, as well as their Philadelphia homes and shops.<sup>37</sup>

While most of the trade during 1798-1799 is in iron and iron products, there is some reference to activity in other commodities.

One letter shows that the brothers once imported 3500 bushels of Liverpool salt which was sold for 4s. 8d. per bushel in Wilmington, and also that they were active in the molasses trade between Baltimore, Wilmington, and Philadelphia.<sup>38</sup> During the war scare there is evidence that they might have been trading in flints and shot, but this cannot be definitely proven.<sup>39</sup> Several letters sent by the Daweses contain extensive price lists, but it is not known if these lists were for merchants contemplating trade with Philadelphia, or if the lists represent goods actually offered for sale by the Dawes brothers.<sup>40</sup> It is clear that the Daweses traded in flour, since several letters include the price at which they will buy it from suppliers.<sup>41</sup>

A possible indication of the extent of their trade is given in a letter to a London merchant in which the brothers note that if they had been aware of the high prices currently prevailing in London for coffee, sugar, and cotton, "several vessels would have been sent thee." This reference is clouded, however, because immediately after this statement the Daweses mention their neighboring traders as eager to send a consignment to the London merchant, so it is not clear whether the Daweses or their neighbors would have been the ones to send a shipment to England earlier.<sup>42</sup>

In the 1798-1799 period, at least, there is evidence that the brothers were involved in some civic and business pursuits not directly related to their merchant trade. Abijah Dawes was a director of an insurance company, but the firm is not specified by name.<sup>43</sup> Abijah was also a member of the board of directors of the Bank of the United States in Philadelphia.<sup>44</sup> In civic affairs Abijah was an elections judge in

the congressional election of 1798, a task that required him to spend several days in Philadelphia during the height of the yellow fever epidemic, much to the dismay of his brother.<sup>45</sup>

The Dawes brothers took advantage of their connections with the Bank of the United States and the insurance company in several ways. They occasionally acted as agents in obtaining insurance for the cargoes and boats of other merchants,<sup>46</sup> and at an election of directors for the Bank of the United States they were able to secure enough proxies to get their friend Samuel Hollingsworth elected to the board.<sup>47</sup>

The brothers knew that world affairs had a large impact on trade, and they responded. The possibility of a war with France encouraged them to accumulate supplies of goods, speculating on the price increases that would follow a declaration of war.<sup>48</sup> The actions of Toussaint l'Ouverture in Hispaniola also led them to believe that a rich new trading area would soon be open to them.<sup>49</sup>

Politically the Dawes brothers were strict Federalists. They bemoaned the actions of the Democrats--"the American Jacobins"--and thought that President Adams was doing a great job of keeping the country out of war.<sup>50</sup> In a letter to a merchant in Virginia the brothers digressed from business to note that "surely we have the best Government in the World, and never was greater Purity in the Administration of the Laws and management of foreign relations--why then should so many from your State be Anti's?"<sup>51</sup>

The family life of the Dawes brothers is only peripherally seen in the letters available. A nephew, Isaac Harvey, worked for the brothers as an investigator--he would quietly check up on the credit

and reputations of merchants wishing to borrow money or purchase goods on credit from his uncles.<sup>52</sup> It seems that during the hot and sickness-breeding Philadelphia summers many members of the extended family came to live along the Brandywine near the mills.<sup>53</sup> Most of the letters, however, make no mention of any family matters at all.

The letterbook provides a small glimpse into the conditions that prevailed during the times of the yellow fever, with the derangement of business it caused taking first place in the Daweses list of fever-related concerns.<sup>54</sup> Also present are intimations of the problems that eventually led Philadelphia to lose its preeminence among merchant towns - a river that was too often frozen over and inland roads that were often impassable.

The letterbook is sometimes frustrating by its silence on some important point. For example, one letter mentions a new nail-making machine recently installed at the mill--but it is not mentioned again, and no details of its operation are given.<sup>55</sup>

To conclude, then, it must be said that the letterbook for 1798-1799 gives only a very partial picture of the activities of Rumford and Abijah Dawes for those two years; it cannot fairly be said to do more than give a glimpse of the nature of their business over the long run. Consequently much of this report has to be conjecture; much has been derived by reading between the lines. The existence of this letterbook provides just enough information on the Hagley property to make one wish that other sources will come to light that will make possible a more complete study of the Dawes brothers and their iron mill operations at Hagley.

#### FOOTNOTES

1. New Castle County Records, Deed Book E, Vol. 2, pages 230-233.
2. Ibid., page 232.
3. Pennsylvania Gazette, September 19, 1787.
4. Philadelphia and Her Merchants. A. Ritter, published by the author 1860, p. 185.
5. Survey description, Insurance Co. of North American Archives. (Hagley Museum Research Notes).
6. Christiana Hundred Tax List, New Castle Co., 1798.
7. Dawes Brothers Letterbook. John Rowland, Jan. 24, 1799. EMHL accession 1062. Hereafter cited as DBL.
8. DBL. William Matthews, Sept. 14, 1798 and Jolly & Hough, Sept. 29, 1798.
9. DBL. Solomon Townsend, April 26, 1798 and Kummel & Jordan, Nov. 7, 1798.
10. DBL. E. Sigourney & Sons, May 16, 1798.
11. DBL. John Rowland, May 9, 1798.
12. DBL. Morgan & Price, July 31, 1798.
13. DBL. William Matthews, May 22, 1798.
14. DBL. John Rowland, Jan. 24, 1799.
15. DBL. Solomon Townsend, Jan. 25, 1799.
16. DBL. Samuel Hewitt, Feb. 20, 1799.
17. DBL. James Miller, Oct. 12, 1798.
18. DBL. Jolly & Hough, Jan. 8, 1799.
19. DBL. Paxton & Butcher, June 16, 1798.

20. DBL. George Decker, Nov. 27, 1798.
21. DBL. Jesse Laverty, May 2, 1798.
22. DBL. John Bishop, approx. July 10, 1798.
23. DBL. George Eckert, Sept. 12, 1798.
24. DBL. Jolly & Hough, Jan. 8, 1799.
25. Ibid.
26. Ibid.
27. DBL. William Matthews, Sept. 29, 1798.
28. DBL. \_\_\_\_\_, approx. October 25, 1798 (mutilated).
29. DBL. Paxton & Butcher, May 18, 1798.
30. DBL. Boyce & Christy, April 10, 1798 and April 19, 1798.
31. DBL. Isaac Harvey, Feb. 6, 1799.
32. Mirror of the Times. Feb. 23, 1803.
33. Stephen Girard Papers, Box 43, #478. Dec. 19, 1808. Microfilm, American Philosophical Society.
34. Stephen Girard Papers, Box 50, #589. Dec. 11, 1811. Ibid.
35. Inventory, E. I. du Pont de Nemours & Co., 1814. EMHL.
36. E. I. du Pont Letterbook 1815-1817, pages 299-300. EMHL
37. Historical Society of Delaware, Biographical Notes.
38. DBL. Jacob Adams, Nov. 27, 1798.
39. DBL. George Decker, May 8, 1798.
40. DBL. John Pearson, Feb. 1, 1799.
41. DBL. George Decker, May 8, 1798.
42. DBL. John Tunno, Jan. 14, 1799.
43. DBL. Jacob Adams, May 25, 1798.
44. DBL. Thomas & Samuel Hollingsworth, Jan. 28, 1799.

45. DBL. Jonathan Harvey, Oct. 16, 1798.
46. DBL. Jacob Adams, April 6, 1798.
47. DBL. Thomas & Samuel Hollingsworth, Dec. 10, 1798 and Feb. 6, 1799.
48. DBL. E. Sigourney & Sons, March 21, 1798.
49. DBL. John Tunno, Jan. 14, 1799.
50. DBL. \_\_\_\_\_, approx. March 8, 1799 (mutilated).
51. DBL. John Cowper, June 27, 1798.
52. DBL. Jonathan Harvey, Sept. 10, 1798.
53. DBL. Ibid.
54. DBL. July to October, 1798, passim.
55. DBL. Thomas & Samuel Hollingsworth, July 14, 1798.