

Labor and Capital in the Early Period of Manufacturing: The Failure of John Nicholson's Manufacturing Complex, 1793-1797

IN 1794, JOHN NICHOLSON, a wealthy entrepreneur and speculator, established a manufacturing village — an eighteenth-century company town — at the Falls of Schuylkill just a few miles outside Philadelphia. Nicholson's enterprise failed within four years; yet the extant records of the short-lived venture open the door, if but a crack, on the little known world of the non-mechanized factory in the early stages of domestic manufacture. This period of capitalist development, when wage labor was centralized into manufactories prior to mechanization, generally has been ignored by students of the industrialization process.

Social historians have an inadequate understanding of how the early industrial factory system changed, or why it developed, from the quite different form of urban handicraft production. E. P. Thompson and Herbert Gutman have argued that the first generation of factory workers held a set of "pre-industrial" work habits and practices that jarred against the imperative standards and structures of the profit-minded manufacturer.¹ While Nicholson may not have been typical of the manufacturers of the period because he overextended and mismanaged his investments, knowledge of the experiences of the employer and of

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¹ Herbert Gutman, "Work, Culture, and Society in Industrializing America, 1815-1919," *American Historical Review*, 78 (June, 1973), 533-588; E.P. Thompson, "Time, Work-Discipline, and Industrial Capitalism," *Past and Present*, 38 (December, 1967), 56-97. For a more recent restatement of this assumption see Daniel Rogers, "Tradition, Modernity, and the American Industrial Worker: Reflections and Critique," *Journal of Interdisciplinary History*, 7 (Spring, 1977), 657-58.

his employees gives us a more precise understanding of the relationship of capital and labor in the early national period. Nicholson, his managers, and his laborers possessed a mixed set of interests and abilities that complicated their roles in the nascent factory wage-labor system and hampered the starting up and operation of the manufacturing enterprise.

Philadelphia entrepreneurs undertook their first ventures into domestic manufacturing in the 1790s, imbued with capitalist expectations and republican visions of political economy. New opportunities and markets opened as the post-war commercial crisis ended. At the same time, pervasive urban unemployment and poverty forced republican idealists to reassess America's supposed escape from the problems of economic inequality that plagued European society. Many of the Philadelphia based nation-builders became convinced that domestic manufacturing would be the only way to maintain a self-sufficient, fully employed, and thus virtuous, citizenry in the expanding post-Revolutionary society. In 1787, Tench Coxe led fellow Philadelphia manufacturing advocates in the establishment of the Pennsylvania Society for the Encouragement of Manufacture and the Useful Arts. Joining Coxe as a founder and member of its committee to promote manufactures was John Nicholson.²

A young Philadelphian of thirty-four when he began plans to manufacture glass, yarn, buttons, and hosiery, Nicholson already had made and lost thousands of dollars in the volatile post-Revolutionary land market. A speculator *par excellence* in the 1790s, he controlled, on paper at any rate, over four million acres of Pennsylvania land when he died in debtors' prison in 1800. Nicholson and his partner Robert Morris had engaged in too many unsound land schemes and too thinly spread their credit. Nicholson's Falls of Schuylkill manufacturing

² For a discussion of the re-orientation of markets in the mid-Atlantic after Independence see Gordon C. Bjork, "The Weaning of the American Economy: Independence, Market Changes, and Economic Development," *Journal of Economic History*, 24 (December, 1964), 545 and 541-60 *passim*. Drew R. McCoy, *The Elusive Republic: Political Economy in Jeffersonian America* (Chapel Hill, North Carolina, 1980), 360. On the transition in republican attitudes on manufacturing see McCoy, chapter 4, and John F. Kasson, *Civilizing the Machine, Technology and Republican Values in America, 1776-1900* (New York, 1976), 6-32. David J. Jeremy, "The British Textile Technology Transmission to the United States: The Philadelphia Region Experience, 1770-1870," *Business History Review*, 44 (Spring, 1973), 32. Robert D. Arbuckle, *Pennsylvania Speculator and Patriot: The Entrepreneurial John Nicholson, 1757-1800* (University Park, Pennsylvania, 1975), 139.

complex was one of many investment schemes, an attempt to salvage a failed land deal. As an early member of the corps of Federalist manufacturing promoters who revolved around Hamilton and Coxe of the Treasury Department, Nicholson held a sense of utopian enthusiasm for home manufacture. With the assurance that he would gain both the "merited esteem of [his] country" and "advantage in a pecuniary way," Nicholson began planning an ambitious manufacturing experiment in the spring of 1793.³

Support and advice for Nicholson's venture came from European mechanic-manufacturers, with whom he made contact and who shared his belief that prospects for profitable manufacturing in America were at hand. These men played an ambiguous role in the early stage of factory production, for they were partly skilled workers, partly supervisors, and partly owners. Their skills and knowledge of production were indispensable to capitalists like Nicholson who had no experience in manufacturing and in managing labor.

Consulting with a handful of English, Scottish, and American machine builders and mechanics, Nicholson decided not only to launch a spinning and hosiery manufactory but to establish a diversified and self-contained manufacturing complex with his advisors as partners and managers. William Pollard, who had acquired the first patent in Philadelphia for the Arkwright spinning frame, agreed to build and manage the cotton mill. Nicholson induced John Campbell to abandon Alexander Hamilton's struggling project at Paterson and convinced John Lithgow and William England to leave Scotland in order to build stocking frames and supervise hosiery production for him. Two English glass manufacturers advised him on the glass bottle business. Nicholson hired Charles Taylor, builder of the Albion Mills in England, to supervise the making of steam engines. These men, drawing on the models of English factory communities, outlined a plan to turn Nicholson's three hundred acres at the Falls of Schuylkill into a "val-

³ Nicholson and Morris invested in road and internal improvements, iron works, the building of the capital city in Washington, D C , public securities, and a variety of other ventures. When Nicholson died in debtors prison at the age of forty-three, he owed creditors twelve million dollars. See the biography by Arbuckle, *Nicholson*, 2, 3, 139-42 and chapter 9. William Pollard to John Nicholson, April 27, 1793, The John Nicholson Papers, General Correspondence, 1772-1819, MG 96, Pennsylvania State Archives, Harrisburg, Pennsylvania (hereafter cited as GC).

uable little village.”⁴ When the French traveler Rochefoucault-Liancourt visited the “extremely well chosen” site in the spring of 1795, he was impressed with the still unfinished complex of warehouses, foundry, glass and stocking manufactories, workmen’s dwellings, and company store. “Everything promises success to the undertaking,” the French visitor wrote.⁵

One element, however, clouded the optimistic predictions for Nicholson’s undertakings. “Before any person begins manufacturing,” the Scottish loom builder John Lithgow warned Nicholson in the fall of 1794, “he should consider how he is to be furnished with these three articles — Machinery, Materials and Workmen.”⁶ To secure workmen for a manufacturing labor force was difficult and expensive in late eighteenth-century Philadelphia. Through the 1790s the complaint of “labor is so high” or “manual labor is so expensive” typified what manufacturing entrepreneurs viewed as their primary obstacle.⁷

Manufacturers like Nicholson confronted a tight market for unskilled workmen such as carters, boatmen, button makers, and quarymen during the season when hinterland farmers demanded harvest workers. “There are [a] few good workmen,” Rochefoucault-Lian-

⁴ On Pollard’s background and effort to patent the Arkwright frame see Anthony Wallace and David J. Jeremy, “William Pollard and the Arkwright Patents,” *The William and Mary Quarterly*, Third Series, 34 (July, 1977), 409-417; Samuel Batchelder, *Introduction and Early Progress of the Cotton Manufacture in the United States* (Boston, 1863), 35. Pollard to Nicholson, April 3, April 30, 1793, Aug. 4, Sept. 29, Oct. 1, Oct. 14, Oct. 16, 1794, May 17, Sept. 8, 1795, GC; Estimate of the Cost of Machinery . . . by William Pollard for John Nicholson, March 1, 1793, Samuel Wetherill Papers, Acc. 1436, Eleutherian Mills Historical Library, Wilmington, Delaware. Campbell to Pollard, Jan. 30, Feb. 6, 1794, GC. Lithgow to Nicholson, Oct. 21, Oct. 24, Nov. 17, 1794, May 10, 1795, GC; Nicholson to Lithgow, April 13, 1795, John Nicholson Letterbooks, Vol. I, Historical Society of Pennsylvania (hereafter cited as LB). John Trenchard to Joseph Barnes, Aug. 26, 1795, II, LB; Charles Taylor to Nicholson, Jan. 26, 1796, GC; Thomas Bedwell to Nicholson, July 2, 1793, GC. On Nicholson’s contacts with Jonathan Mix, a New Haven manufacturer of metal rimmed buttons, see Jn. and Jonathan Mix to Nicholson, nd, Figure One, Jn. Mix to Nicholson, July 18, 1795, GC. See Arbuckle, *Nicholson*, 142, 144, 146, 147.

⁵ Francis A. de Rochefoucault-Liancourt, *Travels Through the United States of North America . . . 1795, 1796 and 1797* (London, 1799), I, 4. Nicholson to William Crammond, Sept. 15, 1795, III, LB; Nicholson to James Yard, Aug. 29, 1795, II, LB.

⁶ Lithgow to Nicholson, Oct. 21, 1794, GC.

⁷ Memorial of Mr. Pallvison of Scotland on Labor Saving Machinery, undated, Tench Coxe, Correspondence and General Papers, Historical Society of Pennsylvania. And see advertisement of James Davenport, Fall, 1797, quoted in William R. Bagnal, *The Textile Industries of the United States, 1, 1639-1810* (Cambridge, 1893, reprinted New York, 1971), 225. Campbell warned Nicholson that “a great deal of capital” was needed due to the “difficulty of procuring machinery and workmen.” Campbell to Nicholson, April 4, 1795, GC.

court summed up Nicholson's predicament, "who are with difficulty obtained, and whose wages are exorbitant."⁸ In a country where there was not even a reserve of unskilled labor, skilled tradesmen — including glassblowers, stocking weavers, frame smiths, and machine builders — were particularly difficult to find and expensive to hire. The possibility of substituting machine capital for labor capital was severely limited in this period. Machine technology and mechanization had not been developed to replace human skills in glass making, stocking weaving, and fine yarn spinning. Labor saving innovations, which "convert[ed] cheap unskilled labor into cheap skilled labor," had been introduced in coarse yarn spinning, which was to be the centerpiece of Nicholson's venture. But even here Nicholson faced stiff competition for the skilled mechanics to build the Arkwright cotton spinning frame.⁹

Early American textile capitalists, like Nicholson, encountered the particular hardship of British restrictions to protect its monopoly of skilled textile operatives and machine builders. Parliament had passed stiff laws to prevent both the emigration of mechanics and export of machine models. To compete successfully manufacturers developed stealthy tactics to evade the laws and vie for British frame builders and engine designers. Nicholson and his textile experts discussed, plotted, and played the game of commercial subterfuge as readily as other American manufacturers.

One of the first concerns of Nicholson and his partners was how "to obtain artists" from England and Ireland. Nicholson was well aware that they would have to take care "to prevent the interposition of government."¹⁰ Pollard, who had carefully considered the problem of acquiring skilled labor, was optimistic that they "should not be at a loss for workmen in [their] present plan." The stiff labor market in England, Scotland, and Ireland, he felt, would induce "unfortunate" competitors to immigrate to America.¹¹

⁸ Liancourt, *Travels*, I, 5.

⁹ On wage-rate ratios of skilled to unskilled see Donald R. Adams, "Some Evidence on English and American Wage Rates, 1790-1830," *Journal of Economic History*, 30 (September, 1970), 499-511 and Adams, "Wage Rates in the Early National Period, Philadelphia, 1785-1830," *Journal of Economic History*, 28 (September, 1968), 404-426. Quote is from Carville Earle and Ronald Hoffman, "The Foundations of the Modern Economy: Agriculture and the Costs of Labor in the United States and England, 1800-60," *American Historical Review*, 85 (December, 1980), 1087.

¹⁰ Nicholson to Pollard, April 25, April 27, 1793, I, LB.

¹¹ Pollard to Nicholson, April 30, April 27, May 4, 1793, GC.

John Lithgow, not sharing Pollard's optimism about the English market for either skilled or unskilled workmen, argued that Nicholson should tap the rural labor market. "In any Seaport Town," he explained, "it would be difficult to get textile workers at a reasonable wage." Laborers received a dollar per day in Philadelphia. "To manufacture stockings or weaving of any kind in Philadelphia," Lithgow wryly pointed out, "is like building ships at Pittsburgh." If textiles were to prove profitable, the manufacturer would have to locate in an inland town "where men will be satisfied with five shillings per day."¹²

Lithgow's pessimism about the labor market was warranted, as Pollard and John Campbell soon discovered when they began construction of textile machinery and production. Within a month, Pollard was complaining of the difficulty "in getting Workmen and at advanced prices to what I expected."¹³ He found that he could not employ workers to labor for six shillings (78 cents) per day, as he had anticipated. He also discovered that he had to compete with farmers for workmen in the warm months. Because tradesmen were "scarce to be got," construction of the spinning mill was delayed for weeks. Pollard also complained that his work was "all new" to American workers. "Much disappointed by [American] tradesmen," Pollard personally contacted skilled British spinners and machinists and urged Nicholson to raise wages above the rate in New York and Paterson and to pay promptly.¹⁴ Campbell increased the wages of his frame builders to over two dollars per day in order to compete for workers and attempted illegally to bring framesmiths from New York.¹⁵

Facing stiff competition for textile machine builders and operatives, Nicholson also found that glass blowers in America were in short supply and commanded high wages, earning a dollar per day by the

¹² Lithgow to Nicholson, April 8, 1795, Oct. 21, 1794, GC.

¹³ Pollard to Nicholson, May 31, 1793, GC.

¹⁴ Pollard to Nicholson, May 12, May 15, July 10, Aug. 4, 1793, Oct. 10, 1794, May 17, 1795, GC. Pollard complained to Nicholson, "I have one man lately from London who understands every part of my Work, and I should be exceedingly sorry to turn him off least the Company at Paterson should get him." Pollard described his English and Scottish workers as "capital in their way." Pollard to Nicholson, Sept. 24, 1793, GC.

¹⁵ Campbell was arrested in New York in his unsuccessful attempt. It is unclear what law he violated. Campbell to Nicholson, Nov. 3, 1794, April 10, 1795, GC. On another occasion, Nicholson had to bail Campbell out of jail for smuggling three textile workers out of Scotland, Arbuckle, *Nicholson*, 148.

end of 1795.¹⁶ In order to procure a labor force for his glasshouse, he advanced wages and passage from Amsterdam to a number of German glassblowers and members of their families. He also negotiated to bring a company of five German-born Baltimore glassmakers to the Falls of Schuylkill. They demanded wages of thirty dollars per month or half of that and a "free house included," reminding Nicholson that they had "a very good prospect that several of us will get employment somewhere else. . . ."¹⁷ Nicholson subsequently contracted with three of the five glassmakers on their terms. Within a few months of their employment, however, the Baltimore glassblowers threatened to leave Nicholson's employment, apparently "bribed by some people of Jersey."¹⁸

The labor market for unskilled workers differed significantly from that for skilled. Nicholson was not compelled to turn to Germany or England for button workers, boatmen, or quarrymen, who commanded one half to three quarters of the wage rate of glassblowers, framemakers, or machinemakers. Yet even unskilled labor became scarce during the harvest months. Nicholson contracted with farmers in the area to bring in companies of workers for his quarry and paid what he considered high wages to keep them there. And, like the skilled workers that came into Nicholson's employ later, the quarrymen continually pursued the highest pay in the area. Within the year, Pollard complained that the most experienced of his crew had left when Nicholson's turnpike company, another of his business ventures,

¹⁶ Accounts of Workmen, Book A, 1794-96, Book B, 1795-97, Glass Works Accounts, John Nicholson Papers, Individual Business Accounts, MG 96, Pennsylvania State Archives, Harrisburg (hereafter cited as IBA) Nicholson to Eichbaum, Jan 6, 1796, III, LB In January 1797 John Nicholson and the proprietors of glass manufactories in Boston petitioned the government for additional duties on the importation of glass stating "that the high price of labor forms a greater obstacle, at present, [than the system of duties] to the prosperity of manufactures, in general, and this is an evil which only time can cure" Quoted in Thomas C Cochran, ed., *The New American State Papers, Manufactures*, (Wilmington, Del., 1972), I, 73 On the skill of glass workers see Joan Wallack Scott, *The Glassworkers of Carmaux: French Craftsmen and Political Action in a Nineteenth-Century City* (Cambridge, Massachusetts, 1974), 19-20, 32, 38

¹⁷ William Reid to John Nicholson, Sept 10, 1795, June 27, 1796, July 1, 1796, GC Christian Triepel and Charles Eckhard to Nicholson, June 28, 1795, GC On wage demands see Triepel and Eckhard to Nicholson, April 19, 1795, GC See also Nicholson to Charles Triepel and Charles Eckhard & Others, July 3, 1795, II, LB, Nicholson to Eichbaum, May 16, 1795, II, LB On Nicholson consulting Eichbaum on the matter see Nicholson to Eichbaum, June 11, 1795, June 18, 1795, July 1, 1795, II, LB

¹⁸ On wage arrangements see Nicholson to Eichbaum, July 26, 1795, II, LB, Eichbaum to Nicholson, May 11, 1795, GC, Accounts of Workmen, Book A, 1794-96, Book B, 1795-97, Glass Works Accounts, IBA, Quotation is from Henry Elouis to Nicholson, Feb 13, 1796, GC

failed to meet competitive wage rates.¹⁹

Faced with unexpected difficulties in recruiting a work force, Nicholson also confronted problems with the discipline of those he hired. Nicholson and the manufactory supervisors attempted to organize and to manage production effectively and profitably. Yet their attempts were undermined, they judged, by the customary work habits and attitudes of those who labored for them.

Nicholson's diverse manufacturing complex made both the tasks of balancing accounts and supervising labor time consuming and difficult. No clear distinction emerged between owner and manager in this early system of factory management. Nicholson was at the top of a hierarchy that oversaw production and marketing of the various branches of the complex and was involved almost daily in operations. He set up each manufactory as a department, headed by a superintendent who managed the workers and, supposedly, attended weekly meetings.²⁰ A manager of the store at the Falls handled the distribution of the manufactured goods and the sale of supplies to the department heads and workers. Nicholson required an agent at the Falls, Henry Elouis, to oversee the transportation of manufactured goods and materials between the various manufactories, the store, and Philadelphia and to send daily reports.²¹

Nicholson made clear that careful accounting procedures were necessary "so as to give a view of the Profit of the work."²² He required the store manager to keep an order book, day book, journal, and ledger to record all orders for products and sales. Each department head received explicit instructions from Nicholson to deliver their manufactured goods to the store and to "keep a book like a Bank book" so

¹⁹ For wage rates of boatmen and quarrymen, which varied between 71 and 78 cents (five-and-a-half and six shillings) per day, see Account that Henry Elouis gave to John Nicholson . . . , IBA. On the wages of button workers, which varied from approximately \$11.70 to \$14.56 per month, see Ledger, 1795-96, Button Works Account, IBA. Workmen's Time Books, 1793-94, Delaware and Schuylkill Navigation Canal Company Accounts; John Nicholson Papers, Delaware and Schuylkill Navigation Canal Company Accounts, Box 1a, Pennsylvania State Archives, Harrisburg; *Ibid.*, Accounts and Receipts, 1792-95. Pollard to Nicholson, Jan. 9, Jan. 13, Oct. 6, 1793, GC. Benjamin Rittenhouse to Nicholson, Dec. 25, 1794, GC.

²⁰ Nicholson to Eichbaum, June 15, 1795, II, LB. Nicholson to James Trenchard, July 14, 1795, II, LB, June 1, 1795, I, LB; Henry Elouis to Nicholson, July 28, 1795, GC; Nicholson to John Bowler, June 25, 1795, II, LB.

²¹ Nicholson to Henry Elouis, Jan. 25, 1795, III, LB; Account that Elouis gave to Nicholson of his Administration as Agent at the Falls Schuylkill, Elouis, Henry, Accounts 1794, IBA.

²² Nicholson to Eichbaum, June 15, 1795, II, LB.

the store manager could record their deliveries. Nicholson believed that meticulous bookkeeping would facilitate the exchange of "information and advice" and help "produce the greatest profit."²³

To facilitate control of the labor force, Nicholson gave each superintendent autonomy over his workers. "I trust you will do as far as you can," he confided to one of his managers, "to see that I do not pay more than I ought — and that I am faithfully served by those I employ."²⁴ To enable the supervisors to keep "an Eye to [the workers] dayley," Nicholson provided lodging for them at the Falls. The quarry superintendent, who benefited from the policy, agreed with Nicholson's rationale: "I could every moment [see] how the business there would be done."²⁵ Nicholson facilitated the face-to-face control of his supervisors by authorizing them to dispense housing to their charges and by making himself visible to his workmen, traveling to the Falls complex regularly from Philadelphia to see and be seen by his wage earners.²⁶

Despite a careful plan of management and supervision, the manufactories did not produce profits for Nicholson and his supervisor-partners. They blamed the behavior of their laborers. Not only did the workmen resist attempts to structure and standardize the work day, but they were not as productive as Nicholson and his supervisors had hoped. The French traveler Liancourt praised Nicholson's choice of "very able men" to conduct the manufactories but expressed a very pessimistic view of the labor force. "A whole year may elapse, before the workmen fall into a proper train of business," he noted. This circumstance, he warned, did "not afford the most flattering prospects of success."²⁷ To prove Liancourt's assertion, the Falls supervisors could have compiled a list of their complaints about their employees: the refusal to accept job assignments, unwillingness to conform to a

²³ Nicholson to Eichbaum, Jan. 8, 1796, III, LB; Nicholson to Thomas Bourne, Jan. 8, 1796, III, LB; Nicholson to William England, March 28, 1796, IV, LB.

²⁴ Nicholson to Thomas Joubert, April 11, 1796, IV, LB; Nicholson to Elouis, March 22, 1795, I, LB.

²⁵ Elouis to Nicholson, March 5, 1795, GC.

²⁶ On the housing situation see Nicholson to Eichbaum, Aug. 26, 1795, II, LB; Nicholson to Mr. Groves, March 20, 1795, I, LB; Eichbaum to Nicholson, March 18, 1796, GC. On Nicholson's trips to the Falls see Nicholson to Henry Elouis, June 5, 1795, II, LB; Nicholson to Thomas Joubert, Oct. 20, 1796, IV, LB; Nicholson to John Bowler and Charles Taylor, June 4, 1795, II, LB.

²⁷ The workmen were "not affording [him] much profit," Nicholson told Jacob Servoss. Nicholson to Servoss, April 14, 1795, I, LB. Liancourt, *Travels*, I, 5.

timetable or structured work day, low productivity, and disregard for property.²⁸

The work habits of the employees constantly frustrated the supervisors. Both the unskilled and skilled workers periodically took off from work, sometimes for days at a time. The transportation of materials and manufactured goods was recurrently interrupted by the "intolerable behavior" of teamsters and boatmen, who abandoned their loads. Boatmen Patrick Doad and Samuel Right caused a "horrid delay" when they chose to go into Philadelphia for two days "to see some of their relations come from Ireland with the *Morning Star*."²⁹ In the winter of 1796, Henry Elouis reported to Nicholson that some of his quarrymen and laborers were "so idle that they cannot be discharged too soon." The young unskilled assistants in the glass manufactory would not be disciplined either. Eichbaum complained of the boy attendants who preferred to "employ their time in fishing instead of working."³⁰

Such irregular work schedules often contributed to expensive delays or loss of products.³¹ The work pattern of the glassmakers caused the most costly damages. Glass manufacturing did not conform to a prescribed working day. The furnaces, prepared during the day, demanded constant tending and a batch of glass had to be worked as soon as it was ready, usually during the cool of the night hours. During one month Eichbaum charged some of his glassmakers with lost time for leaving the manufactory with "the best glass in the fire and the greatest demands." On another occasion the glassmakers so frustrated Nicholson for "burning the coals and making no glass . . ." that he threatened to jail them.³²

²⁸ On refusal to accept certain jobs see Elouis to Nicholson, Feb. 2, 1796, GC; Eichbaum to Nicholson, May 11, 1796, GC. See also Joubert to Nicholson, May 30, 1797, GC; Nicholson to Thomas, May 31, 1797, VII, LB.

²⁹ The quotation is from Joubert to Nicholson, Aug. 11, 1796, GC. See also Nicholson to Joubert, March 31, 1796, The Papers of John Nicholson, Box 2910 #1, Library of Congress; Joubert to Nicholson, April 29, 1796, GC; Nicholson to Josiah Gordon, Sept. 29, 1795, II, LB; Nicholson to Thomas Flood, June 5, 1795, II, LB.

³⁰ Elouis to Nicholson, Feb. 2, 1796, GC; Eichbaum to Nicholson, May 20, 1796, GC.

³¹ Pollard to Nicholson, June 6, 1795, GC.

³² Eichbaum to Nicholson, May 20, 1796, Oct. 17, 1795, GC. On deducted time see *Accounts of Workmen*, Book A, 1794-96, Book B, 1795-97, Glass Works, IBA. On glass manufacturing see Arlene Palmer, "The Glass Makers of Early America," paper presented at Winterthur Conference, November 1979, Winterthur Museum. Joan Scott has described how molten glass was prepared from noon until midnight in the furnaces. The glass workers then blew bottles from midnight to noon when it was coolest. See *Glassworkers of Carmaux*, 32.

From the managers' point of view, manufactory workers frequently did not comply with a standard work schedule because of drinking, a customary practice of eighteenth-century work life. "Country rum" and Lisbon wine were standard supplies at the Falls store, and Nicholson occasionally filled direct requests for spirits judging grog as an encouragement to productivity. But supervisors regularly sent complaints to Nicholson that intoxicated and disorderly glassmakers, quarrymen, boatmen, carpenters, or other employees had brought production to a standstill.³³ A winter drinking binge by the glass workers, who traditionally consumed large amounts of water or liquor because of the intense heat of the fires, halted glass making for days. William Eichbaum reported to Nicholson that in one afternoon most of his workers got drunk, preventing the nightly pot-setting. "Skirmishes proceeded from Drunkenness" and drinking continued through the next day. Eichbaum informed Nicholson that he would be able to see him in Philadelphia "as soon as Bacchus' Reigne is over."³⁴

Beyond being dismayed at the idleness and drinking of the workmen, Nicholson and the supervisors basically mistrusted them. As far as Henry Elouis was concerned, the Falls "was surrounded by a good many rogues" who would just as soon "rob and abuse" Nicholson. The workmen had prompted this comment when they cut down trees and split boards on Nicholson's property. Even the store manager was skeptical of the workmen. He placed locks on the doors of the store, assuming that they would steal any goods that were left exposed.³⁵

Labor appeared to present a two-fold problem for the early capitalist manufacturer: it was expensive and unreliable. Unskilled button workers and quarrymen were relatively inexpensive at approximately fifty-four to seventy-eight cents per day, but skilled glassmakers, found-

³³ See Elouis to Nicholson, March 22, 1795, Nov 14, 1795, Joubert to Nicholson, May 20, 1796, GC Jonathan Mix to Nicholson, March 18, 1796, GC On one occasion, Elouis relayed the request of the carpenters who were "raising a new home" for "ten gallons of spirits." Elouis to Nicholson, March 22, 1795 Joubert requested liquor — "a few gallons of anything" — to make sure the glass workers finished an order Joubert to Nicholson, May 20, 1796, GC On drinking as a traditional habit and practice of pre-modern work life see Howard B. Rock, *Artisans of the New Republic: The Tradesmen of New York City in the Age of Jefferson* (New York, 1979), 296-97, and W. J. Rorabaugh, *The Alcoholic Republic: An American Tradition* (New York, 1979), 132-33.

³⁴ Eichbaum to Nicholson, Jan 29, 1796, GC On the reports of drinking see Elouis to Nicholson, Feb 22, 1795, GC, Thomas Flood to Nicholson, June 19, 1795, GC, Joubert to Nicholson, April 29, 1796, GC On drinking habits of glass makers see Scott, *Glassworkers of Carmaux*, 42.

³⁵ Elouis to Nicholson, Jan 20, 1795, GC, Nicholson to Elouis, March 22, 1795, I, LB N F Mix to Nicholson, Jan 5, 1795, GC

rymen, cotton spinners, whitesmiths, and stocking makers commanded no less than a dollar for a day's work. Moreover, these costly workmen, according to their supervisors, were not productive wage laborers. Henry Elouis's complaint that "a steady and sober man is much wanted" expressed the frustration of the supervisors in every manufactory.³⁶

The profit-minded investor and supervisors portrayed an overpriced and unmanageable labor force — prone to idleness, drunkenness, and disregard for property. The analysis of the early factory laborers and of the relations of labor and capital, however, must be taken farther. When we begin to examine the interest and position of the wage laborers, the factors that defined the social relations of production and inhibited the success of capitalist manufacturing in this period appear much more complex. Nicholson's labor problems were much more than a case of what Herbert Gutman has called the first-generation factory workers' "irregular and undisciplined work patterns that frustrated cost-conscious manufacturers." Nicholson's workers were neither unable nor unwilling, as E.P. Thompson and Gutman might suggest, to engage in a structured wage-labor system of production.³⁷

To explain the confrontation between labor and capital in the 1790s it is necessary to understand the labor process and relations of production within the manufactory and how they might have changed. The system of production in Nicholson's various manufactories resembled what Marx defined as manufacture in its simplest form: the simultaneous employment by one capitalist of a number of wage-earning craftsmen who do the same kind of work. The gathering of workers under one roof gave the employer control over production and the length of the working day which was impossible without centralization. Managers became necessary to enforce the prescribed hours of labor. This differed from handicraft production, which was generally individual in character. Whether he was a propertyless journeyman or independent master, the handicraft producer generally worked at his own pace and in his own fashion.³⁸

³⁶ Elouis to Nicholson, Feb. 2, 1796, GC.

³⁷ Thompson, "Time, Work-Discipline, and Industrial Capitalism," passim; Herbert Gutman, "Work, Culture, and Society in Industrializing America, 1815-1919," passim.

³⁸ Karl Marx, *Capital, A Critique of Political Economy*, Vol. 1, (1867, Vintage Book Edition, New York, 1977), 456-57; Maurice Dobb, *Studies in the Development of Capitalism* (London, 1946), 259; Sidney Pollard, *The Genesis of Modern Management: A Study of the Industrial Revolution in Great Britain* (London, 1965), 65-66. Bruce Laurie, *Working People of Philadelphia, 1800-1850* (Philadelphia, 1980), 13.

During the initial transition to centralized production the labor process of the bottle makers, frame makers, or stocking weavers did not change. This is a crucial distinction to make between the early manufactory and the mechanized factory. Nicholson achieved a division of labor in button making, but the glassmakers, frame smiths, and stocking weavers maintained the traditional processes of their trade within the system of capitalist manufacture. Nor were Nicholson's employees unfamiliar with the exchange of labor power for some type of wage payment. Journeymen in traditional handicrafts had frequently received direct wages from their masters. What changed between the period of handicraft production and the advent of manufacturing, however, was that the journeymen, stocking weavers, or frame smiths no longer "had a reasonable opportunity to set themselves up as independent masters."³⁹ The interest of those who labored in Nicholson's manufactory sprang from their dual position as workmen who retained control over the labor process and as wage earners dependent on their earnings for subsistence.

The conflict, then, between Nicholson and his laborers came out of the inconsistencies of the early factory wage-labor system. While Nicholson, the capitalist manufacturer, bought, organized, and supervised the labor power of his hired workmen, he failed to pay money wages in a consistent or systematic way. The irregular and unproductive work habits described by the supervisors occurred within the context of unreliable wage payments. Far from proving that the workers clung to accustomed patterns of work time and stubbornly resisted a new system of labor, the drinking binges, the impulsive break from work to visit relatives, and the disregard for the product of their labor can be interpreted as an early form of labor protest. Customary practices or pre-capitalist work life, the daily breaks for grog in the shop and the irregular pattern of seasonal and custom production, certainly provided the basis for this type of activity. These actions, however, can also be understood as part of a broad range of individual and collective opposition to an uncertain system of wage payments. However high the wages were in Nicholson's view, they were the vital means of subsistence for his employees. Nicholson's workmen also voiced their protests, organized, and took positive steps to guarantee that the wages they earned were paid promptly.

³⁹ On glass makers see Scott, *Glassworkers of Carmaux*, 34, Eric Foner, *Tom Paine and Revolutionary America* (New York, 1976), 32.

Within months of starting production at the Falls complex, Nicholson was failing to meet the routine demands of the various branches for both weekly wage payments and materials. Despite the fact that "the want of [his manufactories] commodities . . . ensure[d] them a certain market," Nicholson did not have enough operating or liquid capital.⁴⁰ "Engaged in so many manufactories" at the same time that he faced large debts for failed land investments, Nicholson had spread his capital too thin. While he complained in early 1795 that the stocking weavers "are not affording me much profit," he well knew the circular nature of his dilemma: if he did not supply cash to his manufactories, they would not produce a profitable return.⁴¹ As owner-manager, Nicholson realized that a sound wage system was essential to the profitable operation of his enterprise. Over the next two years, the workmen, supervisors, and Nicholson struggled over the issue of regular production and regular wages.

The workmen adopted a number of strategies to obtain steady wage payments. When not paid on time, many of them simply decided to leave Nicholson's employ and search for a more reliable employer. Groups of the general workmen at the Falls' village — the carpenters, quarrymen, and boatmen — quit in waves when intermittent wage payments became a chronic problem. Toward the end of 1795, the local butcher was refusing to give the quarrymen meat because they could not pay their bills. The carpenters complained that they could not get materials with "nobody willing to trust them."⁴² By the spring of 1796, the supervisor of the general laborers reported to Nicholson that he did not expect any of his "highly discontented" workmen to stay for lack of pay.⁴³

Other employees, those in the manufactories, stuck through months of irregular wage payments because they believed they could compel

⁴⁰ Liancourt, *Travels*, I, 5. On the market for buttons see N.F. Mix to Nicholson, Feb. 8, 1796, GC; Nicholson to McHenry, June 6, 1795, I, LB; Nicholson to Thomas Bourne, March 22, 1796, II, LB; Nicholson to Gen. Walter Stewart, May 23, 1795, I, LB; Nicholson to Jonathan Mix, May 23, 1795, I, LB. On the market for glass see Eichbaum to Nicholson, July 9, 1795, GC. Nicholson to Jacob Servoss, April 14, 1795, I, LB.

⁴¹ Eichbaum to Nicholson, July 9, 1795, GC. Nicholson to Servoss, April 14, 1795, I, LB.

⁴² Nicholson to Elouis, July 18, 1795, II, LB; Elouis to Nicholson, Oct. 15, 1795, Dec. 5, 1795, Dec. 7, 1795, GC.

⁴³ Elouis to Nicholson, April 6, 1796, GC. The boatmen had all quit by January, 1796. Elouis to Nicholson, Jan. 1, 1796, GC. On the boatmen's discontent see James Lovett to Nicholson, Dec. 17, 1795, GC; Elouis to Nicholson, April 11, 1795, March 18, 1796, GC.

Nicholson to meet their demands. The skilled white smiths weathered weeks without pay by drawing on communal support and the sympathy and support of their supervisor, William Pollard. By early 1795, Pollard's effort to complete the spinning machinery for the Falls mill was slowed by the lack of cash to pay wages.⁴⁴ In early March, the workmen had not received wages for six weeks and were unable to pay their board. Some left Nicholson's employ immediately. Others received help from Pollard. Although he had "not a dollar to go to Market for [his] own Family," Pollard allowed his workers to bill their rent on his account to counter the threats of their landlords, and to draw orders on his shoemaker. A network of lending and borrowing also developed among the workmen.⁴⁵ But in midsummer with no wages coming in, Pollard's employees began suing each other for debts. By the end of the year Nicholson had dissolved his relationship with Pollard, who could no longer attract workmen because of his "bad credit as a paymaster."⁴⁶

The distinction between manager and worker had blurred as Pollard, along with the day laborers, faced the economic hardships caused by Nicholson's vacillating funds. A skilled machinist himself, Pollard respected his workers' skills and had exhibited a paternalistic sense of responsibility for them. The workmen stayed with Pollard until his struggles to obtain wages for them proved futile.

The workmen in the button manufactory and their supervisor, Jonathan Mix, adopted a far different strategy to insure their livelihoods. Mix, who had successfully manufactured buttons in New Haven, angrily blamed Nicholson for not honoring the terms of their contract and undermining the success of the business. Nicholson was not able to keep the button works supplied with tin. For want of raw materials, the manufactory, which one English manufacturer estimated could produce an annual profit of £3,000, was "doing nothing."⁴⁷

At the end of February 1796, the twenty-six employees of the button

⁴⁴ Pollard reminded Nicholson that raw cotton "was in great demand in the city." Pollard to Nicholson, May 17, 1795, GC

⁴⁵ On the crisis in March see Pollard to Nicholson, March 3, March 4, March 7, 1795, GC. Quotation is from Pollard to Nicholson, July 14, 1795, GC. See also Pollard to Nicholson, May 5, June 6, July 20, Aug 20, Aug 28, 1795, GC

⁴⁶ Pollard to Nicholson, July 25, Aug 25, Aug 28, Sept 1, Sept 16, 1795, GC, Nicholson to Pollard, Sept 28, Sept 30, 1795, III, LB

⁴⁷ Jonathan Mix to Nicholson, Feb 28, 1796, GC, Statement of Quantity of Buttons that Might be made in Year, Button Works, Account, IBA, Thomas Bourne to Nicholson, March 16, 1796, GC

works told their supervisor they would not work unless they were paid the wages due them. They were ready to join Mix at a new factory in Providence. The workmen's accounts indicate that they earned half of the monthly income of the other Nicholson manufactory workers and thus could withstand less easily the delays in their wages.⁴⁸ The button workers had an additional reason to leave Nicholson's employ, for he had exploited them by exchanging books for their labor power in the summer of 1795.

Wages had never been paid strictly in specie, for Nicholson had arranged for the workers to take up to half their pay in store goods or rent. As his financial situation worsened, Nicholson relied more and more on the "truck" system. He stocked the Falls store with flour, potatoes, beef, and cider, which he required the workers to take as payment.⁴⁹ In June 1795, however, Nicholson had his supervisors pay the button workers' wages in the form of books. While the laborers in the button manufactory were literate men, the price of the novels and histories made them a luxury for any wage earner. Some workmen were debited for *Citizen of the World*, which at the price of a dollar required over two days' labor to purchase. Other volumes, such as *Cook's Voyage* or *Letters of Sir Chesterfield*, cost a day's wages. Some workers were also charged for two or more copies of the same book. Lyman Atwater, for example, was debited for two volumes of *The American Revolution*. Whatever his historical tastes, he, like the others, was compelled to sell the books for money in order to buy food and clothing.⁵⁰

The button workers turned on their employer a year later, by conspiring with Jonathan Mix to embezzle and sell surreptitiously buttons from Nicholson's manufactory. Sears Hubble, a button worker who earned just under fifteen dollars a month, had received books for

⁴⁸ Mix to Nicholson, Feb. 28, 1796, GC. The button workers' monthly wages were approximately \$11.70 to \$14.46 per month, Ledger, 1795-96, Button Works Account, IBA.

⁴⁹ Charles V. Hagner, *Early History of the Falls of Schuylkill, Manayunk, Schuylkill and Lehigh Navigation Companies, Fairmont Waterworks, Etc.* (Philadelphia, 1869), 33-34. Nicholson to Elouis, July 30, 1797, VII, LB; Nicholson to Eichbaum, Aug. 26, 1795, II, LB; Nicholson to Bourne, April 16, 1796, IV, LB; Nicholson to Joubert, April 11, 1796, IV, LB; Nicholson to Mr. Groves, March 20, 1795, I, LB; Elouis to Nicholson, Jan. 5, 1795, Jan. 31, 1795, Nov. 11, 1795, GC. On payment in store goods see Nicholson to Joubert, May 20, July 2, 1796, IV, April 2, 1797, VI, Feb. 22, 1797, V, LB, John Sweetman to Nicholson, May 13, 1797, GC.

⁵⁰ See John Nicholson Esq. Day Book for the Button Manufactory Began Nov. 13, 1794, Button Works Accounts, IBA; Ledger, 1795-96, Button Works Account, IBA.

payment in 1795. A year later he traveled to Philadelphia and Reading to sell boxes of buttons without Nicholson's knowledge.⁵¹ Inconsistent and unsound wage payments had contributed to the uncertain relationship between employer and employee. When Jonathan Mix scornfully told Nicholson that "collecting the money from you Sir is worse then Earning of it," he captured one of the peculiar dilemmas of the manufactory wage labor system.⁵²

The most highly skilled of the manufactory workmen formed combinations and acted forcefully to redress the grievances against both Nicholson and his supervisors. Some anxious manufactory supervisors expected violence from their workmen. Thomas Flood, the foundry supervisor, quit in fear for his life, angrily telling Nicholson that his workers "became so veary nearvy about their money." In the spring of 1796, William Eichbaum pleaded with Nicholson to settle with the workmen after months of undependable wage payments, "I have no peace among them and the Devil knows what they want, only to [breed] a Riot."⁵³

Nonviolent collective opposition by the workmen alarmed Nicholson and his managers. In the summer of 1795, the laborers at the steam engine manufactory elected representatives to visit Nicholson and to present personally their demands for wages due them. Charles Taylor, the supervisor, rushed a letter to inform Nicholson of the impending visit so he would not "be astonished" when the workers appeared at his door in Philadelphia.⁵⁴ The stocking makers turned to the courts in their struggle with Nicholson and supervisor John Campbell. In April 1795, after a week-long work stoppage, six of the stocking makers obtained a lawyer and filed a complaint against both Campbell and Nicholson. The grievance displayed the motivation of Nicholson's wage laborers. At issue was not wage rates, hours, or the system of production itself, but Campbell's failure to pay them weekly wages as stipulated in their work contract. Because "their Subsistence Intirely Depends on Their Labour," the wage earners wanted a guar-

⁵¹ Nicholson to Dorris Higgins, Samuel Dennison & Ashbale Baker at the Button Works, May 23, 1797, VII, LB; Ledger, 1795-96, Button Works Account, IBA.

⁵² Mix to Nicholson, Feb. 28, 1796, GC. Mix's nephew, Nathaniel, who was employed by Nicholson, informed on his uncle's practice of selling boxes of buttons. N.F. Mix to Nicholson, May 2, 1796, GC.

⁵³ Thomas Flood to Nicholson, June 10, 1795, GC. Eichbaum to Nicholson, April 9, 1796, GC.

⁵⁴ Charles Taylor and John Bowler to Nicholson, July 7, 1795, GC.

antee that their earnings would be paid "punctually."⁵⁵ Nicholson himself complained that the workers were "not affording me much profit," but agreed with the stocking weavers' lawyer that their wages must and would be paid on time. Yet within months the Fleecy Hosiery Manufactory closed, as Nicholson and Campbell launched into a legal battle with each other.⁵⁶

The elements of the conflict between manufactory capitalist and laborer were nowhere illuminated better than in the persistent struggle between the glassmakers and Nicholson. Nicholson's glass blowers were highly skilled artisans who depended on a team of apprentice assistants to prepare the materials and shape the bottles. They worked long and difficult hours together in the searing heat of the coal-burning furnaces. The arduousness and camaraderie of their labor coupled with their dependence on their wages for subsistence underlay the wide range of collective tactics these German artisans used against their employer.⁵⁷

The largest sector of Nicholson's labor force, the forty-one workmen of the glass manufactory, produced for a very good market. "It is amazing," their supervisor told Nicholson, "to see the orders that daily come without seeking for them." The glass blowers and pot assistants made over three thousand claret and snuff bottles in a good month. But within nine months of starting production, the manufacture of bottles faltered due to Nicholson's lack of capital and inability to get materials and wages to supervisor Eichbaum.⁵⁸

⁵⁵ Campbell to Nicholson, March 7, April 10, 1795, GC, John McGann, James Robertson, John Hailet, D Lamb, John Reed, James Robertson, Jr to Campbell, April 6, 1795, GC, Servoss to Campbell, April 10, 1795, GC, Jacob Servoss to Nicholson, April 14, 1795, GC

⁵⁶ Nicholson to Servoss, April 14, 1795, I, LB Campbell blamed Nicholson for not fulfilling the funding obligation of their contract Nicholson countered in a suit against Campbell for "nonperformance" and the inability to account for the money Nicholson had advanced him Campbell to Nicholson, April 10, 1795, GC, Nicholson to Campbell, June 11, 1795, II, LB, Nicholson to Thomas Leiper, June 8, 1795, II, LB, Nicholson to James Gibson, July 10, 1795, II, LB

⁵⁷ Joan Scott argues that the skill of the master glass blower in nineteenth-century France (the *souffleur*) put him in a powerful position in relation to his employer On the steps of production in bottle making performed by a team of glassworkers see *Glassworkers of Carmaux*, 23-31, 43, 68 Scott notes that the Carmaux glassworkers had a low average age of death of thirty-four, attributable to the conditions of their labor

⁵⁸ Eichbaum to Nicholson, July 9, 1795, GC, See also Eichbaum to Nicholson, June 5, Oct 30, 1795, GC On output see Accounts of Workmen, Book A, 1794-96, Book B, 1795-97, Glass Works Accounts, IBA, Records of Glass Made, March, May, 1797, Glass Workers Accounts, IBA A normal occurrence in glass production that also prevented Nicholson from filling orders was the breaking of melting pots in the oven Dismayed on one occasion when the pots broke and he could not meet an order for 15,000 claret bottles, Nicholson wrote Eichbaum, "It is a mortifying circumstance that the work should be stopped when the demand is so great " Nicholson to Eichbaum, Feb 2, 1796, III, LB On the risks of glass production see Arlene Palmer, "Glass Makers," 19-20

As piecemeal payment of wages and unreliable provisions of materials became a pattern, the glass workers organized. In the fall of 1795, when Nicholson sent out a "trifle" of money for wages, the workmen traveled to Philadelphia and personally confronted him. Eichbaum reported to Nicholson that members of the Fertner family were demanding individual work accounts in order to sue and had contacted the German Society for assistance against their employer.⁵⁹ The father, Mathew Fertner, had died in the summer, a few days after pleading with Nicholson that he had not the "wherewithal to accomplish my Dyet."⁶⁰ The conflict worsened through the winter when Nicholson countered the glass workers' demands for past due wages with a charge that they owed him money he had advanced them. When they threatened to quit he informed them that they "could have their discharge if they each paid him ten pounds plus the balance they owed him."⁶¹ The resolution of the conflict is unclear in the surviving records. The glass workers stayed in Nicholson's employ. He knew he could "ill spare them" and apparently came up with the money to settle their accounts. Whatever the case, it illustrated how Nicholson's incapacity to meet wage payments mired employer and employee in protracted disputes over the terms of employment.

The difficulties created by this unsystematic and uncertain wage system became evident again in June 1796 when Nicholson attempted to pay the workmen in paper notes after it became known that he held a sufficient amount of specie. Learning of Nicholson's deception, John Sweetman, a glass blower, informed his fellow workmen. Nicholson soon received warnings from the Falls that "the glassmakers here are furious and let me tell you that there is no time to be lost."⁶² The glass workers collectively refused to accept their wages in notes and forced Nicholson to meet their demands for specie payments.

As long as Nicholson consistently "settled the accounts" of the workmen, they labored steadily. But whenever wages were not paid on time or in a fair manner, the workers suspended production.⁶³ It is important to note that the undependable behavior of the glassmakers

⁵⁹ Eichbaum to Nicholson, Sept. 7, Oct. 30, Dec. 12, 1795, GC, Nicholson to Eichbaum, Dec. 22, 1795, III, LB.

⁶⁰ Mathew Fertner to Nicholson, July 19, 1795, GC. Fertner died two days after writing the letter. Eichbaum to Nicholson, July 22, 1795, GC.

⁶¹ Nicholson to M. Kepple, Dec. 14, 1795, III, LB.

⁶² Joubert to Nicholson, June 15, 1796, GC

⁶³ Nicholson to Eichbaum, March 2, 1796, IV, LB, Nicholson to Joubert, Aug. 11, Aug. 13, 1796, IV, LB.

that caused frequent complaint among the supervisors — the work breaks and drinking binges — occurred during or soon following the times of irregular wage payments. In the fall of 1795, for example, Eichbaum's protest that his glassmakers had left the manufactory with "glass in the fire" and made no glass coincided with Nicholson forwarding of only a "trifle" of wages to the Falls. And the two days of "Bacchus' Reigne" came on the heels of the wage rate dispute between Nicholson and the glassmakers in December 1795. The interest and attitude of the early manufacturing wage earners will be misjudged if we loosely apply what Gutman has labeled "the strange and seemingly useless work habits" that so plagued early manufacturers. From the fall of 1795 through the spring of 1796 the "undisciplined work habits" of the glass workers appear to have been primarily a form of labor protest.⁶⁴

In the spring of 1797 a strike by the glass workers finally forced Nicholson to close down the Falls complex. The glassmakers had halted production in March when, once again, wages were not forthcoming. Nicholson was shocked by the losses "sustained by their refusal to work" and implemented the "fifth piece" wage rate. This traditional form of payment-in-kind required the glass blower to take as payment one bottle for every five he produced. The essence of the exploitive nature of this system was captured in Nicholson's instructions to Eichbaum: "they may take the fifth piece and turn it into money and pay themselves."⁶⁵ But in order to turn one fifth of the product of their labor "into money" the glass workers had to travel to Philadelphia to sell their bottles and thus lose days of earnings.⁶⁶

The glass manufactory laborers soon refused to accept the fifth piece as payment. In May they made clear to Nicholson that they were willing to work only if he paid money wages.⁶⁷ On June 2, the glass workers gathered in their supervisor's office. When Eichbaum ordered them to prepare the glass that was ready, they informed him that they would "not work a stroke unless they get all the money which is due to them. . . ."⁶⁸ This standout proved to be the final blow to Nicholson's manufacturing venture. Upon receiving word of the strike,

⁶⁴ Gutman, "Work, Culture, and Society in Industrializing America, 1815-1919," 19.

⁶⁵ Nicholson to Eichbaum, March 4, 1797, VI, LB.

⁶⁶ See Record of Glass Made, March, May, 1797, Glass Works Accounts, IBA.

⁶⁷ Jane Eichbaum to Nicholson, May 11, 1797, GC.

⁶⁸ Joubert to Nicholson, June 2, 1797, GC.

Nicholson ordered his agent at the Falls to discharge the boatmen (who transported the bottles) and the glassmakers and to "let the fire go out at the glass works."⁶⁹

The failure of the manufacturing enterprise at the Falls of Schuylkill was a bitter setback for Nicholson's skilled supervisors. Their unfortunate fate, as their livelihoods sunk along with Nicholson's venture, illuminates the problematic transition of the master to manufacturer. All of Nicholson's supervisors were essentially skilled mechanics. They anticipated becoming successful manufacturers by joining their skills with Nicholson's capital. As supervisors of production they endeavored to meet their dual responsibility, striving as partners of Nicholson to maintain profitable output and at the same time struggling on behalf of their workers to obtain the wages due.

With Nicholson bankrupt and their respective manufactories closed, Pollard, Taylor, England, and Lithgow turned to their experience as craftsmen and machinists and struggled pathetically to hold on to the machines that had once represented their economic independence.⁷⁰ Charles Taylor, the builder of Nicholson's steam engines and cotton machinery, trusted Nicholson's assurances of continued funding of the steam engine and "cloth works." But by the spring of 1797, Taylor was desperately looking for other employment, informing Nicholson that "your present circumstances will not admit of you to answer the absolute necessity or want of my Family."⁷¹ The following year, Taylor, who came to Philadelphia with an international reputation as the builder of England's Albion Mills, was still in Nicholson's employ, retained in the simple task of keeping the idle "Cotton Machinery that

⁶⁹ Nicholson to Joubert, June 2, June 3, 1797, VII, LB. Nicholson had desperately tried to keep the glass house producing despite the fact that the sheriff had put a levy on the property and tools. At the end of May, the sheriff began to seize the moveable materials of Nicholson's glass manufactory, including the personal property of the supervisors. Joubert to Nicholson, May 25, May 27, 1797, GC. Joubert was running the complex for Nicholson and had attempted to pare down costs in the other branches, closing the stocking and button manufactory, foundry, and store. Nicholson tried to keep the boatmen transporting the glass bottles to prevent the sheriff from seizing them. Nicholson to Joubert, May 26, May 29, May 30, 1797, VII, LB.

⁷⁰Only William Eichbaum, who found a job in a glass manufactory in Pittsburgh, seemed to be the exception in a string of lamentable tales. Jane Eichbaum to Nicholson, June 9, 1797, GC.

⁷¹Nicholson to Taylor, Nov. 4, 1796, IV, LB; Nicholson to Simon Messinger, Sept. 28, 1796, V, LB. Taylor to Nicholson, April 5, April 6, 1797, GC. Taylor was indeed penniless. On March 22 he wrote Nicholson to send him money that night for "I am summoned for five doll [ars] which I must pay tomorrow morning before seven o'clock in the morning or go to jail." Taylor to Nicholson, March 22, 1797, GC.

cost . . . so much money . . . from rusting" and in repair.⁷²

Nicholson's other textile experts endeavored to take up their old trades. John Lithgow turned to "keeping a small grocery store" in Philadelphia after Nicholson closed his enterprise. Yet up until Nicholson's death in debtor's prison in 1800, Lithgow tried to arrange for a loan of a stocking frame to work. His partner, William England, managed to keep possession of his frames despite threats of seizure by the sheriff. Six months after production had stopped at Nicholson's complex, England again implored him to fulfill his promise of capital. But the hosiery manufactory existed in name only, lacking laborers, raw materials, and capital. In order to subsist, England "made a few pairs of stockings and hawk[ed] them about town."⁷³ When England died, his frames were part of his small estate.⁷⁴ William Pollard, who had introduced the waterframe to Philadelphia under Nicholson's auspices, also held onto his machine. He died in debt; his demonstration model of the Arkwright spinning frame was the principal asset in his possession, symbolic of his achievements as a manufacturer.⁷⁵ The experience of these skilled manufacturers, like that of Nicholson and the laborers, underscored the difficulties in the development of capitalist manufacture.

* * * *

Although the Nicholson manufacturing venture is only a single case, it offers evidence that the relations of capital and labor developed fitfully in the widening market economy of the 1790s. Nicholson sunk too much of his capital into machinery, buildings, and land, leaving little for operating expenses at the Falls. He had also invested in other enterprises that consumed his capital without producing profit. At the Falls complex, Nicholson unwisely diversified manufacturing and could not coordinate production among the various branches despite a careful accounting system.⁷⁶ As capitalist manufacturer, Nicholson begrudgingly bought labor power at high cost. He criticized his workmen for behavior in and out of the work place that countered profitable pro-

⁷² Taylor to Nicholson, April 11, 1798, GC.

⁷³ William England to Nicholson, Sept. 5, 1797, GC.

⁷⁴ Lithgow to Nicholson, May 11, 1799, GC.

⁷⁵ Wallace and Jeremy, "William Pollard," 424.

⁷⁶ See Arbuckle, *Nicholson*, chapter 9.

duction. Yet he could not create a sound and consistent system of wage payments. Vacillating between piece rates and daily wage rates, Nicholson manipulated the form of payment in kind and money and settled wage accounts on a piecemeal basis. As wage earners, the workmen contracted to labor at rates to provide their subsistence. They expected wages to be paid regularly in a systematic fashion and condemned Nicholson's inability to do so. They ignored their responsibilities on the job, took legal action, and stopped work — combining customary and more institutional actions — to force their employer to rationalize wage payments. The conflict between employee and employer hinged on the wage laborer's irreducible need to ensure regular earnings and the inability of the capitalist to provide wages in exchange for labor power.

While Nicholson's unusual mismanagement and overextension of capital was sufficient cause for his failure, general problems within the developing wage-labor system undermined a smooth passage to manufactory production. During this transitional period skilled workmen, mechanic-manufacturers, and a speculative capitalist struggled to realize their interests as manufactory wage-laborers, managers, and capitalist manufacturer. Customary practices and roles impinged on the relations of production in ways that suggest the need to refine our interpretation of the transition from handicraft to industrial forms of production. First, the initial generation of factory workers did not necessarily lose control over the labor process, nor did they perceive of themselves as confronting an unfamiliar and alienating wage-labor system. Second, no clear distinction separated the position of manager from owner. Those who supervised production shared the skills of the workmen as well as the profits of the business as ownership partners. Finally, the capitalist manufacturer oversaw management and intervened in disciplining the labor force. Part of the long, uneven, and problematic process of industrialization would involve the sharpening of these blurred lines of interest and control between laborer, manager,

and capitalist which circumscribed the early manufacturing enterprise at the Falls of Schuylkill.

*University of California,
Los Angeles*

CYNTHIA SHELTON