

## A Grist Mill and Its Two Markets: Wheat and City-Country Relationship in the New York-Philadelphia Area during the 1780s

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“Thy favour of the 10 instant has come to hand with 47 bbs Sfine flour & 11 bb of Pork. . . the quality was not very fine,” Philadelphia Quaker merchant Jacob Downing wrote to Richard Waln, a mill owner in Monmouth County, New Jersey, in March 1788. “I told the Inspector it was made for N York market & the next would be better.” This mention of the New York market by a Philadelphia merchant suggests that in the late eighteenth century, sometimes the countryside chose between two markets in sending produce. The historian Thomas Doerflinger calls mills like Waln’s “sophisticated milling and marketing centers in the countryside.” He argues that by the late eighteenth century, there were millers in the Philadelphia market area who produced flour in quantities and sold it regularly to export merchants through urban agents. Their operation was “probably distinct from the trading in many types of ‘country produce’ that retailers in the cash-starved western counties needed to engage in.” These mills represented the extent of maturity rural New Jersey had achieved.<sup>1)</sup>

The flow of produce to cities from the countryside, however, has not received much attention. Long interested in how eighteenth- and early nineteenth-century farmers avoided the market, historians discussed subsistence orientation in their farm management despite scattered evidence to the contrary. Only recently has a new consensus been reached that in the eighteenth century farmers managed “composite farms.” Historians agree today that farmers cultivated for both subsistence and the market. They sold the market portion of their produce, but not the subsistence portion. This perspective allows one to discuss the economic significance of wheat cultivation in the Mid-Atlantic region more squarely. Wheat flour was the principal item of export from Philadelphia and New York in the late eighteenth century. Surplus from the composite farm fueled the larger economy.<sup>2)</sup>

Agriculture, commerce, and manufacture met at extensive grist mills like Richard Waln’s. The most technologically sophisticated among preindustrial manufacture, grist mills stood at the mid-point between commercial and industrial capitalism. They allow one to investigate under which condition they served to usher in industrial capitalism. How did merchants take

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<sup>1)</sup> Jacob Downing to Richard Waln (hereinafter RW), Mar. 22, 1788, Richard Waln Papers, Historical Society of Pennsylvania (hereinafter RWP); Thomas M. Doerflinger, “Farmers and Dry Goods in the Philadelphia Market Area, 1750–1800,” in *The Economy of Early America: The Revolutionary Period, 1763–1790*, ed. Ronald Hoffman and others (Charlottesville: The University of Virginia Press, 1988), 166–195, especially 189–190 (quotes).

part in the production and distribution of flour for the cities as well as exporting it abroad? What made milling successfully generate profit and capital, which might be invested in other types of manufacture? To answer these questions and complement the studies of mills and grain trade in Philadelphia and Delaware, this article discusses the network extending from Waln's mill in the 1780s. Put in local, regional, and interregional contexts, the procurement of grain for Waln's mill and shipment of flour to New York and Philadelphia illuminate the strength and weakness of the eighteenth-century city-country economic networks.<sup>3)</sup>

This article complements geographer Peter Wacker's analysis of rural land use. Wacker applies the concentric circle model to New Jersey, with New York and Philadelphia at the centers of two groups of concentric circles. Farmers in areas adjacent to the two cities cultivated vegetables and fruits, and those who lived next to the first zone profited from forestry. Those who lived farther away produced grain (Map 1). Discussion below adds to his work by showing that not only distance from urban markets but other elements such as environmental constraints, soil fertility, the behavior of middlemen and agents, and the larger interregional economy affected eighteenth-century New Jersey.<sup>4)</sup>

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<sup>2)</sup> James Henretta, "Families and Farms: *Mentalité* in Pre-Industrial America," *William and Mary Quarterly* (hereinafter *WMQ*) 35:1 (Jan. 1978), 3-32; Michael Merrill, "Cash Is Good to Eat: Self-Sufficiency and Exchange in the Rural Economy of the United States," *Radical History Review* 4 (Winter 1977), 42-71; Christopher Clark, *The Roots of Rural Capitalism: Western Massachusetts, 1780-1860* (Ithaca: Cornell University Press, 1990). Charles Sellers, *The Market Revolution: Jacksonian America, 1815-1846* (New York: Oxford University Press, 1991), is a synthesis along this line. See for a criticism of this view, Winifred B. Rothenberg, "The Market and Massachusetts Farmers, 1750-1855," *Journal of Economic History* 41:2 (June 1981), 283-314, and the revisionist consensus, Richard Lyman Bushman, "Markets and Composite Farms in Early America," *WMQ* 55:3 (July 1998), 351-374. See also John J. McCusker and Russell R. Menard, *The Economy of British America, 1607-1789* (Chapel Hill: University of North Carolina Press, 1985).

<sup>3)</sup> Thomas Doerflinger, *A Vigorous Spirit of Enterprise: Merchants and Economic Development in Revolutionary Philadelphia* (Chapel Hill: University of North Carolina Press, 1986), 283-364; Edward Countryman, "The Uses of Capital in Revolutionary America: The Case of the New York Loyalist Merchants," *WMQ* 49:1 (Jan. 1992), 3-28. On rural merchants see Thomas S. Wermuth, "Rural Elites in the Commercial Development of New York, 1780-1840," *Business and Economic History* 33:1 (Fall 1994), 71-80; Gregory Nobles, "The Rise of Merchants in Rural Market Towns: A Case Study of Eighteenth-Century Northampton, Massachusetts," *Journal of Social History* 24: 1 (Fall 1990), 5-23. The most recent treatment of milling includes Brooke Hunter, "Rage for Grain: Flour Milling in the Mid-Atlantic, 1750-1815" (Ph.D. diss., University of Delaware, 2001), and *idem*, "The Prospect of Independent Americans: The Grain Trade and Economic Development during the 1780s," *Explorations in Early American Culture: An Annual Publication of the McNeil Center for Early American Studies* (forthcoming). See also Diane Lindstrom, *Economic Development in the Philadelphia Region, 1810-1850* (New York: Columbia University Press, 1978).

<sup>4)</sup> Peter O. Wacker and Paul G. E. Clemens, *Land Use in Early New Jersey: A Historical Geography* (Newark: New Jersey Historical Society, 1995), 48 and *passim*. See also Richard William Hunter, "Patterns of Mill Siting and Materials Processing: A Historical Geography of Water-Powered Industry in Central New Jersey" (Ph.D. diss., Rutgers University, 1999).

## Procuring Wheat

Richard Waln (c.1739–1809) removed to his mill seat along the Crosswicks Creek in Upper Freehold Township, Monmouth County, New Jersey, on June 6, 1774. Brother of Philadelphia Quaker preacher Nicholas Waln (1742–1813) and a Quaker himself, Richard ran a mercantile business on the Delaware River waterfront in Philadelphia in the 1760s, sending produce and staves to Barbados and Jamaica and importing goods from Europe.<sup>5)</sup> Upper Freehold township, where the soil was among the most fertile in the state, was located where Wacker's grain zones for New York and Philadelphia overlapped. The Quakers who settled in the township and their descendants generally managed large farms. They sowed wheat and rye in fall and harvested them in summer. Corn was sown in spring and harvested in fall. After threshing, shelling and cleaning the grain in fall and winter, the farmers sent it to grist mills for grinding. Shipping to Philadelphia, more than 40 miles away, was easy. From Waln's mill (called Walnford) "the waggon goes twice a day to Bordentown" (a port town less than 10 miles away from Walnford) from which packet boats went down to Philadelphia regularly. There was also a route, used by stages, between Bordentown and South Amboy (about 30 miles away from Walnford) where the Raritan River emptied into the sea. This route facilitated the shipment of flour for the New York market.<sup>6)</sup> (see Map 2)

It is appropriate to begin the discussion on how Waln procured wheat with 1783, because little Walnford flour found its way to urban markets during the Revolutionary War. This is hardly surprising, as the British naval blockade was in place, New York was occupied by the British, and the Philadelphia's Quaker merchant community was effectively put out of business by the Revolutionary government. Early in the war, Waln himself was obliged to leave New Jersey for ten months, as his faith-inspired neutrality (and he entertained Loyalist sentiments) alerted the state authority. Not until January 1782 did he begin purchasing local grain.<sup>7)</sup>

<sup>5)</sup> Elaine Forman Crane, ed., *The Diary of Elizabeth Drinker*, 3 vols. (Boston : Northeastern University Press, 1991), 200 ; letters to RW from Joseph Jones and Demsey Burges, North Carolina, and from Holiday and Dunbar, Liverpool, in RWP ; Waln's advertisements in *Pennsylvania Gazette*, 1760s and 1770s issues ; Doerflinger, *Vigorous Spirit*, 179.

<sup>6)</sup> Around 1780, the mean farm acreage for Upper Freehold Township was between 150 and 200 acres and for Monmouth County as a whole, 165.8 acres. Wacker and Clemens, *Land Use*, 95–96. On agriculture and geography see *ibid.*, *passim* ; James T. Lemon, *The Best Poor Man's Country : A Geographical Study of Early Southeastern Pennsylvania* (Baltimore : The Johns Hopkins University Press, 1972) ; Peter O. Wacker, *Land and People : A Cultural Geography of Preindustrial New Jersey : Origins and Settlement Patterns* (New Brunswick : Rutgers University Press, 1975), 12–13, 126–127, 179–182 ; John Flexer Walzer, "Transportation in the Philadelphia Trading Area, 1740–1775" (Ph.D. diss., University of Wisconsin at Madison, 1968), 20–21 ; Wheaton J. Lane, *From Indian Trail to Iron Horse : Travel and Transportation in New Jersey, 1620–1860* (Princeton : Princeton University Press, 1939), 80–84 ; David E. Dauer, "Colonial Philadelphia's Intraregional Transportation System : An Overview," *Working Papers from the Regional Economic History Research Center* 2:3 (1979), 1–16. The quotation is from Mary Waln Wistar to Thomas Wistar, undated, Wistar Family Papers, Historical Society of Pennsylvania.

In starting to operate for urban markets, Waln looked to the northern Chesapeake region, which had become a major wheat provider for the Philadelphia market by the eve of the Revolution.<sup>8)</sup> He engaged Henry Lisle, a relative of his, in examining the Virginia wheat that came to Philadelphia, purchasing for him and shipping it to Bordentown. Lisle's six purchases for 1783, all made from September through December, amounted to 2401 and 17/60 bushels and 33.57 percent of Waln's total purchases from August 1783 through July 1784 (7152 10/60 bushels). Waln bought only 1211 and 16/60 bushels from local farmers from August through December 1783. Lisle nicely made up for the insufficient local wheat supply in the August-December period.<sup>9)</sup>

Procuring good wheat was so critical that it was not long before Waln expressed discontent. In October he told Lisle that he found the wheat arriving at Bordentown damp. Lisle defended himself saying that it had been dry when he bought it, that his store where it stayed for two weeks was cool and dry, and that the heat in the wheat was blown off with a fan. Later Lisle was more defensive. Admitting that he noticed the wheat he sent smelled of garlic, he argued on October 31 that "I did not think it so bad as the says and I could get no other." Next month Lisle was being cautious. "To be better satisfied [I] have taken second look" at the 700 bushels of wheat, only to stay away because, "as thee has desired me not to buy any poor wheat." Lisle threw up his hands when Waln complained that another shipment of wheat, measured on arrival at Bordentown, fell short of the amount Lisle had notified him. "I told thee I did not look on my self a judge Sufficient to buy wheat," Lisle wrote.<sup>10)</sup> Waln ceased to get wheat through Lisle by the end of 1784.

Waln also tried to buy wheat in Virginia. In early 1784 he asked Quaker merchants going to Norfolk and Richmond, Virginia, to examine the prospect and gave them the highest price at which they could buy for him. The problem with this mode of purchases was the unreliableness of the existing means of transportation and consequently the long wait. One merchant procured 2800 bushels in mid-March for Waln. More than a month later, the ship

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<sup>7)</sup> *Minutes of the Council of Safety of the State of New Jersey* (Jersey City : John H. Lyon, 1872), 143, 276-277 ; RW to Joseph Galloway, Mar. 29, 1789, RW letterbook ; grain purchase book, 1773-1786 ; flour carting record, 1773-1791, RWP. On the British blockade, see Richard Buel, *In Irons : Britain's Naval Supremacy and the American Revolutionary Economy* (New Haven : Yale University Press, 1998), 222-227. On Waln's Philadelphia agent Elijah Brown and the Revolution, see Peter Kafer, "Charles Brockden Brown and Revolutionary Philadelphia : An Imagination in Context," *Pennsylvania Magazine of History and Biography* (hereinafter *PMHB*) 116:4 (Oct. 1992), 467-471.

<sup>8)</sup> Paul G. E. Clemens, *The Atlantic Economy and Colonial Maryland's Eastern Shore : from Tobacco to Grain* (Ithaca : Cornell University Press, 1980) ; Carville Earle and Ronald Hoffman, "Staple Crops and Urban Development in the Eighteenth-Century South," *Perspectives in American History* 10 (1976), 7-78.

<sup>9)</sup> Grain purchase book, 1773-1786 ; miscellaneous accounts, 1783-1786, RWP. Purchasing year starts on August 1 and ends on July 31 next year, as wheat was usually harvested in July. Richard Buel picks August 15 for the start of a purchasing season in *In Irons*, 258. See also Wacker and Clemens, *Land Use*, 144-145.

<sup>10)</sup> Henry Lisle to RW, Oct. 25, 31, Nov. 11, 25, 1783, RWP.

with this wheat had not left Richmond yet. The captain of the vessel also declared that he would take only 2250 and a half bushels. It was "three [more] Weeks" before any of the rest of Waln's wheat was shipped because of the "extreme Indolence & inattention" of the captain of another ship engaged. The difficulty in disposing of northern notes and high freight fees added to the trouble. There is no indication that Waln continued to purchase wheat directly from Virginia after 1784.<sup>11)</sup>

After giving up on buying Virginia wheat, Waln secured enough wheat from local farmers, and thereby made his enterprise more localist. If we take the period August 1 through July 31 of the following year for 1783, 1786, 1788 and 1789, and subtract entries for Henry Lisle from 1783 purchases as nonlocal supply, we get the following results, along with the breakdown of the grain-selling farmers in Upper Freehold Township according to the amount of land they held (Table 1).

The table shows that Waln bought wheat from twice as many farmers in 1786 as in 1783. As far as the Upper Freehold Township farmers were concerned, the large landholders sold large amounts; the marginal and the landless, small amounts. Joseph Holmes who owned 358 acres of land sold 306 and 24/60 bushels to Waln in 1783 and 314 and 21/60 bushels in 1786. Not every large landholder was as steady as Holmes. Richard Horsfull brought a little less than five times as much wheat in 1786 (102 and 37/60 bushels) as in 1783 (22 and 55/60 bushels). James Lawrence brought only 18 and 36/60 bushels in 1786 though in 1783 he had sold 155 and 5/60 bushels to Waln. William Rogers (who had sold 59 and 50/60 bushels in 1783) disappeared from the list in 1786. Marginal landholders and landless men were also diverse in the amount they brought, though on a smaller scale. The householder Thomas Grover brought only 1 and

Table 1 Purchasing Patterns, Wheat, 1783, 1786, 1788, 1789

	1783	1786	1788	1789
amount (bushels)	4750 53/60	8198 15/60	1910 12/60	828 32/60
Number of sellers	77	154	35	22
(those identifiable)				
landholding : 200+	17	35	10	4
151-200	7	17	4	6
101-150	8	9	4	1
51-100	4	11	1	2
1-50	4	7	0	1
no land	5	9	2	1

Source: grain purchase books, 1773-1786, 1786-1796, RWP; Upper Freehold Township Tax Ratables 1784, 1786, 1789, microfilm, NJSA.

Note: See note 9 for the purchasing season. Records for 1783 excludes wheat purchased by Henry Lisle. Purchases from Virginia were not entered in the purchase book.

<sup>11)</sup> John Hartshorne & Co. to RW, Mar. 17, May 1, 31, 1784, and account with John Hartshorne & Co., May 1, 1784; Hartshorne, Lindley, & Co. to RW, May 27, 1784, RWP.

30/60 bushel in the 1783 season ; another householder Joseph Miers delivered 22 and 46/60 bushels. The pattern held in 1786, with the householder Isaac Shreeve bringing 1 and 59/60 bushel and another householder Joseph Grover selling 24 and 50/60 bushels. None of the five landless sellers for 1783 reappeared in the same category in 1786.<sup>12)</sup>

Local farmers haggled with Waln over wheat prices. Information on prices at local towns influenced farmers when they settled accounts of the surplus wheat they had sold. Richard Potts, an Upper Freehold Township farmer with 180 acres of improved land, sold Waln 50 and 37/60 bushels of wheat in February 1786. On June 20 Potts visited Waln for settlement and declined the latter's offer of 7 shillings and 6 pence per bushel, demanding 8 shillings per bushel, "being the Current price." Waln answered that that price was for paper money, and that it would take him some time to collect the sum. The next time they met, Potts rejected even 8 shillings per bushel, as, in his words, "he was Inform'd the price of Wheat was higher in Trenton," the state capital and a port town along the Delaware. He asked for 8 shillings 4 pence per bushel "in any kind of money," and "inform'd . . . he shou'd Enter a Complaint," if Waln did not do so. Waln paid at the rate of 8 shillings and 4 pence. On the other hand, exchanges between local men were not suffused by price-consciousness and an urge for gain. The account book of John Earl, who sold wheat to Waln in the 1780s, featured different prices for different persons exchanging with him and these rates were much less elastic. Moses King took rye at the rate of 4 shillings 6 pence per bushel from September 17, 1788 through June 5, 1789. Samuel Earl, another who took rye from John Earl from April 15, 1788 through January 1789, was to pay at the rate of 3 shillings 9 pence. Earl reduced the rate for King in January 1790 to 3 shillings 9 pence, and continued with it for almost two years. Local exchanges were distinct from the settlement with Waln, who traded with the outside market.<sup>13)</sup>

Farmers were not the only group closely involved in Waln's enterprise. Given the amount of flour processed, the production of its containers had to be extensive. From January to December 1785, Waln bought 1963 barrels from more than fifteen men. Edward Morrison stood out by producing 642 barrels, but he was not exceptional. Waln credited Samuel Gaskill's account with 206 pounds and 8 shillings for making 2752 flour barrels in the twelve-month period of 1790, at the rate of eighteen pence per barrel. After deduction of expenditures while at work, Gaskill was still entitled to more than 36 pounds. Waln paid him in a draft addressed to his son Joseph, who ran a store in Philadelphia. Committing their time significantly, rural artisans contributed to the operation of Waln's mill.<sup>14)</sup>

After failing to make interregional transactions, Waln created a broad local network to supply his mill with wheat. Local farmers were willing to take part in a regional market with their

<sup>12)</sup> Calculated from entries in grain purchase books, 1773-1786, 1786-1796, RWP.

<sup>13)</sup> The deposition of Richard Potts, in Joseph Lawrence overseer of the poor of the Township of Upper Freehold vs. Richard Waln, in State Supreme Court Case Files, New Jersey State Archives (hereinafter NJSA) ; John Earl account book, volume 2, Rutgers University Library (hereinafter RUL).

<sup>14)</sup> Flour carting record, 1773-1791 ; rough ledger, 1790-1799, page 16, RWP.

Table 2 Number of Days Products Were Carted from Wainford and the Number of Carters, by Shipping Points, 1784-1786

	to Philadelphia :	to New York :		
	Bordentown days : carters	New Brunswick days : carters	South Amboy days : carters	South River days : carters
1784				
Jan.	--	2 : 2	4 : 7	--
Feb.	--	6 : 6	15 : 31	--
Mar.	--	2 : 3	2 : 4	--
Apr.	1 : 1	4 : 5	--	--
May	6 : 6	1 : 1	--	--
Jun.	4 : 4	--	--	--
Jul.	3 : 3	2 : 5	--	--
Aug.	2 : 2	4 : 9	--	--
Sept.	--	1 : 1	--	--
Oct.	--	--	--	--
Nov.	4 : 4	6 : 7	--	--
Dec.	12 : 14	6 : 8	3 : 7	--
1785				
Jan.	2 : 4	--	10 : 38	--
Feb.	1 : 2	--	15 : 53	1 : 3
Mar.	7 : 9	--	--	5 : 14
Apr.	14 : 25	--	--	--
May	14 : 18	--	--	9 : 18
Jun.	7 : 9	--	--	14 : 20
Jul.	18 : 22	--	--	15 : 27
Aug.	19 : 26	--	--	2 : 5
Sep.	16 : 18	--	--	9 : 15
Oct.	23 : 30	--	2 : 2	--
Nov.	23 : 30	--	1 : 1	--
Dec.	14 : 27	--	10 : 19	--
1786				
Jan.	2 : 2	6 : 7	12 : 35	5 : 9
Feb.	11 : 11	--	--	9 : 29
Mar.	7 : 7	--	--	7 : 9
Apr.	15 : 15	2 : 7	--	2 : 3
May.	20 : 22	3 : 6	--	--
June	22 : 24	--	--	--
July	26 : 36	--	--	--
Aug.	10 : 11	2 : 3	--	--
Sept.	16 : 19	1 : 1	--	--
Oct.	18 : 19	4 : 5	--	--
Nov.	4 : 4	7 : 16	--	--
Dec.	--	--	--	--

Source: flour carting record, 1773-1791 ; miscellaneous accounts, 1783-1786, RWP.

Note: The calculation assumes that one carter carted once to one shipping point per day. A carter carted 6 to 16 barrels to Bordentown, and 6 to 12 barrels to New York Bay ports, per day.

surplus wheat, and were price-conscious in dealing with him. Coopers were an indispensable part of this network. The mill was the site where rural labor was integrated in a regional economy.

### Shipment and Disposal

In this section, we will look at the shipment and disposal of Waln's flour, and how much potential the distribution network had for integration and development. Waln and his agents' calculations and behavior conditioned how flour was shipped from Walnford to New York and Philadelphia. Given Waln's cultural roots in Philadelphia, the way he looked to the New York market also testifies to his mercantile considerations.

Northern and central New Jersey began to develop commercial relationships with New York in the 1690s. New York trailed behind Philadelphia as an economic center in spite of its locational advantage. The New York Harbor was rarely affected by floating ice in winter, and the New York market was open year-round. Commerce in Philadelphia was regularly reduced to a trickle in winter when the Delaware River, the city's outlet to the sea, was unnavigable due to the jamming of its mouth by ice. New Jersey flour enjoyed one advantage in contributing to the New York market. Its access to New York was not completely lost in winter when the Hudson River was often partially ice-bound, which put the downriver traffic to a halt. Relying primarily on New York Quaker merchants, Waln sent his flour to this more distant market as well as Philadelphia.<sup>15)</sup>

In order to find out a pattern and differences, shipping data from Walnford to the cities from 1784 through 1786 are analyzed by the month. Table 2 presents the number of days any product was carted from Walnford and the number of carters engaged. We can observe that much more carting took place in 1785 and 1786 than in 1784. This is probably attributable to the small purchase of Indian corn at Walnford in 1783 (see Appendix). There is one broad similarity as well. Every year, shipments for New York surged in winter at one or more of the three shipping points ; in summer and fall shipments from Bordentown to Philadelphia was constant.

Nature and conditions of the markets set some of the patterns. Nothing was carted to Bordentown in early 1784 because the Delaware River was ice-bound. In 1785 and 1786, one single carter often spent more than a week carting to Bordentown alone when navigation was open. New York Bay ports received deliveries in shorter periods. Waln used South Amboy,

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<sup>15)</sup> Cathy Matson, *Merchants and Empire : Trading in Colonial New York* (Baltimore : The Johns Hopkins University Press, 1998), 93-105 ; Jacob M. Price, "Economic Function and the Growth of American Port Towns in the Eighteenth Century," *Perspectives in American History* 8 (1974), 123-186. On the freezing of the Delaware River, see "Effects of Climate on Navigation, &c," *Hazard's Register of Pennsylvania* 2:24 (Dec. 27, 1828), 379-386. At least two of RW's four New York agents were Quakers, and dealt with him for three years (Robert Bowne) and one year and a half (Jacob Seaman). See Seaman to RW, May 29, 1788, RWP, and Crane, ed., *Diary of Elizabeth Drinker*, 2117. Waln dealt with the others, Willet and Anthony Weeks, and William Remsen, for less than a year.

a saltwater port, only in winter but intensively. On February 3, 1785, there were eight carting trips to South Amboy, and nine the next day. One day before these shipments, Waln's New York agent suggested to him that he send flour "as speedy as possible, for when the North River & Brunswick opens it must fall." Superfine flour was selling "quik" at a very high price of 56 shillings (New York currency). As the quote suggests, New Brunswick, another shipping point for New York, suffered in winter because the Raritan River, along which the town was located, was also ice-bound.<sup>16)</sup>

There was competition among shipping points. In late February 1785, Waln made a contract for flour shipment with Samuel Neilson, who had a wharf on the South River in the village of Spotswood. The South River flowed to the Raritan River four miles below New Brunswick. According to Neilson, at South River "a great Deall of Business from your Quarter & the Quarter Round," had been done before the Revolution and he was hoping it "may be Revived again." As Neilson offered to carry a barrel of flour to New York for one shilling, Waln reminded him that his New Brunswick shipper Peter Ten Eyck shipped for nine pence, or even six pence. To this Neilson replied unhappily, "I dont understand Mr Teneicks maneuvers in Carrying for 6d or 9d to undermine and do Business Cheaper than he can afford." He, however, eventually lowered his shipping fare to nine pence per barrel.<sup>17)</sup>

The specialization of middlemen affected the distribution of flour among ports. Only ship-stuff, a low-grade wheat flour with high bran content and the material for baking biscuits for ships, was carried to New Brunswick in January and February 1784 and January 1786. New Brunswick bakeries served New York at a low cost, and Waln's shipper Peter Ten Eyck managed one of them. Since it took two weeks to bake biscuits and make it saleable, sending a large amount of ship-stuff from Walnford by nine carters to meet a pressing demand in New York for biscuits was inconceivable. Delivery of ship-stuff was always made by one carter per day.<sup>18)</sup>

If we take away ship-stuff and bran (which by itself did not meet shipping fees) from calculation and count the number of barrels of other types of wheat flour and Indian meal carted to port towns, we find, as shown in Table 3, that all the Walnford-ground corn found its way to Philadelphia. Wheat flour was shipped to both markets : in winter New York took almost all of it ; in summer Philadelphia received some, but did not match New York. This table calls for an analysis of Waln's price-consciousness. While environmental constraints lent themselves to the dominance of the New York market in winter, they cannot explain the relative weakness

<sup>16)</sup> William Remsen to RW, Feb. 2, 1785 ; flour carting record, 1773-1791, RWP.

<sup>17)</sup> Samuel Neilson to Richard Wall [sic], Feb. 26, 1785 ; account between Neilson and RW for Nov. 1785-Jun. 1786, RWP.

<sup>18)</sup> Theophylact Bache to RW, Jun. 20, Jul. 12, 1787 ; Peter Ten Eyck to RW, Jul. 19, 30, Aug. 9, 1787 ; Robert Bowne to RW, Feb. 22, Mar. 14, 1787, RWP ; Charles B. Kuhlmann, *The Development of Flour-Milling Industry in the United States* (Boston : Houghton-Mifflin, 1929), 17-19. As demand in New York was high in December 1786, Robert Bowne suggested that Waln's bread be carried from ice-bound New Brunswick to South Amboy by land. Bowne to RW, Dec. 25, 28, 1786, RWP.

Table 3 Corn Meal and Wheat Flour Carried from Walnford, 1784-1786 (barrels)

	Bordentown		New Brunswick, South Amboy, South River (combined)	
	corn	wheat	corn	wheat
1784				
Jan.	--	--	--	62
Feb.	--	--	--	292
Mar.	--	--	--	36
Apr.	--	2	--	--
May	--	72	--	--
Jun.	--	52	--	--
Jul.	--	--	--	59
Aug.	--	16	--	95
Sep.	--	--	--	16
Oct.	--	--	--	--
Nov.	60	--	--	105
Dec.	91	46	--	147
[subtotal]	151	188	0	812
1785				
Jan.	32	--	--	310
Feb.	16	--	--	440
Mar.	83	--	--	116
Apr.	146	--	--	--
May	104	--	--	140
Jun.	77	--	--	142
Jul.	238	--	--	241
Aug.	206	106	--	46
Sep.	236	10	--	124
Oct.	376	--	--	139
Nov.	434	--	--	5
Dec.	278	--	--	162
[subtotal]	2225	116	0	1865
1786				
Jan.	20	--	--	384
Feb.	86	--	--	236
Mar.	92	--	--	85
Apr.	208	--	--	73
May	180	--	--	54
Jun.	244	101	--	--
Jul.	249	213	--	--
Aug.	104	23	--	32
Sep.	232	48	--	--
Oct.	188	87	--	41
Nov.	60	--	--	140
Dec.	--	--	--	--
[subtotal]	1895	495	0	1045

Source: flour carting record, 1773-1791, RWP.

Note: Wheat flour includes superfine, middlings, common, and tale, and does not include bran and ship-stuff.

of Philadelphia as a wheat flour market the whole year. Why did Walm mostly prefer New York in 1785, while there were more wheat flour shipments to Philadelphia in 1786?

The cost for a barrel of superfine flour, including the wheat, a barrel, grinding, packing and nailing, carting, and shipping, was a little less than 34 shillings per barrel for Philadelphia, and 37 shillings for New York.<sup>19)</sup> Walm was to bear his share of fees for flour inspection at ports. His agents asked for two and a half percent of the sales price as their commission fee. The sales price had to cover these expenses and leave him profit. Superfine flour prices at Philadelphia and New York for 1785 and 1786 are found in Table 4, which shows that flour was usually more expensive in New York than in Philadelphia, particularly in winter. When Walm sent wheat flour to Philadelphia, flour was not necessarily more expensive there than in New York. It was more expensive in New York by about three shillings and a half in August and September 1785; from June through October 1786, the price differential varied from three and a quarter shillings in favor of Philadelphia to two shillings and two pence in favor of New York. In the light of the reconstructed expenses, we can see that the low 1786 prices of flour at Philadelphia in April and May and at New York in May and June yielded slight profit if at all.

Table 4 Superfine flour prices, 1785 and 1786 (per barrel)

	1785				1786			
	Phil.		NY		Phil.		NY	
	shilling	pence	shilling	pence	shilling	pence	shilling	pence
Jan.	48	0	52	6	40	0	46	11
Feb.	48	0	52	6	40	0	45	0
Mar.	46	0	54	5	39	6	43	2
Apr.	45	0	46	0	36	0	41	3
May	44	0	45	0	36	6	38	5
Jun.	45	0	46	0	41	3	38	0
Jul.	43	6	46	11	42	0	41	3
Aug.	43	6	46	11	41	0	43	2
Sept.	43	6	46	11	42	6	43	2
Oct.	43	0	47	2	43	0	no data	
Nov.	42	0	47	3	41	0	45	0
Dec.	41	6	47	3	39	6	48	9

Note: The New York prices were converted to their Philadelphia equivalent. Seven shillings and six pence in the Philadelphia currency equaled eight shillings in the New York currency.

Source: letters from William Remsen and Robert Bowne to RW in 1785 and 1786; Peter Ten Eyck [sic] to RW, Sept. 29, 1786, RWP; *The Complete Counting House Companion*, Aug. 19, 1786; prices current in *Pennsylvania Mercury*, 1785 and 1786 issues.

<sup>19)</sup> Expenses were calculated as follows: flour and grinding (196 pounds): 28 shillings; barrel: 1 shilling 6 pence; packing and nailing: 3 shillings; carting: 11 1/4 pence (Bordentown) and 3 shillings 9 pence (New York Bay ports); shipping to Philadelphia and New York: 6 and 9 pence. See RW to Samuel Delaplaine, Aug. 12, 1783, Samuel Delaplaine Papers, New-York Historical Society; bill from Peter Ten Eyck to RW, Sept. 4, 1784; Robert McKean to RW, May 9, 1786; flour carting record, 1792-1833, RWP; William Smith mill account book, William Smith Papers, RUL.

Large shipment to Philadelphia in the middle of 1786 reflected Waln's acute concern with securing profit in times of low prices. He had asked his New York agent in early 1786 not to sell under 44 shillings. Putting a price limit prolonged the sales, but once flour was sent to a market, there was little else Waln could do than to set price limits and send flour not yet sent to the other market. The heavy shipment to New York in 1785 even after a drop in the price there in April is attributable to reports from his Philadelphia agents that "no sale" of his flour was taking place there in early and mid-1785. As the mid-1780s was a period of economic downturn, having two markets to choose from helped him avoid a dull market.<sup>20)</sup>

What were other concerns for Waln and his agents? One was that no one knew who would buy his flour. Most buyers examined the flour and bought with credit if they were satisfied with the quality. Agents sometimes inquired Waln if he could send a certain amount, particularly when purchasers reminded them of an anticipated large shipment overseas. Waln did not develop these offers into a closely coordinated system of distribution as he failed to respond to them.<sup>21)</sup> His shippers also contributed to the unpredictable nature of the marketing network. Robert McKean, Waln's Bordentown shipper, allowed one of his boatmen to take a barrel for home use. "If my proceedings should meet your approbation," he wrote to Waln, "I will thank you to be inform'd, at what Price I must credit your Acct. for the same." Samuel Neilson of South River took 20 barrels for his own use and asked Waln to charge him. These men thought that with a declaration to accept the going market price for the flour taken, they could continue business with Waln. This was condoned because, as discussed, Waln's urban agents usually did not prearrange the sales.<sup>22)</sup>

Another major concern was the quality of Waln's flour. The expectation was to sell the flour to export merchants who bought by the hundreds of barrels. In 1783 and 1784, however, flour inspectors sometimes condemned his flour for being too moldy and not finely ground. Begun in Pennsylvania in the early eighteenth century, inspection of export articles contributed so much to the high reputation of Philadelphia flour overseas that New York followed suit in mid-century. His agents were obliged to sell the condemned flour to local purchasers, most often bakers, in small portions for what price it fetched.<sup>23)</sup>

Low-quality flour fared poorly in the presence of rivals. Sometimes Philadelphia mer-

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<sup>20)</sup> Bowne to RW, Apr. 6, Jun. 1, 1786; Downing and Thomas to RW, Mar. 16 and May 11, 1785 (quotation from the latter), RWP. Waln misread the market once. In January 1787 he asked Robert Bowne not to sell flour for less than 56 shillings (New York currency). Superfine flour prices went down to 46 shillings by late February. Bowne to RW, Jan. 3, 17, Feb. 1, 7, 22, 1787, RWP.

<sup>21)</sup> Jacob Seaman to RW, Sept. 27, Oct. 4, 11, 1787, RWP.

<sup>22)</sup> Robert McKean to RW, Jul. 28, 1786; Neilson's undated account with RW, Nov. 1785–Jun. 1786, RWP.

<sup>23)</sup> In 1785, New York export merchant Ludlow & Gould bought 300 and 109 barrels of Waln's superfine flour in two purchases. See accounts between William Remsen and RW, May 21, 1785, and Robert Bowne and RW, Aug. 31, Nov. 9, 1785, RWP. On inspection see Henry Lisle to RW, Oct. 21, 31, 1783; Willet and Anthy Weeks to RW, Mar. 6, 17, 1784; Remsen to RW, Feb. 23, 1785, RWP; Arthur L. Jensen, "The Inspection of Exports in Colonial Pennsylvania," *PMHB* 78 : 3 (Jul. 1954), 275–297.

chants gathered a cargo of flour in their city and sent it to New York. Another challenge came from Wilmington, Delaware, in the Brandywine River area which had established itself as a milling center. By the early 1790s, there were thirteen mills in Wilmington, including those mechanized after Oliver Evans's plans. They were a long-stretched interregional enterprise. Wheat came from southern New Jersey, Maryland's eastern shore, northern Virginia, and even New York. This ample supply enabled millers to operate on a larger scale than Waln. Even in the lean and wartime year of 1779, Brandywine miller Thomas Lea's mill processed only some five hundred bushels less than what Waln's mill ground in 1786, and in 1781 Lea ground 57,939 bushels. The successful Wilmington millers diversified operation by owning ships and exporting flour directly from Wilmington to the West Indies as well as New York. And purchasers were aware of the high quality of the Brandywine flour.<sup>24)</sup>

Waln sent wheat flour mainly to New York because of higher prices there and natural constraints, and experimented with three shipping points. Letters from agents about prices and the pace of sales influenced his choice between the markets. When the decline in the prices at one market threatened to wipe out the margin of profit or the sales were slow there, he tapped the other market. Despite these efforts, he was not always successful in competing with other mills, and not much effort was directed at systematizing the whole venture and making it free of speculative aspects.

### Conclusion : Networks and Locational Disadvantage

Wheat supply from local farmers, which kept Waln's milling venture going, failed in 1788 and 1789 for a reason beyond Waln's control : the Hessian fly. Believed to have come with European soldiers during the Revolutionary War, this fly grew by eating the stem of the wheat plant. In one particularly destructive attack, it appeared in 1784 in Long Island and Westchester County, New York, and spread southward to Pennsylvania in the next few years. Jacob Downing reported in September 1788 from Philadelphia, "I know there is but very poor Crops of Wheat taking a circle of 60 miles from this City." Farmers were "yet in Shock in the fields."<sup>25)</sup>

As Table 1 shows, Waln's wheat purchases for 1788 and 1789 made a contrast with that for 1786. The total for 1788 was less than a fourth of the 1786 total, and in 1789 he procured only

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<sup>24)</sup> Bowne to RW, Feb. 8, 23, Mar. 1, 1786 ; Willet & Anthy Weeks to RW, Jul. 12, 1783, RWP ; Peter C. Welsh, "The Brandywine Mills : A Chronicle of an Industry, 1762-1816," *Delaware History* 7:1 (Mar. 1956), 17-36 ; *idem*, "Merchants, Millers, and Ocean Ships : The Components of an Early American Industrial Town," *ibid.* 7:4 (Sept. 1957), 319-338 ; Sara Guertler Farris, "Wilmington's Maritime Commerce 1775-1807," *ibid.* 14:1 (Apr. 1970), 22-51 ; Kuhlmann, *Development*, 24-25 ; Buel, *In Irons*, 17 ; Hunter, "Rage for Grain."

<sup>25)</sup> Jacob Downing to RW, Jul. 30, Sept. 6, 1788, RWP. On the Hessian fly ravage, see Bowne to RW, Jul. 12, 1784, *ibid.* ; *Pennsylvania Gazette*, Jun. 16, 1784, and Jun. 27, 1787 ; *Pennsylvania Evening Herald*, Jul. 23, 1785, and Aug. 15, 1787 ; Percy Bidwell and John Falconer, *History of Agriculture in Northern United States 1640-1880* (1925 ; reprint, New York : Peter Smith, 1941), 95-96 ; Hunter, "Rage for Grain."

one tenth the amount he had bought in 1786. The names of marginal landholders and landless men almost completely disappeared from Waln's grain purchase book. The few sellers in the smaller-sized farm categories are somewhat misleading, as, for example, the one seller in the 51–100 acre category for 1788 was Richard Potts, who by then held only 90 acres. The large landholders declined as sellers, both in absolute number and the amount they sold. Joseph Holmes continued to bring wheat as in 1783 and 1786, but only 104 and 48/60 bushels for 1788 and 31 and 37/60 bushels for 1789—a big drop from his previous 300 bushel-delivery. The local supply precipitously dropping, Waln tried in vain to buy wheat through his Philadelphia agent. “Have not been able to procure you any wheat that would come low enough to pay freight & halling & leave you a proffit,” reported Jacob Downing. Waln's New Jersey mill suffered in the buying competition due to high expected shipping expenses.<sup>26)</sup>

After such a challenge, how did Waln's mill fare in the long run? Table 5 summarizes the monthly shipment records for 1800 and 1801. There is some continuity from the mid-1780s. Winter shipments were for New York, and shipments to Philadelphia took place from spring through fall. The differences are more striking. Wheat flour declined to all but a marginal amount. Rye flour emerged as a major article, and Indian corn, sent exclusively to Philadelphia in the mid-1780s, was now sent to New York as well. Also important is the smaller scale of production. In 1785, the total amounts of wheat flour and corn meal sent to the markets were 1981 and 2225 barrels respectively. In 1801, Waln sent only 560 barrels of rye flour and 795 barrels of corn meal.

The mill would continue to operate into the mid-nineteenth century, but its operation was a far cry from that in earlier days. Besides the decline of wheat cultivation in New Jersey due to the ravage of the Hessian fly and soil exhaustion which contemporaries mentioned, a major price differential of wheat contributed to that. Waln purchased local wheat at 7 to 8 shillings per bushel. The Virginia wheat cost about 5 shillings and Albany wheat, 5 shillings 6 pence, per bushel. We have seen that Waln gave up on buying wheat from Virginia. And the Hudson Valley wheat was invading New Jersey. Samuel Neilson, Waln's shipper at South River, asked Waln in 1787 whether he was interested in “a Good mill Seat” in the locality to which “wheat Comes Cheaper from albany.” A New Brunswick merchant declared that wheat was becoming “a commodity of very considerable Speculation,” to be purchased in the Hudson Valley. Cheap wheat from Albany did not help Waln's mill, however, as it was not practical to cart Hudson Valley wheat to Walnford when carting from nearby Bordentown did not pay.<sup>27)</sup> Richard Waln went back to Philadelphia to resume his mercantile career, letting his son Nicholas take over. As the mill's smaller operation in 1800 suggests, this did not represent the diversification of a

<sup>26)</sup> Grain purchase book, 1786–1796 ; Downing to Jos Waln, Oct. 23, 1788, RWP.

<sup>27)</sup> John Rutherford, “Notes on the State of New Jersey,” *Proceedings of the New Jersey Historical Society* 1:2 (1868), 81 ; Bowne to RW, Mar. 10, 1786 ; Neilson to RW, Mar. 22, 1787 ; grain purchase books, 1773–1786, 1786–1796, RWP ; William Smith mill account book, William Smith Papers, RUL ; Jacob R. Hardenburgh to Nicholas Low, Dec. 9, 1792, Nicholas Low Papers, Library of Congress.

Table 5 Shipments of Flour from Wainford, 1800 and 1801 (in barrels, by grain types)

	to Philadelphia			to New York		
	corn	wheat	rye	corn	wheat	rye
1800						
Jan.	--	--	--	28	--	111
Feb.	--	--	--	--	--	14
Mar.	--	--	--	--	--	--
Apr.	--	--	36	--	--	--
May	--	9	120	--	--	--
Jun.	36	--	16	--	--	--
Jul.	--	--	--	--	--	10
Aug.	--	--	--	89	--	231
Sep.	--	--	50	--	--	70
Oct.	--	--	--	6	--	34
Nov.	275	--	9	8	--	--
Dec.	--	--	--	96	--	--
[subtotal]	311	9	231	227	0	470
1801						
Jan.	--	--	--	75	--	14
Feb.	--	--	--	97	--	55
Mar.	--	--	--	14	--	70
Apr.	--	--	--	72	--	--
May	--	--	--	63	--	44
Jun.	--	--	--	--	--	--
Jul.	--	--	--	--	--	142
Aug.	21	17	46	--	--	36
Sep.	--	--	--	8	--	14
Oct.	158	--	--	8	--	--
Nov.	--	--	7	219	--	114
Dec.	--	--	8	60	9	10
[subtotal]	179	17	61	616	9	499

Note: Shipments in one hogshead were counted as shipments in two barrels. See *The Laws of the Province of Pennsylvania* (Philadelphia: Andr. Bradford, 1714), pp. 21-23.

Sources: flour carting record, 1773-1791, RWP.

successful family enterprise. Wain withdrew from the West Indies trade in favor of the Asian trade, and died in 1809.<sup>28)</sup>

Wain's calculations were a response to the fluidity of nature and the markets. Principally a Philadelphian, he took advantage of the constraints of nature, chose shipping points, tapped the more brisk market of the two, and did not miss the moments of high prices. The mill integrated local farmers, coopers, and millers. The networks for the transport and disposal of wheat and flour bore little sign of predictability and integration. In the last analysis, Wain could

<sup>28)</sup> RW to Nicholas Wain, Jan. 7, 1808, RWP; Charles Lyon Chandler, Marion Brewington, and Edgar P. Richardson, *Philadelphia: Port of History, 1609-1837* (Philadelphia: Philadelphia Maritime Museum, 1976), 76, 114-115.

not offset the price differential of wheat and high interregional transport fees with what little he could do with the supply and shipment networks. Waln injected capital from his urban mercantile business into milling in the countryside, but the mill failed to provide him with the wherewithal to go deeper into manufacture. Milling was fast becoming an interregional industry even before the market revolution, and his dependence on local wheat proved fatal in the wake of the Hessian fly attacks and the competition with other mills at more advantageous locations.<sup>29)</sup>

Appendix Purchase of Grain at Walnford from Local Farmers, 1783-1805 (per bushel).

	wheat	rye	corn
1783	4750 53/60	--	77 17/60
1784	9437 15/60	135 17/60	3237 48/60
1785	10680 21/60	--	9730 45/60
1786	8198 15/60	--	4776 0/60
1787	5978 28/60	--	2997 4/60
1788	1910 12/60	932 2/60	3406 15/60
1789	828 32/60	5783 35/60	11262 52/60
1790	3300 24/60	5580 48/60	3434 40/60
1791	6087 40/60	1505 25/60	6845 20/60
1792	2281 58/60	1811 22/60	6791 44/60
1793	2603 11/60	2396 5/60	3629 55/60
1794	15 3/60	1618 5/60	6010 56/60
1795	1267 48/60	4725 14/60	1833 1/60
1796	256 12/60	2805 54/60	2312 35/60
1797	154 6/60	3289 6/60	4082 7/60
1798	--	2540 32/60	3573 16/60
1799	--	3072 38/60	3279 53/60
1800	--	2725 36/60	3547 2/60
1801	431 49/60	2462 48/60	2405 20/60
1802	559 26/60	3572 35/60	2899 42/60
1803	134 34/60	3130 27/60	2785 33/60
1804	107 27/60	1358 7/60	2714 14/60
1805	302 7/60	1832 56/60	214 18/60

Note: Exclusive of purchases made at Philadelphia and Virginia. For purchasing season, see note 9.

Source: grain purchase books, 1773-1786, 1786-1796, 1797-1840, RWP.

<sup>29)</sup> On flour mills as a stepping stone to industrialization, see Hunter, "Rage for Grain." Sources suggest that Waln ordered millstones from Britain, but invested in land rather than manufacture. RW to John Warder, Feb. 26, 1786, RW letterbook (millstone); Henry Drinker to RW, Sept. 16, 21, 1788 (land), RWP.

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Map 1

The Concentric Circle Model Applied to the New York-Philadelphia Area  
Source: Peter O. Wacker and Paul G. E. Clemens, *Land Use in Early New Jersey: A Historical Geography* (Newark: New Jersey Historical Society, 1995), 48.

Map 2

Map of Late Eighteenth-Century New Jersey

Source: Richard P. McCormick, *Experiment in Independence : New Jersey in the Critical Period, 1781–1789* (New Brunswick : Rutgers University Press, 1950), opposite to title page.

# 一製粉所と二つの市場：1780年代における小麦と ニューヨーク—フィラデルフィア地域の 都市—農村間ネットワーク

## 〈Summary〉

橋川健竜

本稿は1780年代に元フィラデルフィア商人リチャード＝ウォルンがニュージャージー州中部で営んだ製粉所——工場制工業の出現以前ではもっとも高度な製造業——をとりあげ、経済発展の条件について論じる。ウォルンの小麦入手と小麦粉供給のパターンからは、市場革命以前にすでに農村が市場ネットワークの一部だったことがわかるが、彼の製粉所は安価な小麦を入手しにくい場所に立地しており、その影響は決定的だった。ウォルンは血縁およびクエーカー教徒のネットワークを利用して安価なヴァージニア小麦を買いつけようとしたが、輸送費がコストを押し上げ、輸送船舶の運航が不定期にすぎたため断念した。地元農民はウォルンに小麦を売るのが躊躇しなかったが、地元の小麦生産は天災と土地がやせたことにより、落ちこんだ。ウォルンは売れ行きと価格の情報をニューヨークとフィラデルフィアの商人から頻繁に得て、より有利な市場に小麦粉を送った。しかし市場の選択の成果は、収益の増大より、取り引きの低調な市場の回避、という便にとどまった。彼の小麦粉はしばしば粒が粗く湿っており、高品質で知られたデラウェア州ブランディワイン川地域からの小麦粉との競争に勝てなかった。ウォルンの製粉所は1800年までに生産量が落ち、ウォルンはフィラデルフィアに戻って再び商人となる。地域間の連結を利用できるかどうか、市場革命以前においても経済発展にとって重要だったことを、彼の事例は示している。