

## CHAPTER II THE HISTORIC CONTEXT

The "Secretary of the Interior's Standards and Guidelines for Historic Preservation" outline a framework for the identification and evaluation of historic resources. This framework describes a process that uses historic contexts, the cornerstone of preservation planning, to develop criteria for the assessment of resources. Historic contexts organize information about related historic properties based upon a historic theme, a geographic zone and a chronological period. Thus contexts are theoretical constructs linking the history of a locale to physical aspects of its environment called property types. Through the context and the identification of appropriate property types, plans for the evaluation and treatment of historic resources are undertaken. In this manner preservation activities examine the totality of resources representing a locale's historical evolution as opposed to focusing preservation efforts on one particular property type or group of properties.<sup>2</sup>

Descriptions of the historic theme, geographic zone and chronological periods related to this study of Wilmington's Waterfront Analysis Area introduce the historic contexts that follow in this chapter. (The development of property types, criteria for evaluation and eligibility determinations form the subject of Chapter III.) The contexts delineate broad historical trends illustrating the development of industry and manufacturing throughout the Waterfront Area. Although only buildings within the Waterfront Area were evaluated for eligibility for listing on the National Register of Historic Places, the developed historic contexts describe trends reflecting the industrial growth of Wilmington as a whole. Historic research revealed that while geography, and especially the waterfront, played an extremely significant role in the development of Wilmington's industry, manufacturing developed within the context of the whole community. In addition, levels of significance could only be determined in reference to larger physical entities, such as the city, county, state or region.

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<sup>2</sup> Department of the Interior, National Park Service, Archeology and Historic Preservation; "Secretary of the Interior's Standards and Guidelines," Federal Register (Vol. 48, No. 190), pp. 44715-742.

## The Historic Theme

The Delaware Plan utilizes the Standard Industrial Classification Manual (SIC) to describe economic subthemes, including industrial or manufacturing enterprises. The SIC defines manufacturing as "those establishments engaged in the mechanical or chemical transformation of inorganic or organic substances into new products, and are usually described as plants, factories, or mills, which characteristically use power driven machines and handling equipment. Establishments engaged in assembling component parts of manufactured products are also considered manufacturing if the new product is neither a structure nor other fixed improvement."<sup>3</sup> For the purposes of this examination power driven machines includes hand-power in addition to animal-, water-, steam- and electrically-propelled tools and machinery. The transformation or processing of materials forms the underlying characteristic of the historic theme manufacturing although machinery and power help to delineate the historical development of manufacturing and industry.

## The Geographic Zone

The boundaries of the Waterfront Analysis Area are based upon a discrete geographical area previously defined by the City of Wilmington's Office of Planning (see Figure 1, p. ii). The Waterfront Analysis Area comprises land west of Interstate 495 bordering the Christina and Brandywine rivers. Twelfth, Thatcher, Fourteenth, Pine, Vandever and Mabel streets form the northern boundary of the Analysis Area. The western boundary of the area crosses the Brandywine in a southerly direction to a spot near the intersection of Poplar and Sixteenth streets where it follows the south shore of the river easterly to the Twelfth Street Bridge. The western border continues south along Church Street, then east along Ninth Street, south on Locust Street, east on Taylor Street, and then south along Buttonwood Street to its intersection with Seventh Street. The stone and brick viaduct carrying AMTRAK's northeast corridor mainline through Wilmington intersects Seventh Street a short distance east of Buttonwood and composes the balance of the Analysis Area's western boundary as it extends southward to the city line. The southern boundary of the Analysis Area extends eastward along the city limits crossing the Christina River to James Street and thence to South Walnut Street. The boundary of the Analysis Area then stretches north along South Walnut, east along "A" Street, south on Spruce Street, east on "B" Street, north on Townsend Street, and then east on Lobdell Street to its intersection with Heald Street and New Castle Avenue. The boundary

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<sup>3</sup> The Technical Committee on Industrial Classification, Office of Statistical Standards, Standard Industrial Classification Manual (Washington, D. C.: Government Printing Office, 1957), p. 43. Quoted in Ames, et al., p. 26.

continues southeast along New Castle Avenue until reaching Terminal Avenue where it stretches east to Interstate 495, the Analysis Area's eastern border.

The Waterfront Analysis Area forms part of the Urban Geographic Zone (Zone V) according to the Delaware Plan (see Figure 4, p. 9). Situated at the confluence of two rivers, the Brandywine and the Christina, Wilmington actually straddles the edges of the Coastal and the Piedmont zones as defined in the Delaware Plan. The Brandywine flows through the Piedmont areas of southeastern Pennsylvania and northern Delaware until reaching the western limits of Wilmington where it soon meets the coastal plain. At the intersection of the two zones the river drops 120 feet in four miles providing a significant source of power for early milling operations. The Brandywine is navigable to shallow-draft ships up to the present Market Street Bridge. The Christina River slowly meanders through the Piedmont areas of northwestern New Castle County until entering the Coastal Plain near Christiana, ten miles inland from Wilmington and historically the head of navigation along the river. Erosion and silting has made navigation of the Christina as far as Christiana problematic for modern ships.

The coastal area of Wilmington once supported a rich and diverse ecological habitat. The eastern and southern areas of Wilmington's coastal plain section primarily contain marshes and wetlands that sustain a wide array of flora and fauna. Soils throughout the coastal zone range from moderately well-drained and medium-textured soils to tidal marsh lands. A variety of vegetation, including arrowarum, spatterdock, water-willow, smartweed, and red and white oak, provided an environment for turtles, muskrat, wood ducks, great blue herons, ospreys, turkey vultures and bald eagles. The western sections of the city lying in the Piedmont Zone exhibit nearly level to hilly landscape with clay soils mixed with loose rocks. Prior to western settlement, the region featured a wide variety of trees including oak, hickory, poplar, walnut and ash. Wild fruits and Indian corn grew without cultivation.<sup>4</sup>

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<sup>4</sup> Ames, et al., pp. 32-35.

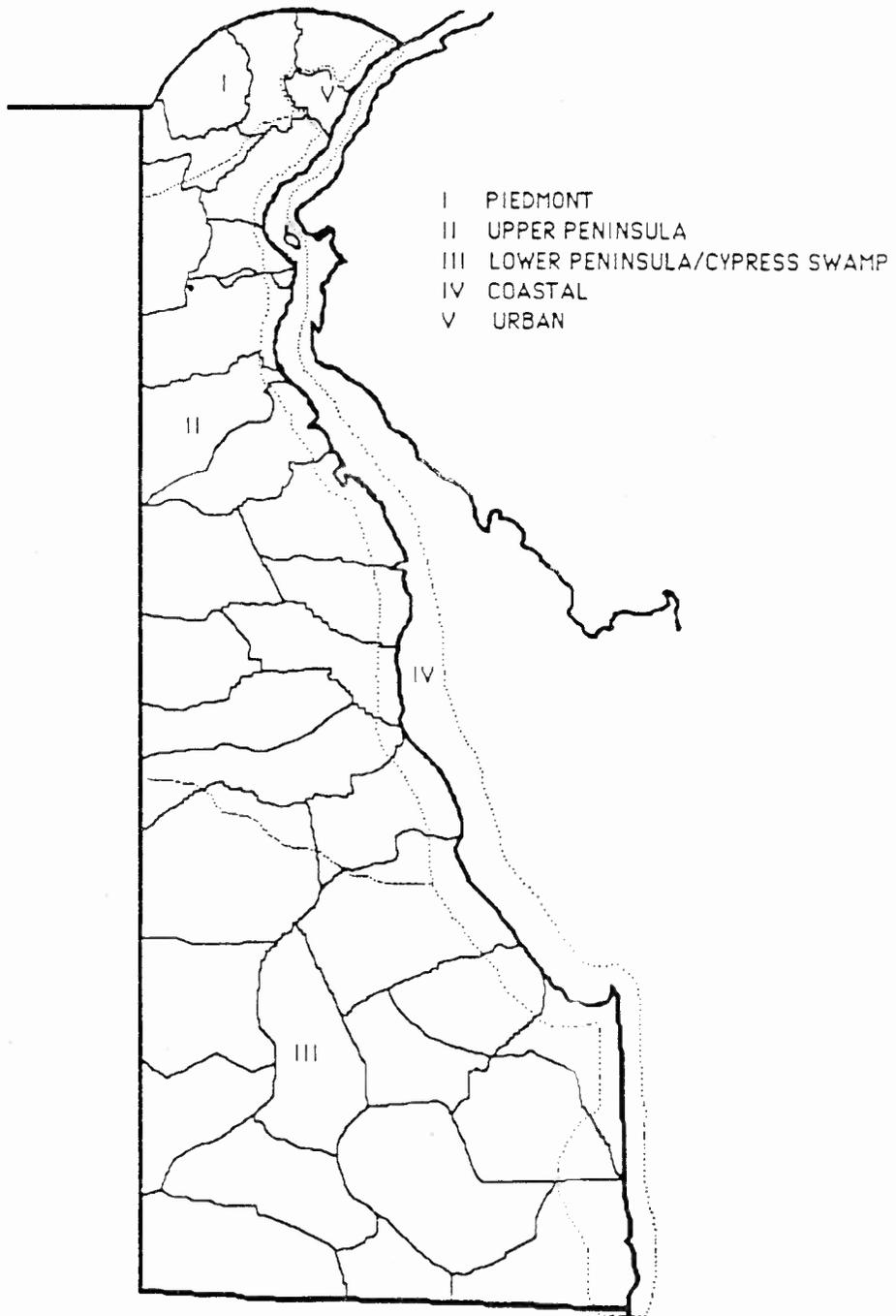


Figure 4: Delaware Geographic Zones  
Showing Coastal Zone (IV) and Urban Zone (V)  
(Reprinted from the Delaware Plan, 1989)

### The Chronological Period

The notion of chronological periods allows historic contexts to address complex historical phenomenon occurring over broad periods of time. Although devoid of historical benchmarks the chronological periods nevertheless attempt to succinctly characterize trends based upon historical research. The notation "+/-" denotes the fluidity of the barriers defining the time-frames. The chronological periods utilized in this study are based on periods developed in the Delaware Plan.<sup>5</sup>

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<sup>5</sup> Ames, et al., pp. 36-52.

## A. Exploration and Frontier Settlement 1630 - 1730 +/-

Permanent European settlement of the Wilmington area began in the project area in 1638 with the establishment of the Swedish colony of Christinaham surrounding the present site of Fort Christina Park. Twenty-five Swedish and Finnish colonists landed in March of that year at "The Rocks," the location of the first landing and harbor. A 1654 map of the settlement indicates a star-shaped redoubt stood above the harbor with square, cultivated fields and scattered houses ringing the fort (see Figure 5, p. 12). Thirty-foot wide lots bordered the fort on the narrow neck of Wilmington's eastern peninsula where an intermixed hunting, trapping, and dispersed agrarian economy slowly took hold. Between fifteen and twenty houses, probably all constructed of log or wood, encircled the fort in 1655 when the Dutch acquired control of Christinaham.<sup>6</sup>

In 1664 England gained possession of the Dutch colonies in Delaware. Fort Christina shortly fell to ruins through disuse although the English promoted the continued settlement of the area by the earlier Swede, Finn and Dutch pioneers. Robert Jones established a ferry across the Christina River near the fort during 1669 linking the road to New Castle with the road to Philadelphia at its fording of the Brandywine near the foot of present Adams Street. In 1671 five former Swedish and Dutch nationals possessed the tracts of land that comprise modern Wilmington. The erection of Old Swede's Church in 1698 serves as further evidence of the continuing influence of the original Swedish settlers. The church, served by Swedish Lutheran ministers until after the American Revolution, stood geographically isolated from the rest of the community until the 1840s.<sup>7</sup> Except for a brief interval in 1673 and 1674 when The Netherlands reconquered its former colonies, Wilmington continued under the nominal control of England. Renewed efforts to populate the Wilmington area did not begin until 1731.

Christinaham formed part of a series of Swedish settlements along tributaries of the Delaware River collectively known as New Sweden. Other Swedish colonies began further north on Tinicum Island and at Upland in Delaware County, Pennsylvania. Another settlement

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<sup>6</sup> P. Lindstrom, "Plan of Christinaham and Fort Christina," 1654. On file at the Historical Society of Delaware, Wilmington, Delaware. Hereafter cited as HSD; J. Thomas Scharf, History of Delaware. 1609-1888. (Philadelphia: L. J. Richards & Co., 1888), p. 630.

<sup>7</sup> Ibid.

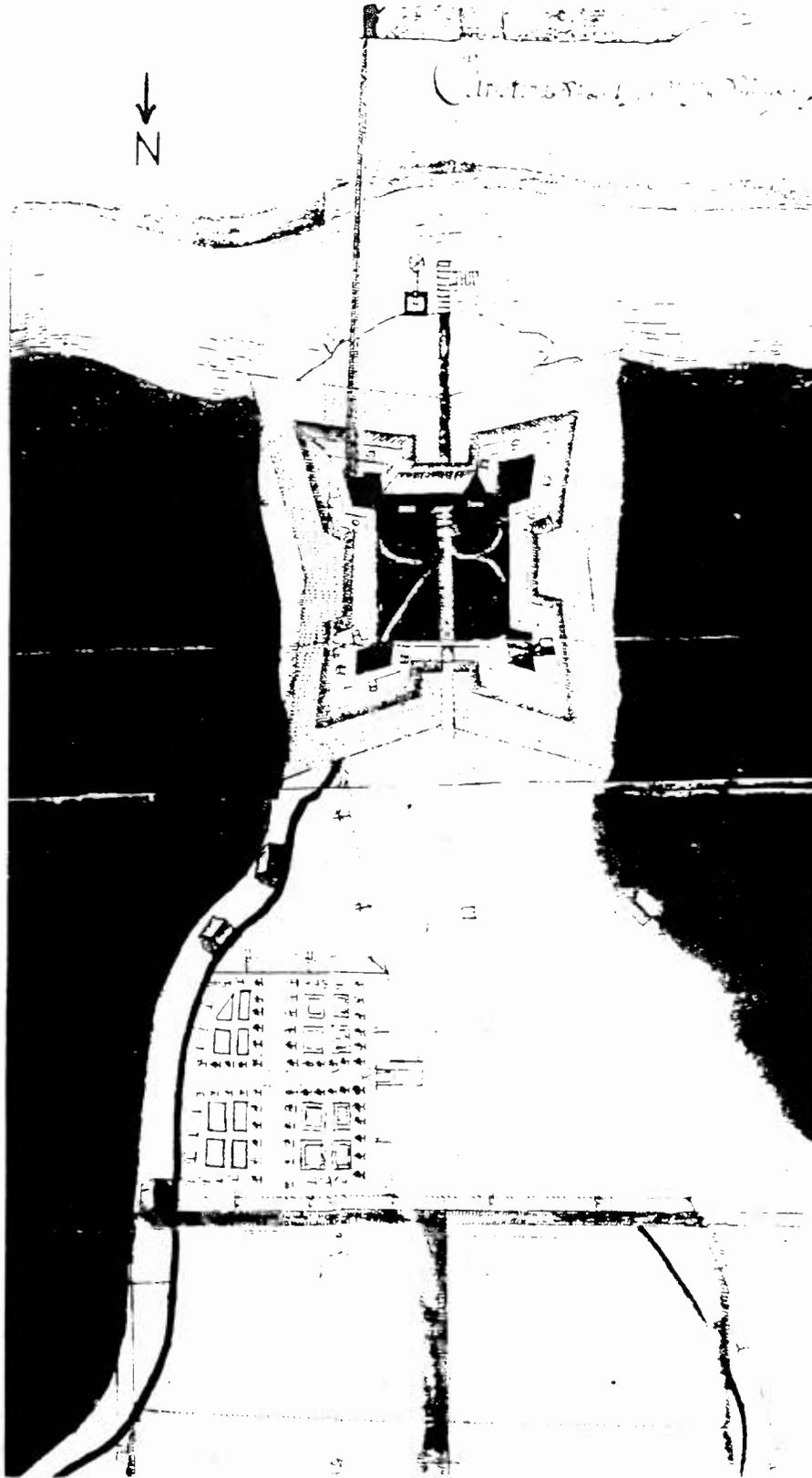


Figure 5: Detail from P. Lindstrom's "Plan of Christinaham and Fort Christina," 1654  
(Reprinted courtesy of the Historical Society of Delaware)

located near Salem, New Jersey, but was soon abandoned. Probably no more than one thousand Finns and Swedes comprised the total population of the New Sweden colonies.<sup>8</sup> These dispersed settlements provided centers for trade with local aboriginal peoples and the transshipment of goods between the New Sweden communities and Europe. Although this topic requires more research home manufactures crafted in the Wilmington area, such as woolen or flaxen cloth, may have found markets among New Sweden's dispersed Delaware River colonies. Although preliminary research indicates the Dutch ignored the Christinaham settlement, further investigation may reveal whether the former Swedish colony traded manufactured goods with New Amstel (New Castle) during the period of Dutch dominion. The predominant activities throughout the period remained forest clearance, land cultivation, and hunting and trapping in addition to the Indian trade.

The second building erected by the first colonists after their arrival in 1638 may have been a brewery and thus the first of the new colony's manufacturing establishments in the Wilmington area. Land patents encouraged early shipbuilding by requiring that only vessels constructed in New Sweden carry foreign trade to and from the colonies. Two Dutchmen constructed small boats and trading vessels just north of the mouth of the Christina River in 1642. Two coopers manufactured wooden kegs, hogsheads and shallops in 1643 on Cooper Island, formerly on the north side of the Brandywine River. A sawmill cut lumber along the Christina in 1677. Another early sawmill possibly stood on Shipley Run. By 1679 three grist mills operated on Shellpot Creek. Timothy Stidham erected a barley mill in Wilmington in 1687 near or on Adams Street beside the Brandywine River.<sup>9</sup>

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<sup>8</sup> John A. Munroe, History of Delaware (Newark: University of Delaware Press, 1979; Second Edition, 1984), pp. 19-28.

<sup>9</sup> M. Thomas Clemons, Wilmington, Wide Is The City (Wilmington: Hambleton Company, Incorporated, 1947), p. 48; Scharf, p. 760; History of Wilmington, Every Evening, compiler (Wilmington: Press of Moss Engraving Co., 1894), p. 30.

## B. Intensified and Durable Settlement 1730 - 1770 +/-

The period of Intensified and Durable Settlement (1730 - 1770 +/-) witnessed the birth of Wilmington as a regional population and commercial center, and the establishment of a diversified economy based upon merchant milling and the transshipment of grain. Increased settlement of northern Delaware, northeastern Maryland, and southeastern Pennsylvania prior to 1730 helped create a substantial agricultural hinterland requiring access to larger markets. Wilmington grew in response to the demand for a nearby port capable of supplying imported finished goods to the surrounding agricultural region in exchange for unprocessed grains, most notably wheat and corn. The two rivers that border the city played major roles in Wilmington's evolution. The Christina River eased transportation of goods to and from the city while the Brandywine supplied power sufficient to drive a great number of millseats.<sup>10</sup> Most large industries that arose during this period thus relate to Wilmington's growth as a regional entrepot and milling center although a wide array of manufacturing occurred in craftshops and home manufactures.

Settlement of Wilmington proper began in 1731 after Thomas Willing purchased land currently bounded by West and French streets from his father-in-law, Andrew Justison. Willing envisioned a large settlement at the location, laid out town lots and erected the first dwelling at the northwest corner of Front and Market streets. By 1735, twenty houses had been erected. A 1736 map of Willingtown depicts approximately thirty buildings on lots between Mulberry Run (currently the approximate location of Poplar Street) and Tatnall Street and between the Christina River and Seventh Street (see Figure 6, p. 15). The same map labels southern Wilmington as marshland.<sup>11</sup>

William Shipley, a Quaker from southeastern Pennsylvania, greatly contributed to Wilmington's physical development following his purchase of eight acres of land between Market and West, Second and Fifth streets from Justison and Willing. Shipley soon erected a large brick house at the southwest corner of Fourth and Shipley

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<sup>10</sup> Carol E. Hoffecker, Wilmington, Delaware, Portrait of an Industrial City, 1830-1910 (Charlottesville, VA: The University Press of Virginia, 1974), p. 4; Munroe, pp. 57-58.

<sup>11</sup> Scharf, pp. 635, 631, 650; Benjamin Ferris, "A Plan of the Scituation and Improvements of Willingtown in the County of New Castle upon Delaware, 1736." On file at HSD.

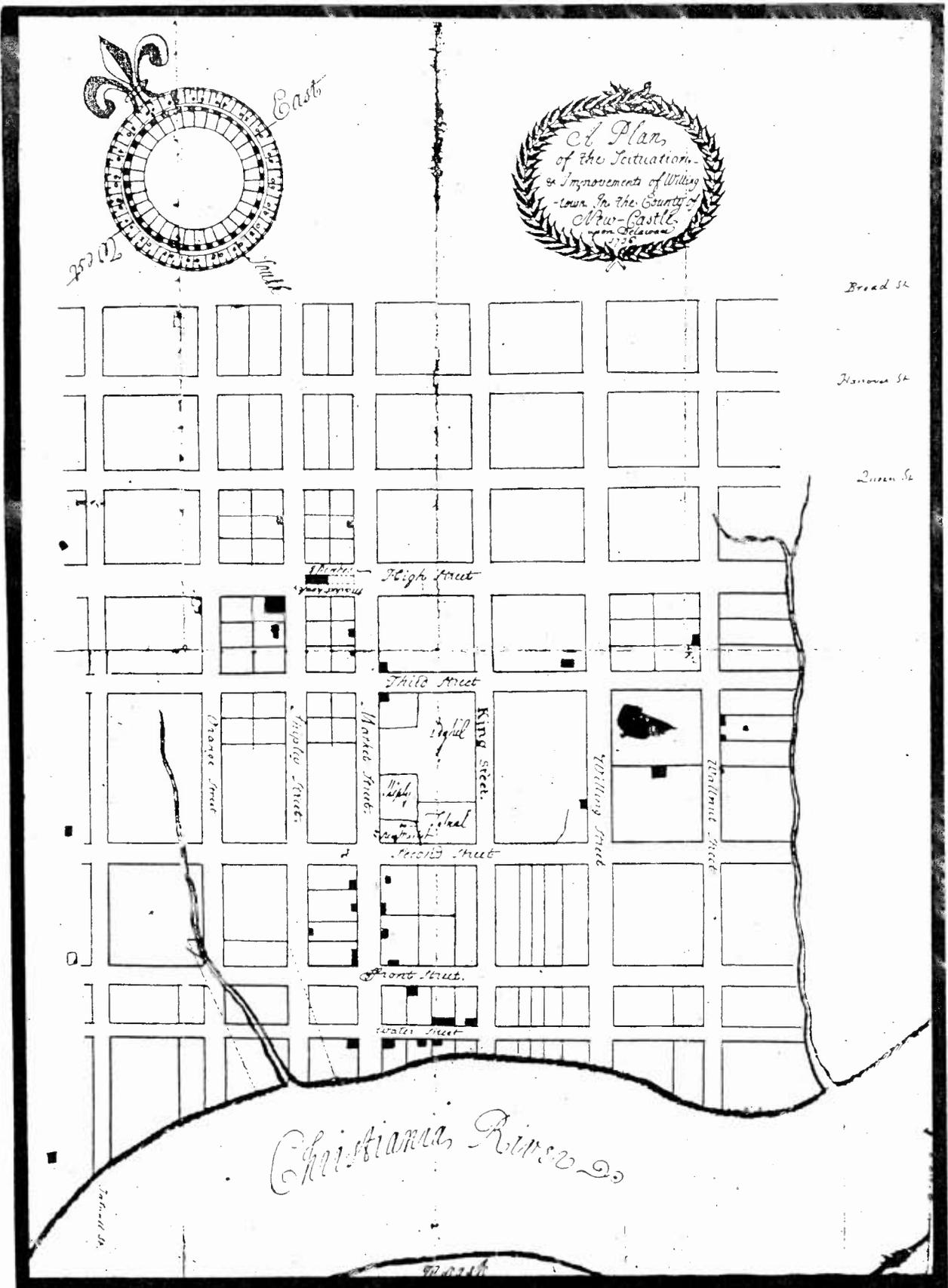


Figure 6: Detail from Benjamin Ferris' "A Plan of the Scituation and Improvements of Willingtoun in the County of New Castle upon Delaware, 1736" (Reprinted courtesy of the Historical Society of Delaware)

Street. Other Quakers from southeastern Pennsylvania soon joined Shipley helping transform the town into a marketplace for local farmer's produce. Shipley had a market erected at the corner of Second and Market streets while other merchants built a competing market at Fourth and Market. In 1736 Shipley began brewing malt liquor and constructing ships. Originally called Willingtown, by 1739 over 600 persons lived in the newly renamed and chartered Borough of Wilmington.<sup>12</sup>

Shipley's boatyard may have constructed the brig "Wilmington" in 1740. Acknowledged as the first locally built vessel to engage in foreign trade, the "Wilmington" carried flour, ship-bread, oak barrel staves, beef and produce to Jamaica. Owned by Shipley, Griffith Marshall, David Ferris and Joshua Way, this vessel launched Wilmington as a center of trade and commerce and helped spur related manufacturing growth, such as shipbuilding, coopering, rope and sail-making. Between 1741 and 1775 many of Wilmington's foremost citizens either owned, or had otherwise invested, in one or more sailing vessels. The majority of these ships were built in shipyards dotting Wilmington's waterfront area. Landings and wharves penetrated the Christina riverfront as well. Shipbuilding and trade remained a significant part of Wilmington's economy well into the nineteenth century as ships exporting grain, flax and produce returned from ports in England, Ireland and the West Indies with glass, linen, coffee, rum and molasses.<sup>13</sup>

The processing of grains by merchant millers gave tremendous impetus to Wilmington's growth as a regional port becoming the city's premier industry in the late eighteenth and early nineteenth centuries. During the 1740s Oliver Canby acquired Timothy Stidham's former mill seat on the south side of the Brandywine River and began to expand its operation constructing a short mill race to power a breast-wheel. The damming of the Brandywine and the excavation of a long mill race overlooking deep water on the south side of the Brandywine enabled Canby and Joseph Tatnall, another merchant miller, to greatly increase production of flour. By 1764 eight grist mills stood along the Brandywine. Removal of a bridge east of the mills allowed shallops and other vessels to dock directly beside the mills facilitating the handling of grain. In 1770, Tatnall financed the building of a mill race through the rocky north shore of the Brandywine, directly across from the earlier mills, and soon erected one of the most substantial and extensive flour mills in the country. Between 20 to 30 wagons from Dauphin, Lancaster, Berks and Chester counties in southeast Pennsylvania delivered grain to Tatnall's mill every day. Four mills operated on the north shore by 1772. The twelve mills then

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<sup>12</sup> Scharf, pp. 760, 631-32.

<sup>13</sup> Every Evening, pp. 15-16; Scharf, pp. 749-50; Hoffecker, p. 6.

operating exported 60,000 barrels of flour to Philadelphia and foreign ports. Somewhat removed from the growing settlement along the Christina, the Brandywine mills were soon surrounded by a small community known as Brandywine Village where millers, coopers and shallopmen associated with the mills lived.<sup>14</sup>

A wide range of smaller manufactures and crafts began during this period, including the tanning and currying of leather, a significant Wilmington industry during the nineteenth century. In 1732, Francis Robinson started tanning buck-skins and chamois leather in the area bounded by Market, King, Fourth and Fifth streets. Another early tannery belonging to Joseph West stood between Third and Fourth streets, and Shipley and Tatnall. Daniel Ferris established a tanyard on the north side of Second Street above West in 1750. The manufacture of ceramic goods began in Wilmington in the 1760s when Matthew Crips set up a pottery on the east side of King Street between Seventh and Eight streets. Other small crafts, were interspersed throughout Wilmington. Silversmith Joseph Warner manufactured metal items at his shop on Market Street from 1763 to 1800. Richard Humphrey also operated a silversmith's shop. Charles Bush manufactured furniture at the southeast corner of Second and King streets between 1738 and 1758.<sup>15</sup>

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<sup>14</sup> Scharf, p. 760; Francine Weiss Bromberg, Block by Block Archaeological Analysis of the Waterfront management Unit (Wilmington: Office of the Mayor, 1988), pp. 12-13; Industries of Delaware, Richard Edwards, editor (Wilmington: Richard Edwards, 1880), pp. 62-63; Hoffecker, p. 6.

<sup>15</sup> Scharf, pp. 635, 631, 650.

### C. Early Industrialization 1770 - 1830 +/-

The introduction of improved milling technologies and a subsequent increase and variety of manufactures along the Brandywine characterized Wilmington's industrial development during the era of Early Industrialization (1770 - 1830 +/-). Shipbuilding and related trades continued along the Christina riverfront interspersed with mercantile activities. The growing population of the city helped create a wide array of trades and crafts primarily distributed among predominantly residential and retail areas of Wilmington. The rise of a more geographically distributed and diverse manufacturing base in the later part of the period resulted in the inauguration of a shift away from an economy dominated by the water-powered merchant mills on the Brandywine.

The population of Wilmington steadily increased throughout this period. Over 1,200 people lived in the city in 1775 including 57 "colored." A copy of a 1772 plan of Wilmington illustrates the extent of Wilmington's settlement by that year (see Figure 7, p. 19). By 1790, Wilmington contained 2335 persons in an area between Poplar and Washington streets, from the Christina River to Tenth Street. A map of the city in 1795 indicates the extent of settlement by triangular-shaded blocks (see Figure 8, p. 20). Almost all of the area between Poplar Street and Washington Street is shaded along the Christina. As one travels north into the city the shaded area slopes inward with its apex near Tenth and Market streets. Four triangular-shaded blocks on the southern side of the Brandywine River signify settlement directly across from Brandywine Village. A visitors account of Wilmington in 1816 described a city of approximately 4,000 residents and between 300 and 400 houses. Population grew to more than 5,000 people in 1820. An 1826 map of Wilmington illustrates the city's growth: roads extend from Church Street to Madison Street and stretch from river to river.<sup>16</sup>

One of the most important technological innovations, in terms of its effect on Wilmington's industrial growth, involved Oliver Evans' automatic flour mill. Evans brought together a number of existing machines, such as the screw and the elevator, that

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<sup>16</sup> Scharf, p. 639; Hoffecker, p. 8.; Amos C. Brinton, "Wilmington and Environs as it was in 1795," 1804, On file at HSD; Jose Manuel Restrepo, translated by David Bushnell, Autobiografia. Apuntamientos sobre la emigracion de 1816, e indices del 'Diario Politico' (Bogota: Empresa Nacional de Publicaciones, 1957), p. 136; J. McKean and James Gordon, "Wilmington Borough, True Ground Plan," 1826. On file at HSD.

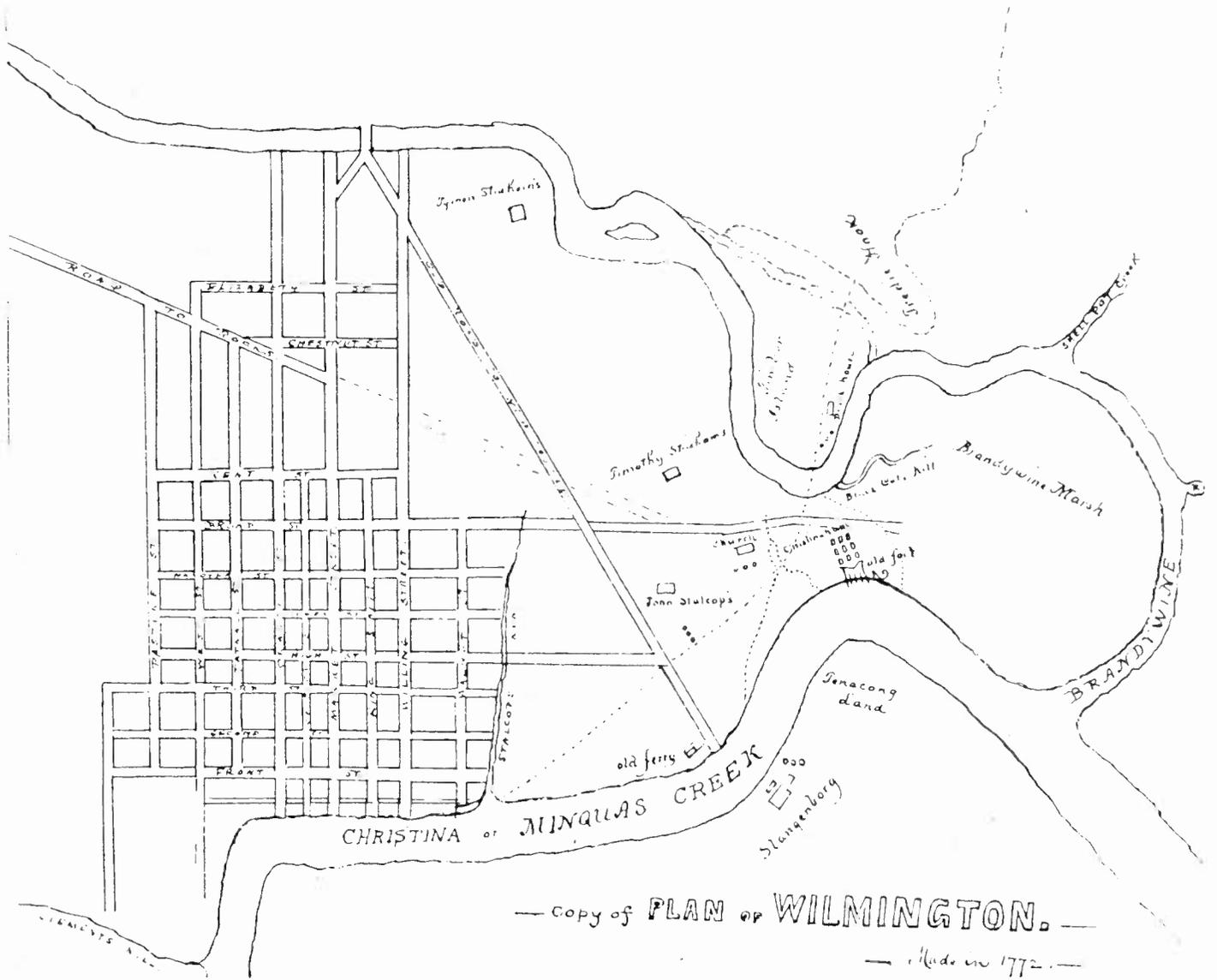


Figure 7: Detail from Benjamin Ferris' "Copy of Plan of Wilmington Made in 1772" (Reprinted courtesy of the Historical Society of Delaware)

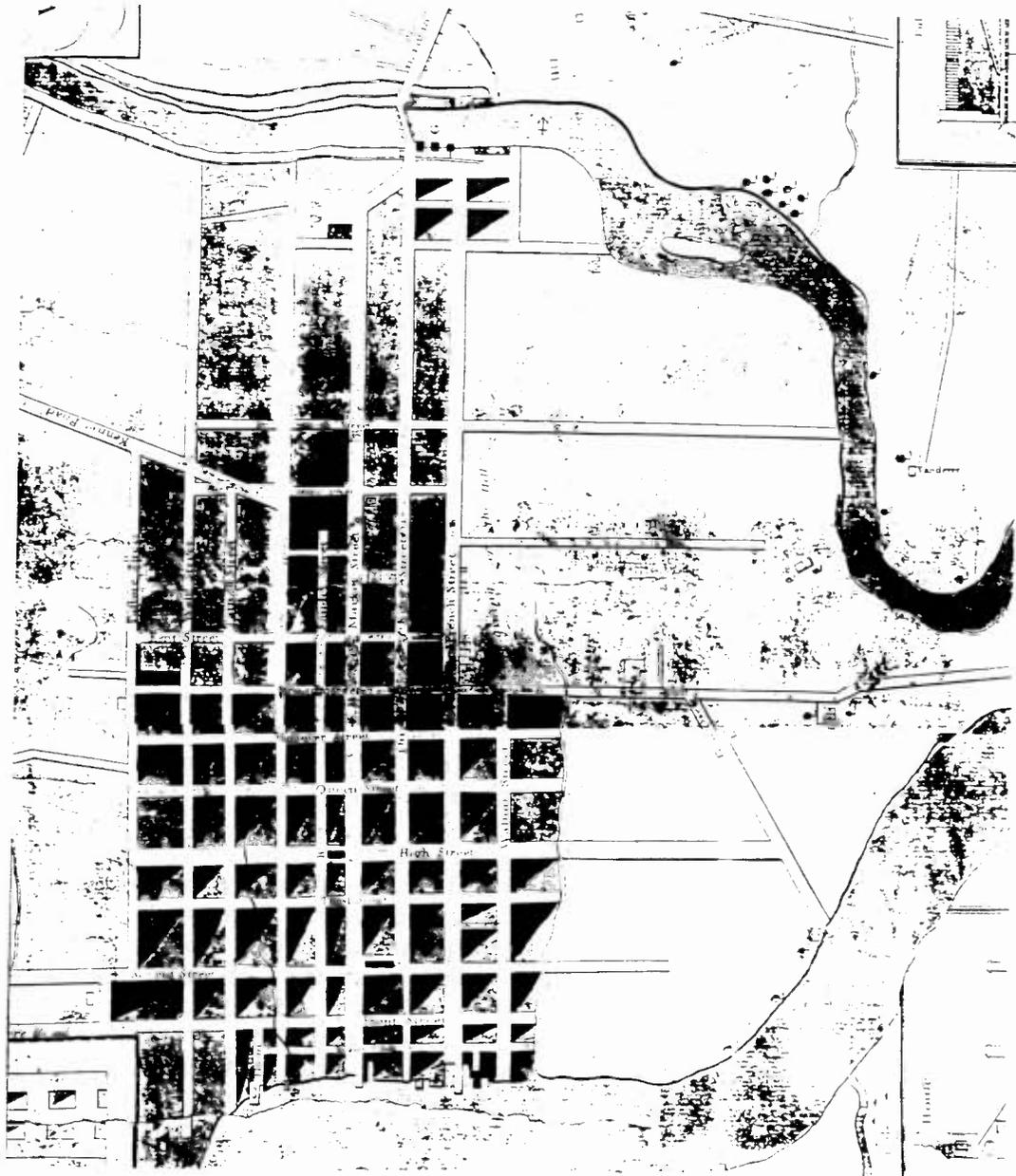


Figure 8: Detail from Amos C. Brinton's  
"Wilmington and Environs as it was in 1795," 1804  
(Reprinted courtesy of the Historical Society of Delaware)

transported grain from a boat or wagon through the various steps of screening, grinding and bolting. The automatic flour mill greatly increased productivity, grinding more bushels of grain while requiring less labor and time. Joseph Tatnall first tested the machinery in his mill on the Brandywine in the 1780s. The remaining merchant millers soon followed Tatnall's lead after recognizing the automatic mill's success. By 1815 fourteen mills stood on the Brandywine River. Collectively the Brandywine mills owned nine sloops of between 40 and 60 tons burthen to ship flour to Philadelphia and elsewhere in 1814.<sup>17</sup>

A Colombian touring Wilmington in the early nineteenth century described Evans' automatic milling technology along the Brandywine. Shallops delivered wheat to the mill where

with machines they are unloaded in a moment. The barrels of flour also fall inside with the same ease. The wheat is cleaned or ground, and the flour is bolted and falls in the place where it is barrelled, all without anything but the movement communicated by the water to the various machines. The order is complicated ... But only two to three laborers are needed, and there are some which in a week give 30 to 40 barrels of flour a day. Near such mills there are many barrel factories.

Thomas Lea, Jr., Tatnall's grandson, further testified to the automatic mill's efficiency in 1820. Lea described Tatnall's former mill as a three man operation that also supported between 60 and 70 people including coopers and shallopmen.<sup>18</sup>

The Gilpin's Brandywine Paper Mills utilized two types of paper manufacturing describing a technology in the midst of great change. A vat mill erected in 1787 with two vats transformed 50 tons of rags per year into paper. Ten men, four boys and ten women finished the pulp into paper while twenty children prepared the rags. Machinery only prepared and ground the rags. All other operations were done by hand. A machine mill built in 1817 could manufacture 50 reams per day equaling the output of at least six vats. Machinery mashed and ground 150 tons of rags per year for pressing and rolling into one continuous sheet of paper, a relatively new process requiring little manual supervision. Two boys and ten women finished the paper while eight men ground and

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<sup>17</sup> Bromberg, p. 14; Scharf, p. 751.

<sup>18</sup> Restrepo, p. 136; United States Census, State of Delaware, New Castle County, Manufacturing Schedules, Manuscript Returns; 1820. Microfilm on file at Eleutherian Mills Historical Library, Greenville, Delaware. Hereafter cited as EMHL.

prepared the raw stock. Forty children prepared the rags for processing.<sup>19</sup>

Although the 1810 Tench Coxe report on manufactures does not enumerate Wilmington's industries separate from New Castle County's figures, the report reflects the county's growth as a center for manufactures within the state. In fact, New Castle County possessed all or most of the manufacturing establishments enumerated in the state for many categories. All state manufacture of spun cotton, hats, stockings, rolled and slit iron, nails, shoes and boots, beer and malt, paper, snuff, rope and gun-powder occurred in the county. Ninety percent of the carding machines and 75% of the fulling mills listed in the state operated in New Castle County. Sixty-four percent of Delaware's grist mills were located in the county producing flour and corn meal worth 90% of the state's total. County production accounted for all home manufacture of cotton and mixed cloth and hempen articles but only 11 and 18 percent respectively of home manufactured flaxen and woolen goods. The county's \$1,660,612 total value of products manufactured enumerated by Coxe comprised 78% of the state's total of those articles. Wilmington contributed greatly to the county's total figures.<sup>20</sup>

The Wilmington manufacturing enterprises documented in the 1820 census consisted of larger or more extensive establishments such as grist mills, textile mills or tanneries instead of including home manufactures or crafts. The majority of the mills counted primarily operated along the Brandywine River utilizing its power to automate machinery. The William Poole & Co. merchant mill's four to seven millers, 20 coopers and three shallopmen processed between 60,000 and 100,000 bushels of wheat, rye and Indian corn. James Canby's mill employed 35-40 men to grind 140,000 to 150,000 bushels of wheat and corn. Three millers, seven coopers and three shallopmen worked at Samuel Shipley's merchant mill. Thomas Lea, Sr., maintained a grist mill on the Brandywine grinding 100,000 bushels of wheat and corn in order "to give Bread to the Families of the Millers & Coopers & Shallop Men with out any profit for 1820."

Lea also operated a nearby cotton yarn factory in 1820 employing five men, ten women and twenty-seven boys and girls. Joseph Bringhurst manufactured "Batton Twist" cotton yarn at his factory on the south side of the Brandywine River one-half mile west of the bridge but had been closed for five years. Jacob Pusey stated that

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<sup>19</sup> U. S. Census, Manufacturing Schedules: 1820. Microfilm on file at EMHL.

<sup>20</sup> Tench Coxe, A Statement of the Arts and Manufactures of the United States of America for the Year 1810 (Philadelphia: A. Cornman, Junr., 1814).

over 100 people were fed and clothed when his factory, directly employing five men, six to eight women and between 30 and 35 boys and girls, manufactured cotton yarn. The Rockford Woolen Factory on the Brandywine, two miles from Wilmington's market, manufactured broad cloths, cassimeres, satinettes and shawls with spanish or "full blooded American" merino wool. Twenty to thirty men, six to eight women and eight to ten boys and girls worked at the Rockford Mill.<sup>21</sup>

Other large cotton manufacturers were established in the early nineteenth century. Additions to the Rokeby Cotton Factory in 1813 increased its capacity from 500 to 1200 spindles. John Carter managed the mill in 1823 while workers were housed in eleven nearby tenements. The Pusey cotton mill, established on the corner of Thirteenth and Poplar streets in 1813, manufactured general cotton goods and hosiery. The Rockbourne Factory began in 1822 upstream on the Brandywine. Garrett & Pusey later purchased the mill renaming it the Wilmington Cotton Factory. In conjunction with the mill, housing erected along Hutton, Buena Vista, and Mabel streets, and Palmer Row in Brandywine Village created a worker's community.<sup>22</sup>

The 1820 census also enumerated four tanyards and leather curriers in Wilmington. Evan Lewis' kept his cast-iron bark mill constantly in operation supplying ground bark for tanning 1500 spanish hides into sole leather. Six boys attended B. B. Webb's 72 tan vats while two workers prepared the 20-30 tons of quercitron bark necessary for tanning 2,000 hides and 1800 calf skins yearly. Stephen Bonsall manufactured curried leather from calf, sheep and goat skins. Jackson & Webb possessed an iron mill for grinding bark, 40 vats for tanning 700 hides and 30 dozen calf skins, and assorted buildings necessary for storage of bark and the currying or finishing of shoe and boot uppers, sole and harness leather, and morocco skins. Jackson & Webb noted that the price of green hides or slaughter leather, used for uppers, harnesses, carriage construction, mail bags, saddlebags, fire-engine hoses, ship riggings and other items requiring flexibility had not decreased similarly to dry hides or spanish leather, suitable only for sole leather.<sup>23</sup>

The Christina riverfront area experienced expanding shipbuilding and mercantile activities during this period. One indication of

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<sup>21</sup> U. S. Census, Manufacturing Schedules: 1820. Microfilm on file at EMHL.

<sup>22</sup> Scharf, p. 760; Industries of Delaware, p. 98; Bromberg, p. 15.

<sup>23</sup> U. S. Census, Manufacturing Schedules: 1820. Microfilm on file at EMHL.

the area's economic vitality appears in legislation passed in 1772 that regulated the length of wharves built into the Christina's channel. The year 1774 witnessed the establishment of G. W. Bush & Son, freight haulers at French and Water streets. This freight carrier serviced Wilmington merchants transporting goods to Philadelphia and Baltimore for over 100 years. William Warner began selling Lehigh Valley anthracite coal from the Market Street wharf in 1820. By 1800, piers began replacing wharves along the Christina waterfront completely transforming the colonial riverfront by mid-century.<sup>24</sup>

An analysis of an 1814 city directory gives an indication of the density and diversity of trades along the Brandywine and Christina waterfronts. Sixty-five occupations were listed for 346 persons in Wilmington in the directory. Included were five ship carpenters, 13 coopers, 15 ships captains, one ship chandler, two rope-makers, three watermen, two brass founders and one fisherman. Many people involved in shipping or shipbuilding trades lived within a corridor defined by the Christina and Second Street including four ship carpenters, ten sea captains, six carpenters, four coopers, one ship chandler, one rope-maker, three watermen and one fisherman. Six merchants, four inns and taverns, six groceries, eight dry goods stores were located in the waterfront area as well. Dispersed throughout the community were 18 tailors, 12 seamstresses, 28 carpenters, 25 boot and shoe makers, four potter, one soap-maker, two brewers, five brick makers and three goldsmiths. Fifteen occupations were described in the directory for Brandywine Village. Among the 97 persons listed were 32 coopers, 22 millers, five machine-makers, four millwrights, three shipbuilders and five watermen. While the waterfront areas reflected occupational diversity similar to the rest of the city, mercantile and shipbuilding trades appear clustered nearer the Christina while millers and coopers resided closer to the mills along the Brandywine.<sup>25</sup>

A great variety of smaller manufacturers, craftspeople and artisans dotted Wilmington's built landscape during this era of early industrialization. John Patterson operated a saddlery with his son on the west side of Market Street in 1797. One of the first industries in southern Wilmington consisted of the Eden Park Powder Mills, erected by Peter Bauduy in 1801. Bauduy's son-in-law J. P. Garesche owned and managed the powder works until 1861. Modern reminders of the powder mill include Eden Park, maintained by the City of Wilmington Department of Parks and Recreation, and Garasches Lane, both in south Wilmington. Vandever & Test distilled whiskey and rum near Fifth and Tatnall in 1803. David West established a nail factory at the corner of Front and Market.

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<sup>24</sup> Bromberg, p. 14; Industries of Delaware, p. 82.

<sup>25</sup> Scharf, pp. 643-648.

Eli Mendenhall simultaneously operated a carding factory and a dry goods store on King Street near the Second Street Market in 1814. Caleb Sheward began brewing malt liquor on Second Street between Orange and Tatnall streets that his son continued until 1843. Zachariah Ferris erected a tanyard and dwelling on Second Street as well. Mordecai Woodward owned a large rope-walk on modern Washington Street while John Sellars & Sons manufactured hats at his factory on Shipley Street. William Robinson established the Phoenix Foundry and Furnace in 1828 on King Street.<sup>26</sup>

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<sup>26</sup> Ibid., pp. 760, 653, 650-52, 646.

#### D. Industrialization and Early Urbanization 1830 - 1880 +/-

The introduction of the railroad transformed Wilmington's waterfront area during the period of Industrialization and Early Urbanization (1830 -1880 +/-). The railroad provided access to more distant raw materials and to western and southern markets while additionally supplying a market for local manufactured goods. Characterized by an increasing acceptance of and shift to technologies utilizing steam-powered machinery, this period witnessed the establishment of a wide variety of manufactures and the subsequent growth of smaller enterprises into larger industries employing hundreds of workers. Small shops and handcrafts, still in evidence at the beginning of this period, were slowly subsumed by larger manufacturing enterprises requiring skilled craftspeople. As population increased throughout the city, industrial concerns gravitated to the fringes of the retail core located along Market Street and nearby thoroughfares.

The construction of the Philadelphia, Wilmington and Baltimore Railroad (PW&B) through Wilmington in 1837 forever changed the physical face of the Waterfront Area. Situated along the current AMTRAK northeast corridor mainline viaduct that forms much of the western boundary of the Waterfront Analysis Area, the PW&B created an enterprise zone attracting new industries to the Christina riverfront. Historian Carol Hoffecker writes:

the route chosen for the PW&B, located so close to the navigable Christina River, maximized the railroad's impact on Wilmington's economy because it created a prime industrial site in the narrow strip of land between the tracks and the river.<sup>27</sup>

Simultaneously, the merchant mills along the Brandywine that previously dominated much of the grain trade in the United States encountered decreased sales and competition resulting from Philadelphia's rise as an intra-regional entrepot. The construction of the Wilmington & Northern Railroad through western Wilmington in 1870 helped spur manufacturing growth in that part of the city.<sup>28</sup>

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<sup>27</sup> Hoffecker, p. 17.

<sup>28</sup> An excellent examination of the railroad's effect on Wilmington's development is Bruce E. Seely, "Wilmington and its Railroads: A Lasting Connection," Delaware History XIX (Spring/Summer, 1980): 1-19.

Wilmington's expanding ironworks, foundries, machine and tool manufacturers, and carriage makers required sources of sheet iron, steel, coal and lumber that the PW&B easily furnished. Harlan & Hollingsworth, shipbuilders and railroad car manufacturers, used 1,000 tons of iron in 1850 while carriage builder A. Flager & Co. consumed 18,000 feet of ash and hickory, and 20 tons of iron. George G. Lobdell required 10,000 tons of pig iron and 3,000 tons of coal in 1860 to make railroad car wheels. That same year Harlan & Hollingsworth used 600 tons of castings, 1,000 tons of puddled iron, 200 tons of boiler plate iron and 400 tons of wrought iron in addition to 600,000 feet of lumber.<sup>29</sup>

The railroad also became a large consumer of local manufactures, facilitating the employment of great numbers of workers. Harlan & Hollingsworth, founded in 1834, built its first railcar in 1836 at the foot of West Street. The company employed over 1200 persons by 1880. In 1839, the George Lobdell Co., founded in 1831 as Jonathan Bonney & Co., began manufacturing iron car wheels at the foot of Lombard Street. Lobdell also manufactured cast-iron rolls for paper-making machinery, and flour and rolling mills but later specialized in car wheel manufacture, becoming the Lobdell Car Wheel, Tire and Machine Co. in 1867. Lobdell employed 450 men in 1880. Edwin J. Horner established a locomotive and car spring factory at Eighth and Railroad Avenue in 1844. James P. Hayes, a former PW&B engineer, took over management of the firm in 1872. The Diamond State Iron Company's 500 employees produced merchant bar iron, railroad splice bars and track fastenings, and track bolts and spikes at its rolling mill and foundry established at Church and Third streets in 1855. Jackson & Sharp, a railcar manufacturer at Eight street and Railroad Avenue, opened the Delaware Car Works in 1863. Jackson & Sharp became one of the largest manufacturers of railcars in the country employing between 800 and 1,000 people. Jackson & Sharp also built the first narrow gauge railcars in the world for the Denver and Rio Grande Railroad. The 350 workers at Bowers Dure & Co., established in 1871, erected railcars at the Wilmington Car Works at Eleventh Street and Railroad Avenue. The Pullman Palace Car Company purchased the former Bowers & Dure property in the late nineteenth century and operated extensive repair facilities at the location well into the twentieth century.<sup>30</sup>

An examination of manufacturing census records illustrates the shift to steam-powered machinery by Wilmington's manufacturers in the period of Industrialization and Early Urbanization. Although an incomplete list of industry throughout the state, Louis McLane's

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<sup>29</sup> U. S. Census, Manufacturing Schedules: 1850, 1860. Microfilm on file at EMHL.

<sup>30</sup> Every Evening, p. 41; Industries of Delaware, pp. 122-23, 91, 73, 62-63, 119.

1833 report on manufactures does describe some of the earliest firms utilizing steam-power in the city. Jacob Alrichs & Son, originally founded in 1808 as Alrichs & Dixon, produced cotton and woolen manufacturing machines with the aid of steam-powered equipment. McLary & Bush manufactured cotton and woollen machinery, steam engines and railroad cars using steam power. Mahlon Betts and Jonathan Bonney used steam engines to power bellows at their iron foundries while J. P. Garesche used both steam and horse-powered machines at his gun-powder factory. Four additional firms, a rope-maker, two tanners, and a bark mill, utilized horse-power. One cotton mill and one flour mill received power from the Brandywine.<sup>31</sup>

A comparison of the 1850 and 1860 manufacturing censuses vividly describes a number of changes in the character of Wilmington's industries, including increased use of steam-powered machinery and a greater diversity of trades and businesses. Steam-powered factories increased over 240%, from 15 to 51 establishments, between the two censuses. Hand-powered manufacturers accounted for 106 establishments with an average of eight employees in 1850. By 1860 the 151 hand-powered manufacturers employed an average of twelve persons. Three water-powered manufacturers were counted in both years. However the average number of workers at water-powered mills fell from 26 to ten. Three brickyards and two potterys used horse-power and engaged 121 men in 1850. Only one marine-railway used horse-power in 1860. The total number of workers rose nearly 120% from 1,745 to 3,826. Approximately 40 percent of those workers toiled at steam-powered factories in 1850. By the next census this figure rose to 50%.

Reflecting a greater diversity of manufactures, the 1850 census itemized 32 different occupations while the 1860 counted 58 occupations. Twenty-five shoemakers, six cabinetmakers, five shipbuilders, six blacksmiths, six coopers, eleven tailors, ten bakers and four tin and sheet ironworkers head the list of manufacturers enumerated in the 1850 census. Additionally, four founders, two tanners, three machinists, three hatters, three carriage makers, seven cigarmakers, two millers and two cotton manufacturers were counted. Ten years later eight carriage makers, eight founders, four machinists, two rolling mills, 13 tanners, curriers and morocco manufacturers, one match manufacturer, one sailmaker, and rubberized hose and belt manufacturer were listed. Seven shipbuilders and shipsmiths, nine carpenters, seven sash, blinds, door, planing and saw mills, 16 tailors, 24 boot and shoemakers were also counted in addition to cigar, brush, picture frame, coach wheel and axle, soap and candle, mast and spar, and

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<sup>31</sup> Secretary of the Treasury [Louis McLane], Documents Relative to the Manufactures in the United States (22nd Cong., 2nd Sess., 1833. Exec. Doc. 223, v. 2).

earthenware and pottery manufacturers.<sup>32</sup>

Some types of craftsmen formerly employed in small shops discovered employment opportunities as skilled artisans in the larger manufactories. Skilled carpenters especially found niches in the carriage, steamship and railroad car manufacturing industries. Fancy paneling and woodworking graced many of the rail cars, carriages and steamships produced by the Wilmington manufacturers. Jackson & Sharp constructed palace cars for the Emperor of Brazil and the royal family of Sweden among others. Yachts and America's Cup racers were constructed at both the Harlan & Hollingsworth and the Pusey & Jones shipyards. Skilled painters and upholsterers often were in high demand among Wilmington's manufacturers.<sup>33</sup>

Over 8,000 people resided in Wilmington in 1840. Ten years later over 13,000 lived throughout the city. A map of 1850 indicates the density of settlement remained around the Market Street and Brandywine Village areas (see Figure 9, p. 30). Population climbed to 21,258 in 1860. By 1870 the city's population rose to nearly 31,000 people. Wilmington possessed 42,478 residents in 1880. Maps of Wilmington during this period however show that the impact upon the city's physical development proved negligible. An 1850 map contains shading that depicts the range of land settlement. Shading covers much of the area between the eastern peninsula of Wilmington and Adams Street and the two rivers. Areas north of the Brandywine, south of the Christina and the eastern peninsula remain essentially unsettled. An 1861 map labels the eastern peninsula area the "Brandywine Marsh." The Christina River Improvement Co. started to dredge and fill-in unused land along the waterfront beginning in 1866. One of local entrepreneur Joshua T. Heald's designs to assist development of Wilmington's geographically and environmentally less desirable areas, southern Wilmington and the eastern neck appeared with a road grid imposed over its terrain in an 1868 map (see Figure 10, p. 31). A number of carriage works and an iron rolling mill located near the Market Street and Christiana Avenue bridges, as well as Heald's speculative lower-income housing, during the 1860s but further development of south Wilmington did not occur until approximately thirty years later. A bird's eye view of Wilmington executed in 1874 illustrates settlement similar to the earlier 1850 map. Most building construction has been confined to areas between the eastern peninsula and Harrison Street. Construction also extends out Delaware Avenue where horse-drawn streetcars, another Heald

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<sup>32</sup> U. S. Census, Manufacturing Schedules: 1850, 1860. Microfilm on file at EMHL.

<sup>33</sup> Hoffecker, pp. 28-32.

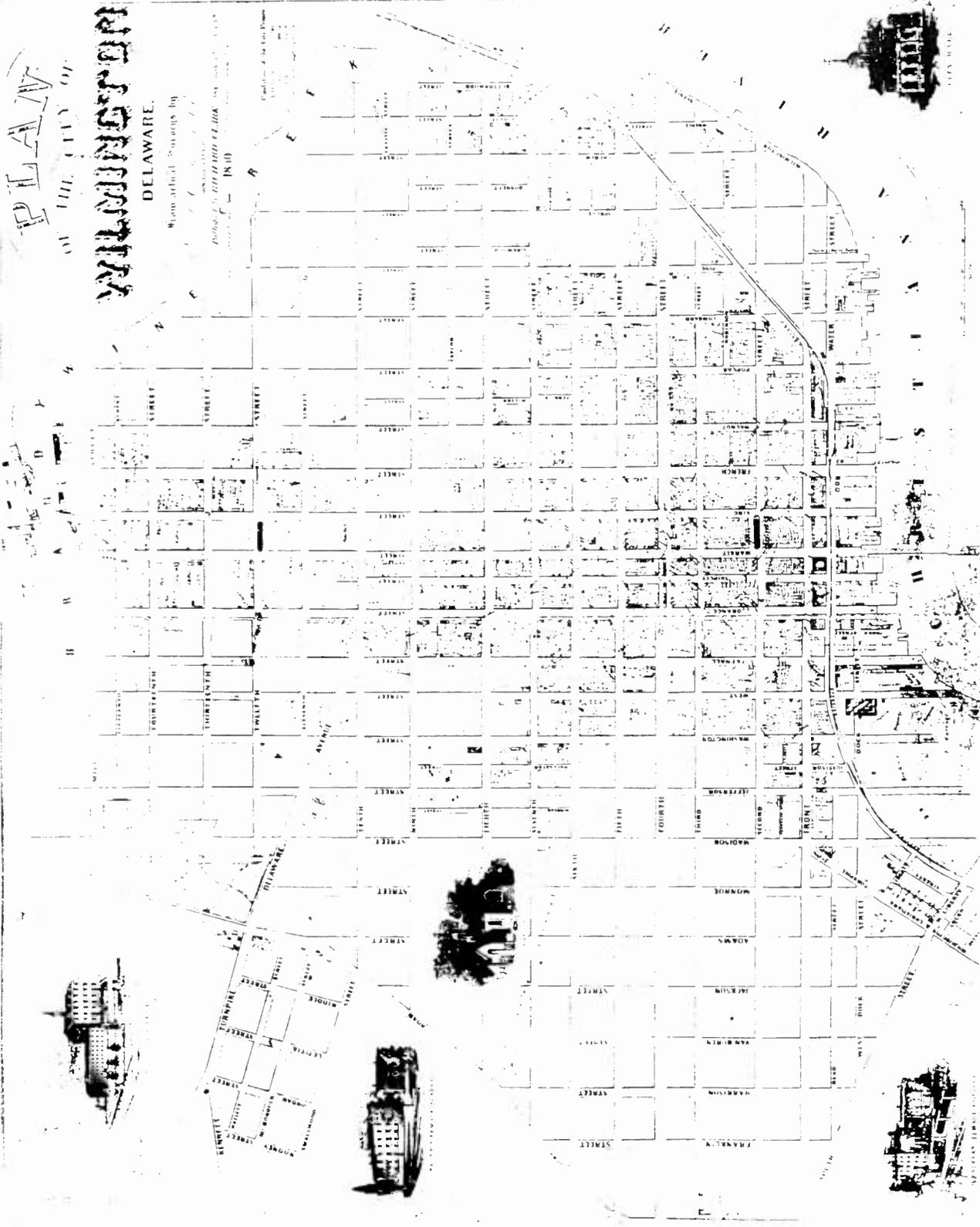


Figure 9: Detail from J. C. Sidney's "Plan of the City of Wilmington, Delaware," 1850 (Reprinted courtesy of the Historical Society of Delaware)

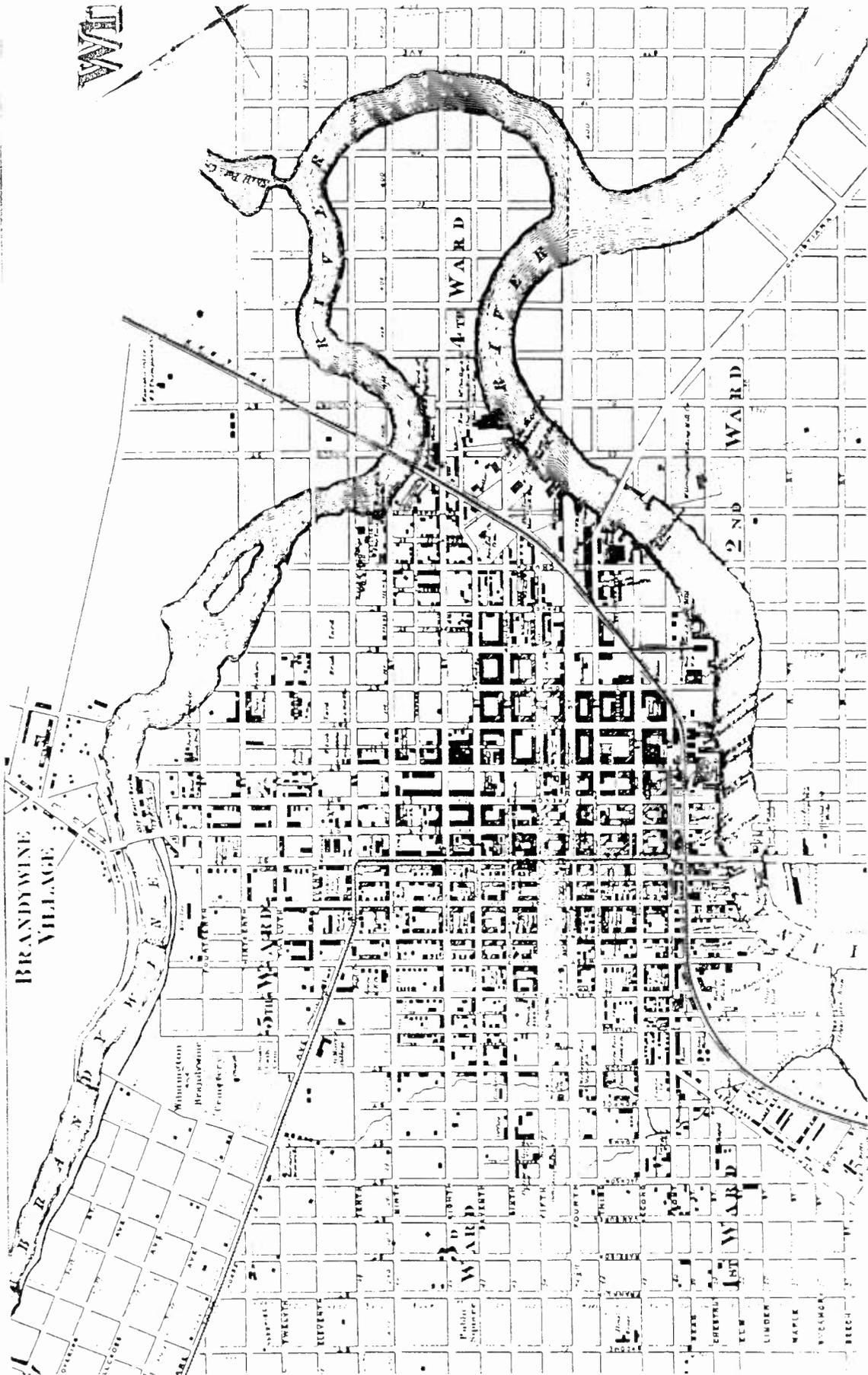


Figure 10: Detail of Wilmington from D. G. Beers' Atlas of the State of Delaware, 1868  
(Reprinted courtesy of the Office of Planning)

venture, began transporting early suburbanites in the 1864.<sup>34</sup>

The waterfront area witnessed a great transformation during this period although shipbuilding and related trades, and mercantile endeavors predominated in the early years. The Wilmington Whaling Company's five whaling ships and barks operated from Christina River wharves employing twenty coopers making barrels to carry whale oil between 1833 and 1846. Shipbuilders in the early part of this period included Thomas Young at the foot of Poplar Street, John Harris at the foot of Orange Street, the Thatcher yard at the foot of Pine and the Zebley yard near the Brandywine Bridge on the eastern peninsula. John Tatem manufactured sails in his loft near the Walnut Street wharf. John Hedges manufactured rope in his walk at the corner of West and Water streets.<sup>35</sup>

By the end of the Industrialization and Early Urbanization period large shipbuilding firms, railroad car manufacturers, and ironworks dominated the Christina River waterfront while many Brandywine mills had ceased operations. In addition to Harlan & Hollingsworth, Jackson & Sharp, the Diamond State Rolling Mill, the Lobdell Car Wheel Company, Bowers Dure & Co., Pusey & Jones and J. P. Garesche numerous other firms located along the Waterfront Area. Joseph Teas manufactured nuts and bolts at the corner of Third and Church Streets. Jones Guthrie constructed carriages in his factory in south Wilmington along with two other firms, Howard Pusey and Thompson & Paschal. John M. Kelley & Co. made soap at the Diamond State Soap Works at the corner of Third Street and Railroad Avenue. Richard P. Pim manufactured malleable iron at the corner of Taylor and Buttonwood Streets. The machinists Hilles & Jones constructed boilers and railroad tools across the street from Pim. H. F. Pickels operated an iron foundry on the east side of the Brandywine at Tenth Street. Enoch Moore owned a shipyard and marine railway at the foot of Fourth Street. Other smaller businesses along the waterfront areas included a cigar manufactory, lumber merchants, lime and coal dealer, and felloe and planing mills.<sup>36</sup>

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<sup>34</sup> Munroe, p. 269; J. C. Sidney, "Plan of the City of Wilmington, Delaware" (Philadelphia: Richard Clark, 1850), On file at HSD; William B. Wiggins, "Map of Wilmington Shewing Proposed Extension of the City Limits" (1861), On file at HSD; Pomeroy & Beers, "Wilmington New Castle Co. Del." (1867), On file at HSD; H. H. Bailey & Co., "Wilmington, Del. 1874.," On file at HSD; Hoffecker, pp. 39-41.

<sup>35</sup> Theophilus K. Jones, "Recollections of Wilmington From 1845 to 1860," Papers of the Historical Society of Delaware LII (1909): 3-8.

<sup>36</sup> Bromberg, p. 15; Industries of Delaware, pp. 85, 96, 90, 95, 88, 104, 89; Bailey & Co., "Wilmington, Del. 1874.," On file at HSD.

**E. Urbanization and Early Suburbanization**  
**1880 - 1940 +/-**

Continued industrial growth characterized the first few decades of the period of Urbanization and Early Suburbanization (1880 -1940 +/-) in Wilmington. The railroad's influence upon the Waterfront Analysis Area persisted and once again reshaped and defined the zone's physical form. Attempts to cultivate new manufacturing investment in the city did open up southern Wilmington and other fringe areas of the riverfront zone to industrial development in this period. However, after the turn of the century heavy industry began a decline resulting from a variety of changing economic features including shifting market requirements, the rise of trusts and large holding corporations, and the worldwide depression of the 1930s. Manufacturing diversity persisted throughout Wilmington during the period while waterfront industries remained dominated by iron-shipbuilding, machine and tool manufacturers, and railcar factories.

The 1880 Census of Manufactures enumerated 59 occupations among a total of 258 firms. Wilmington manufacturers gave employment to a total of 7,852 wage-earners. Manufacturers using steam-powered machinery employed the largest segment of the work-force continuing a trend that began during the mid-nineteenth century. The 76 steam-powered firms engaged an average of 86 men, women and children. The three largest firms, Harlan & Hollingsworth, Pusey & Jones and Jackson & Sharp employed 1500, 1125 and 800 persons respectively. The 176 firms utilizing hand-labor used an average of eight persons per firm. Some hand-power firms, such as Coxe & Allen and McClary & Guyer, brick manufacturers employing 60 and 54 men and children respectively, did employ large numbers of workers however. Fifty-seven men and one women worked at Gregg & Bowen's carriage and wagon factory. Shipbuilding, both iron/steel and wooden, employed the largest segment of the workforce with 1,454 workers followed by leather tanning, currying and finishing (914), railcar manufacturers (860), foundry and machine makers (779), and iron and steel factories (610).<sup>37</sup>

Wilmington's 590 manufacturers in 1890 employed a total of 14,377 men, women and children in 82 different occupation classifications. Railcar manufacture supplanted shipbuilding in the total number of workers rising to 2347 persons while shipbuilding only rose to 1752 people. Foundry and machine shop products (1,521), morocco (1,432) and iron and steel manufacturers (1,228) trailed railcar and

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<sup>37</sup> U. S. Census, Manufacturing Schedules, 1880. Microfilm on file at EMHL; Hoffecker, p. 167.

shipbuilding. Ten years later Wilmington's 759 establishments employed 16,055 workers. Railcar manufactures with 2,897 workers remained the largest employer with the production of leather second with 2,454 wage earners. Foundry and machine shop products (2,009) and iron and steel with (1,327) followed. The percentage of the city's workforce employed in manufactures, 44.4% in 1880 and 46.2% in 1900, peaked at 51% in 1910.<sup>38</sup>

Twice during the period of Urbanization and Early Suburbanization the Philadelphia, Wilmington & Baltimore Railroad and its successor, the Pennsylvania Railroad, undertook building programs that transformed the Christina riverfront. The PW&B possessed maintenance and repair shops along Water Street and east of French between the tracks and the Christina River as early as 1842. These shops proved woefully inadequate as the railroad evolved into a major freight and passenger line servicing New York to Washington traffic in the last quarter of the nineteenth century. Constrained by surrounding industries and its own tracks the PW&B constructed a second repair facility in 1880 that stretched from the foot of Pine Street across the tracks to the area of Fourth and Church streets. These new shops, including a large engine house, blacksmith and boilersshops, functioned in conjunction with the earlier repair facility although some repetitious operations occurred.

In 1902 through 1905 the Pennsylvania Railroad (PRR), which acquired the PW&B in 1881, undertook an ambitious modernization program throughout Wilmington. A four mile long raised viaduct constructed primarily of stone raised the tracks above grade speeding traffic through the city and permanently forming a physical barrier between the city and its historic, heavily industrialized riverfront. In conjunction with the viaduct's building, the PRR erected new repair and maintenance shops north of the city on the former Cherry Island marshlands near Edgemoor. The Wilmington Board of Trade proclaimed that the PRR improvements were "the first step toward the new river front and harbor, with its numerous stone piers, elevators, shipyards and manufacturing structures." The city's future "greatness" was assured by the completion of the elevated tracks. The impact of the improvements, "where blocks of old buildings have been removed, add much to the appearance and health of that portion of the city." The current AMTRAK station and associated buildings at the corner of Front and French streets, designed by noted Philadelphia architect Frank

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<sup>38</sup> Department of the Interior, Census Office, Report on Manufacturing Industries in the United States at the Eleventh Census: 1890 (Washington, D. C.: Government Printing Office, 1895), pp. 618-621; Department of the Interior, Census Office, Twelfth Census of the United States, Taken in the Year 1900. Manufactures (Washington, D. C.: U. S. Census Office, 1902), v. VIII, 2: 112-13; Hoffecker, pp. 165-66.

Furness, also formed part of the PRR's building program. Further modernization efforts undertaken by the PRR included electrification of the mainline in the 1920s and 30s.<sup>39</sup>

The optimism voiced by the Board of Trade regarding the development of Wilmington's harbor and industries serves to illustrate the efforts undertaken to garner new business for Wilmington's sagging economy. In 1884 Joshua Heald attempted to develop south Wilmington by advertising land "exempt for 10 years from taxation, for manufacturing purposes." At the turn of the century, local industrialists reincarnated the Board of Trade after two previous lives in the nineteenth century. Board publications extolled infrastructure improvements, such as the dredging of the silted Christina waterway in the 1880s, the establishment of rail freight service throughout south Wilmington in the 1890s and the 1920s construction of Port of Wilmington facilities. Possibly as a result of this boosterism, some manufacturers did establish manufactories in south Wilmington.<sup>40</sup>

The Lobdell Car Wheel Company moved to property near the Delaware River in south Wilmington during 1882 and manufactured railroad car wheels and later heavy foundry machine tools until selling the complex in 1949 to the United Engineering and Foundry Co. The Delaware Chemical Corporation began manufacturing ice in south Wilmington in 1886. The Steelton Manufacturing Company erected a steel spring factory at the intersection of Garasches Lane and the PRR tracks in 1902. The Malleable Iron Co., successor to the Pim malleable iron company, moved to south Wilmington and began casting railroad hardware and chilled iron rolls for paper machinery in 1904. The Marine Construction Co. occupied a machine shop, marine railway and shipyard along Commerce Street in 1925. A 1928 survey of Wilmington's industry described seven new manufactories that had been erected surrounding the Port of Wilmington facilities since 1925.<sup>41</sup>

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<sup>39</sup> Seely, pp. 6-17; "Wilmington, Delaware, Board of Trade Journal" IV (Oct. 1902): 3.

<sup>40</sup> Heald & Co. "Plan of Wilmington Del. Its Harbor and Railroads. In 1884." On file at HSD; Hoffecker, pp. 53-54; Wilmington, Delaware, Board of Trade, Industrial Wilmington (Wilmington: George A. Wolf, 1898), p. 46; Delaware Chamber of Commerce Industrial Department, An Industrial Survey of Wilmington, Delaware, Spring 1928 (Wilmington: Chamber of Commerce, 1928).

<sup>41</sup> Lobdell Products For the Paper and Allied Industries (Wilmington: Lobdell Company, [1936]), p. 4; "Board of Trade Journal" IV: 12; Jack Weeks, Yankee Iron, The Story of the Eastern Malleable Iron Company (Naugatuck, Connecticut: The Eastern Malleable Iron Company, 1952), p. 53; Delaware, Its Products, Resources and Opportunities, H. Harry McGill compiler (Wilmington: National Publishing Company, 1925), p. 83; Delaware's Industries,

In spite of this apparent growth in the early twentieth century, some of Wilmington's largest and oldest industries, especially those involved in railroad car and shipbuilding, experienced downturns causing some to close operations or to become part of national corporations. Financial difficulties forced the Diamond State Iron Company, founded in 1855, to close its rolling mill straddling the Christina River in 1904. During this period trusts created holding companies with financial resources far outnumbering most of Wilmington's manufacturers. Lobdell Car Wheel barely survived a hostile take-over initiated by the National Car Wheel Company, the trust controlling car wheel manufactures. A St. Louis trust, American Car & Foundry Co., purchased Jackson & Sharp's railcar and wooden shipbuilding manufactory shortly after the turn of the century. Pusey & Jones weathered difficult economic times by shifting its emphasis from ship-building to the manufacture of high-grade paper-making machinery. The Pullman Palace Car Company, principally located in Illinois, bought Bowers, Dure & Co.'s railcar factory in 1886. Carriage manufacturers experienced a general decline as this industry's market moved further west. In 1900 the Board of Trade announced the closing of McLear & Kendall's carriage factory. Originally established in 1830, McLear & Kendall were replaced by an automobile manufacturer. Although many of the city's industries flourished during the Second World War by 1947 only 163 industries employing 13,163 wage-earners remained in Wilmington. This decrease in manufactures throughout Wilmington coincided with the city's birth and evolution as a "corporate capital."<sup>42</sup>

The history of the Harlan & Hollingsworth Corporation and its complex during this period illustrates the evolution and reuse of Wilmington's waterfront. Stiff competition from New York Shipbuilding Co.'s new Camden, New Jersey, yard combined with company president J. T. Gause's death in 1901 to create a number of business problems for ship and railcar builder Harlan & Hollingsworth, originally founded in 1836. In 1904 the Bethlehem Steel Corporation trust took over control of Harlan & Hollingsworth. Bethlehem, aided by government contracts during World War One, closed the shipbuilding yards in 1926. Bethlehem discontinued the manufacture of railcars shortly before World War Two. The Dravo Corporation acquired a large portion of the property in 1927 and began construction of barges. During World War II, Dravo received government contracts enabling it to greatly increase its physical plant and production while employing over 11,000 persons. Following the war Dravo severely cut back its

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An Historical and Industrial Review (Philadelphia: Keighton Printing House, 1891), p. 17-18.

<sup>42</sup> Munroe, p. 157; Hoffecker, pp. 158-59; Census Office (1902), p. 107; Industrial Survey of the State of Delaware (Wilmington: Delaware State Chamber of Commerce, 1959), p. 83.

operations, finally closing the yard in 1964.<sup>43</sup>

Examples of the manufacturing diversity present throughout Wilmington during this period include the Jessup & Moore Paper Company's Augustine Mills located on the Brandywine River, the Diamond State Brewery, the Wilmington Mills Manufacturing Company, makers of jute, twine and rope, as well as the Remington Machine Company, manufacturers of refrigerators and ice-making machines. The Electric Hose & Rubber Company, manufacturers of rubber hose, the Beste Provision Co., pork packers, and the Delaware Pretzel Company represent the wide array of manufactures in Wilmington. Elevator manufacturers, brick makers, milk bottlers, cigar factories, and steam cracker, biscuit and cake bakers also help illustrate the variety of establishments present in Wilmington during this period.

This period also witnessed the physical expansion of industries along the Christina River incorporating former neighbors into large manufacturing complexes. Harlan & Hollingsworth owned most of the area between West and Washington streets in the 1880s. Shortly after 1900 Harlan & Hollingsworth acquired land west to Madison Street and south to Beech Street in addition to land across the Christina River opposite of its plant. Pusey & Jones acquired land from the Pennsylvania Railroad to the west and the Lobdell Car Wheel Company east of its original manufactories until it owned all the buildings and property stretching from Walnut to Church Street by the close of the period. Hilles & Jones acquired the former Seidel & Hastings property to the north of its tool and machine manufactory and later incorporated Wilmington Malleable Iron's factory into its plant.

The integration of surrounding properties into the larger industries located on the north shore of the Christina River served to further focus shipbuilding, railroad car manufactures, machine and tool production, and iron and steel fabrication facilities along that waterfront. The Brandywine River continued to power grain, textile and paper mills although some mills along the south shore were not rebuilt after an 1880 fire. Carriage factories were joined and subsequently replaced by machine and tool manufacturers and related metal production facilities in south Wilmington as this area received further development.

The growth of industry early in this period combined with the construction of new railroad facilities to re-define the Waterfront Area to its present form. Most manufacturing and industry has left the waterfront area and the majority of resources that currently

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<sup>43</sup> William K. Fitch and Carl B. Jansen, Dravo, an Engineering Enterprise Through Teamwork (Princeton, NJ: The Newcomen Publications in North America, 1954); Beth Conway Shervey, "Dravo" (unpublished paper in possession of author).

exist in the Analysis Area date to this period. Selected demolition of old industrial buildings, vestiges of Wilmington's industrial heritage, has left a fragmented physical remnant of the past.