

3.0 MULTIPLE PROPERTY DOCUMENTATION FORM

National Register of Historic Places Multiple Property Documentation Form

This form is used for documenting property groups relating to one or several historic contexts. See instructions in National Register Bulletin *How to Complete the Multiple Property Documentation Form* (formerly 16B). Complete each item by entering the requested information. For additional space, use continuation sheets (Form 10-900-a). Use a typewriter, word processor, or computer to complete all items

New Submission Amended Submission

A. Name of Multiple Property Listing

INDUSTRIAL RESOURCES OF BROOME COUNTY, NEW YORK

B. Associated Historic Contexts

HISTORY OF INDUSTRY IN BROOME COUNTY, NEW YORK (ca. 1780s to 1961)

C. Form Prepared by

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D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.
(_____ See continuation sheet for additional comments.)

Signature and title of certifying official

Date

State or Federal Agency or Tribal government

I hereby certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

Signature of the Keeper

Date of Action

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Provide the following information on continuation sheets. Cite the letter and title before each section of the narrative. Assign page numbers according to the instructions for continuation sheets in National Register Bulletin *How to Complete the Multiple Property Documentation Form* (formerly 16B). Fill in page numbers for each section in the space below.

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Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, PO Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Project (1024-0018), Washington, DC 20503.

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E. STATEMENT OF HISTORIC CONTEXTS

Outline of Historic Contexts:

HISTORY OF INDUSTRY IN BROOME COUNTY, NEW YORK (ca. 1780s to 1961)¹

The Early Forest Industries (ca. 1780s – ca. 1850s)

Rise of the Factory Economy (ca. 1850s- 1910s)

The World Comes to Work: The Rise of Endicott-Johnson (ca. 1900s – ca. 1920s)

Valley of Innovation (ca. 1900s – 1950s)

Challenges of a Changing World (ca. 1930s – Present)

HISTORY OF INDUSTRY IN BROOME COUNTY, NEW YORK (ca. 1780s to 1961)

Introduction

Broome County has played a long and significant role in shaping modern industry throughout the United States. This heritage is reflected today by the extant collection of over 140 buildings and industrial resources that reflect many of the region's significant companies and industries. The county has served as the cradle for numerous nationally and internationally prominent companies throughout the nineteenth and twentieth centuries, several of which continue to play a role in the area in the twenty-first century as well. After an early era of industry based on utilizing and processing the vast natural resources of the region, a strong manufacturing industry developed during the Industrial Revolution era of the mid- to late-1800s. Despite its relatively small population, Broome County fostered a thriving and innovative technological industry following the turn of the twentieth century, giving rise to some of the largest companies in the world. Today, while many of the region's largest industries have shut their doors due to changing cultural and economic times, there is new promise in the reuse and revitalization of the extant collection of nineteenth and twentieth century factory buildings to spur new growth and development in Broome County for the twenty-first century.

Located in south-central New York State, adjacent to the Pennsylvania state border, Broome County is at the heart of a region of the state known as the Southern Tier. Broome County is located in the foothills of the Appalachian Mountain range, and features a varied topography. Rolling hills in the western portion of the county, with broad open valleys, give way to a more rugged landscape towards the eastern portion which is in closer proximity to the Catskill mountain range. Broome County contains many rivers and streams created from glacial activity which carved the mountain ranges as well as runoff from the hills and mountains. The two primary rivers in the county are the Susquehanna and Chenango Rivers, which meet at the location of what has become the City of Binghamton, the county's most prominent urban center. The North Branch of the Susquehanna River, which ultimately drains into the Chesapeake Bay, arcs through the south-western area of

¹ The topics and themes of this MPDF have been patterned after those identified in the *Susquehanna Heritage Area Management Plan*, "Theme 3: Valley of Opportunity," pages 135-138. This theme presents an analytical and modern perspective on the role of industry in the County's history, creating an outline of the development, growth and impact that industrialization has played in Binghamton and in Broome County. It is the goal that relating this MPDF to the SHAMP, will integrate these previous planning efforts into the current initiative.

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the county. This same branch of the Susquehanna River also runs north-south through the towns of Colesville and Windsor. The Chenango River runs in a more north-south course beginning near Utica north of Broome County, emptying into the Susquehanna River some 90 miles to the south. Other rivers in Broome County include the Tioughnioga River which is a tributary of the Chenango River, running about 70 miles in length through central New York and into the northern portion of Broome County through Lisle, Triangle and Barker before connecting to the Chenango River near Chenango Forks. The Delaware River forms a small portion of the eastern boundary of the county in the town of Sanford. Broome County is also home to numerous other smaller rivers and streams which drain the Allegheny Plateau of the Appalachian Mountains as a part of the Chesapeake Bay watershed.

Broome County features four primary topographical regions which influenced later settlement and development in the county. Towards the more mountainous eastern side of the county, the area located along the left bank of the Susquehanna River includes the townships of Sanford and Colesville. Here, the land is fertile, although the narrow valleys made large-scale settlement a challenge. Lying between the Susquehanna and Chenango Rivers is a region which has a less dramatic terrain, and the wider valleys made this region more suitable for widespread agricultural use. The towns of Fenton, Kirkwood and portions of Colesville and Windsor are located in this area. In spite of a more rugged landscape located to the west of the Chenango River to the Tioga County line, this region which includes the towns of Lisle, Triangle, Maine, Barker, Nanticoke, Chenango and Union has been utilized for agriculture. Broome County also contains a fourth region, located south of the Susquehanna River to the Pennsylvania line. This area which includes the towns of Binghamton, Conklin and Vestal is characterized by a more level landscape.²

The political boundaries of Broome County developed over a series of years as the State of New York took shape. Broome County's initial inhabitants were the Native Americans, specifically the Oneida tribe of the Iroquois nation. The earliest non-native settlers to New York were the Dutch who established the colony of New Amsterdam on Manhattan Island in the early seventeenth century following the 1609 voyage of Henry Hudson. While the Dutch controlled an area which encompassed part of downstate New York, New Jersey, Pennsylvania, Delaware and Connecticut, much of their settlement was located along the Hudson River valley in present-day New York State. Following ongoing conflict with England over ownership of North American territory, the Dutch New Amsterdam colony was captured by the English in 1664, a transition which was completed in 1667 with the Treaty of Breda. The Duke of York was subsequently granted a Royal colony which included the former Dutch settlement area along the Hudson River. Although the Dutch temporarily reclaimed control of the area in 1673, the English reclaimed the land shortly after, becoming the Province of New York. In November of 1683, the Province of New York was divided into twelve counties, including the large Albany county which Broome was initially part of. Tryon County which included what became Broome County was split from Albany county in 1772, and was then renamed as Montgomery County after the popular General Richard Montgomery in 1784 following the defeat of the British by the Americans during the Revolutionary War. This large county was subsequently divided, and in 1791 the County of Tioga was formed. This county contained the lands of the current Tioga, Broome and Chemung Counties. On March 28, 1806 Broome County was formed, set off from Tioga County, named in honor of John Broome who was lieutenant-governor of the state at the time.³

² William Foote Seward, ed. *Binghamton and Broome County, New York; a History*, New York: Lewis Historical Pub., 1924; 4-5.

Also, H.P. Smith, ed. *History of Broome County*. Syracuse, NY: D. Mason &, 1885; 95-97.

³ H.P. Smith, 86-87. Also Seward, 59-62.

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As the population grew and became more sophisticated in Broome County, this led to the division and organization of the large region into smaller municipal organizations. Initially, Broome County contained three towns; Chenango, Lisle and Union. Chenango was formed on February 16, 1791 as part of Tioga County. Union was also formed on February 16, 1791 as a part of Tioga County. The town of Lisle was set off from Union on April 7, 1801 and encompassed the present towns of Lisle, Triangle, Nanticoke and Barker. From these three original towns, other towns in Broome County have been created as the population grew and the need for smaller, more organized government and services arose. Windsor was formed from Chenango in March 1807. Colesville was formed from Windsor in April 1821 with its present boundaries. The town of Sanford was established from part of Windsor in April 1823, and its boundaries are unchanged from that date. Vestal was established from the town of Union in January 1823, including the areas south of the Susquehanna River, and its boundaries have also remained unchanged. Next, the town of Conklin was formed from Chenango in March of 1824, although in 1851 a small portion of Windsor was annexed to Conklin. Barker was created in April 1831 from Lisle, and its boundaries have remained the same since the 1840 annexation of a portion of Greene, Chenango County. The town of Triangle was also formed from Lisle, on April 18th, 1821, with its present borders. Nanticoke was established, also carved from Lisle in April 1831 with its current boundaries. Maine was formed from the town of Union in March of 1848, and its borders were established when it added a small portion of the town of Chenango in 1856. Port Crane, now the town of Fenton, was formed from the town of Chenango in December 1855. Concurrently, the town of Binghamton was also created from Chenango with its present boundaries.⁴

Americans of European origins were first introduced to the region that would become Broome County during a notorious campaign in 1779. In the spring of this year, General George Washington initiated plans for an offensive campaign against Loyalists and their Iroquois supporters. Known as the Sullivan Expedition and conducted in the summer of 1779, this mission involved General John Sullivan moving his forces overland from Easton, Pennsylvania up the Susquehanna River to Tioga Point (now Athens, PA), where his unit would combine with the troops of Brigadier General James Clinton that were moving westward along the Susquehanna River from Canajoharie. These combined forces would then move westward. Sullivan was given the directive to "lay waste all the settlements around so that the country may not only be overrun but destroyed."⁵ American forces conducted this scorched-earth campaign across Central New York State, from Canajoharie down the Susquehanna River to near Chemung northward throughout the Finger Lakes region and as far west as the Genesee River valley before returning to Easton in mid-October. This campaign devastated the Iroquois confederacy, leaving their culture in shambles and forcing many to flee northward into Canada or further west to Buffalo. While this episode was a dark day for the American military and the Iroquois culture, it did serve to introduce Central New York State and the Broome County region to the Americans. Many of these young troops who had made camp in the region known as "Chenango Point" at the confluence of the Chenango and Susquehanna rivers brought back stories of the rich resources of the area, and these tales helped to spur the settlement of the region following the Second Treaty of Fort Stanwix (1784) which secured peace in the region and also secured the lands formerly held by the Iroquois. The signing of the Treaty of Paris in September of 1783 which expelled British troops from America rendered New York free from much of the hostility and

⁴ H.P. Smith, 93-94.

⁵ Quoted in Bothwell, 20.

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turmoil which had plagued the area in past decades, opening the vast new Upstate New York frontier to settlement.⁶

Prior to its formation as a county, the area of Broome County contained several patents and land grants which would shape the development and settlement of the region. The largest of these land grants was sold to Robert L. Hooper, James Wilson and William Bingham in 1786, which contained over 30,000 acres of land. This patent was located along both banks of the Susquehanna River and included much of the adjacent valley. Hooper's Patent, also granted to them in 1786, contained 2,000 acres along the Susquehanna next to the Pennsylvania border. These combined tracts included portions of the present towns of Vestal, Union, Binghamton, Conklin and Kirkwood. Shortly after, this tract was divided amongst the men, and the Bingham tract consisted of the eastern end of this territory, along the confluence of the Chenango and Susquehanna Rivers at the site of the present city of Binghamton. Other patents in the Broome County area include the approximately 8,000-acre "Thomas' Patent" located south of Bingham's up the river and was likely granted prior to the Revolution, which contains the present towns of Conklin and Kirkwood. Guernsey's Patent of 1,000 acres now lies in the present town of Windsor. Other notable land divisions in the county included the Chenango Triangle Tract, a portion of which now forms part of the towns of Triangle and Barker. It was originally patented to Melancton Smith and Marinus Willett, who later sold it to Colonial William S. Smith in 1791. The Massachusetts Ten Towns (also known as the Boston Ten Towns or the Boston Purchase) was a tract of about 45-miles in length, lying between the Tioughnioga and Chenango Rivers and the Owego Creek. This tract (which includes all or portions of the present towns of Lisle, Nanticoke, Barker, Maine and Chenango) was conveyed by the state of New York to Massachusetts in 1786, which in 1787 the tract sold to a group of sixty people for a small profit. Numerous other smaller patents were also issued throughout Broome County, likely prior to the Revolutionary War, but in some cases the names of the owners and other information have been lost.⁷ These tracts were parceled and sold to settlers, often at reasonable or even low costs, helping to stimulate the growth and settlement of the Broome County region.

The Early Forest Industries (ca. 1780s – ca. 1850s)

When they arrived, the earliest pioneers to Broome County found the region to be a densely forested wilderness, typical of the Upstate New York frontier. The earliest settlements occurred in the town of Vestal (then in the old town of Union) in 1785, and in Colesville (then in the old town of Windsor), as settlers from New England and later Wyoming Valley, Pennsylvania moved into the area. Colonel Robert L. Hooper became the first permanent settler in what is now the town of Union, arriving in 1785 with several other families and individuals. Captain Joseph Leonard was among the earliest pioneers, and became the first permanent settler in the area of today's Binghamton in 1787. Lured by tales of the beauty and resources available to them by members of the Sullivan Expedition, pioneers traversed the rugged hills, rough rivers and forested terrain of Broome County.⁸

Around the year 1791 (some sources say 1799) the small village of Chenango (or Chenang) Point was established, located along the Chenango River at the foot of Mount Prospect. Typical of much of the settlement

⁶ Bothwell, 20-22.

⁷ For more in-depth information on the early land divisions and patents in Broome County, refer to H.P. Smith, ed. "Chapter XII: Divisions and Titles," *History of Broome County*, (Syracuse, NY: D. Mason &, 1885) 84-94.

⁸ H.P. Smith, 65.

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occurring in the region at the time, this settlement was located along waterways. In a region with few good roads and rough, forested terrain, these rivers and streams became a critical source of transportation, water power and even food for the early settlers. Built near several ferries crossing the Chenango and Susquehanna rivers, the small community of Chenango Point consisted of a small handful of dwellings, a tavern, and a graveyard on the south side of the Susquehanna River. A map depicting the area in 1797 also indicates the presence of a fortification along the east bank of the Chenango River.⁹ From this small settlement the city of Binghamton would grow, based on the community's ideal location at the confluence of the two primary rivers, the ferries, and also several important roads in the region which connected to Oswego, Newburgh and other regional centers.

As settlement increased in the area, and as New York State became more politically stable, the dawn of the nineteenth century saw the development and growth of Broome County's earliest industries. During the first half of the nineteenth century, Broome County's economy was largely driven by a thriving lumbering industry, and early pioneer settlers took advantage of the vast timber stock and natural resources available to them in the region.

Initially, the lack of nearby mill facilities, both for grinding grain and for milling lumber, was a serious hardship for these pioneers. About five years before the first settlers arrived in Broome County, an early settlement known as Shepherd's mills emerged near Tioga Point. This mill site was the closest available mill for the early Broome settlers, but was located about forty miles from the present site of Binghamton. Wattles's Ferry, another mill site, was located some seventy miles away, north along the Susquehanna. The arduous trips to these mills could take a week or two, and a limited supply of grain could be transported, as the lack of roads rendered the use of canoes the most suitable transportation method.¹⁰

The development of a lumber industry was a natural outgrowth of settlement in the area. The first task of the newly arrived pioneer settler was to clear enough of the forested land to construct a small shelter (often constructed of these same logs) and establish a farm which could sustain the needs of the family. Once these immediate needs were satisfied, the settler could then turn to clearing additional lands to establish additional agricultural space. On average, approximately 10 acres of forested land per year were cleared by a single settler. Early settlers wasted nothing, and while this land served agricultural purposes, it also provided the by-product of a ready supply of logs and timber which gave rise to the earliest industries in Broome County.

Sawmills, created to process the excess logs of the region, were among the first businesses established in the frontiers of Broome County. Henry French established the first known saw mill in the county in 1788, located on Castle creek in what is now the town of Chenango.¹¹ Lumbering was a thriving business in the county, especially in the eastern portions where the rugged and forested terrain made agriculture difficult. Felled trees could be planed into lumber, a valuable building product in the rapidly growing communities in the county.¹²

Similarly, gristmills also were a prominent early industry in the frontier county. While a sawmill provided necessary timber to construct shelter such as houses and barns, gristmills provided a supply of flour and meal

⁹ H.P. Smith, 197-198.

¹⁰ H.P. Smith, 69.

¹¹ H.P. Smith, 70.

¹² Lawrence Bothwell. *Broome County Heritage: an Illustrated History*. Woodland Hills, CA: Windsor Publications, 1983; 30-32.

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which fed the settlers and their livestock.¹³ Constructed along waterways such as rivers and streams, these water-powered sawmills and gristmills were often constructed in close proximity to each other. Broome County saw the construction of its first grist mill in 1790, constructed by Jonathan Fitch and located on Fitch's Creek in the present town of Kirkwood. Located about four miles from the current site of Binghamton, this mill would have provided more stability for the pioneers' food sources, helping ensure stable, permanent and more widespread settlement in the Broome County region.¹⁴

Shortly thereafter, other grist mills were established in Broome County. In 1791, Jabesh Winchop constructed one in Union. Captain Dean built a saw mill in what is now Sanford also in 1791, and built a grist mill the following year. Simon Rogers established a grist mill in the present town of Barker around 1795, and in 1797 Nathaniel Lane constructed one in Windsor. At the dawn of the nineteenth century, the supply of milled grains and meals was well established in Broome County, providing a stable source of foods for the settlers.¹⁵

During Broome County's earliest settlement years, industry other than milling was largely accomplished in the home. As money was in short supply to the pioneers, surplus goods had little local market, and thus most families only produced enough for their own uses. Fabric for clothing and other uses was made at home on looms, and boots and shoes were made by traveling makers. While much of the commerce in this early era was based on trade and barter, one unique product was manufactured by settlers that could fetch a monetary profit. Some early pioneers manufactured "black salts" and potash, which are products of lye which is obtained through processing ashes. These hardwood ashes were readily-available due to the burning of surplus timber in the region. Pioneer households processed these black salts, lye and potash, and selling these products provided a rare opportunity to bring money into the community. This money was used to pay taxes and buy household goods which could not be provided otherwise.¹⁶

Other industries began to emerge in Broome County in this period to serve the needs of the settlers, and not necessarily for trade or export. Nathaniel Delano established a small blacksmith trade in Chenango Point (present city of Binghamton) in 1788, though his business lasted just a few years.¹⁷ In 1801 John Yarrington established a more successful blacksmithing business in the growing village of Chenango Point, located at the northwest corner of what are the present Court and Washington Streets in Binghamton. Chenango Point also was served by a potter, a Mr. Pratt, who established his business on Court Street in 1802.

As settlement stabilized and began to develop, following the initial pioneer period of the late 1700s, additional mills began to develop in Broome County. Marshall Lewis arrived in the region in 1810, purchased land on the east bank of the Chenango River and built a saw and grist mill in the area of the present Water and East Clinton Streets in the present city of Binghamton. He then purchased Gray's Island¹⁸, built a dam across a smaller

¹³ William S. Lawyer, *Binghamton: Its Settlement, Growth and Development, and the Factors in Its History, 1800-1900*. Binghamton: Century Memorial Pub., 1900; 458.

¹⁴ An earlier mill may have been built by R. Winchell in the town of Vestal in 1786. H.P. Smith, 70.

¹⁵ H.P. Smith, 70.

¹⁶ H.P. Smith, 71-72.

¹⁷ H.P. Smith, 200.

¹⁸ This island appears to be later known as Lewis Island, and still later as Noyes Island before the channel dividing the island from the mainland was infilled sometime in the 1930s.

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channel in the river, and established additional mills.¹⁹ In 1828, General Whitney and Hazard Lewis (son of Marshall Lewis) secured the rights to construct a four-foot high dam, approximately between what is presently Tudor Street on the north bank and Telegraph Street on the south bank, across the Susquehanna River in present-day Binghamton. Upon its completion, Lewis built a grist mill on the south end of what became known as the Rockbottom dam, and Christopher Eldredge built a saw mill. This area developed as a center for several mills and small industries during the early 1800s, gaining the nickname of "Millsville."²⁰ Following the destruction of these mills by fire in 1861, they were later rebuilt by John Conklin. Meanwhile, General Whitney was supposed to construct a grist mill at the north end of the dam; however he actually built a saw mill. Whitney later sold half of the interest in that mill to General Waterman in 1831, and sold the other half in 1836.

Many communities in Broome County, especially those in the north and east regions, developed around the thriving lumber industry. The chief industry during its early history in what is now the town of Windsor was noted as being based on the lumber trade. Nathaniel Lane, who had established an early grist mill in the area, also established Windsor's first saw mill around 1797.²¹ Shortly after, Amraphael Hotchkiss built what was known as the first "Hogback mill" which was a small, primitive operation in Windsor.²² The Blakeslee family was noted as being prominent in the lumber industry, owning and operating several saw mills in the early 1800s. Father Hiram Blakeslee, sons Robert and Warren, and grandson Fred H. were noted as operating three saw mills, including one steam powered mill.²³ Phineas Doolittle and his sons built a saw mill just outside of the Windsor village, and Isaac Higley operated another. Four early mills were located on the creek about four miles south of the village of Windsor, and the small village was described as being ringed by saw mills. Pine logs were felled by hand, hauled to the mills, and then the sawed lumber was taken to Deposit or other points along the Susquehanna, where it was lashed to form rafts and floated away to southern markets. Once at these markets it was exchanged for goods or cash which were brought back to Windsor.²⁴

Lumbering was also an important industry in the town of Sanford and village of Deposit as well. When the first pioneers arrived in the area they found a densely forested landscape with plenty of valuable pine and hemlock trees. The Oquaga creek and other streams which laced the area provided the necessary power to operate numerous saw mills. Captain Nathan Dean built one of the community's earliest saw mills in Deposit during the summer of 1791 in order to provide lumber for the construction of his own house.²⁵ The town of Fenton saw its first saw mill built in 1797 by Elisha Pease, at the center of a thriving lumber center in that town.²⁶ In the town of Triangle, Moses Munson founded that area's first saw mill around 1801, providing much needed wood to the settlers of that region. Likewise, the lumber economy drove the town of Barker in the early 1800s as well, with

¹⁹ While the Lewis sawmill was discontinued, author William S. Lawyer noted in 1900 that the Lewis gristmill was still in operation "until a few years ago," or until the late 1800s. See Lawyer, 459.

²⁰ "Millville" or "Millsville" was an area within what is today's City of Binghamton. It was located along the north banks the Susquehanna River near the present Tudor Street and South Street area. This was the area which historically was adjacent to the Rockbottom dam, an abundant source of power for the early mills which cropped up in this area in the early nineteenth century. Gerald R. Smith, *The Valley of Opportunity: a Pictorial History of the Greater Binghamton Area*, (Norfolk, VA: Donning, 1988) 47.

²¹ H.P. Smith, 283.

²² H.P. Smith, 283.

²³ H.P. Smith, 282.

²⁴ H.P. Smith, 284.

²⁵ H.P. Smith, 302.

²⁶ H.P. Smith, 459.

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the first saw mill in the town being built by a Mr. Edwards in 1801 located in Chenango Forks. Ira Keeler constructed the town of Chenango's first saw mill early in the 1800s.²⁷ The town of Conklin had two saw mills as early as 1808, constructed by a Mr. Corbett on Snake Creek and a Mr. Sherwood who built his on the east branch of Fitch's creek near Windsor.²⁸ John Pinney built a mill at an early date (unknown) in the town of Sanford, and Samuel Butler built one just west of Deposit. Nicholas Gordiner was noted as one of the most successful lumber dealers in the town, operating three saw mills. Numerous other saw mills were built by the pioneer settlers in the town of Sanford, and the lumber industry was the single-most prominent industry in the town of Sanford for several decades, until about the 1850s.

The lumber industry fueled the early economy of many of Broome County's towns and settlements. Of the town of Colesville it was noted that "before the end of the first quarter of the century, saw mills were located in all parts of the town and the timber of the forests was rapidly transformed into pine lumber, rafted down the rivers and sold."²⁹ In the town of Fenton, where more than a half-dozen early saw mills are noted, the lumber industry was described:

"In those days the principal occupation of many of the inhabitants during a large part of each year, and then the rivers were swollen with the spring and fall freshets they were the scene of busy life...An endless process of great rafts was wafted down the turbid tide, bearing their jolly crews, whose hours of excitement and sometimes imminent danger were interspersed with those of hilarity and enjoyment."³⁰

Broome County's early lumber industry had a wide-ranging impact throughout the eastern United States by the early 1800s through export to other regional centers. As one story recalls, Anson Seymour was an early settler in northern Broome County in the town of Triangle who was known in his youth to be involved in the lumber trade. Seymour frequently floated his large timber rafts down the Chenango and Susquehanna rivers to the markets in Baltimore, Maryland. In 1816, Seymour had a vast amount of aged and seasoned lumber piled in Baltimore, when the market became weak and he was unable to sell it at a profit. However, his fortunes quickly changed as the builders of the new Capitol building in Washington DC were unable to obtain the supplies of lumber that they needed. Seymour was quick to realize the opportunity, and sold his stockpiled lumber for the Capitol building project for what was said to have been a \$7,000 profit.³¹

The lumber industry became the backbone of Broome County's economy early in the nineteenth century. Because of the relative isolation of the area, the distance to urban centers such as New York, Philadelphia and Baltimore and the lack of suitable roads through the rugged wilderness, the river systems became important sources of transportation in Broome County. Large river vessels such as rafts or arks were used on the Susquehanna, Chenango and Delaware Rivers in the region to transport goods, including timber from the northern and eastern portions of the county, utilizing the natural features of Broome County as a transportation highway. In many cases, logs would be lashed together to create large rafts, floated downstream, and disassembled at their final destination. However, rivers in the area were primarily navigable only in the spring

²⁷ H.P. Smith, 457.

²⁸ H.P. Smith, 479.

²⁹ Quoted from H.P. Smith, 327.

³⁰ Quoted from H.P. Smith, 463.

³¹ H.P. Smith, 343.

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and fall. Eventually, the demand for suitable roads and highways led to the authorization of turnpikes (a type of toll road managed by private companies) to be constructed.

Lumber was just one of the natural resources extracted from the forested Broome County in the early settlement period. A thriving tanning industry also developed in the early 1800s, as the region had an ample supply of game and also sources of bark from hemlock and oak trees which could be used in the tanning process. Leather goods were an important part of life in the nineteenth century, and the material was used for clothing and shoes, harnesses, bags, cushions, belting used in factories to drive machinery and a variety of other uses. The first known tannery was established by James Squires in 1806, who erected his manufactory on Susquehanna Street near Washington Street in Binghamton. In 1815 Samuel Smith established a tannery on the west side of the Chenango River just south of Main Street, and in 1821 Lewis Squires and Joseph B. Abbott founded their tanning business in a building at the back of the site of the Exchange Hotel on Court Street.³² In the early to mid-nineteenth century, however, maps show that essentially every community in Broome County had at least one tannery in operation to serve the needs of the area.

Early in the 1800s, transportation routes were improved beyond just the waterways. In 1797, New York State passed critical legislation for the growth and settlement of the frontier areas that authorized the private construction of toll roads, known as turnpikes. Between 1806 and 1816 six major turnpikes were established in Broome County, and in 1805 a covered wooden bridge was built on the Chenango River at Court Street in the growing settlement of Chenango Point (today's Binghamton).³³

While some strides were made towards improving the difficult over-land transportation routes in Broome County during the early 1800s, water routes continued to be the most reliable methods of transportation. Even still, natural sources such as rivers and streams held their own challenges to transportation including dangerous flooding, low or narrow spots, freezing during winter months and even occasionally drying up. The success of the Erie Canal, linking Albany and Buffalo and completed in 1825, led to the call in the 1820s and 30s for additional canal construction in New York State, especially in regions in the state not connected to the Erie Canal. As early as 1814 the Chenango valley was reviewed for its potential to host a canal. In 1833 the New York Legislature authorized the construction of the Chenango Canal, connecting Utica and Binghamton. When officially opened in 1837, the Chenango Canal became an important link between the Erie Canal and the Susquehanna River, which in turn effectively connected the Great Lakes and Hudson River system to the network of canals already lacing eastern Pennsylvania and transporting that state's vast coal resources.³⁴

Like the Erie Canal and other so-called "feeder canals" which connected the interior portions of New York State to the Erie Canal line, the Chenango Canal was a triumph of modern engineering, and included 116 locks (three of them in the then-village of Binghamton) and 19 aqueducts which carried the canal over 90 miles.³⁵ While the Chenango Canal was constructed using state-of-the-art canal construction methods and technologies learned from the past two decades of constructing New York's other earlier canals, the Chenango Canal was

³² Seward, 415.

³³ Bothwell, 30-32.

³⁴ For more information on the history of the Chenango Canal, refer to Noble E. Whitford, "Chapter XVII: The Chenango Canal." *History of the Canal System of the State of New York, Together with Brief Histories of the Canals of the United States and Canada.* Vol. 1 (Albany: Brandow Printing, 1906).

³⁵ Bothwell, 42.

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never a financial success. Completed at the end of the golden age of canal transportation, the canal failed to recoup the initial investment. While not a financial success, the Chenango Canal did succeed in dramatically reducing freight costs between Binghamton and Utica, and reduced the time it took to travel to and from Binghamton and Broome County. However, the Chenango Canal ultimately saw little commercial usage, seeing perhaps only a dozen boats per day whereas the Erie Canal saw 200. When a proposed 40-mile extension to connect the Chenango Canal to the Pennsylvania canals at Athens, PA failed to reach fruition, the canal was subsequently closed in 1877. In Broome County, the canal was filled in and the lands sold for development, ending the canal era in the region.³⁶

During the early 1800s as settlement increased, roads and transportation routes improved and Broome County matured and became more organized, communities began the process of formally surveying and laying out plots. In 1800 Chenango Point was laid out into streets and village parcels, with Water Street and Court Street being the first two streets opened. In 1810 the population of Broome County was recorded at 8,130 people, the first census of the newly-established Broome County after it was created from part of Tioga County in 1806. Once organized, the community grew dramatically in the early 1800s to become the center for life in Broome County. The settlement continued to be called Chenango Point until 1817, after which time it was referred to as “town of Chenango in the county of Broome” until 1834. The name of Binghamton, named in honor of original patentee William Bingham, was first used when the village was incorporated in 1834.³⁷

The early lumber industry reached its peak around the 1830s, as numerous saw mills dotted Broome County and substantial tracts of forested land were still available. What had a few decades prior been early, rough pioneer encampments by the 1830s were developing into more significant communities with more varied manufacturing fueled by the success of the lumber industry. By 1835, the town of Union contained 35 saw mills, and also offered 3 grist mills, 3 tanneries, a carding mill and an ashery to its residents.³⁸ During this same year in the town of Lisle, a total of 20 saw mills were recorded, as well as a variety of other industries including 2 grist mills, an oil cloth mill, 3 fulling mills (a stage in woolen clothmaking), 3 carding mills, a forging mill, 3 tanneries and 2 potash factories.³⁹ In the town of Windsor in 1835 fifteen saw mills were in operation in the community. Also in operation at this time were a fulling mill, a carding mill, a distillery, a rope works, two grist mills and 2 tanneries.⁴⁰ Twenty-two saw mills were in operation in the town of Colesville during 1835, as well as a host of other industries.⁴¹ The town of Sanford contained 13 operational saw mills, while 13 saw mills were located in the town of Vestal during this same year.⁴² Six saw mills churned away in the town of Triangle in 1835, outnumbering other industries that community.⁴³ With a county population of just over 17,000 people in 1830, the lumber industry appears to have been a significant source of employment throughout the county.⁴⁴

³⁶ In Binghamton, the route of the Chenango Canal is now State Street. Bothwell, 41-43

³⁷ H.P. Smith, 205.

³⁸ Seward, 511.

³⁹ Seward, 519.

⁴⁰ Seward, 523.

⁴¹ Seward, 530.

⁴² Seward, 535 & 542.

⁴³ Seward, 548.

⁴⁴ *Population of New York State by County: 1790 - 1990*. NY State Department of Economic Development, State Data Center, July 2000. Web. <http://www.empire.state.ny.us/NYSDataCenter/Data/Population_Housing/CountyPopHistory.pdf>.

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By the 1840s, the lumber trade was largely dominated by a small handful of merchants. Christopher Eldredge, General Waterman, Colonel Lewis, and John D. Smith and Lewis Seymour were noted as dominating the lumber industry in the county, as larger-scale lumber production replaced the smaller, independent mills. New advancements in mill technology also revolutionized the lumber industry, including the introduction of steam engines used to power mill machinery. This advancement freed sawmills from their reliance on water power sources and also from the unpredictable seasonal freezing and flooding common throughout the region, allowing them to be located practically in any location. By midcentury the thriving lumber industry which had fueled the early growth of the region had peaked, and the County's numerous saw mills transitioned from large-scale commercial production to smaller, localized and more specialized custom work.⁴⁵

Broome County's earliest industries were based on extracting natural resources from their surrounding environment and processing those simply and quickly. These early extraction industries were primarily based around sawmills and lumbering, gristmills and also tanneries. Once the vital industries provided food, shelter and clothing for the first wave of pioneer settlers, the true growth and development of Broome County could begin to take shape. As the county population increased from just over 8,000 people in 1810, more than doubling to 17,579 residents in 1830 and nearly doubling again to 30,660 in 1850, a new local market for surplus goods emerged which helped to spur the creation and growth of a host of diverse new industries in the area.⁴⁶

Today, few examples of these early sawmills and gristmills remain intact in Broome County. What was once a flourishing industry with numerous examples located across the area has since been lost to disuse, advancements in technology and more recent development. Due to the remote locations of some of these mills, it is possible that sawmills, gristmills or early tanneries may still exist, located in remote, forested regions and on privately owned property in Broome County, however none have yet been identified. Some known archeological sites have been located which pertain to the early forestry industries, and these sites yield information about the County's earliest settlers. One known site includes the site of the Daniel Taylor sawmill, dam and house, located rear Tiona Road at Bailey Hollow Creek in the Town of Maine.⁴⁷ Discovered during a modern dam construction project in 1977, this site was found to contain a collection of ceramics and other artifacts, dating its use and occupation to between 1827 and the 1870s.⁴⁸ Other mill sites which may potentially yield archeological information could be located around the former Lewis Mills area, along Water Street near Lewis Street in the City of Binghamton, and also the area nicknamed Millsville, located along the banks of the Susquehanna River near Conklin Avenue and the present Mill Street in Binghamton. While there are few physical reminders of the industry which drove the formation of Broome County in the early 1800s, nonetheless the forestry industries are significant for their critical role in establishing and shaping the character of the region. As the county moved into the mid and late nineteenth century, the primitive and rudimentary early forestry industries would mature, setting the stage for the rise of Broome County's thriving industrial into prominent industries

⁴⁵ Bothwell, 46-47.

⁴⁶ *Population of New York State by County: 1790 - 1990.*

⁴⁷ This site may also be known as the Graves-Butler saw mill site in the Town of Maine. This site was in operation sometime between 1835 until the 1880s or 1890s, and was excavated in the late 1970s.

⁴⁸ Ellen M. Perlmutter, "Old Mill Stops Key Dam Project," *The Sun-Bulletin* (11 Jan. 1977). Print. From the "Mills - Milling" Vertical Files, Local History and Genealogy Center, Broome County Public Library.

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Rise of the Factory Economy (ca. 1850s- 1910s)

Once the basic needs of its residents were met, industry in Broome County began to flourish. Many of the industries which emerged in the mid-1800s utilized the abundant natural resources of the area, transforming them into a wide variety of goods and products. Broome County was home to a wide variety of more sophisticated industries including metal works, furniture and woodworking industries, tanneries, tool and equipment businesses and a host of others. All served the daily lives of those living and working in the growing center of Binghamton and throughout Broome County. Aided by a growing network of rail lines, bringing raw materials in and transporting finished products out to markets across the East Coast, Binghamton by the late nineteenth century would become a center for manufacturing more unusual goods and products. Broome County's most prominent industries in the second half of the 1800s would include a thriving cigar manufacturing industry and a growing shoe and boot manufacturing industry. The prominent role of industry in the economic and social environment of Binghamton and Broome County would also lead to several business leaders embracing new ideas and new concepts to provide, care for and support their growing population of workers.

Manufacturing was central to the growth and success of communities throughout Broome County in the nineteenth century. By the mid-1850s, Broome County's economy based on lumbering, farming and manufacturing still reflected its early settlement-era patterns. Binghamton, with a population of about 5,000 in 1850 out of a county-wide population of about 30,000, was indistinguishable from other centers in the county including Windsor, Union and Whitney's Point. However only a few decades later, new advancements and developments would establish Binghamton as the economic center of manufacturing in Broome County.⁴⁹ Primary among these advantages would be the municipality's desirable location as a hub for the growing railroad network.

While the Chenango Canal and water routes along the Chenango and Susquehanna Rivers had accomplished much in establishing and supporting the region's early transportation and trade network since 1837, it was the railroads which truly allowed the economy of Broome County to grow and flourish. Developed in the 1850s and 60s, rail lines through Broome County, centering in Binghamton, secured the region's connection to the growing economic network of the East Coast. While early transportation routes through New York State bypassed Broome County, in 1826 wealthy New York City insurance man Eleazar Lord envisioned a shorter route between the Hudson River and Lake Erie through the Southern Tier. This eventually led to the formation of the New York and Erie Company in 1832, and by 1835 a new railroad was in the works at a site near Deposit along the banks of the Delaware River. The opening of this new Erie Railroad was celebrated with a trip from Piermont-on-Hudson through Broome County to Dunkirk in the Spring of 1851, and included passengers such as President Millard Fillmore, Daniel Webster and other dignitaries and guests.⁵⁰

The success of the Erie Railroad spurred the development of other lines further linking Broome County to other areas in New York State. In 1854 a rail line supplanted a previous stagecoach line between Syracuse and Binghamton, linking Broome County by rail to the growing Erie Canal network. In 1868 this line was taken over by the Delaware and Lackawanna railroad, which connected the Erie Railroad to the rich coal fields of Pennsylvania. Between 1853 and 1869 a line was built from Albany to Binghamton, linking the Southern Tier

⁴⁹ Bothwell, 46-47.

⁵⁰ Bothwell, 46.

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region to the capital region, and the Utica and Susquehanna Railroad Company laid a route following the Chenango Canal between 1867 and 1872. This line rendered the already struggling canal obsolete, and in 1875 operations ceased on the Chenango Canal, and the locks were filled and sold to the city of Binghamton, becoming the new road of State Street.⁵¹

Now linked into the regional and national network of railroads, Binghamton emerged as the center of industry for Broome County shortly after the Civil War. While only a few decades earlier, the character of Binghamton was largely indistinguishable from other communities throughout Broome County, the growing role of the community as a transportation hub in the Southern Tier allowed Binghamton to transform into a more sophisticated urban center for the county. From a population of about 5,000 in 1850, Binghamton's population doubled to over 10,000 residents by 1865. On April 9, 1867 Binghamton was incorporated as a city, marking its growing role as the dominant industrial, manufacturing and cultural center for the region.⁵²

Early in Broome County's history, industry played a key role in shaping and determining the physical character of the region. In the early half of the nineteenth century, when water routes principally provided the transportation network and power source for industry, many of the industrial and manufacturing buildings were located scattered along water courses. Many of Broome County's communities developed near these industries and along these waterways, reflecting their importance for transportation and energy. Typically each community contained a handful of critical industries such as grain milling, a saw mill, maybe an iron works, relying on water power from streams and rivers, especially along the Susquehanna and Chenango River corridors. In Binghamton, the early industrial centers were located near the Rockbottom Dam on the Susquehanna River, near Noyes Island near present day Water and Lewis Streets, and also on the west side of the Chenango River at the foot of Mt. Prospect.⁵³ Through much of the early nineteenth century industry in Broome County was fairly well dispersed throughout the county.

However, new advancements in the second half of the nineteenth century created new industrial patterns. Developments in steam-powered engines and railroads altered the traditional industrial centers. In the first half of the 1800s, adjacency to rivers, streams and dams was a requirement as a source of power for industry. By the second half of the 1800s, steam engines, and later electricity, liberated industry from a reliance on water power. The rugged terrain of Broome County still dictated that many of the rail lines run along the banks of the Chenango and Susquehanna Rivers, and land adjacent to this developing rail network in the region became the more desirable property for industrial development. Rail lines became a critical mode of transportation for industries and factories, allowing for the quick, cheap and easy import of raw materials into the factory and the fast and easy shipment of finished goods to a wide variety of markets linked through the railroads.

Broome County's early settlement era industries would form the backbone of its growing industrialization in the second half of the nineteenth century. Broome County's industries, increasingly centered in Binghamton, reflected the growing sophistication of the region in general, from the more basic extraction of raw materials, such as lumber taken from logging the forests or tobacco produced through farming, into the production of more sophisticated finished goods. "Industries that had been the staple of the area's economy either disappeared

⁵¹ Bothwell, 46. Also, Gerald R. Smith, 53.

⁵² Gerald R. Smith, 53.

⁵³ Lawyer, 464.

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entirely or were transformed into a related field,” noted historian Gerald R. Smith.⁵⁴ For example, the decline of Broome County’s logging industry by the mid-1800s led to many businesses shifting to produce finished goods such as furniture and carriages. The tanning industry which had also been prominent in the earlier settlement era in the region transformed into producing finished goods such as gloves and shoes.

Iron and metal working was a common industry to emerge in the second half of the nineteenth century. These iron works produced parts and machinery in support of the growing local railroad industry, and also provided equipment and machinery for the various other businesses, industries and also agriculture in the region. The first furnace and foundry was established by Dr. Elisha Ely at Millsville in present-day Binghamton in 1842, to produce plows, mill gearing and castings. Around 1849 Hazard Lewis and William A. Morris founded the Empire Iron Works on Washington Street north of Henry Street, to build engines and also support the Erie Railroad construction project. Eventually during this era, Broome County supported numerous machinists, iron works and equipment manufacturers. In the 1850s, I.S. Matthews’s prominent iron works company was said to have manufactured about fifteen hundred plows a year, all made by hand, an indication of the productivity and demand for such products in the region. Founded in 1854 as the Valley Iron Works by M. W. Shapley, the Binghamton Irons Works (as it became known in 1864) produced machinery for mills and tanneries and was known for its patented Shapley steam-engine, which the company invented in 1874. This specialty engine was highly regarded for its efficiency, simplicity, safety and economy and came in various sizes.⁵⁵

Broome County was also home to a prominent wood working industry. Transforming the raw lumber into finished goods became a natural evolution in the region, and Binghamton and the surrounding communities played host to a thriving carriage and wagon making, furniture making and cabinetry industry.

While not one of the area’s largest industries, furniture making was represented in the county by several prominent manufacturers, including the Parlor City Furniture Company which was noted for manufacturing beds, and the Binghamton Chair Company. Founded by Roswell J. Bump in 1884 on Water Street, the Binghamton Chair Company located to Montgomery Street around 1890 to be in closer proximity to the rail lines along this street. The Binghamton Chair Company was one of the region’s more prominent furniture makers, and was known for their production of ornate and decorative rocking chairs.⁵⁶ McElroy & Watson established their company in 1860 on Washington Street.⁵⁷ In 1884, three brothers relocated their furniture business from Brandt, Pennsylvania to Binghamton. Famed Craftsman furniture designer Gustav Stickley, with his brothers Charles and Albert, founded the Stickley Brothers Company the year earlier, and specialized in manufacturing Windsor and Shaker-style chairs. In 1887 the Stickley Brothers Company was located in the Millsville area, on the second floor of a large two-story wood frame building on South Street, above A.J. Lyon’s saw mill.⁵⁸ After his brothers left the area to establish other furniture ventures, Charles Stickley established the Stickley and Brandt Chair Company with his cousin Schuyler Brandt in 1891 in Binghamton, and in 1896 founded an additional company, Stickley-Brandt Furniture.⁵⁹

⁵⁴ Quoted from Gerald R. Smith, 53.

⁵⁵ H. P. Smith, 258-259.

⁵⁶ Aswad, Ed, and Suzanne M. Meredith. *Binghamton*. Charleston, SC: Arcadia, 2001; 66. Also, Gerald R. Smith, 84.

⁵⁷ H.P. Smith, 259-260.

⁵⁸ Refer to Sanborn Fire Insurance Map of Binghamton, NY, May 1887, sheet 12.

⁵⁹ "Stickley & Brandt Chair Company - Binghamton, New York (1891-1918)." *THE STICKLEY MUSEUM*. The Stickley Museum, 2007. Web. 12 Oct. 2011. <<http://www.stickleymuseum.com/ExploreStickleyHistory.cfm?SubPg=TheStickleyCompanies>>.

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Carriage, sleigh and wagon manufacturing was also a critical late nineteenth century industry in Broome County, as these devices provided for the transportation of people and goods through the region. M. McMahon was noted as opening a wagon shop on Hawley Street in Binghamton in 1867, later relocating to Eldredge Street and becoming known as Stockwell & Adams. James O'Neil began his wagon factory on Water Street in 1875, and H.W. Voorhees operated a shop at the corner of Hawley and State Streets in 1879. Perhaps one of the most prominent of the carriage makers was the firm of Sturtevant-Larrabee. Originally formed as Kingman, Sturtevant and Larrabee in Cincinnati in Cortland County, the firm moved to Charles Street along the rail lines in Binghamton in 1883. By the 1890s the Sturtevant-Larrabee company was producing over 5,500 sleighs and 2,000 carriages each year.⁶⁰ The company was noted for handling all aspects of the production of their carriages, from raw lumber to finished product, and their carriages were highly regarded for their "lightness, combined with strength, beauty of design, good workmanship and fine finish."⁶¹

With the growth and prosperity in Broome County during the late half of the 1800s leading to a flurry of new residential, commercial and other buildings, demand for building materials and components was also strong. As a result, the region was home to many sash, blind and door manufacturers. The industry began in Binghamton in the 1830s, and in 1834 Norman Marsh established his business behind his house on Chenango Street. Blanchard & Bartlett opened their planing mill and factory in 1862 at the corner of Collier, Hawley and State Streets, later becoming known as Bartlett Brothers. A.J. Lyon also operated an extensive lumber yard with a saw and planing mill on Carroll Street. The Marshall Furniture Factory operated between 1898 and 1911, making lath, shingles, moldings, siding, doors and flooring among a host of other products. The large factory was located in Lestershire (then the western outskirts of Binghamton) at Willow Street and Corliss Avenue near the Delaware, Lackawanna and Western (D.L. & W.) Railroad rail lines.⁶² Perhaps the most successful sash, blind and door manufacturer was Alonzo Roberson, a former employee of the Marsh factory, who purchased the company in 1854. Roberson transformed the company into a thriving and profitable operation, eventually requiring a new and larger facility to be constructed in the western outskirts of Binghamton off of Floral Avenue along the rail lines in 1893. Alonzo Roberson, Jr. carried on the family business after his father's death in 1899, and the business continued well into the twentieth century.⁶³ A 1948 publication issued by the A. Roberson & Son Company, boasted supplying millwork, windows, doors and other products to buildings as far away as Turkey, Brazil, Puerto Rico, and Panama.⁶⁴

While tanning had been one of Broome County's earliest pioneer industries, it continued to develop and mature in the later 1800s. Tanning and leather goods businesses grew from small, independent manufactories which provided goods to serve the needs of the local community into larger, more sophisticated operations which serviced the larger region. One of the largest tanneries in Binghamton was that of James B. Weed & Co., originally founded about 1850, with additional buildings constructed in 1875-76 at the corner of Susquehanna

⁶⁰ Bothwell, 58. Also, Lawyer, 473.

⁶¹ Quoted from "*The Sturtevant Larrabee Co.*" undated. Clipping from the "Lumber & Lumbering" Vertical File. Local History and Genealogy Center, Binghamton Public Library, Binghamton, NY.

⁶² The Kiwanis Club of Binghamton, New York. *A Picture Postcard History of New York's Broome County Area*. Binghamton: Vestal, 1985: 37.

⁶³ Lawyer, 470-471.

⁶⁴ A. Roberson & Son, Inc. *Building for a Hundred Years*. Binghamton, NY, 1948. Print. From the "Lumber & Lumbering" Vertical Files, Local History and Genealogical Center, Broome County Public Library.

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and Washington Streets. By the 1880s the business was noted as one of the largest tanneries in New York State, producing over 1,200 hides of leather per week and employing between 100 and 200 workers.⁶⁵

Besides just producing hides, many leather goods companies also emerged in the second half of the nineteenth century. Whip making was a prominent industry in Broome County, specifically Windsor, from the 1850s until the 1950s, when factories produced novelty and souvenir circus whips. Made from lacing together several long, thin strips of leather, whips were an invaluable tool in the age of horse-and-buggy transportation. The town of Windsor was at the center of the thriving buggy whip-making industry in Broome County, second only to New York City in the production of whips.⁶⁶ In Windsor, the whip making trade was founded by Adin Coburn, a shoemaker, in 1855, and his Coburn Whip Factory eventually became a nationally-prominent business with offices in New York City and San Francisco. Other companies in Windsor included the Empire State Whip Company, the C.M. Comstock Whip Company and the Windsor Whip Company.⁶⁷

Leather was also used to manufacture clothing items in Broome County during the late 1800s. In Windsor, the Windsor Glove and Mitten Company manufactured an assortment of hand wear including both fabrics and leather gloves. The company was initially located in Gloversville, NY and moved to Windsor in 1907, occupying the former Owen (or Comstock) Whip Company building.⁶⁸ Other companies located in Binghamton included The Binghamton Glove Co., Joles & Brown, and The Parlor City Glove and Mitten Co.⁶⁹ Gloves, both for work and for dress, would have been a staple of life during the late nineteenth century, worn by everyone from laborers to fashionable society ladies.

Perhaps finished leather was more widely employed in Broome County for use in the shoemaking industry. The second half of the nineteenth century saw shoemaking emerge as a significant industry, turning the vast supplies of tanned hides into shoes and boots. While shoes were initially predominantly hand-made by itinerate cobblers, by the 1850s shoe making became an established industry, becoming increasingly more mechanized with new developments in mass-produced shoe making. In 1850 Horace N. Lester arrived in Binghamton from East Haddam, Connecticut and founded a retail shoe business. In 1854, his brother George W. Lester joined him, and the two established Lester Bros. & Co. for the manufacturing and retailing of shoes. Located in a large four-story factory building at the corner of Washington and Henry Streets in Binghamton, Lester Bros. & Co. would become the root of one of Broome County's dominant companies in the early twentieth century. Judson Smith founded his shoe making company in 1852 in Binghamton, continuing in business until the 1880s. In 1865 James M. and Frederick F. Stone began manufacturing shoes and boots in a factory located on Water Street, eventually erecting a large brick factory on the same street in 1881. Other shoe and boot makers included Anderson & Tremain on Court Street at the corner of Centenary Street in 1867, before locating to Water Street in 1871. Benson, Bucklin & Co. was established in 1871. In the 1870s, the Mead & Benedict company was known as a manufacturer of ladies fine shoes.⁷⁰ The Dunn & McCarthy shoe company began in Auburn, NY in the late nineteenth century, and established an additional factory for manufacturing fine ladies shoes at 14

⁶⁵ H. P. Smith, 262.

⁶⁶ *A Picture Postcard History of New York's Broome County Area*, 34.

⁶⁷ Ruggieri, Eileen. "Windsor History." *Windsor Partnership*. Web. 27 Oct. 2011.
<<http://www.windsorpartnership.net/pages/history.html>>.

⁶⁸ Aswad, Ed, and Suzanne M. Meredith. *Broome County, 1850-1940*. Charleston, SC: Arcadia, 2002: 65.

⁶⁹ Lawyer 484.

⁷⁰ Lawyer, 477-478.

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Charlotte Street (extant, significantly altered) in Binghamton in 1907. Shoe and boot manufacturing would grow into one of Broome County's most prominent character-defining industries in the twentieth century, playing a key role in not only the economic development of the area but also the social and cultural heritage of the community as well (for more information, refer to Section E, page 25).

Shoemaking also fostered the growth of a few specialized related industries. In 1890, William G. Frank and Gilbert H. Faatz arrived in Binghamton from Susquehanna, Pa., and established a factory that originally produced horse brushes. Eventually their company grew in size, construction in 1897 the "Eagle Felt Works" factory building and in 1897 a large stone office building at the corner of Arch Street and Corliss Avenue. Various known as the Faatz Brush and Felting works, Faatz-Reynolds Felting Co. and The Felting Company, the company manufactured felt under the brand name of "Eagle Brand," a type of non-woven fabric made from matting and pressing wet wool fibers together. While the company made a variety of products such as brushes and even hats, they were also significant producers of the durable and insulating felt insoles for shoes.⁷¹ Other business, such as the Lestershire Spool Company, founded nearby on Arch Street, supported the shoe making industry, providing sturdy industrial-strength wood bobbins used for the massive and numerous stitching and sewing machines for the shoes and boots.⁷²

Broome County's, and more specifically the city of Binghamton's, most active and prominent industry in the later part of the nineteenth century was the cigar industry. Cigars were a common pleasure consumed by all social and economic classes in the nineteenth century, and Binghamton's cigar business eventually grew to employ nearly one-third of the city's workers. In Binghamton, the majority of cigar factories were large endeavors in the late decades of the 1800s, often employing over 100 workers. By the late nineteenth century Binghamton claimed to be the second largest producer of cigars in the country, behind only New York City where cigars were typically made in small shops with fewer than a dozen employees.⁷³

Although Broome County was at the heart of a thriving agricultural region, much of the tobacco for the cigar industry was not grown and produced locally. Some tobacco was grown in the Chenango Forks region, although this crop was noted as being shipped to Connecticut, where it was boxed and shipped out under the name of Connecticut tobacco. Additional tobacco was grown near Elmira, although little of this crop also made its way to the factories of Broome County and Binghamton. The majority of the tobacco used by the Binghamton cigar trade for filler and wrappers was grown in Cuba, while some of the wrapper leaves originated in Sumatra. Domestically, Wisconsin produced most of the binders, Ohio and Pennsylvania supplied fillers for domestic cigars, and wrapper leaves could come from Connecticut.⁷⁴ The import of tobacco into Binghamton and Broome County from places across the globe underscores how connected to the international trade networks the region was in the late nineteenth century, provided via the city's many rail lines.

Typical of the other industries in Broome County, the cigar industry began with a handful of small companies, all of whom catered to the local residents. In 1851 Charles Butler founded his small cigar factory in

⁷¹ Lawyer, 664-665.

⁷² Aswad, Ed, and Suzanne Meredith. *Endicott-Johnson*. Charleston, SC: Arcadia, 2003: 98.

⁷³ McGuire, Ross, and Nancy Grey Osterud. *Working Lives: Broome County, New York, 1800-1930*. Binghamton, NY: Roberson Center for the Arts and Sciences, 1980: 52.

⁷⁴ *The Making of Cigars*. 6 Sept. 1906. Clipping from the "Cigar Manufacturing" Vertical Files of the Broome County Public Library. Local History and Genealogy Center, Binghamton Public Library, Binghamton, NY.

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Binghamton, with a staff of four workers. Harvey Westcott leased space in the old Congdon Hall block in 1857 for his factory, staffed with 15 workers. Other proprietors established a few cigar manufactories in the 1850s and 1860s including Henderer & Carman, C.B. Clark, Reed & Butler, Benedict & Smith and a handful of others. Various partnerships between individuals in the cigar trade were established and dissolved. However, it was not until the 1870s that the industry began to really flourish as manufacturers also became merchants, and produced for a wholesale trade. As author and historian Nancy Grey Osterud summarized the lure and benefits of Broome County:

“Binghamton was an attractive location for cigar manufacturers, for the city was small enough that rents and land priced were low, while its excellent railroad connections allowed raw materials and finished products to be shipped in and out very cheaply.”⁷⁵

Perhaps a quintessential Industrial Revolution industry in the region, the cigar industry in Broome County grew in size thanks to new developments and new thinking in production and manufacturing of the era. The use of molds was introduced into the industry sometime after 1870 by Lyman Clock, allowing for a more uniform product to be produced more quickly and by less-skilled workers.⁷⁶ While initially cigars were individually hand-made by a small staff of highly trained workers, by the 1880s and 1890s workers were trained to complete only one task of the manufacturing process. These stages included “strippers,” often children who would remove the tough vein from the center of each tobacco leaf. A “bunch-maker” took the filler tobacco and wound a binder leaf around it. These bunches were then put into a mold, a wooden form used to shape the cigar, and left in a press for a few days. “Rollers” then finished the cigars by wrapping them in carefully-selected outer leaves and finishing off the tips. In some factories the tips were finished by being rolled in the mouths of the female workers. Still other workers placed colored bands around the cigars, often featuring a company advertisement, brand or logo, while others packed them into boxes.⁷⁷

The number of factories and output of cigars in the late decades of the 1800s are staggering. Businesses associated with the production and manufacturing of cigars grew from 4 factories in 1850 to 47 cigar factories in 1888, employing over 6,000 people out of a total of 17,317 residents or nearly 35% of the entire population of the city of Binghamton. Production grew exponentially as well; in 1880 Binghamton shipped 25 million cigars, and only eight years later in 1888 shipped a staggering 150 million cigars.⁷⁸

Broome County was at one time filled with cigar factories. Buildings ranged from small operations in 2 or 3 story buildings to large operations, housed in massive buildings with multiple stories, sometimes occupying nearly entire city blocks. Both large and small factories built in the late nineteenth century were generally of masonry construction with timber framing, designed simply to be utilitarian but with some touches of the predominant architectural styles of the era, such as Italianate. Many of these factories contained work floors on upper levels and a retail shop located on the ground floor. In many cases these factory buildings were nearly indistinguishable from buildings used for commercial or retail functions, as little architectural distinction was

⁷⁵ McGuire, 52.

⁷⁶ Seward, 411.

⁷⁷ McGuire, 52-53.

⁷⁸ *Cigar Industry Data - Phenomenal Growth - Sidelines Thrive*. 10 Feb. 1952. Clipping from the "Cigar Manufacturing" Vertical Files of the Broome County Public Library. Local History and Genealogy Center, Binghamton Public Library, Binghamton, NY.

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often made in the nineteenth century between the two uses; industrial architecture as a specialized architectural form does not begin to emerge until after the turn of the twentieth century.⁷⁹

Many of the cigar factories in Binghamton were of a relatively small scale. These were generally located in the city of Binghamton along Water and Wall Streets, although contemporary statements describe cigar factories as being located throughout the area:

“But scattered throughout the city and its suburbs – in back rooms of private houses, in frame buildings in the “back yard,” are hundreds of other toilers stripping tobacco and rolling cigars.”⁸⁰

Many of the workers for the small factories lived in close proximity to the plant, and could easily walk to and from work. Smaller factories generally employed about 30 workers, sometimes even fewer. These more “suburban” cigar factories were noted as being cleaner and with more fresh air than their urban counterparts, making them more desirable workplaces.⁸¹

Women formed a significant portion of the workforce at many cigar factories. While many industries required the use of heavy machinery, which precluded the employment of women for the most part, the cigar industry created a unique employment opportunity for women. The 1912 Register of Factories noted that for the American Cigar Co. located at 6-10 Wall Street in Binghamton (extant, NR listed), 26 men were employed, while 350 women worked there. This particular shop also employed 19 children between the ages of 14 and 16.⁸² Hull, Grummond & Co. at its 216 Water Street, Binghamton cigar factory employed 280 men, 416 woman and 4 children during 1912.⁸³

An excellent representative example of a relatively small-scale existing cigar factory is located at 122 Park Avenue in Binghamton, in a largely residential area south of the Susquehanna River once known as Rossville. Likely constructed by the Schubmehl Barrett & Co. cigar company ca. 1886, this four-story factory building resembles a typical commercial building of the period, designed in a modest Italianate style. Although modified, the ground floor likely contained retail space, either used by the cigar company itself, or leased for another purpose.⁸⁴

During the 1880s and 1890s, cigar factories grew larger both in the size of their personnel and revenues but also the size of their factory buildings. Harvey Westcott’s operation grew from those initial 15 employees to become the H. Westcott Son & Co., located on State Street and Commercial Street, which employed over 600 people in 185, producing over 20,000,000 cigars in 1883 in 500 different brands.⁸⁵ Other factories of note in the late 1800s included the Hull, Grummond & Company, Inc. which was initially founded in 1878 in Binghamton, and relocated to an elegant commercial Italianate building on Water Street at Henry Street in that city in 1886 (see

⁷⁹ For more information, refer to Section 5, page 7.

⁸⁰ Quoted from *The Making of Cigars*.

⁸¹ *The Making of Cigars*.

⁸² New York State Department of Labor. *First Annual Industrial Directory of New York State 1912*. Albany: State Department of Labor, 1913:16.

⁸³ New York State Department of Labor, 17.

⁸⁴ The former Schubmehl Barrett & Co. building at 122 Park Avenue in Binghamton appears to be one of the earliest extant factory buildings of any type thus far identified.

⁸⁵ H.P. Smith, 257.

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Figure B-9). A Classical Revival addition was added to the building in 1914. By the 1920s the company employed over 850 employees in its 60,000 square-foot factory complex.⁸⁶

The cigar industry dominated the Binghamton and Broome County economy in the late nineteenth century. However, the golden age of the industry also coincided with a period of general strife and unrest between labor and business leaders occurring throughout the country in the late nineteenth century. Workers often sought better hours, better pay and improved working conditions, and this era also saw the creation of new labor unions. Labor strikes or work stoppages were not uncommon in the late 1800s, and were feared and dreaded by business owners. In the summer of 1890, two thousand nonunionized cigar workers – men and women – left their work tables and organized a strike committee that effectively shut down the cigar industry in Broome County for over fifteen weeks. The strike began on June 23 when strippers, bunchmakers and rollers met on the second floor of Cigarmakers' Hall (extant; now known as Stephen's Square on State Street) and shared their grievances. The strike originated in an effort to restore wages which had been cut by manufacturers a year and a half prior during a temporary business recession. When business picked back up again, wages were not restored as promised. The 1890 cigar strike was the largest and longest labor conflict in Binghamton's history, drawing the attention of national figure Samuel Gompers, founder of the American Federation of Labor and himself a cigar maker, who spoke to the strikers in Binghamton in July of 1890. While the workers were successful in shutting down manufacturing in the cigar industry, they ultimately lost their fight in the courts. On October 5th, after manufacturers had obtained a Federal injunction against the strike activities, a vote was held amongst the workers at Cigarmakers' Hall. In a vote of 167 to 155 the strike was declared over by the workers, and they returned to their jobs on October 6th. Business owners immediately boasted of the "unconditional surrender" by the workers, and despite the attention the strike brought to the plight of the cigar makers, the event was a loss to the labor force.⁸⁷

Supporting the massive cigar manufacturing industry in Broome County was a thriving industry of cigar box manufacturers and lithography companies which designed and printed the colorful paper labels affixed to the boxes and to the cigars themselves. Cigar boxes were an important advertising and marketing device. They featured colorful graphics and images printed on paper and pasted onto a wood, paper or cardboard box used to hold cigars for storage, transit, sale and display. A rolled brown cigar may not vary much in its appearance from maker to maker, and cigar boxes became a colorful and successful way of marketing a brand of cigar. In the typical small shops of the age, cigar box labels became the only means of advertising an individual brand of cigar, and even the smallest shop could carry one hundred different varieties or brands. Cigar box artwork typically featured brightly colored animals, exotic images, attractive women, patriotic symbols or other enticing images, and names such as "Uncle Sam," "Ankara" and "White Orchid" were aimed at appealing to customers. The popularity of cigar boxes reached its height between the 1880s and the 1920s, coinciding with the golden age of the cigar industry in Broome County. Lithography became the standard printing method for printing the colorful paper box labels, and the process was truly an art form. While this industry never reached the same scale as the cigar making industry, with only about six known cigar box manufacturing entities in existence, factories dedicated to producing cigar boxes were an important support industry for the thriving nineteenth

⁸⁶ Seward, 412.

⁸⁷ "1890 Cigar Strike: Despite Inspiring Struggle Labor Loses." *Susquehanna Current* (Spring 1981): 4. Print. Also, McGuire, 58-60. For more information on the history of labor, cigar manufacturing and the 1890 strike, refer to McGuire, Ross, and Nancy Grey Osterud. *Working Lives: Broome County, New York, 1800-1930*. Binghamton, NY: Roberson Center for the Arts and Sciences, 1980.

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century Broome County economy. The Woodruff cigar box factory, housed in an ample two-story building located at 4 South Street in the Millsville area of Binghamton, was built in 1882, employing about 60 workers producing cigar boxes; it later became known as the Binghamton Cigar Box company.⁸⁸ One extant example of a late-era cigar box manufacturing building is that structure located at 320 Water Street in Binghamton, which is a simple two-story brick-clad industrial building built in 1913 for the National Cigar Box Company.

In addition to these largest and most prominent industries found in Broome County during the second half of the nineteenth century, countless other smaller industries were also prevalent. Various small, specialized and independent manufacturing businesses catered to the needs of residents and a specialized trade. One of Broome County's most prominent companies in the late nineteenth century was the Noyes Comb factory. Elfameo M. and Joseph P. Noyes arrived in Binghamton in the spring of 1865 from Newark, New Jersey, bringing the comb-making trade with them that had been in their family since the 1750s. They originally founded their company on Sanford Street, and in 1866 purchased the old Lewis mill property at the end of Water Street adjacent to a small waterway (now infilled, this was located near the present Water Street north of Clinton Street near the rail lines). The brick factory buildings were described as housing over 25,000 square feet of space, filled with machinery largely invented by the Noyes family. The Noyes Comb factory produced a variety of products including combs made of horn or tortoise shell, as well as patented metal snaps known as Handsnap used to fasten clothing. The Noyes family was prominent in Binghamton in the nineteenth and early twentieth century, with Joseph Noyes being known as the first man in Broome County to own an automobile (in 1899) and a telephone, and the family lent their name to the former Lewis Island near their factory, known as Noyes Island for many years. They were the first to link the island to the surrounding land via a bridge, opening up the island for manufacturing purposes which eventually led to the infill of the surrounding waterways and the absorption of the island into the mainland. The large comb factory was once a prominent business in Broome County, until it closed in the 1920s.⁸⁹

Another prominent and specialized company that emerged in Broome County in the late 1800s was the Stow Manufacturing company. Incorporated in 1895, the business was the successor of a company originally founded in Port Dickinson by Nelson Stow. Stow was noted as being an inventor of "rare genius," devising many different machines, tools, patterns, and other equipment. During the Civil War, Stow experimented with transmitting power at an angle at his buggy whip shop. These experiments led him to devise a flexible shaft power transmitter which was used in a variety of applications including dentistry and barbering. The devices were manufactured at a factory at State Street near Way Street (demolished), and later in facilities on Binghamton's east side.⁹⁰

Broome County and Binghamton contained many clothing manufacturing companies. Overalls, a type of durable cotton or cotton denim work pants with a bib front and suspenders built in, were worn by everyone from factory and industrial workers to farmers, favored by laborers for their durability and protection. Given the

⁸⁸ Lawyer, 462.

⁸⁹ Lawyer, 459, 473-474. Also "An Old Established House." *Fabrics, Fancy Goods and Notions* 39 (1905): 30. *Google Books*. Web. 1 Nov. 2011. <<http://books.google.com/books?id=AyxRAAAAYAAJ&dq=Noyes%20comb%20factory%20Binghamton&pg=RA5-PA30#v=onepage&q&f=false>>. The remaining brick industrial buildings at 301 Water Street were set to be surveyed as a part of this project, but unfortunately succumbed to fire only days before field work commenced in Spring 2011. They have since been demolished.

⁹⁰ Gerald R. Smith, 84-85. Also, Lawyer, 470.

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number of factory workers and farmers in the region, it is no surprise that Binghamton hosted several factories dedicated to producing overalls. One notable company is the Freeman Overall company, manufacturer of overalls worn by factory workers and farmers alike. Founded by Reed B. Freeman in 1879, who personally hand-cut the garments from patterns, producing the overalls with only the assistance of his wife, the company eventually grew, catering to the growing pool of laborers in the area. In 1881 a partnership was formed with Abel Bennett, and the Freeman Overall company began. By 1891, Freeman became the sole partner in the endeavor, first occupying space in the Republican Building, and later moving to the former Clock Sons & Co. cigar factory building at 17 Wall Street in 1893. Eventually the company became known as the Binghamton Clothing Company, and was known to have employed 125 workers, mostly women, in the 1910s.⁹¹

It was at this site that one of Binghamton's most infamous industrial accidents would occur on a hot and steamy day on July 22, 1913. On this afternoon, just after lunch time around 1:00 pm, approximately 110 to 125 mostly female workers sat at their stitching machines in the four-story factory building when a fire alarm began to ring. As the women got paid by the piece and didn't want any interruption in their work, many ignored it, thinking it a false alarm, and continued on at their work. However, flames had been spotted from under a front stairway, which president and owner Reed Freeman and an employee attempted to squelch with buckets of water. But the fire continued, moving quickly up the stairways and elevator shafts, and within minutes the entire building was engulfed in flames. In a rather gruesome scene, women rushed to escape the burning building, jumping from windows, attempting to use the building's lone fire escape but finding themselves trapped against the fire and smoke from the building. Reports estimated that the building was engulfed in flames around 2:30 pm and by 2:50 pm the building had collapsed, giving employees only minutes to escape the four-story inferno. Approximately 31 workers died in the fire, with 50 reported wounded or injured; the death toll may have been higher, however, as many of the remains were unidentifiable and some workers were never accounted for. The wreckage of the Binghamton Clothing Company fire was reminiscent of another recent fire which devastated the garment industry, at the Triangle Shirtwaist Factory in New York City of March 1911. That fire claimed 146 victims. The two tragic fires contributed to the evolution of modern industrial safety laws enacted throughout the state. Losses to the Binghamton Clothing Company were estimated at \$100,000, and the cause of the fire was never determined. The Binghamton Clothing Company never re-opened.⁹²

The success of industry and manufacturing, centered almost exclusively in Binghamton in the 1850s through 1870s, led to the growth and development of the formerly undeveloped fringes of the city during the late decades of the nineteenth century. As the city became increasingly densely packed, filled with factories, shops and houses, successful companies who wanted to grow their production facilities were left with few options for expanding within the city. New machinery and technology invented in the nineteenth century allowed manufacturers to build increasingly large production factories. Areas to the west of Binghamton, which had been largely suburban and farmland areas through much of the nineteenth century, became increasingly attractive to many business owners, lured by the large parcels of land available within close proximity to the rail network which ran through many of these areas. Initially, workers arrived at these new factories by streetcar or by walking from the city, however single-family and apartment housing was soon made available in these new

⁹¹ Lawyer, 475. Also, "25 Girls Perish in Fire in Factory." *Reno Evening Gazette* [Reno, Nevada] 22 July 1913: 1. *Newspaper Archive*. Com. Web. 1 Nov. 2011. <newspaperarchive.com>.

⁹² "25 Girls Perish..." Also, Simonson, Mark. "Binghamton Fire Spurred Improved Safety Laws » Columns » The Daily Star, Oneonta, NY - Otsego County News, Delaware County News, Oneonta News, Oneonta Sports." *The Daily Star, Oneonta, NY*. 19 July 2008. Web. 01 Nov. 2011. <<http://thedailystar.com/columns/x112901097/Binghamton-fire-spurred-improved-safety-laws>>.

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areas. The late nineteenth century saw several key businesses and factories relocate from downtown Binghamton to new areas of what would become the Village of Endicott (incorporated in 1906) and the Village of Johnson City (incorporated in 1892, renamed in 1916), forming with Binghamton, the “Triple Cities.”

Industry and manufacturing played a critical role in developing the economy of Broome County in the late nineteenth century. The region’s many different factories, plants and facilities generated much of the wealth in the area and helped to stimulate the growth and prosperity of Binghamton and the neighboring communities. Broome County faced an era of population growth, spurred by the many new jobs available and aided by the network of rail lines, linking the county to the booming economies all along the east coast and throughout the world. Industry and its prominent leaders also played a role in transforming the physical landscape of Broome County as well, pushing westward into former farmlands to establish new industrial centers in areas such as Lestershire (later Johnson City) and Endicott.

One of the earliest major manufacturers to relocate to the more suburban fringes of the city of Binghamton was the Lester Bros. & Company shoe and boot factory. Following the death of manufacturing pioneer Horace Lester in 1882, his son G. Henry Lester took control of the company, and in 1888 the dynamic G. Henry decided to construct a new factory, two miles west of the city of Binghamton. He and his agent Joseph Diment set about buying several parcels of land in the area, and quickly had the land surveyed, parceled and laid out as the village of Lester-Shire. He built a home for himself, and opened the sale of lots to the general public. This decision had many likely causes, including the availability of land in the area, and also avoiding the heavy city taxes. Lester may have also been inspired by the opportunity to establish a planned factory community. Factory towns were not uncommon in the late nineteenth century, and Lester may have seen a model in the town of Pullman, Chicago, founded in the Illinois prairie by George Pullman for workers of his Pullman Palace Car Company in 1880. Located along Main Street west of Binghamton, the new community of Lester-Shire was laid out between two spurs of the railroad, and included streets such as Arch, Broad and Willow Streets south of Main Street and Avenues A, B, C and D to the north. The centerpiece of the scheme was the massive new factory building, towering over the new village, which measured four hundred feet in length, fifty feet in width and was three stories high. Constructed of wood frame, the building was divided into three sections by brick partitions, serving as fire walls. The building was constructed beginning in 1889 and was completed in 1890, and when finished attracted scores of workers to work for the Lester company.⁹³

Although designed largely to maintain the peace and order of his workers during an era of increasing labor disputes and strikes, in his original design for Lester-Shire, G. Henry Lester took into account the desirability of living in the community. He located the new Lester & Co. Boot Factory building south of the residential area around Broad Street along a spur of the D.L. & W. railroad, making it easy to access by women and children so they wouldn’t have to cross the busiest thoroughfares in the area. No liquor was sold in the community, and Lester built a library, school house and other amenities for the workers. Lester-Shire was marketed with a sense of paternalism, that the Lester company was looking out for the welfare and happiness of its workforce, and reflected a wholesome and healthy living environment as a refuge from the dirty, noisy, crowded and polluted city. On September 15, 1892 the Village of Lester-Shire was incorporated, although the name was changed to

⁹³ Zahavi, Gerald. *Workers, Managers, and Welfare Capitalism: The Shoemakers and Tanners of Endicott Johnson, 1890-1950*. University of Illinois, 1988. 2001. Web. 4 Nov. 2011. http://www.albany.edu/history/ej/ej_book.html: 5-6.

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Lestershire one year later in 1893. The Lestershire village as it originated in 1888 would go on to form both the physical and cultural nucleus of a growing community after the turn of the twentieth century.⁹⁴

With the success of business and the abundance of workers in Broome County, and the growing concern for recording employee time for wages and documentation, a unique manufacturing company emerged in the late 1800s and would eventually locate just west of Binghamton. In 1887, Willard Bundy, a jeweler by trade from Auburn, NY, invented and patented a unique clock that could be used to record a worker's time. These early time recorders involved a card for each worker which the employee used to "punch in" and punch out," with the time clock punching a hole at the correct time and date marked on the card. Some models also printed the exact time and date on the card. The potential uses for the device, especially in the highly-industrialized region of Broome County, were quickly understood by his brother, Harlow E. Bundy, and on September 30, 1889 the Bundy Manufacturing Company was incorporated to produce the "Bundy Time Recorder." The company was first located in a small loft space in J. Franey's old gristmill, located at 40 Commercial Alley. By 1898, the Bundy company relocated to a more spacious building located at 183-185 Water Street. In this same year, the Bundy Manufacturing company had over 9,000 time recorders on the market, and the devices were marketed as a way to remedy the "vexatious questions of recording employee time."⁹⁵ During this time one of the company's largest clients was the federal government, who utilized the time recorders for post offices. In 1900 the International Time Recording (ITR) Company was formed, joining the Bundy Manufacturing company with several other related companies. This new company continued to prosper, and by 1906 had outgrown the Water Street facility. In this year the decision was made to purchase a tract of land to the west of Binghamton in Endicott⁹⁶ to construct a new factory facility.⁹⁷ This decision, and the resulting buildings constructed in Endicott, would lay the foundations for the emergence of a large and internationally prominent company, International Business Machines (IBM). For more information, refer to Section E, page 30.

As these new suburban fringes of the city of Binghamton began to develop in the late nineteenth century, by the dawn of the twentieth century, Broome County was a place of great optimism and enthusiasm. This was largely based on the unprecedented growth and prosperity in the region. The country grew in size from 30,660 residents in 1850 to 69,149 by 1900, more than doubling in size. The City of Binghamton, the center for much of the industrial activity, likewise grew at a rapid pace in these years, growing from 17,317 residents in 1880 to an astonishing population of 35,005 only a decade later in 1890 – a more than 100% growth rate in only ten short years.⁹⁸ Perhaps the hopefulness and enthusiasm for the region, spurred by industry, are best captured during their early stages in the 1872 inaugural address of Mayor Sherman D. Phelps, who noted:

⁹⁴ Zahavi, Gerald. "History of the Endicott Johnson Corporation: 19th Century Origins." *Life and Labor in a Corporate Community: An On-Line History of the Endicott Johnson Corporation*. University at Albany - SUNY, 1984, 2011. Web. 02 Nov. 2011. <<http://www.albany.edu/history/ej/origins.html>>.

⁹⁵ Quoted in Aswad, Ed, and Suzanne Meredith. *IBM in Endicott*. Charleston, SC: Arcadia Pub., 2005: 12.

⁹⁶ Aswad, Ed, and Suzanne Meredith. *IBM in Endicott*, 23-24. The Village of Endicott was founded only a few years prior by the growing Endicott-Johnson company in the Town of Union, named for company head Henry B. Endicott. The area was sparsely developed just after the turn of the century, still largely open and undeveloped land. The ITC company was lured from Binghamton to Endicott by the Endicott Land Company with promises of inexpensive land, adequate water for steam engines and machinery, close proximity to the vital rail lines and a growing labor pool. For more on the growth and development of the Endicott-Johnson company, refer to the section "The World Comes to Work: The Rise of Endicott-Johnson (ca. 1900s – ca. 1920s)" beginning in Section E, page 24.

⁹⁷ Aswad, Ed, and Suzanne Meredith. *IBM in Endicott*, 9-12,

⁹⁸ Information drawn from census data at <http://www.census.gov/prod/www/abs/decennial/>

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“The manufacturing interests so necessary to the growth of the place have been already increasing until they have become a great source of prosperity and demand your encouragement, as well as that of every citizen. I see no reason why Binghamton should not, with her railroad connections and other advantages, become a large manufacturing as well as commercial city.”⁹⁹

Industry and manufacturing went hand-in-hand with Broome County’s economic growth and success in the last half of the nineteenth century, and formed much of the identity of the region. During this era, the stage was set for Broome County and Binghamton to become the “Valley of Opportunity.”

The World Comes to Work: The Rise of Endicott-Johnson (ca. 1900s – ca. 1920s)

At the dawn of the twentieth century, Broome County was just beginning to realize its immense economic and industrial might. Fueled by a strong rail transportation network and relying on the inventiveness of nineteenth century business leaders, in the early 1900s several key industries would emerge, positioning Broome County as an industrial center. Businesses such as Endicott-Johnson and International Business Machines (IBM) would emerge, growing out of their nineteenth century foundations, to become massive companies employing thousands of workers and having a dramatic influence on daily life in the area. These industrial giants helped to put Broome County and the Triple Cities (Binghamton, Johnson City and Endicott) on the map, shifting the identity of the region from industrial center to manufacturing superpower. The prominence of these industries attracted scores of workers, business leaders and others to Broome County in the early twentieth century.

Perhaps the company most associated with Broome County is Endicott-Johnson, once the nation’s leading shoe and boot manufacturer. “E-J,” as it was known, had its roots in the very successful Lester Boot and Shoe Company. After the Lester company designed and implemented its factory town of Lestershire just west of Binghamton beginning in 1888, the company was optimistic for growth and expansion of its production. However, the Lester company quickly faced difficult financial and economic conditions. The national depression which swept through the county in 1893 hit Lestershire early. Orders began to decrease as early as 1890, and workers were laid off. After a peak of 475 employees in 1890, by 1893 the workforce had shrunk to 400. During these years, emboldened by his successful real estate and land speculation in Lestershire, G. Henry Lester made a series of poor and unwise investments in various land schemes in Yonkers, NY, only to be charged with embezzlement by his partner.¹⁰⁰

By the fall of 1891, the health of the Lester Boot and Shoe Company had grown worse. In December of that year the Lester Boot and Shoe Company and the Lester & Co. jobbing house were reorganized and merged. Known as the Lestershire Manufacturing Company beginning January 11, 1892, the new company was kept afloat by investments made by large shoe manufacturers located out West and several Boston businessmen. One of the major stockholders from Boston was Henry B. Endicott who was head of the Commonwealth Shoe and

⁹⁹ Quoted in H.P. Smith, 253.

¹⁰⁰ Zahavi, Gerald. "History of the Endicott Johnson Corporation: 19th Century Origins." *Life and Labor in a Corporate Community: An On-Line History of the Endicott Johnson Corporation*. University at Albany - SUNY, 1984, 2011. Web. 02 Nov. 2011. <<http://www.albany.edu/history/ej/origins.html>>.

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Leather Company in Massachusetts. However, despite the surge in cash and support, in the summer of 1892 the company teetered on the verge of a total collapse, closing its doors for a few weeks.¹⁰¹

Thanks to the maneuvering of Henry B. Endicott, the Lestershire Manufacturing Company was again reorganized, with Endicott serving as treasurer. With the reorganization, Endicott created the Lestershire Manufacturing company, which handled the manufacturing end of the business, and also the Lestershire Boot and Shoe Company, which controlled the ownership of the factory buildings and real estate of the former company. G. Harry Lester's role in the matter is unclear, but he clearly played a diminishing role in the company after his personal legal and financial troubles and inattention to his company. Henry B. Endicott took an increasingly dominant role in the company despite his obligations to his own company in Boston. He installed the firm's assistant superintendent, George F. Johnson, who had been with the Lester company since 1887, in charge of daily management of the factory in Lestershire, while he dealt with matters from Boston.¹⁰²

The leadership of Henry B. Endicott and George F. Johnson turned the struggling company around. In 1899, Endicott made Johnson a partner in the endeavor, and the company was renamed as the Endicott-Johnson company in 1902. Under this new partnership, the business, which had teetered at the brink of bankruptcy only about a decade earlier, emerged as one of the nation's largest and most successful manufacturers of the twentieth century. During the first two decades of the 1900s, Endicott-Johnson grew their operations, employing an increasing number of workers each year, and constructed a growing complex of factory buildings. After the chief supplier of leather, the Weed tannery, was taken over by new management and their supply was threatened, Endicott-Johnson decided to establish their own tanning facility to maintain a constant, reliable source for this vital raw material. Endicott-Johnson leased the former Weed facility, using it as a training site, while it set about building its own tannery facility. The site selected for this new tannery was about four miles west of Lestershire, located in the town of Union. Like the Lestershire location, this new area was also largely rural but well served by rail lines and was convenient to the growing labor pool in the area. In 1902 Endicott-Johnson's new Forest Oak Sole Leather Tannery was completed, and Endicott-Johnson became the first shoe manufacturer in the world to tan the leather used in its productions, becoming a vertically integrated company.¹⁰³

Like the Lester company before them, Endicott-Johnson also set a precedent for locating its new factory buildings in primarily rural, undeveloped areas along the Susquehanna River valley, using them as a nucleus for new growth and settlement. The Forest Oak Sole Leather Tannery, and others in the area, served as the heart of the village of Endicott. Centered around Washington Avenue and North Street, the village of Endicott, like Lestershire before it, was another planned industrial-residential community in Broome County. Named in honor of the company's "savior" and owner Henry B. Endicott, the village of Endicott was incorporated in 1906. The company purchased large swaths of land in Endicott, and unlike G. Harry Lester, the company did not immediately open this land up for sale and development but retained ownership and control of much of the

¹⁰¹ Zahavi, Gerald. "History of the Endicott Johnson Corporation: 19th Century Origins." *Life and Labor in a Corporate Community: An On-Line History of the Endicott Johnson Corporation*. University at Albany - SUNY, 1984, 2011. Web. 02 Nov. 2011. <<http://www.albany.edu/history/ej/origins.html>>.

¹⁰² Zahavi, Gerald. "History of the Endicott Johnson Corporation: 19th Century Origins." *Life and Labor in a Corporate Community: An On-Line History of the Endicott Johnson Corporation*. University at Albany - SUNY, 1984, 2011. Web. 02 Nov. 2011. <<http://www.albany.edu/history/ej/origins.html>>.

¹⁰³ Seward, 430.

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property. As a result, Endicott-Johnson itself laid out much of the village north of Main Street, locating factories, housing and even transportation routes. In 1904, E-J built 75 houses in the village of Endicott, selling them to families for between \$3,000 and \$3,500 each, although this was a drop in the bucket due to the housing shortage facing Lestershire and Endicott in the early 1900s.¹⁰⁴ Endicott-Johnson also provided municipal services for the Endicott community, including constructing schools, churches, fire stations and other services on land owned by the company. While these remote areas had certain financial advantages over the more developed city of Binghamton, providing inexpensive land in large parcels suitable for new construction, other factors were also likely considered as well.¹⁰⁵ As historian Nancy Grey Osterud phased it:

“The isolation of the factory from established working-class neighborhoods, and the separation of the village from the urban political arena in which the working-class presence was so strong, ensured that the company’s control would remain unchallenged at the community level.”¹⁰⁶

The 1900s and 1910s were a period of great physical growth and expansion for the Endicott-Johnson company. During this era the company expanded its product lines, into the production of dress shoes, and women’s and children’s shoes. It also vertically integrated, beginning with the construction of its own tanneries, and later factories were constructed to manufacture other components of the shoes and boots. Eventually, the company also opened a series of retail shops. These sprawling factory buildings formed the backdrop for the growing community of Endicott. By the 1920s five other tanneries were built in Endicott, including the Upper Leather, Calfskin, Chrome Sole, New Upper Leather and New Chrome Sole factory buildings. These six massive buildings encompassed a total of twenty-nine acres of floor space dedicated to tanning, producing over 20,500 sides of leather daily. Perhaps historian and editor William Foote Seward best sums it up: “This means that it takes a herd of 10,250 cattle daily to keep the tanneries running.”¹⁰⁷

Wages were low and the work was rather difficult, but in an era of labor unrest and unionization, workers were provided ample benefits to attract and retain their loyalty. Some of these benefits included an 8-hour work day, low-interest home loans, medical care, employee bonuses, entertainment and recreation opportunities and other perks. In 1919 the company instituted a profit-sharing program, allowing E-J workers to share in the company profits. This program helped to bolster the sense that the workers and the management were a sort of partnership in the success of Endicott-Johnson, creating a sense of loyalty to and reliance on the paternalistic company.¹⁰⁸

Endicott-Johnson, under the sole leadership of “father figure” George F. Johnson following the death of partner Henry B. Endicott in 1920, adopted a policy of welfare capitalism. Welfare capitalism can be defined as the practice of businesses providing welfare-like services to employees, often providing services, recreation and financial incentives to avoid disruptive labor strikes and shutdowns, resist governmental control of business, while maximizing productivity and profit. Perhaps inspired by his own rise to success in the paternalistic Lester

¹⁰⁴ Zahavi, Gerald. *Workers, Managers, and Welfare Capitalism: The Shoemakers and Tanners of Endicott Johnson, 1890-1950*. University of Illinois, 1988. 2001. Web. 4 Nov. 2011. http://www.albany.edu/history/ej/ej_book.html: 22.

¹⁰⁵ McGuire, Ross, and Nancy Grey Osterud. *Working Lives: Broome County, New York, 1800-1930*. Binghamton, NY: Roberson Center for the Arts and Sciences, 1980: 66.

¹⁰⁶ As quoted in Bothwell, 73.

¹⁰⁷ Quoted from Seward, 430.

¹⁰⁸ Seward, 433. Also, Bothwell, 74.

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Boot and Shoe Company in the 1880s and 1890s, Johnson looked to the strategies and ideas from other large manufacturers including the Ford Motor Company. Johnson developed a unique paternalistic policy, known as the “Square Deal.” Developed and initiated in stages between 1916 and 1921, Johnson’s Square Deal offered employees the promise of fair treatment and job security. In the early 1920s, new employees at Endicott-Johnson received an informational booklet on the Square Deal, promising “certain claims of your family are recognized. Medical and Hospital service is yours. Privileges of many kinds are yours.” However, for these services, the company management had certain expectations for the worker: “This company and its Directing Heads, know their business...Their business is to see that you give them a ‘Square Deal’: which means fair return for what you receive – an honest effort to do to the work well, and a fair and sufficient amount of it.”¹⁰⁹ The Square Deal created the appearance of a partnership between labor and management, creating a sort of ideology of an ideal industrial village. The policy led to the lives of E-J workers being almost entirely devoted to, dependant on, and revolving around public services, recreation, health care and other elements provided by the company; workers literally lived, worked and slept Endicott-Johnson.¹¹⁰

During World War I, Endicott-Johnson did its part to aid with the war effort. The company served as one of the primary manufacturers of boots for the United States military during the war. By the 1910s, E-J had grown into the world’s largest shoe manufacturer. The company employed over 30,000 workers throughout Broome County and in the region, operating numerous factories primarily in Endicott and Johnson City in the area. During this era, the company became symbol prosperity, providing good paying jobs and ample benefits to numerous families in the area.

Word of the availability of manufacturing and industrial jobs, available to men, women and children, traveled even across the ocean and attracted a large immigrant population to Broome County, nicknamed the “Valley of Opportunity.” Within the span of a generation, the character of the country became increasingly diverse, becoming a blending and melding of cultures, religions and traditions. The population of the county doubled from 62,973 in 1890 to 113,610 in 1920. The ethnic composition of Broome County also shifted, changing from a largely homogenous Anglo-European society to an increasingly ethnically diverse one. Immigrants from England and the British Isles, who had comprised about 60% of the population of foreign-born residents in 1890, by 1920 comprised only 20%. German-born residents dropped from 20% to less than 10% of the population during this same era. Many of these new workers during the first two decades of the twentieth century arrived in the country from primarily southern and eastern Europe, lured by the promise of plentiful jobs. Between 1890 and 1920, residents of Italian origin rose from 2% of the population to 20%, and immigrants from Central and Eastern Europe had the most dramatic increase during this period, rising from 3% to 50% of the population. The majority of these new workers came from communities in Poland, Czechoslovakia, Russia, and Ukraine and included religious groups including Roman Catholics, Eastern and Greek Orthodox Catholics, Jews and other denominations. Although the majority of residents were native-born, and by 1920, the number of foreign-born residents in Broome County was still only about 13% of the total

¹⁰⁹ Quoted in Zahavi, Gerald. *Workers, Managers, and Welfare Capitalism: The Shoemakers and Tanners of Endicott Johnson, 1890-1950*. University of Illinois, 1988. 2001. Web. 4 Nov. 2011. http://www.albany.edu/history/ej/ej_book.html: 40.

¹¹⁰ For additional information on labor, the Square Deal and Endicott-Johnson, refer to sources such as Zahavi, Gerald. *Workers, Managers, and Welfare Capitalism: The Shoemakers and Tanners of Endicott Johnson, 1890-1950*. University of Illinois, 1988. 2001. Web. 4 Nov. 2011. http://www.albany.edu/history/ej/ej_book.html.

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overall population, an additional roughly 20% of residents who were native-born were born to at least one foreign-born parent.¹¹¹

While Endicott-Johnson was the most dominant industrial force in Broome County during the early part of the twentieth century, influencing the regional economy as well as community diversity, other shifts and trends were occurring within the industrial sector. As was occurring throughout the country during this time, the early decades of the 1900s saw many of Broome County's manufacturing and industrial companies consolidated into larger entities. Many companies established in the nineteenth century followed the trends established by the Bundy Manufacturing Company and the Lester Boot and Shoe Company/Endicott-Johnson by constructing new factories in the growing neighborhoods west of Binghamton. Becoming increasingly identified as a hub for industry, the region began to attract branch offices of national companies, including Dunn and McCarthy, a national maker of women's shoes, to a new facility built for them in 1907.¹¹²

Industries throughout the county grew in the early decades of the twentieth century, and many new companies were established. Founded during this era was the Nineteen Hundred Washer Company, located on Clinton Street in Binghamton (demolished), who manufactured a popular mechanical washing machine; a relatively new device invented to help relieve women from this tedious task. The company claimed to have developed the first electrically-powered washing machine in 1906.¹¹³ Another significant company which emerged at the dawn of the twentieth century was the Link Piano Company, with a factory located at 183-185 Water Street in Binghamton (demolished), which manufactured items such as air-powered player pianos.¹¹⁴ Some companies failed to transition to new technologies and demands, however, such as the Sturtevant-Larrabee Company. The company reincorporated in 1915 as the Larrabee-Deyo Motor Truck Company, but ultimately failed to successfully transition from manufacturing horse-drawn sleighs and heavy wagons in the nineteenth century to motorized automobiles in the twentieth. Overall, however, the early decades of the 1900s was a prosperous time for industry throughout Broome County, aided by the strength of industrial giants such as Endicott-Johnson which brought labor, capital and a growing market for a multitude of goods and products in Broome County.¹¹⁵

Life on the farms surrounding Binghamton in Broome County also changed due to industrial and technological developments in this period. With the new growth occurring especially west of Binghamton at the end of the nineteenth century, many farmers sold their land to developers. Agriculture became increasingly centralized and mechanized in the early 1900s, shifting from households producing their own butter to relying on local creameries, as an example. During this era, Binghamton and Broome County's prime location as a rail hub

¹¹¹ Bothwell, 75.

¹¹² McGuire, Ross, and Nancy Grey Osterud. *Working Lives: Broome County, New York, 1800-1930*. Binghamton, NY: Roberson Center for the Arts and Sciences, 1980: 79-80.

¹¹³ In the late 1920s the company introduced a new line of washing machines, called the Whirlpool. Although the Nineteen Hundred Washer Company would eventually leave Binghamton, the company was later renamed as the Whirlpool Corporation is now one of the largest home appliance manufacturers in the country. "Bicentennial Minutes." *Broome County, NY*. 2010. Web. 29 Nov. 2011. <<http://www.gobroomecounty.com/bicentennialminutes>>.

¹¹⁴ For more information on the Link companies, including Link Aviation, please refer to "Valley of Innovation (ca. 1900s – 1950s)" beginning in Section E, page 32.

¹¹⁵ McGuire, Ross, and Nancy Grey Osterud. *Working Lives: Broome County, New York, 1800-1930*. Binghamton, NY: Roberson Center for the Arts and Sciences, 1980: 80. Also "Larrabee-Deyo to Build Two-Ton Trucks." *The Automobile* XXXIII.17 (October 21, 1915): 758. *Google Books*. 2007. Web. 9 Nov. 2011. <<http://books.google.com/books?id=mMoqAAAAMAAJ&dq=%22Sturtevant-Larrabee%22&pg=PA729#v=onepage&q&f=false>>.

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meant that farmers increasingly produced milk which was shipped to New York City and other urban centers. While this provided a source of new profits for farmers, it did require substantial acreage to grow feed crops and pasture the herd, ample storage for silage, capital to purchase machinery such as milking machines, and good roads to transport the milk to market. These requirements were not within the means of many of Broome County's farmers, and while some stayed and adapted, and a few maintained their earlier traditional ways, many sold their land to neighbors and moved to urban centers. This era saw the emergence of organizations dedicated to fostering agricultural practices and organizing and aiding farmers to adapt to the new economic climate, including the nation's first Farm Bureau (founded in 1911).¹¹⁶

Of the many changes going on in Broome County at the dawn of the twentieth century, the massive Endicott-Johnson company left an indelible mark on the physical and cultural growth of Broome County. The construction of its factories in Lestershire beginning in 1888, renamed after company president George F. Johnson as Johnson City in 1916, and the village of Endicott in the 1900s established the foundations for the Triple Cities of the county. The company was responsible for not only founding these new urban centers, but also shaped much of their appearance as well. In Johnson City, the E-J predecessor had shaped the street patterns and general configuration of the community street patterns, but allowed residents to build their own homes. It was truly in Endicott that the company had the most influence and control over the physical appearance. Endicott-Johnson laid out most of the streets in the area, designing and building its own factories, located conveniently around North Street near the rail lines. Here the company also built a myriad of other buildings including houses, medical offices, fire departments, grocery stores, recreation centers and parks. Everywhere residents turned they were reminded of E-J and the Johnson family. In 1920, Endicott-Johnson erected large stone arched gateways at each end of Main Street, proclaiming Endicott the "Home of the Square Deal."¹¹⁷ Numerous statues were located in the village, to celebrate the image and legacy of various members of the Johnson family, each inscribed with a sentimental and propagandistic message. Endicott-Johnson was at the center of daily life, especially for those living in Endicott and Johnson City, as workers lived, worked and played courtesy of the company.

Valley of Innovation (ca. 1900s – 1950s)

By the twentieth century, Binghamton and Broome County had emerged as one of the nation's leading industrial centers. The continuing wave of growth, profits, and success fostered a strong spirit of invention and innovation amongst many of Broome County's business leaders, permeating the region's manufacturing base. As a result of this spirit, several key companies would emerge in Binghamton and the surrounding communities that would pioneer new technologies that would revolutionize American life. Alongside footwear giant Endicott-Johnson, which continued to be a national business leader of a more traditional product, the first half of the twentieth century would see national and internationally significant companies grow and flourish, including International Business Machines (IBM), Link Aviation and Ansco. These companies all created and pioneered new products and new technologies, helping to elevate Binghamton and Broome County from a manufacturing center to become a hub of innovation.

Many people from outside the region may be surprised to learn that one of the world's leading technology pioneers was founded in Broome County. International Business Machines, or IBM as it is generally known

¹¹⁶ Bothwell, 76-77.

¹¹⁷ Both of these arches are still intact, and have been listed in the National Register of Historic Places in 2001.

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today, is a massive multi-billion dollar American multinational technology and manufacturing company. Ranked 18th on Fortune magazine's list of the 500 largest companies in 2010, IBM had relatively humble origins in Broome County. From its start, the company focused on producing equipment and technologies which aided businesses in conducting their business; a very new and unique concept in an age of producing consumables and tangible products. In general during the twentieth century, business in America was growing ever more complex and sophisticated. Record-keeping was dramatically transformed by IBM. Simple ledger books and hand-entered account records were typically kept by early twentieth century business owners, recording information such as sales, inventory, employee wages and customer accounts. However, the new national and international scale of business in Broome County, coupled with increasing numbers of employees and types of items produced, businesses needed new technologies to process and record data.

Founded in Auburn in 1889 by Harlow E. Bundy and soon relocated to Binghamton, the Bundy Manufacturing Company was one of several similar technology companies that George W. Fairchild merged in 1900 to create the International Time Recording Company (ITR).¹¹⁸ In 1906, Harlow E. Bundy relocated his Binghamton branch of ITR to a new three-story building located in the newly growing village of Endicott, lured to the area by George F. Johnson of Endicott-Johnson. This simple factory building was located in an rather unusual reinforced concrete building with a central three-story block flanked by two symmetrical two-story wings, and was located adjacent to the Erie Rail Road lines along North Street at McKinley Avenue. By 1907, ITR relocated all their business to the Endicott building, as the company had just constructed Building 2 and 3 on the site, expanding to 75,000 square feet of production space. ITR continued to grow rapidly at this location in Endicott, adding Buildings 4, 5, 7, 9 and 10 between 1908 and 1911, which added over 74,000 additional square feet of space.¹¹⁹

The early decades of the twentieth century was a time marked by increasing merging and takeovers in the business world, as multiple small businesses joined with other similar or useful companies, and this trend is apparent with the International Time Recording Company. In 1911, banker Charles R. Flint initiated the merger of the International Time Recording Company, with the Computing Scale Company and the Tabulating Machine Company to create the Computing-Tabulating-Recording Company (C-T-R). Headquartered in New York City, this new entity merged businesses that manufactured scales in Dayton, Ohio, punched cards and tabulators in Washington, D.C. and time recorder devices in Endicott.¹²⁰

Like its large neighbor, Endicott-Johnson, C-T-R would soon become led by a dynamic and visionary leader. Hired by the company in 1914, Thomas J. Watson, Sr. became the general manager of C-T-R. Born in Campbell, NY in 1874, Watson served as a salesman for the National Cash Register Company in Buffalo, working his way to become sales manager. By 1915, Watson was elected president and general manager of the Computing-Tabulating-Recording Company, becoming the new head of the company.¹²¹ Watson would emerge in the first half of the twentieth century as one of the world's leading business leaders, creating not only new technologies and products but also new business strategies and ideas.

¹¹⁸ "IBM HIGHLIGHTS, 1885-1969." *IBM Archives*. 2003. Web. 10 Nov. 2011: 4.

¹¹⁹ "Endicott Chronology 1904-1919." *IBM Archives*. Web. 10 Nov. 2011. <http://www-03.ibm.com/ibm/history/exhibits/endicott/endicott_chronology.html>.

¹²⁰ "Endicott Chronology 1904-1919."

¹²¹ "Thomas J. Watson." *IBM Archives*. Web. 10 Nov. 2011. <http://www-03.ibm.com/ibm/history/exhibits/chairmen/chairmen_3.html>.

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Under Watson's leadership, the transition from Computing-Tabulating-Recording Company to the International Business Machine company began. C-T-R had continued to absorb and take over many smaller companies throughout the 1910s and 1920s, merging related business and production interests with their ever-growing array of products and services. C-T-R continued to develop and refine the business-related technologies it produced, including developing a non-printing electric accounting machine, a vertical card sorting machine, mechanical hand punch and a lever set gang punch. All of these machines were related to processing and storing data, especially for use in businesses. In 1918 the company produced an electric accounting machine. When the company began doing business in Canada in 1917, C-T-R operated under the name of International Business Machines Co. After the company opened offices in Latin American and Asia in the early 1920s, the IBM moniker was adopted for all operations in 1924.¹²²

During the 1910s and 1920s as the IBM corporation began to take shape, operations at the Endicott facility also continued to grow. In 1914, the Endicott site contained five industrial and manufacturing buildings, employing over 245 people in manufacturing and engineering departments. The plant produced a diverse selection of products, engaging in over 6,600 different manufacturing operations. 1917 saw additions constructed to the original 1906 factory building, as well as two one-story buildings known as East and West Courts. The workforce also grew in Endicott during these years, from 245 employees in 1914 to over 1,100 in 1927.¹²³

Despite the stock market crash of 1929 and the resulting economic depression, IBM continued on its path to become one of the country's top businesses. As other businesses sought to become more efficient during the economic crisis, saving them time and money and maximizing profitability, many of the products and services offered by IBM allowed the company to continue its success. During the 1930s, IBM instituted and grew new programs for training and educating its workforce. In 1932-33, and in the midst of the expansion of its production facilities in Endicott that added over 100,000 square feet of additional space, IBM constructed two buildings just south of its main campus on North Street. The Colonial Revival-styled Engineering Laboratory (22 Adams Street, extant, NRE), with its columned portico and belltower, was constructed as IBM's primary research facility. Inscribed on the building's frieze, Watson's iconic mantra, "THINK," inspired those who entered the building to not just mindlessly go about their daily tasks, but to see new ideas and possibilities in their work. Combining the engineering facilities both of the Endicott plant and the Varick Street laboratory in New York City, this new facility was an incubator for new ideas and products. Next door to the Endicott Engineering Laboratory, IBM also constructed the IBM Schoolhouse (22 Adams Street, extant NRE). Built in the modern Art Deco style, this facility features six classrooms that were utilized to train and educate IBM's wide variety of employees, including salesmen, engineers, tool-makers, supervisors and others.¹²⁴ On the steps of this building were inscribed the words "Read, Listen, Discuss, Observe, Think," encouraging the creativity and resourcefulness of the workforce.

¹²² "IBM HIGHLIGHTS, 1885-1969," 8-9.

¹²³ "Endicott Chronology 1921-1929." *IBM Archives*. Web. 10 Nov. 2011. <http://www-03.ibm.com/ibm/history/exhibits/endicott/endicott_chronology1920.html>.

¹²⁴ It is interesting to compare the architecture of the two buildings, which are contemporaries. The architecture of the Endicott Engineering Laboratory, that one would expect to be the center of innovation and progressive new ideas, is housed in a building that architecturally and historically looks backward to the early American past. In comparison, the IBM Schoolhouse building, a place of education and learning which tends to favor traditional revivalist architecture, was built in what was then the most current, modern and forward-looking architectural style, Art Deco. "Endicott Chronology 1931-1939." *IBM Archives*. Web. 11 Nov. 2011. <http://www-03.ibm.com/ibm/history/exhibits/endicott/endicott_chronology1930.html>.

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Like at the neighboring Endicott-Johnson Company, Thomas J. Watson also created a business culture for IBM and initiated many programs and activities to benefit his workers. While George F. Johnson had provided benefits and recreation for the residents of Endicott as a whole, Watson created several perks dedicated for IBM employees. Though the era of the “factory town” had largely dissolved by the twentieth century, Watson provided unique opportunities for the entertainment and enrichment of his employees, creating an IBM corporate culture. As early as 1915, IBM began a company band, and Wednesdays at noon, workers were treated to a concert on the IBM grounds.¹²⁵ The IBM orchestra was formed in 1928, followed by the IBM Men’s Glee Club the next year. In 1928 IBM began offering “suggestion awards” to employees who submitted ideas and comments which benefited the company; during its first year 29 employees were presented 36 awards totaling \$123.50. The company published a journal, *Time*, as early as 1907, which was renamed as *Think* in 1935. *Think* featured articles on new IBM inventions, art and culture, education and also company news, and by 1946 it was distributed to over 80,000 people including government and business leaders, leaders in the arts and education, and also to each employee.¹²⁶ Watson brought art exhibits and opera and musical performers to the IBM campus, for the amusement of workers. He encouraged the growth and development of employee musical groups and study programs. In 1934, IBM instituted a group life insurance plan for its employees. A paid vacation policy was instituted in 1936. The company also employed those who often had a difficult time finding employment in industry, including the disabled, as early as 1914, more than seventy years before the passage of the Americans with Disabilities Act.¹²⁷ Eventually, Watson opened a 700-acre IBM country club, located in Endicott, for the exclusive use of employees, in the 1930s.¹²⁸ The sight of an IBM worker, with a business-like starched white shirt, tie and dark colored suit, became a proud symbol of IBM culture associated with the company for many decades.

Throughout the 1930s and 1940s, the IBM Endicott operation continued to grow and flourish. In 1935 the United States passed the Social Security Act, assuring support for the elderly, which was labeled as the world’s biggest bookkeeping job. Only IBM and their data recording and processing equipment proved to be up to the immense task, and the company was awarded the lucrative contract to undertake the maintenance of records for over 26 million people. The successful execution of this contract led to other government contracts, which allowed the company to not just survive the Great Depression, but to emerge as the industry leader by the end of the 1930s. As business expanded, IBM also significantly expanded the size of its Endicott campus. The 1940s saw the construction of massive reinforced concrete industrial buildings, emblazoned with the signature “International Business Machines” globe logos, along North Street on the west side of McKinley Street in 1941 (Building #41, extant, NRE) and 1942 (Building #46, extant, NRE).

By the time of Thomas J. Watson’s death at age 82 in 1956, IBM had grown from its humble, retail store nineteenth century origins, successfully survived the Great Depression, and pioneered new technologies to store and process data to become the world-wide leader in its field, with more than 72,000 employees, with a gross income of \$892 million. In Endicott, at what became known as “Plant No. 1,” IBM had emerged as one of

¹²⁵ "Endicott Chronology 1904-1919."

¹²⁶ Aswad, Ed, and Suzanne Meredith. *IBM in Endicott*. Charleston, SC: Arcadia Pub., 2005: 18.

¹²⁷ "Endicott Chronology 1904-1919."

¹²⁸ Bothwell, 90.

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Broome County's most prominent companies, employing almost 8,000 people, and dominating the local culture and economy.¹²⁹

Interestingly, the building on Water Street in the city of Binghamton where IBM-predecessor the Bundy Manufacturing Company got off to its start, also gave rise to another of the country's most innovative technology companies, Link Aviation. In 1910 Edwin A. Link, Sr. moved his family, including his 6 year old son Edwin A. Link, Jr., from Huntington, Indiana to Binghamton to take over the failing Binghamton Automatic Music Corporation located at 183-185 Water Street. He renamed it the Link Piano Company. The Link Piano Company designed and built automatic air-driven player pianos and pipe organs for theaters. These mechanical instruments utilized a system of collapsible bellows to operate the keys, playing music. Elder brother George would take over the family business, allowing younger son Edwin Jr., known as Ed, to pursue his interest in the aviation.¹³⁰

Ed Link eventually became a certified pilot in 1927, when aviation was still in its infancy. Between 1903 and 1917, pilots learned to fly from another pilot. The process was expensive, time consuming, required a lot of trial and error, and it was dangerous. World War I ushered in a new era in aviation, as the need for trained military pilots intensified, and new two-seater flight training planes were developed. Models such as the "Jenny" produced by the Curtiss Company later became surplus after the end of the war, but were largely used for air shows, amusement rides and other recreational uses. Flight training still remained an expensive and dangerous activity, conducted on an individual basis.¹³¹

Drawing from his own experiences during the flight training process and seeing a need for better, safer pilot training, Ed Link used his mechanical knowledge learned from working in the Link Piano Company to develop a flight trainer machine. Utilizing a similar vacuum tube and bellows system drawn from the player pianos, Link's flight simulator emulated the sensations of flying, with the earliest model sitting on a series of organ bellows which could inflate and deflate, causing the trainer to simulate climbing, pitching and banking. Building the trainers in his family's store, Link applied for a patent on his simulator in 1930, and it was granted to following year.¹³²

Drawing on the promise of his new invention, Ed Link opened a flight school in Binghamton in 1930, the Link Flying School. Using his trainer, Link was able to significantly reduce the cost of flying lessons. His simulator also gave students the opportunity to learn basic maneuvers safely while still on the ground, before they ever stepped foot into an actual airplane. Link was able to offer his students an entire flight program for a reasonable cost of \$85, including ground school and trainer time, plus actual air time. The training school also helped Link refine the flight simulator, learning from students' weaknesses in the air where there were weaknesses in the trainer. As aviation technology developed in the 1930s and 1940s, so, too, did the Link flight simulator. Instrument flying was developed in 1929, and by 1933 the Link flight simulator was modified for use in

¹²⁹ "Endicott Chronology 1951-1959." *IBM Archives*. Web. 11 Nov. 2011. <http://www-03.ibm.com/ibm/history/exhibits/endicott/endicott_chronology1950.html>. Also, "IBM HIGHLIGHTS, 1885-1969," 19.

¹³⁰ Bothwell, 91. Also *The Link Flight Trainer: a Historic Mechanical Engineering Landmark, Roberson Museum and Science Center, Binghamton, New York, June 10, 2000*. New York, NY: ASME International, History and Heritage Committee, 2000: 3.

¹³¹ *The Link Flight Trainer...3*.

¹³² *The Link Flight Trainer...3*.

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instrument training. However, despite the immense promise that the Link Trainer held for the aviation industry, it was still considered a novelty, and was a popular carnival ride, too.¹³³

However it was not long before the benefits of training in a Link flight simulator were realized. After a series of very public and costly crashes by pilots not trained to fly in poor weather or at night using instruments, the U.S. Army Air Corps ordered six of the Link Trainers to improve their mail pilots' skills in 1934. During World War II, the Link Trainers were widely used, with over 10,000 units. Nicknamed the "blue box" for its boxy shape and bright blue color, it was used by the military to train over 500,000 pilots quickly, safely and efficiently.¹³⁴

As his flight trainer became more popular, Link moved production from the meager facilities available at the former Link Piano Company (which had gone out of business during the Depression) to facilities on Gaines Street in 1936, and in the former Binghamton Chair Company building at 121 Montgomery Street in 1939-1940 (extant, NRE), before settling in the town of Fenton. The former industrial building built in 1917-1918 for the Hires Condensed Milk company on Nowlan Road at Beckwith Avenue, became home to Link Aviation Devices, Inc. beginning in 1941 (extant, NRE) as production increased during World War II. The large factory complex was located just north of the city of Binghamton, and was adjacent to ever-important rail lines. The main factory buildings were simply designed production sheds, allowing for large uninterrupted manufacturing spaces to construct the rather large machines, while the site also contained a cafeteria and classroom building, boiler building and reservoir. It was here that Link Aviation manufactured the bulk of the flight simulators used during World War II.

Ed Link pioneered a new type of technology and was an early developer of what would become known as virtual reality. The Link Flight Trainer was a landmark in mechanical development, as it was one of the first devices to simulate an actual process. Link's flight simulator developed a type of technology that replicated the experience of flying, making training safer, standardized and more efficient. Although Ed Link sold Link Aviation, Inc. to General Precision Equipment Corp. of New York City in 1954, he continued to pursue technological developments, shifting into designing devices to aid in undersea archeology and exploration. The Link company also continued to push the boundaries of simulation technologies, and in the 1960s the company developed simulators for NASA used for training astronauts during the Apollo missions, including the moon landing.¹³⁵

A third key technological company also emerged as a nationally and internationally significant company during the early twentieth century in Broome County. The late nineteenth century saw the founding of a relatively small operation known as the Westcott Photo Specialty Company. Located at 170 Washington Street, the company was started by Melvin DeVer Westcott to manufacture a special type of paper used for photography, marketed as the "Monarch Brand." Following the death of Melvin Westcott in 1899, his wife Minnie was instrumental in convincing the much-larger E. & H. T. Anthony & Co. of New York City to acquire the company in 1900.¹³⁶ Founded in 1842, the Anthony Company was the first photographic supply house in the

¹³³ *The Link Flight Trainer...3. Also, Brown, Carrie. Edwin A. Link and the Air Age: Progress, Technology & The Romance of Motion.* Binghamton, NY: Roberson Museum and Science Center, 1994: 17.

¹³⁴ *The Link Flight Trainer...3, 5.*

¹³⁵ *The Link Flight Trainer...5.*

¹³⁶ "Melvin DeVer Westcott." *Westcott Family Genealogical Forum.* Genealogy.com, 8 Jan. 2010. Web. 14 Nov. 2011. <<http://genforum.genealogy.com/westcott/messages/973.html>>.

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United States, and was a supplier for famed Civil War photographer Mathew Brady, whose studios were located next door to the Anthony Company in New York City. After acquiring the Westcott company, the Anthony company moved all their photographic papermaking to Binghamton, renaming the company the Monarch Paper Company. In 1900, the Monarch Paper Company appears to have relocated from the Washington Street location to facilities located at 29-31 Charles Street. In 1901 the company became the Anthony & Scovill Company after a merger with the Scovill & Adams Company. In 1907 the firm is again renamed, as Ansco, merging the two former names into a new moniker.¹³⁷

The early decades of the twentieth century appear to have been very successful and profitable for Ansco in Broome County. Despite fires and damage to wood-framed buildings on Charles Street in 1907 and 1908, the firm continued to purchase additional property in the Jarvis and Charles Streets area in anticipation of expansion. In 1910 the Ansco company established two significant factory locations for manufacturing photographic films and paper in Broome County. In May of that year, Ansco purchased the former Marshall Furniture Company plant, located on Corliss Avenue (demolished) near Endicott-Johnson's expansive works in Lestershire (Johnson City). This factory was filled with workers and machinery from the New Haven Camera plant, which Ansco closed in the same year. Production of cameras commenced at this site in October of 1910. In September of 1910 Ansco was granted a building permit to construct a new three-story factory building located at 21-23 Charles Street (now 15 Charles Street, extant, NRE). Constructed of brick, this new large factory building, that appears to have continued to be used to manufacture photographic film, offered some additional fire protection to the vulnerable, chemical-filled buildings. In 1913, Ansco received a favorable ruling from the US District Court in Buffalo that Eastman Kodak Company, another up-and-coming film and camera manufacturer based in Rochester, NY, had infringed on a patent held by Ansco for photographic film; when upheld by the Appeals Court the following year, Ansco received a settlement of approximately \$5 million dollars, \$2 million of which it distributed amongst stockholders. These funds appear to have allowed the company to expand its factory operations, which it did in 1914 when it built an addition to the Lestershire camera plant.¹³⁸ Several other buildings appear to have been built at the Charles Street plant as well, including a two-story brick Power House (now 17 Charles Street, extant, NRE) built in 1911, a Machine Repair Shop building added in 1913 (demolished), and a wide variety of other buildings. In 1915, the company purchased a former Sturtevant-Larrabee factory building on the west side of Charles Street near the rail lines, just to the south of the Ansco works, utilizing this new space as a warehouse. Finally, in 1916 the company's primary stockholders held a vote, approving the transfer of Ansco's headquarters from New York City to Binghamton.¹³⁹

The 1920s saw Ansco make significant contributions to the photographic industry. Carl Bornmann, a German native, was a notable early inventor for Scovill & Adams where he created the first hand-plate camera with a smaller, less cumbersome photographic plate in 1889. When this company was absorbed into Ansco, Bornmann relocated to Binghamton and continued developing new products. In order to reflect its growing and widening product lines of films and cameras, Ansco became known as Ansco Photoproducts, Inc. in 1924, and during this same year the company introduced the Automatic Ansco camera, designed by Bornmann. In 1926 Bornmann developed and patented the Ansco Memo camera, the first popular 35-mm camera. Also released this year was

¹³⁷ Camp, William L. "ANSCO Chronology." *Bill's Photo History*. 12 Mar. 2004. Web. 14 Nov. 2011.
<<http://billsphotohistory.com/3.html>>.

¹³⁸ Camp, "ANSCO Chronology."

¹³⁹ Refer to the 1918 Sanborn map for Binghamton, Sheet 37.

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the Semi-Automatic Ansco, a less expensive version of the Automatic Ansco, which retailed for about \$40. Ansco also released the Vanity Camera; a small, all-metal camera that was available in six colors, perhaps a sort of predecessor of today's multi-colored electronic devices released by companies such as Apple. Similar developments were made in the film division as well, including Ansco's acquiring of a patent on a special coating machine, which was utilized to create Ansco's first X-ray film in 1928.¹⁴⁰

Despite these new developments on the technological side, by the 1920s, sales and profits were lagging for Ansco. As an attempt to stimulate new growth and profits, the executives looked to Europe. Ansco negotiated with Agfa, a unit of the large German chemical conglomerate I.G. Farben, and in 1928 Agfa acquired Ansco, becoming known afterwards as Agfa-Ansco. At the same time, I.G. Farben also bought Ozalid, a company with facilities in Johnson City and Vestal that manufactured a special type of paper. This newly formed company maintained its headquarters in Binghamton, and soon after began making preparations for the construction of a modern new factory facility in Broome County. In May of 1928, Agfa-Ansco, revitalized with the injection of European money into the company, purchased the entire site of the former Sturtevant-Larrabee company between Charles and Hudson Streets, demolishing the former carriage works to make way for a large new reinforced concrete factory building. This new massive building, designed by New York City-based architect Otto S. Schlich and built by the Turner Construction Company of New York and Buffalo, was four floors in height, with an eight-story central portion, and was considered to be the largest building in the city of Binghamton at the time of its construction.¹⁴¹

With this new influx of capital and energy, the 1930s were more successful for the Agfa-Ansco company. Despite the devastation of the 1935 flood to the film factories on Charles Street, the company continued to grow both its product lines and its Broome County facilities. By 1913, Ansco had built 18 buildings at the site; by 1926 this number had increased to 46 buildings as new developments and departments were added to the company. Agfa-Ansco was recognized with a technical Academy Award for its development of an infrared film in 1936. The following year, the company released the first American ultra high-speed sheet film. 1937 also saw new construction projects for Agfa-Ansco, including the design and construction of a new four-story laboratory and administration building located along Charles Street.¹⁴² This new building, designed in the Art Deco style, projecting a sleek and sophisticated modern visage for the company. During this same year, the company acquired the former General Cigar Company Building (16 Emma Street, extant, NRE), and moved production from the Corliss Avenue buildings in Johnson City to the more modern facility on Emma Street.¹⁴³

Like IBM and Endicott-Johnson, Agfa-Ansco also offered their employees a variety of perks and benefits. Agfa-Ansco provided their workers with a system of recognitions, awards, publications, and benefits as a means to encourage loyalty and create a sense of family in the organization. The company offered healthy insurance through the Mutual Benefit Association. Company teams for baseball, bowling, tennis and other sports were initiated. Agfa-Ansco also sponsored several entertainment groups, including the "Ansco Players" who put on various productions to entertain employees and their families. Not unexpectedly, Agfa-Ansco also hosted a Camera Club for employees, which was extremely popular. An Athletic Association organized events such as

¹⁴⁰ Camp, "ANSCO Chronology." Also, Browne, Charles. *Ansco: Cameras, Construction & Community*. Binghamton, NY: Roberson Museum, 2002: 6.

¹⁴¹ Camp, "ANSCO Chronology." Also, Browne, 8.

¹⁴² Camp, "ANSCO Chronology."

¹⁴³ Camp, "ANSCO Chronology."

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picnics, outings, and dances. After holding these company picnics in various locations until the late 1930s, in 1939 the company purchased about 175-acres of hilltop land located nearby in the town of Windsor, and excavated and enlarged a shallow pond to create Ansko Lake. Agfa-Ansco built a clubhouse, imported 750 tons of beach sand, and established the area as a resort community for employees. Activities at Ansko Lake included swimming, boating, and ice-skating.¹⁴⁴

The German control that had helped a struggling Ansco emerge more successful in the 1930s, would soon prove to be problematic. In late 1939, Agfa-Ansco's holding company became known as General Aniline & Film Company (GAF), at which time Agfa-Ansco became a subsidiary of GAF. In 1941, after the United States entered World War II following the attacks on Pearl Harbor, Agfa-Ansco was considered "enemy property" and the company was seized by the federal government, with agents stationed at the company to supervise operations. As at other companies during the war, production shifted to more military-related products. Camera production was halted, and Agfa-Ansco manufactured optical devices such as sextants and range finders. In 1942, the company introduced the first color film that could be user-processed to the American market. However, all of the material went towards governmental uses and was not available to the general consumer. Later this same year, the company was put under control of the Alien Property Custodian (APC). In 1944 the name "Agfa" was dropped from the company moniker, and the company adopted a new red-white-and-blue color scheme as an attempt to Americanize the business.¹⁴⁵

Home to some of the nation's largest and most successful companies throughout the first half of the twentieth century, Broome County was a thriving national and international industrial and technological powerhouse. Affected little by the Depression due to the sheer size and magnitude of many of its industries and their savvy leadership, Broome County became a cradle for the development and refinement of new and significant technologies. The region transitioned from simply producing goods, even on a massive scale, to become a center for innovation, invention and new ideas. Stimulated by the security and strength of Broome County's industrial base, companies such as Link Aviation, IBM and Ansco were able to invent and refine new technologies and products. These companies pioneered a new wave of the Industrial Revolution, based on creative thinking and high technology. Link Aviation, IBM and Ansco helped to make products that they developed and manufactured right in Broome County household names, utilized by everyone from the children, adults, military personnel, scientists, and to even astronauts.

Challenges of a Changing World (ca. 1930s – Present)

However, this golden era of industry and manufacturing in Broome County was not to last. Many of the industries and companies that had flourished in the thriving economic climate of Broome County in the early half of the twentieth century began to diminish by the late twentieth century. Several factors were responsible for the downturn in Broome County's industrial base, including changes to the transportation network, loss of jobs to overseas, new environmental and health concerns, loss of dynamic and progressive leadership, and other factors. In the second half of the twentieth century, rising production and labor costs in New York State made it more cost-effective for companies to relocate manufacturing to other regions in the U.S. such as the Southeast, or more frequently overseas to China and India where materials and wages were substantially lower. Also occurring during this era was a shift in the market, from being rooted in the U.S. Northeast cities such as New

¹⁴⁴ Browne, 10.

¹⁴⁵ Camp, "ANSCO Chronology." Also, Browne, 11-12.

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York, Boston and Philadelphia to cities in the Midwest such as Chicago and West Coast such as Los Angeles and San Francisco. The market was expanding with new developments in electronic communications such as fax machines, cellular telephones and the internet becoming increasingly utilized, creating a global economy. Broome County was not alone in being affected by these changes, as these were struggles facing many cities and communities throughout New York State in the post-World War II era. However, the county was particularly hard-hit due to how strongly industry was interwoven into the very fabric of the community. Many of these technological developments that ultimately led to its own industrial demise were pioneered right in Broome County by companies like IBM and Link Aviation. Despite these challenges, Binghamton and Broome County are making positive strides at the dawn of the twenty-first century to reclaim the area's prominence using historic preservation and heritage tourism as tools to attract new life and new vitality to the community.

Compared to many other regions, Broome County was not as hard-hit by the Great Depression, although the region was not entirely immune to the worsening economic climate in the 1930s. While some businesses in the county flourished during the Great Depression in the 1930s, still many other floundered in the difficult economic times. Juggernauts such as IBM, Ansco, and Endicott-Johnson managed to survive with minimal layoffs and downsizing, some resorting only to a reduced four-day work week, as a result of strong leadership and wise planning, and strong new companies such as Link Aviation would emerge. While these companies helped keep the economy of the county afloat in the 1930s, the effects of the Depression were not entirely unfelt. Jobs were lost in the county, and it was not uncommon for families to lose their farms to bankruptcy. The devastating floods of 1935 and 1936 caused millions of dollars of damage to businesses and homes, putting a further strain on residents. However, people continued to need shoes, and the government made large contracts for time keeping machines, putting Broome County in a relatively stable economic position in the 1930s and into the 1940s.¹⁴⁶

During World War II, many of the region's companies were put to work manufacturing for the war effort. As noted, Ansco was transitioned to produce optical equipment during the war, and the Link Aviation company provided a stock of flight simulators for use in the war effort. As they had during World War I, Endicott-Johnson served as a primary supplier of footwear for the U.S. Military during the war, producing over 25 million pairs of rugged boots for the effort. However, after the war many of these lucrative government contracts ended, and companies returned to their normal manufacturing, leading to economic struggle once again.¹⁴⁷

One of the most dramatic changes that swept the nation in the years after World War II was the growing use of automobiles and trucks. As automobiles became more prevalent in the post-war era, the use of automobiles had a wide-ranging and significant impact in Broome County. The Interstate Highway System, authorized in 1956, accommodated the growing demands of the automobile age for smooth, well-paved roads that provided new and more direct connections between major cities. Numerous highway improvement programs were initiated nationwide between the 1950s and the 1970s, including in New York State with the construction of the I-90 Governor Thomas E. Dewey Thruway in the 1950s. In Broome County, NY 17 (Southern Tier Expressway, future I-86) had initially been improved as an at-grade highway in the 1920s, and was substantially expanded to serve as a primary artery in the 1970s. In the early 1960s, I-81 replaced the previous US 11 as the county's primary north-

¹⁴⁶ Bishop, Margaret, and Jeffery Slack. *Reconnaissance Level Survey of Local Historic Resources*. Rep. Vol. I. Binghamton, NY: City of Binghamton, Aug 1991: 58. Also, Gerald R. Smith, 157.

¹⁴⁷ Aswad, Ed, and Suzanne Meredith. *Endicott-Johnson*. Charleston, SC: Arcadia, 2003: 89.

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south highway, and the construction of I-88 in the 1970s and 80s linked Broome County to Albany and the capital region.¹⁴⁸ This gave rise to much of the region's shipping taking place with tractor trailers and trucks, and the importance of the rail lines, and Broome County's role as a railroad hub, were diminished.¹⁴⁹

Transportation had always played a critical role in Broome County's identity, from early water routes giving rise to the pioneer logging and mill industries, to the county's role as a railroad hub in the later nineteenth century. However, this network of large, high-volume highways had negative effects on the Broome County community. These new highways opened up access to new areas outside of the dense urban core near Binghamton, Johnson City and Endicott, allowing residents to move to new areas. These new areas were not previously convenient for residential use due to their relative remoteness from the jobs in the urban centers. With the growth of automobile use, however, people were freed from relying on rail lines and streetcars for much of their transportation, giving rise to suburban growth in places such as Vestal, Chenango and Union. These new controlled-entrance highways largely bypassed many of Broome County's traditional business centers, rendering it increasingly difficult to effectively sell goods at retail stores as customers were able to drive right on past. This resulted in new patterns in retail development, primarily shopping plazas and malls, which developed near these new suburbs, stripping traditional downtown commercial areas of businesses. In 1961 an area along the Chenango River known as the Stow Flats in Binghamton (north of the city's downtown, on State Street near Chenango Street) was infilled and the Binghamton Plaza was built. Also in the 1960s, the development of the NY 434 (Vestal Parkway), running along the south bank of the Susquehanna River just south of Binghamton, would increasingly develop as an automobile-centric commercial core of shopping plazas and strip malls.¹⁵⁰ In 1975 the area's first indoor shopping mall, the Oakdale Mall, was built in Johnson City, offering another auto-centric shopping destination just off of the NY 17 highway. As for industry, it now became more desirable to be located convenient to a highway as tractor trailers and trucks now brought in raw materials and shipped finished goods. Industry was freed from relying on rail lines, and had more flexibility in where they could locate. This led to the creation of the business park, an isolated island of business or industry, surrounded by parking lots, and often located in suburban outlying areas.¹⁵¹ A trend occurring throughout the country at the time, the nation's improved highway network also served to funnel business, residents and industry out of the older cities and into outlying regions.

As the urban centers shrank in terms of population and businesses, many of the older buildings became vacant and deteriorated in the 1960s and 1970s. Simultaneously, a new federal policy of "urban renewal" was sweeping through cities across the country, most in similar situations as Broome County. In this era of urban renewal, federal and state monies were allocated to demolish these vacant properties, in hopes of preparing areas for new development. The sense was that these old buildings were no longer useful, and actually detrimental to the city fabric, and replacing them with new, modern buildings would spur new growth and development in blighted areas. These demolitions also helped to accommodate the new highway infrastructure, such as on-ramps and exits. Entire historic streets could be demolished to make way for the new highways. In

¹⁴⁸ Bishop, 58-59. Also, Gerald R. Smith, 195.

¹⁴⁹ Rail traffic had diminished to such an extent by the early 1980s that author Laurence Bothwell noted that "[as] a result of the transportation revolution, no passenger trains have traveled through the county since the mid-1960s, and New York State has recently had to sue Conrail to ensure at least six freight trains per day serve the region." Bothwell, 101.

¹⁵⁰ Gerald R. Smith, 195. Also Bishop, 58.

¹⁵¹ An excellent and largely intact example of a 1960s industrial park would be that of T.C.M.F Metal Fabricators, located at 29 Industrial Park Rd S in the town of Fenton, which was built in 1969.

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the city of Binghamton, the Downtown Urban Renewal Project 1 was initiated beginning in 1964, with a second phase started in 1966.¹⁵² Other projects more directly reflected the growing dominance of the automobile. One example is the demolition of several historic commercial buildings along Water Street, including the former home of the Bundy Manufacturing Company and Link Piano Company at 183-185 Water Street, were demolished for the construction of a new, multi-level parking ramp in the 1970s. During the late 1960s, a new centralized downtown governmental center was envisioned for the city of Binghamton. This was eventually realized with the construction of the sprawling Brutalist-styled \$34 million Government Complex, built between 1969 and 1973 in a large area on Hawley Street which had been cleared of historic fabric, to accommodate city, county and state offices.¹⁵³ While urban renewal did have some benefits for the urban core, notably a renewed focus on outdoor public spaces and parks such as the Martin Luther King, Jr. Promenade along the Chenango River or Confluence Park in Binghamton, many of the sites of demolished buildings remained as empty holes in the landscape.¹⁵⁴

During this era, the old stalwarts of Broome County's industrial economy also began to falter. Ansco was perhaps one of the first of the county's large companies to struggle in the post-war age. Under government control during World War II, the company stagnated. Ansco returned to manufacturing amateur cameras and films in 1945, updating versions of its cameras that it offered before the war while introducing several new models. However, the company was beset with internal discord. Under government control, leadership appointments were awarded based on political connections and influence rather than on merit, and the company went through a string of directors. A growing sign of the times, Ansco cameras increasingly were made overseas in places like Germany, Japan and Hong Kong, and were of average quality. It was not until 1965 that the company was relinquished from governmental control, being taken over by General Aniline & Film Company (GAF) in 1967.¹⁵⁵

As GAF, the company moved forward into a rather successful few years in the late 1960s. Among the company's later achievements were the introduction of a super fast color films, including Super Anscochrome and later Anscochrome 500. In the late 1960s, GAF acquired the patent to manufacture View-Master 3-D viewers, a popular toy for children which contained film images on a disk used by a special viewer. GAF film was also designated as the official film of Disneyland. However the company's most prestigious association of the era is that GAF film was used to capture the first color images of Earth from outer space, and was widely used by the space program. Astronauts John Glenn, Alan Shepard and others used GAF film and cameras that were specially designed for use in space.¹⁵⁶

Despite these new and remarkable achievements in film, several factors beginning in the 1970s made it increasingly difficult for GAF to compete in the market. In this decade, GAF sold its photographic division, splitting it into two divisions. By the 1980s it became increasingly difficult for GAF to compete with the Kodak company's hold on the film industry, and in 1981 the Binghamton GAF plant was purchased by Andlinger & Company. The company was split into to units, one of which was the Ozalid company. The other company was the Anitec Image Corporation, which maintained the production of photographic film and paper.

¹⁵² Binghamton Centennial Corporation. *Binghamton Centennial, 1867-1967*. [Binghamton, N.Y.]: Binghamton Centennial, 1967, np.

¹⁵³ Bothwell, 100.

¹⁵⁴ Gerald R. Smith, 203,206.

¹⁵⁵ Camp, "ANSCO Chronology." Also, Browne, 12.

¹⁵⁶ Browne, 12. Also, Camp, "ANSCO Chronology."

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As Anitec the company continued operations for over a decade, although in 1998 the company was purchased by International Paper, a division of the Eastman Kodak Company. Only 40 days following the purchase, International Paper announced the closure of the Binghamton factory.¹⁵⁷ In 2000, Brandenburg Industrial Services Co. from Chicago was tasked with demolishing all above and below ground structures on the Charles Street in Binghamton site, which had been home to the company since about 1900.¹⁵⁸ The former Anasco camera facility on Corliss Avenue, which dated back to the Marshall Furniture Company in the 1890s, in Johnson City was demolished beginning in 2009.¹⁵⁹

This cycle of changing ownership which devastated the Anasco camera company, ultimately leading to its demise, also struck the massive Endicott-Johnson Company. Following the death of company "father" figure George F. Johnson in 1948, the company was run by various Johnson family members for nearly a decade. By 1957, outside management was brought in to run the company but the slow decline had already begun. A continually rotating staff of vice-presidents and managers often made hasty cuts to various departments of E-J in an attempt to maximize profitability.¹⁶⁰

It was not solely the loss of a dynamic leader and visionary like George F. Johnson that hurt the company, but also a changing economy and business climate. After World War II, the market for more fashionable, light weight shoes grew, while Endicott-Johnson failed to keep pace and continued to focus on manufacturing its heavy work boots. The company also had trouble competing with cheaper foreign labor and growing overseas competition. Throughout the 1950s and 60s, cuts were made in wages and positions throughout the E-J company. In 1968 the Endicott-Johnson tanneries ceased operations in Endicott, leading to massive lay-offs for the first time in the company's history. In 1992, Endicott-Johnson sold its rubber footwear division to the Norcross company in Kentucky, shutting down its rubber footwear factories in Johnson City and eliminating over 300 jobs.¹⁶¹ After years in the continued downward spiral, in 1995 the Endicott-Johnson company was purchased by U.S. Industries, Inc, subsequently renamed EJ Footwear Corp., and the companies operations were relocated to Tennessee. Production continued in Broome County, albeit on a much reduced scale. From a high of about 30,000 workers employed during the World Wars, by the late twentieth century employment had diminished to only a few hundred people in Broome County. In 2000, EJ Footwear was bought out by the Citicorp Venture Capital Ltd. group, before being purchased again by the Rocky Shoes & Boots, Inc. company in 2004, ending operations in Broome County and putting about 100 workers out of a job. By the following year, the once-mighty Endicott-Johnson factories stood empty and silent in Endicott and Johnson City for the first time in nearly a century.¹⁶² Many of these buildings were demolished over subsequent years.

¹⁵⁷ Browne, 14.

¹⁵⁸ "PUBLIC HEALTH ASSESSMENT: ANITEC IMAGE CORPORATION BINGHAMTON, BROOME COUNTY, NEW YORK." *Public Health Assessments & Health Consultations*. Agency for Toxic Substances and Disease Registry, 20 Oct. 2009. Web. <<http://www.atsdr.cdc.gov/hac/pha/pha.asp?docid=158&pg=1>>.

¹⁵⁹ "Former Industrial Site in Endicott- Johnson Corridor to Be Demolished." *Broome County, NY*. 23 Nov. 2009. Web. 01 Dec. 2011. <<http://www.gobroomecounty.com/countyexec/former-industrial-site-endicott-johnson-corridor-be-demolished>>.

¹⁶⁰ "The Legacy of George F. Johnson and the Square Deal: NPR." *Radio Diaries*. Ed. Deborah George. NPR: National Public Radio, 10 Dec. 2010. Web. 30 Nov. 2011. <<http://www.npr.org/2010/12/01/131725100/the-legacy-of-george-f-johnson-and-the-square-deal>>.

¹⁶¹ "COMPANY NEWS; ENDICOTT JOHNSON TO SELL UNIT TO NORCROSS FOOTWEAR." *New York Times* 4 Aug. 1992: D4. Print.

¹⁶² Doll, Michael. "BINGHAMTON RODE EJ FOR A LONG TIME." *Post-Standard* [Syracuse, NY] 10 Feb. 2005: A10. *New York State Newspapers*. Web. <http://go.galegroup.com/ps/i.do?id=GALE%7CA128407122&v=2.1&u=nysl_we_becpl&it=r&p=SPN.SP01&sw=w>.

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Broome County also suffered the decline of technology giant IBM's presence during the late twentieth century. In 1952, Thomas J. Watson, Jr. succeeded his father as company president, becoming IBM's second president. Like his father, Thomas Jr. also was a successful leader for the company, ushering it into the modern era of mainframe computers rather than the antiquated punch card technology of his father's era. While the company continued to be a major global force in computer and software technology during the mid-twentieth century, its location in Endicott had become just one of numerous facilities located around the world. In the late twentieth century, IBM began selling off some of its component companies, in an attempt to streamline and maximize profitability for the company. In 1994 the IBM facility in nearby Owego was sold to the Loral Corporation, who subsequently merged with Martin Marietta (now part of Lockheed Martin). By 2004, all of the IBM properties in Broome County were sold, although the company continued to rent space at the Endicott plant.¹⁶³ In 2005, the company noted they operated a "diverse location" housing more than ten IBM units, including IBM Banks Manufacturing, IBM eServer Development, and the IBM Printing Systems Division, employing over 1,600 employees.¹⁶⁴ This was down substantially from a figure of around 9,500 employees in 1954 during the Cold War-era technology boom, and 6,000 employees at the plant in 1974.¹⁶⁵ However, by the twenty-first century, the role of IBM, and its affect on the daily lives of its employees and Endicott residents, was dramatically diminished.

Also occurring in the second half of the twentieth century was a growing awareness and concern for the environmental impact of Broome County's many factories and industries. These new health and environmental concerns shifted peoples' perception of industry from the paternalistic benefactor integrated into the community to become viewed as a dangerous and despised force to be avoided. In the wake of environmental disasters, such as Love Canal in Niagara Falls, NY which emerged as a public health and environmental crisis in the late 1970s, increasing attention focused on the potential hazards posed by the proximity and exposure to the hazardous chemicals used and emitted by industrial facilities. In the late decades of the twentieth century new information emerged in Broome County regarding the environmental impact of its once-thriving industries. In the 1990s a hazardous waste leak was detected at the Anitec/Ansco Charles Street plant, as gas from toxic chemicals including methylene chloride was detected. Complaints of soot also became increasingly prevalent from neighboring property owners. As a result of growing concerns, Anitec was mandated by the state to undergo a six-year cleanup and remediation beginning in 1992.¹⁶⁶

Concerns were also raised by those living near Endicott-Johnson's massive factory complexes. Chemicals used during the tanning process were known to be highly carcinogenic, and between 1976 and 1980 the Broome County Health Department and the New York State Department of Health conducted a study of cancer incidences among residents of several communities in Broome County. Their findings indicated a high rate of leukemia among males in the village of Endicott, many of whom had ties to boot and shoe making. Additional

¹⁶³ Aswad, Ed, and Suzanne Meredith. *IBM in Endicott*, 9-12,

¹⁶⁴ "Endicott Chronology 1991-2005." *IBM Archives*. Web. 1 Dec. 2011. <http://www-03.ibm.com/ibm/history/exhibits/endicott/endicott_chronology1990.html>.

¹⁶⁵ "Endicott Chronology 1951-1959." Also "Endicott Chronology 1971-1979." *IBM Archives*. Web. 30 Nov. 2011. <http://www-03.ibm.com/ibm/history/exhibits/endicott/endicott_chronology1970.html>.

¹⁶⁶ Browne, 14.

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studies in 2004 also seemed to support the link between leukemia occurrences and the Endicott-Johnson company.¹⁶⁷

Perhaps the more serious and widespread environmental concerns involved the IBM company at their site in Endicott. For over twenty years, IBM used a liquid cleaning agent in manufacturing its circuit boards, with several spills and leaks documented, pumping out over 78,000 gallons of toxic chemicals such as trichloroethane (TCE), Freon, and benzene. One of these leaks in 1979 issued over 4,000 gallons from a subterranean tank, leaching volatile organic compounds (VOCs) into the town's soil and aquifer. This contaminated water migrated beyond the spill area, seeping beneath area homes and businesses. Known as "the plume," this spill had perhaps the most dramatic impact on the Endicott community. Venting systems were installed by IBM, dotting the yards and houses in the neighborhood, in an attempt to safely release the underground chemicals. Residents in the area noted especially high rates of cancer and illness, even high among children and those who seemed to have no other cause. In 2004 the site was classified by the New York State Department of Environmental Conservation (DEC) as a class 2 Superfund site as a result of new information on ground water contamination and soil vapor intrusion above the groundwater plume. A class 2 site is one where hazardous waste constitutes a significant threat to the public health or environment. As a result of these findings, the DEC and IBM entered into an agreement requiring IBM to investigate and remediate the contamination in Endicott and in the town of Union. Since then, the level of VOCs has been reduced in the groundwater, although work continues in the remediation.¹⁶⁸ However, the damage has been done as many houses have been abandoned and demolished, and many storefronts on the once-bustling main commercial thoroughfare of Washington Avenue remain vacant.

The late twentieth century also ushered in increasing globalization and interdependence of national economies. One cause of this was the relaxing of trade tariffs and agreements coupled with the increased industrialization of foreign countries. Traditionally in the nineteenth and early twentieth century, the U.S. national economy was largely self-reliant, providing its own raw materials to be used in its factories, while exporting surplus goods for sale in other countries. Manufacturing was accomplished by American workers in American-based factories. However, as countries such as Japan, West Germany, India and China realized significant industrial growth in the late decades of the twentieth century, their dramatically lower wages and fewer regulations and controls made them increasingly competitive with American companies. While labor strikes and unions had created better workplaces with higher wages in the U.S. during the early and mid-twentieth century, rising labor costs and lowered productivity made it difficult for New York manufacturing to compete with the emerging Southern states and foreign locations. Several new trade agreements were also passed during this era, such as the North American Free Trade Agreement (NAFTA), passed in 1994, which largely eliminated tariffs between the U.S., Canada and Mexico. As a result of these new trade agreements and the growing industrialization of foreign countries, many American companies decided to move operations from the U.S. as it was less expensive to conduct their business.

Another cause of the increased globalization of the world economy stemmed from the rapid growth of technology, computers and electronic communications, creating the "Digital Age" in the late twentieth century.

¹⁶⁷ Forand, Steven P. "Leukaemia Incidence among Workers in the Shoe and Boot Manufacturing Industry: a Case-control Study." *Environmental Health*. BioMed Central Ltd, 30 Aug. 2004. Web. 01 Dec. 2011. <<http://www.ehjournal.net/content/3/1/7>>.

¹⁶⁸ "IBM Corporation - Endicott." US Environmental Protection Agency, 9 Dec. 2010. Web. 01 Dec. 2011. <<http://www.epa.gov/region2/waste/fsibmend.htm>>.

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The invention of the personal computer revolutionized communication and data transfer, as smaller, more affordable computers could be used by small businesses and personal users. This led to the rapid development and widespread use of other technological developments including cellular telephones, the internet and wireless networking. These inventions revolutionized communications, making it cheap and easy to communicate ideas and conduct business across the globe. Aided by this improved communication network, businesses could move one component of the company, such as production, to another location or country, while the company's headquarters and executives remained in an entirely different place. Interestingly, many of these technological developments that changed the way the world works and lives occurred right in Broome County. Companies such as IBM, who developed the first practical personal computer, were a significant part of life in Endicott for over a century. Similarly, Link Aviation's technologies made flying safer and more affordable, shrinking travel times world-wide. Finally, the digital age made photo film all but obsolete. Broome County industries that had located and grown in the level water course and later railroad flatlands between the hills became obsolete as the entire world became "flat" through modern technology and the ability to source raw materials, labor, capital and ideas nearly anywhere in the world. It is interesting to note that the very technological developments such as computers that supported so much growth and prosperity in Broome County, eventually led to the demise of manufacturing companies in the area, as technology "outgrew" the region.

The loss of thousands of jobs and the closure of many of the region's largest employers toward the end of the twentieth century, coupled with the growth of the automobile and highway system, had a dramatic impact on the population of Broome County. The county population fell only slightly from a high in 1960 of 212,661 residents to just over 200,000 in 2010. However, the more dramatic impact of the population shifts was apparent in the city of Binghamton, as the population dropped from 80,674 in 1950 to 47,376 residents in 2010, a nearly 50% loss.¹⁶⁹ As the county population remained fairly steady during this span, this loss of population in the urban centers is indicative of the trend of residents relocating from the city into newly suburban areas, aided by the development of the highway system and the freedom of automobile transportation. The days of living in a planned factory town such as Lestershire or Endicott, living a stone's throw away from your livelihood, had ended.

Despite the loss of population and jobs, Broome County is now in the process of reinventing itself. While many historic buildings including factory buildings were lost in the 1960s and 70s during urban renewal, efforts to preserve and protect the remaining historic and architectural legacy of the region are also gaining momentum. Today, relatively few examples of Broome County's once-thriving industrial heritage remain, especially those from the early nineteenth century. The majority of extant industrial resources date to the late nineteenth century, with many resources dating to the twentieth century. This is likely partially due to the natural course of demolishing and rebuilding industrial properties as new developments in manufacturing and architectural technology allowed. Still, many of these resources were lost in the mid- to late twentieth century, including much of the Ansco factory on Charles Street in Binghamton and several of the massive structures used by Endicott-Johnson. During the 1960s several buildings in the county were documented by the Historic American Buildings Survey (HABS) as a means of documenting and recording valuable historic properties. In 1964 Binghamton established a Committee on Architecture and Urban Design (CAUD), tasked to oversee proposals and changes to the city's valuable historic properties and provide suitable plans for their protection.¹⁷⁰ In the 1970s, the loss of notable retailers in Binghamton, such as Fowlers, Montgomery Ward, Sears and McLeans,

¹⁶⁹ Information drawn from census data at <http://www.census.gov/prod/www/abs/decennial/>

¹⁷⁰ Bishop, 64. Also Bothwell, 99.

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also brought about a greater appreciation for old buildings, as empty commercial buildings were seen as increasingly valuable in the wake of the widespread demolitions. The growing wave of patriotism around the national centennial in 1976 also helped to spur the appreciation for historic architecture, leading to the formation of the Landmark Society of Broome County in 1977 (now the Preservation Association of the Southern Tier) as a not-for-profit, citizen-led agency for preservation. Local landmark ordinances were also instituted. The 1970s and 1980s also saw the area's first historic districts established, including the locally designated Parlor City Center (Binghamton, 1978), and National Register districts including the Windsor Village Historic District (Village of Windsor, 1980), the Court Street Historic District (Binghamton, 1988), the Railroad Terminal Historic District (Binghamton, 1986), the State Street-Henry Street Historic District (Binghamton, 1986), as well as several individual listings. In addition, Historic Resources Surveys were conducted in Johnson City, the villages of Lisle and Whitney Point, and the town of Maine, further aiding in identifying significant historic resources.¹⁷¹ More recently in 2011, the Johnson City Historic District was listed on the National Register, centering around the former Lestershire community and extant Endicott-Johnson buildings in Johnson City.

In the wake of the loss and subsequent demolition of many of the county's historic industrial buildings, Broome County has designated several Brownfield Opportunity Areas (BOAs) to aid revitalization. Brownfields are abandoned or non-used industrial and commercial facilities, which may contain low level contamination, but once remediated are available for re-use. Under this program administered by the New York State Department of Environmental Conservation (DEC), financial and technical assistance are provided to municipalities. Program funding is often used to complete revitalization plans and implementation strategies for areas affected by the presence of brownfield sites, as well as site assessments for strategic sites.¹⁷² Areas such as the Endicott-Johnson Brownfield Opportunity Area and the Brandywine Corridor Brownfield Opportunity Area have been designated to rehabilitate buildings in the areas and stimulate new growth and development.¹⁷³ The listing on the State and National Registers of many buildings within the Endicott-Johnson BOA in the Johnson City Historic District may also help to attract new investment, as these properties also qualify for grants, historic preservation tax credits and other funding.

Broome County has a two century history of industrial growth and development, and has played a unique and surprising role in shaping the growth and prosperity of locally, nationally and internationally significant companies, as well as that of our nation. From the early forest industries of the late eighteenth and early nineteenth century, industry has long played a critical role as the backbone of Broome County's economy. The rise of a wide variety of industries during the second part of the nineteenth century also spurred new growth and attracted new residents to the region. As home to some of the nation's largest and most prominent manufacturers including Endicott-Johnson, Broome County became known as the "Valley of Opportunity" due to pioneering new factory town development and the abundance of jobs with ample benefits. As industry shifted into the technology age in the twentieth century, Broome County's industries kept pace. Internationally prominent companies such as International Business Machine (IBM) and Ansco not only made Broome County a national and international center for computer and technology innovation, but took the influence of the region

¹⁷¹ Bishop, 64-65. Also, Bothwell, 99-100.

¹⁷² For more information on BOAs, visit "Brownfield Opportunity Areas Program - NYS Dept. of Environmental Conservation." *New York State Department of Environmental Conservation*. Web. 01 Dec. 2011. <<http://www.dec.ny.gov/chemical/8447.html>>.

¹⁷³ "Current Projects." *Broome County, NY*. Official County Government Site of Broome County, New York., 2010. Web. 01 Dec. 2011. <<http://www.gobroomecounty.com/planning/current-projects>>.

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beyond this planet to the moon. Although, like many areas in New York State, a changing economy has shuttered many of the county's dominant large scale companies, Broome County has turned towards embracing its proud industrial and manufacturing heritage through historic preservation and heritage tourism, with the recognition of the cultural and environmental benefits of re-using old buildings, living downtown, and restoring the core. Today, the region is poised to once again use industry in the form of industrial heritage to spur new growth and development in the "Valley of Opportunity." These rare, remaining industrial resources are even more valuable for the fact that we are not likely to see again the incredible circumstances that lead to their construction.

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F. ASSOCIATED PROPERTY TYPES

INDUSTRIAL ARCHITECTURE¹⁷⁴

Industrial architecture is a broad category of building types which includes many types of buildings and structures which serve or once served as factories, manufacturing plants, machine shops and related functions involved in making things. New York State passed a law on factory regulation in 1914 which defined a “factory” as any place where goods or products were manufactured or repaired, cleaned or sorted. The term “factory” is a broad, universal twentieth-century term describing all industrial buildings, and is an abbreviation of the term “manufactory.”¹⁷⁵ Buildings such as mills, workshops, manufacturing businesses and all associated buildings, sheds and structures were included in this definition. The term factory can be used to describe a single building or to an entire facility composed of any number of structures, and the term is synonymous for industrial architecture.¹⁷⁶

Industrial buildings, unlike commercial and residential buildings, are generally not constructed with aesthetics as the primary focus; typically these buildings feature simple, utilitarian designs based on function and the needs dictated by the interior production. These are buildings constructed to enclose and shelter a process and function, rather than buildings which create and shape a sense of place. In some instances in the nineteenth century a manufacturing facility, generally what we would consider light manufacturing today, could be housed on a ground level of a building, and the owner to reside above. Also common was the combination of production with retail, combining manufacturing and commercial functions within one building or even one space, depending on the industry.

Industrial buildings of the nineteenth century relied on the natural elements for interior illumination, ventilation and even for the power to drive the belts and shafts which in turn operated machinery. Because these early factory buildings relied on natural light in an age before gas and electric lighting, early industrial buildings are scaled to the light. As a result, these buildings typically featured numerous window openings, and their characteristically long, narrow design allowed for interior machinery and workspace to be located in close proximity to the windows. As we see in Broome County, reliance on water power became an important early factor in determining where industry was established, as water became a critical power source for driving mills and machinery, as well as for the transport of raw materials and finished goods.

Industrial buildings, unlike commercial and residential buildings, were constructed as needed, with their design dictated by the interior functions and use. As a result, as the process changed, machinery was added or the factory wished to increase its output, industrial buildings are often constructed in phases, with additions added as need dictated. As a result of the rapid developments and changes in machinery and equipment that were

¹⁷⁴ Much of this discussion on industrial architectural types comes from Betsy Bradley’s excellent resource, *The Works: The Industrial Architecture of the United States*. This work is one of the few scholarly discussions on industrial buildings as architecture, despite its prevalence in the built environment. The terms used to discuss industrial architecture including “industrial loft,” “store and loft,” and “production shed” come from this work, and are more thoroughly discussed in her book. They are used here to discuss the various forms of industrial architecture, which describes a buildings composition more than its ornamental or stylistic appearance, all of which were identified in Broome County.

¹⁷⁵ Betsy H. Bradley, *The Works: The Industrial Architecture of the United States* (New York: Oxford UP, 1999): 7. Prior to the twentieth century the general term “works” was widely used to describe a factory.

¹⁷⁶ Bradley, 7-8.

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occurring during the late nineteenth century “Industrial Revolution” era, many industrial buildings were specifically designed as generic, flexible open containers, with as few interior partitions and columns as structurally possible. Industrial buildings were generally not thought of as true “architecture” in the nineteenth century, and in fact many architects lacked interest in industrial architecture due to the financial and economic limitations and a belief in the lack of artistic possibilities with their design. It was not uncommon in the nineteenth century for factory owners to design and construct their own factories. Factory design was often a mix of common empirical engineering with engineering based on rationalized, technological planning. However, prior to the development of specialized engineers or architects, early factory design also involved a bit of luck and trial-and-error by builders and craftspeople. As a result, most nineteenth century industrial buildings were designed collaborations between industrialists, engineers, local carpenters and builders, and mill builders.¹⁷⁷

Fires were a major concern for nineteenth-century industrial buildings, which often contained heated boilers to drive machinery, gas lighting, and volatile compounds. As a result, many industrial buildings were constructed utilizing the most fire resistant materials available at the time. Generally speaking, early on in a community’s history, industrial buildings were generally designed with wood construction which proved to be highly susceptible to fire, but was affordable and could be rapidly constructed with available materials. Wood was soon replaced by brick masonry construction which proved to be more resistant to fire, however floor joists and structural columns were still constructed of wood members which, when damaged by fire, could still lead to collapse. Devising a construction method to render industrial buildings resistant to fire damage, and also provide a surface that could be more hygienically cleaned from the various debris and chemicals utilized in many industrial operations, proved to be the driving forces behind the development of industrial architecture into the twentieth century.

One of the most successful materials utilized in factory construction, beginning largely after the turn of the twentieth century, was reinforced concrete. Reinforced concrete building technology used in industrial structures at the dawn of the twentieth century became a pioneering modern system which provided many benefits over its solid composition, ordinary masonry counterparts. The work of Albert Kahn at the former Packard automobile plant in Detroit, Michigan, built in 1903, was a landmark achievement in using reinforced concrete in industrial buildings. This construction system became increasingly common in the 1910s and 1920s, eventually supplanting the older load-bearing brick and heavy timber constructed industrial buildings common in the nineteenth century and into the early twentieth century. Reinforced concrete greatly improved a building’s resistance to fire, which made it an early favorite for use in industrial and manufacturing buildings. Along with other technologies created at the time, such as elevators and electrical systems, the concrete structural frame system also allowed for the development of increasingly taller buildings. Reinforced concrete also increased the load bearing capacity of factory buildings, especially critical for factories which increasingly relied on large and heavy machinery. Reinforced concrete skeletons, with their regularly spaced cage-like systems of columns, allowed an interior which could be left as a large open space or partitioned into spaces with non-permanent, non-structural walls. Similarly on the exterior of the building, this system allowed for non-structural infill between the columns, which could be filled with large windows which were ideal for

¹⁷⁷ Bradley, 14-15.

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illuminating factory interiors. Because of its resistance, concrete surfaces could be left exposed in factories, allowing interiors to be scrubbed and washed clean.

Transportation also shaped industrial architecture, affecting not only its design but also its location. Industrial architecture often featured large openings and freight doors, later evolving into loading docks, which allowed large objects to be moved in and out of the building. Often industrial buildings also features equipment mounted to the exterior such as hoists, elevators and pulleys also used to manipulate large and/or heavy equipment. It is not uncommon to see industrial buildings and sites located along whatever the key transportation routes were at the time of their construction, be it water, over-land roads, rail lines, highways or other routes . Industrial buildings were sited along these corridors because it was easier and cheaper to obtain raw materials and was easier and faster to ship out finished products over long distances. Generally these large openings and freight docks, assisted with a hoist or elevator, abutted the transportation system, further connecting the industrial building to transportation.

As buildings designed to enclose space and accommodate the function and process within, industrial buildings typically featured flat roofs. Early, wood-framed industrial buildings would have commonly featured a gable roof, although no extant examples were located. Flat roofs had the benefit of being easier to construct than a gabled or hipped roof, and had the added benefit of extending the functionality of the industrial building. Flat roofs could be used to house water towers or tanks and chimneys leading from the numerous boilers and furnaces within. As a result, these objects became symbols of industry on the skyline. If domes represented civic architecture, spires marked religious structures, and gables were hallmarks of residential architecture, the water tank and chimney became synonymous with industry and manufacturing.

While industrial architecture varies widely, due to its construction based on utility, function and also its setting rather than on aesthetics, a general typology of industrial buildings can be discerned. One of the most common industrial building types is the **Industrial Loft**. This type of building is sometimes known as a *mill*, however the term has connotations specifically with industries such as flour milling or textile mills, and is more broadly found used for many industrial purposes.¹⁷⁸ Industrial lofts were widely used in the nineteenth century and into the twentieth century, and were characterized by having more than two stories where circulation and service areas were centralized to minimize their intrusion into the work space. Elevators providing vertical transportation of goods and workers were a key component of the industrial loft. Industrial lofts were a sort of generic, blank slate and were not usually tailored to the needs of a specific industrial function. This type of open, box-like space could be adapted to a wide variety of functions and industries.

During the nineteenth century, industrial loft buildings were typically constructed of brick or stone masonry for their fire resistance, often with an interior structure of wood framing. Wood framed industrial loft buildings were also not uncommon. Later in the century the use of iron or steel framing became more popular. Industrial

¹⁷⁸ Bradley notes that the use of the term *mill* is not appropriate as a general term in her opinion, due to its specific connotations with specialized industries, primarily grain milling and textile milling. She notes on page 30, “the term *loft* was revived during the late nineteenth century to refer to multistory manufacturing buildings erected in urban areas to house several commercial or industrial tenants. The term *industrial loft*, rather than *mill*, best denotes a general building type, the multistory industrial building. Within this category, both the urban store and loft and the textile mill became standards that were replicated widely.” For more information, refer to Bradley, 29-30.

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lofts typically featured numerous windows, allowing for interior illumination and ventilation, and sometimes skylights to illuminate upper floors. Exterior features could consist of external fire escapes and ladders, loading bays (sometimes raised or covered), hoists and other functional features. Flat roofs were popular, and could be used to accommodate water tanks and elevator penthouses. Depending on the use and the size of the operation, industrial loft buildings could be constructed as a single building or used as a part of a complex of industrial buildings each possibly serving a unique function.

There are a wide variety of buildings which fall into the category of industrial loft, built at different times with a variety of materials and construction methods. These would include the load-bearing masonry building at 15 Charles Street in Binghamton, built ca. 1910 for the Ansco camera company, which is constructed of brick with heavy timber framing or the load-bearing brick example located at 111-115 Montgomery Street in Binghamton, built ca. 1890 for the Binghamton Chair Company. This category would also contain many of the buildings used by the Endicott-Johnson company in the 1920s, including the reinforced concrete former Victory Factory (59 Lester Avenue, Johnson City) and the steel framed former E-J Fair Play Factory (1 Page Street North, town of Union.). Many of the former IBM factory buildings in Endicott, including 1701 North Street, 1803 North Street and 1301 Clark Street, are also good examples of reinforced concrete constructed industrial lofts from the 1940s.

One common variant of the industrial loft type is the “**store and loft**” subtype. Common in urban locations with established parcels and street patterns and for smaller businesses, the store and loft is a type of industrial loft fit to a smaller, more restricted urban parcel, where the ground level could house functions such as a tavern, retail space, warehouse or workshops. Upper levels may accommodate storage and production spaces. In some cases, light manufacturing might be accomplished on the ground floor accompanied in some cases by a commercial operation, and the business owner would have his residence on an upper floor. This type of building could resemble typical 2-story residential architecture or even larger multi-story commercial architecture in its general construction and appearance. An excellent example of a store and loft type of industrial loft is the former Hull, Grummond & Co. Cigar Factory, located at 218 Water Street in the city of Binghamton. Both the 1886 and 1906 portions contact a commercial or retail ground level with upper floors that once housed the cigar manufacturing. Other examples include the buildings at 122 and 129 Park Avenue in Binghamton, which also feature a commercial ground level with work spaces on upper floors.

Another common industrial building type is the **Production Shed**. Sometimes known as “shops,” the production shed is a type more specifically engineered for a manufacturing purpose through the careful design of its framing, walls, and roof. This type of industrial building could be one-story in height, and is generally rectilinear in form of any width and length demanded by the process within. Interior spaces generally contained wide-set, open bays with high ceilings. The construction of the buildings were typically reinforced to withstand the massive cranes and machinery mounted to the walls and ceilings used for the manufacturing processes. Whereas elevators were the primary means of vertically transporting materials inside Industrial Lofts, overhead cranes became critical for laterally moving materials inside the Production Shed. A good example of a production shed can be found at the industrial complex at 26 Nowlan Road in the town of Fenton, once used by the Hires Condensed Milk Company factory and later by Link Aviation company. This site contains two buildings which feature the characteristic gabled rectilinear form, with a raised section used for clerestory windows for light and ventilation, and used to accommodate overhead cranes and machinery.

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The production shed could be constructed of a variety of materials. Brick and stone were common materials, due to their durability, with an interior frame of wood, iron or steel. Early production sheds could be comprised of a central crane bay, flanked by a lower “lean-to” which acted as workspaces adjacent to the crane bay. A common variation of the production shed was the foundry, which utilized the crane systems to move massive ladles filled with red-hot materials, molds and heavy finished products around the factory floor.

1.) Resources Associated with the Timber/Logging Industry

I. Description

a.) Sawmills

Broome County’s earliest industry was related to the vast natural resources of timber available to the early pioneer settlers who worked to clear the land for their farms and communities. Simultaneously, these early mill buildings provided a much-needed source of building materials. Early mill construction in the United States drew from the types of mills typically found in Europe. The earliest mills were usually constructed out of logs, typical of the earliest pioneer-era structures constructed by settlers. These mills which provided a small output of lumber would eventually be replaced with more a sophisticated water mill which could produce greater quantities of usable lumber.

Sawmills were typically located in the more densely forested region of the county, especially in the eastern areas in Broome County. The multitude of small streams and rivers in these regions allowed for the establishment of many water-powered mills early in the nineteenth century which relied on waterpower for their operation. These historic early 1800s mills do not survive intact, and instead are mill sites worthy of archeological excavation. One such mill site is the Graves-Butler saw mill site in the Town of Maine, Broome County. This site was in operation sometime between 1835 until the 1880s or 1890s, and was excavated in the late 1970s.

Mills may be designed as a “horizontal mill” or as a “vertical mill.” Horizontal mills were thus named as the water wheel was placed in a tub in order to reduce the waste of water, often housed inside the mill building. As the wheel was set parallel to the ground, the term horizontal mill is used. Water was funneled through a flume to the blades of the wheel, and the force of this rushing water turned the wheel. This system was considered unsophisticated, as the machinery connected to the main shaft would turn at the same speed as the water wheel. In a vertical mill design, the water wheel was mounted on the side of the mill building, perpendicular to the ground plane with the axle mounted horizontally.¹⁷⁹

Sawmills may retain the following elements: hydraulic system, mill building, milling machinery, other milling buildings, and other related structures and buildings. The hydraulic system may consist of a mill dam, mill race, sluice box and tail race, as well as a wooden or metal water wheel. The mill building which houses and encloses

¹⁷⁹ Hazen, Theodore R. *Historically: How to Site a Mill*. 1996. Web. 17 Aug. 2011.
<<http://www.angelfire.com/journal/millrestoration/site.html>>.

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the mill operations can consist of walls, doors, foundations, interior flooring and a roof; it may be a simple, utilitarian designed shack or a more designed building, and may be totally enclosed or partially open to the elements. Milling machinery could include the saw blade (known as a head saw, head rig or primary saw) and a water wheel. A mill may also have a resaw or a gang edger which further cut the lumber into smaller pieces. Other mill buildings on the site might be used for storage, and a mill site may have an associated support building which could consist of the mill owner's dwelling, grain mill buildings, silos, barns and other related buildings and structures. These components were not in use in every mill, but are general elements of a sawmill building. In some cases, the remains of a mill race and dam may lie undisturbed, and should be included as a contributing resource. The remains may consist of an earthen ditch leading from the watercourse to the mill, and returning to the watercourse. If it survives, the millrace would likely be overgrown with vegetation and refuse, and difficult to discern.

II. Significance

Extant sawmills and timber related resources are eligible under Criterion A in the area of industry, for their associations with a locally significant industry. They may also be eligible under Criterion C in the area of architecture as representative of a factory construction technique or architectural style utilized for their construction or in the area of engineering for representing machinery in use during the nineteenth and early twentieth centuries. Sawmills and related timber resources may potentially be eligible under Criterion B if they can be directly associated with an individual who contributed to the development of the timber or related industries in Broome County or the Southern Tier region. Identified former millsites may also be eligible under Criterion D for their archeological significance as sites that may be likely to yield information important in history.

These sawmills and timber sites were the earliest means of economic growth in pioneer-era Broome County. They represent the fulfillment of the earliest needs of the settlers of the area, that of shelter, and resulted from the excess of lumber which resulted from the rapid clearing of land to create suitable agricultural lands.

III. Registration Requirements

Broome County contains several identified resources associated with the timber and logging industries. Due to the relative remoteness of early saw mills and their potential locations on private property, additional mill sites and archeological sites associated with the logging and timber trades may be identified in the future. Eligible resources must have a documented association with the timber/logging industry. The resource must be located within the defined boundaries of Broome County (as defined in Section G); timber and logging resources must be directly associated with a significant historical context (as described in Section E); must be 50 years of age or older; and must display the distinctive features characteristic of the period of construction. The continued use of a mill or factory may have resulted in changes or adaptations to the resource, and it need not still function as a mill if the physical integrity is largely intact. A mill may still be eligible if its original power source has changed, for instance from waterpower to steam or electric power, as mills were routinely upgraded and retrofitted with new machinery and equipment as technology developed. Individual properties must also meet at least one of the National Register Criteria in order to be included under the MPDF. If a factory is eligible under Criterion C for architecture it must retain a sufficient portion of original architectural fabric to illustrate the

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design, layout, materials and other elements that represent industrial architecture. If a property is to be eligible under Criterion C for engineering it must retain a sufficient portion of its characteristic machinery to represent the process. Mills and factories may also have additions which reflect the growth of the enterprise, and still be eligible so long as the design of the original structure is still evident and the feeling of the original resource is also present.

Buildings which substantially retain integrity of form, detailing and an overall historic appearance to their exterior may qualify as contributing components in the context of the potential historic areas. Industrial architecture which retains significant historical associations and/or architectural distinction, and which retains integrity of architecture, construction, form, materials and detailing, satisfy the requirements for individual listing. Related groups or series of resources may have the potential to become historic sites or districts within Broome County.

2.) Resources Associated with the Cigar Industry

I. Description

a.) Cigar Manufacturing Resources

Broome County became in the later half of the nineteenth century a center for cigar manufacturing in the United States. The industry emerged rather quickly, from its humble start with three or four factories identified in 1850 growing to become the second largest cigar manufacturing city (after New York City) in the United States by the 1870s. Broome County, and especially the urban center of Binghamton, were ideally located for the cigar manufacturing industry, as the county was near the tobacco fields of New York and Pennsylvania, and also had excellent connection by rail to many other cities across the region. In New York City, cigar production was housed in many small shops, employing fewer than a dozen workers each. In Broome County, especially Binghamton, cigar manufacturing was primarily in large-scale factories which employed over one hundred workers. Even though New York City's output of cigars was greater, Binghamton's cigar firms employed a larger number of workers with a larger amount of capital than those in New York City.

As the majority of cigar manufacturing was done by hand, with no special machinery or equipment used in production, extant buildings constructed to house cigar manufacturing are varied in their construction, size, materials and appearance. After 1870, molds and forms were introduced to the industry, but still cigar making machinery was of a relatively small size without special requirements.

Cigar factories could be smaller "store and loft" types of buildings, with production and/or retail space located on the ground level and storage, production or other functions located on upper floors. These types of factories often utilized the same construction methods, architectural styles and materials as residential or commercial architecture of the same era, and were well suited for dense, urban environments. Cigar factories in Broome County also took the form of the industrial loft type building, such as that of the building located at 1 North Depot Street in Binghamton (ca. 1876-1885). A more high-style example of an industrial loft given an Italianate treatment is the former Hull, Grummond & Co. cigar factory building at 218 Water Street (1886) and its adjacent Neoclassical addition (1906). Still later, into the 1920s cigar factories constructed during the waning

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years of the industry in Broome County drew from the standard industrial materials and construction methods of the time, featuring steel framed industrial loft construction often with circulation towers at the corners of the rectilinear building. An excellent example of this type is the former General Cigar Factory located at 16 Emma Street in Binghamton (1927).

Photographs inside cigar factories during the late nineteenth and early twentieth centuries show that workers sat at tables or workbenches, often set in rows, and worked with small-scale tools and equipment at their bench. Cigar manufacturing machinery did not dominate the industry until after World War I, when automated machines drawing from the designs of cigarette making equipment were put into use. These free-standing, relatively small machines, operated by four women, could be installed in preexisting factories as they were roughly the same size as the hand rolling workbenches.

b.) Industries related to cigar manufacturing

With the success of the thriving cigar manufacturing industry during the late 1800s, other related industries emerged in Broome County including cigar box manufacturing and lithographic printers. Cigar boxes were an important advertising and marketing device, which feature colorful graphics and images printed on paper and pasted onto a wood, paper or cardboard box used to hold cigars for storage, transport, sale and display. While a rolled brown cigar may not vary much in its appearance from maker to maker, cigar boxes became a colorful and successful way of marketing a brand of cigar. In the typical small shops of the age, cigar box labels became the only means of advertising an individual brand of cigar, and even the smallest shop could carry one hundred different varieties or brands. Cigar box artwork typically featured brightly colored animals, exotic images, attractive women, patriotic symbols or other enticing images, and names such as “Uncle Sam,” “Ankara” and “White Orchid” were aimed at appealing to customers.

The popularity of cigar boxes reached its height between the 1880s and the 1920s, coinciding with the golden age of the cigar industry in Broome County. Lithography became the standard printing method for designing the colorful paper box labels, and the process was truly an art form. Lithography is a printing method utilizing metal plates or flat stones, with a design etched using acid. Designed by artists, each label involved several (sometimes as many as twenty) different plates, each designed to print a separate color. This process created a richly detailed image, often resembling an oil painting, which could be embossed and gilded to add further interest to the design. The result was a stunning and attracting image and one of the origins of today’s graphic design and packaging design industries.

While this industry never reached the same scale as the cigar making industry, with only about six known cigar box manufacturing entities in existence, factories dedicated to producing cigar boxes were an important support industry for the thriving nineteenth century Broome County economy. These industries may be housed in a variety of different industrial buildings, including the “shop and loft” variety or the industrial loft, and may be constructed of wood, masonry, reinforced concrete or any other material. Depending on the type of production of the cigar boxes, factories may include planing machinery (for wood boxes), cutting tools, pasting and gluing machinery and other types of equipment. Factories involved with the labeling industry may be fitted with lithographic presses, etching tables and equipment, steam-driven printing presses (a later development), cutting machinery and other types of related machinery and apparatus.

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II. Significance

Extant cigar factories and related resources are eligible under Criterion A in the area of industry, for their associations with a locally significant industry. They may also be eligible under Criterion C in the area of architecture as representative of a factory construction technique or architectural style utilized for their construction. Broome County contains many extant examples of former cigar manufacturing buildings which were designed utilizing the popular designs and construction techniques of the day, including several Italianate examples. Cigar manufacturing resources and related industrial properties may potentially be eligible under Criterion B if they can be directly associated with an individual who contributed to the development of the cigar making, cigar box making or related tobacco industries in Broome County or the Southern Tier region.

The cigar manufacturing industry dominated the Broome County economy during the late nineteenth century, and was the largest employment industry in the area at the time. As a result, the cigar industry played a significant role in the social history of Broome County. It gave employment to a significant number of women in the area, as well as children, offering families additional means of financial support. Jobs in the thriving cigar industry attracted many workers to Binghamton and Broome County which had a dramatic impact on the community, including many workers who were immigrants or first-generation Americans, and many of Irish descent. The cigar industry also became the focus of significant labor disputes, including the Cigar Strike of 1890 which was a tipping point in the county's relations between workers and management and served as a significant moment in the developing local history of labor unions.

III. Registration Requirements

Broome County contains several identified resources associated with the cigar making and related industries, including cigar box manufacturing. In order to qualify for listing the building must have a documented association with the cigar industry in Broome County. The resource must be located within the defined boundaries of Broome County (as defined in Section G); cigar manufacturing and related resources must be directly associated with a significant historical context (as described in Section E); must be 50 years of age or older; and must display the distinctive features characteristic of the period of construction. Many of these former cigar manufacturing facilities have been adapted to other uses (industrial, commercial and in some cases residential) following the demise of the cigar industry in Broome County, and this may have resulted in changes or adaptations to the resource; a resource need not still function as a cigar factory if the physical integrity is sufficiently intact. Individual properties must also meet at least one of the National Register Criteria in order to be included under the MPDF. If a factory is eligible under Criterion C for architecture it must retain a sufficient portion the original architectural fabric to illustrate the design, layout, materials and other elements that represent industrial architecture. If a cigar factory is eligible under Criterion C for engineering, it must retain a sufficient portion of its characteristic machinery to represent the process. Cigar making or related industrial buildings may also have additions which reflect the growth of the enterprise, and they may still be eligible so long as the design of the original structure, site or historic district is still evident and the feeling of the original resource is also largely present.

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Buildings which substantially retain integrity of form, detailing and an overall historic appearance to their exterior may qualify as contributing components in the context of the potential historic areas. While the cigar industry does not have a specific building type with which it is associated, general requirements included open workspaces, good ventilation, and good natural lighting. Many cigar factories were also located adjacent to or in close proximity to transportation routes, primarily railroad lines. Industrial architecture which retains significant historical associations and/or architectural distinction, and which retains integrity of architecture, construction, form, materials and detailing, satisfy the requirements for individual listing. Related groups or series of buildings may have the potential to become historic districts within Broome County.

3.) Resources Associated with the Woodworking Industry

Although the forestry industries declined rapidly after the 1850s, many workers and business leaders in the area took their experience with wood and raw lumber and translated these into a thriving woodworking industry in the second half of the nineteenth century. While much of the wood used was not local, Broome County relied on its excellent railroad network to import the raw materials. Broome County was home to many woodworking industries in the nineteenth and twentieth centuries. These businesses turned raw lumber into goods and products necessary to the daily life of residents of Broome County. This category would include sash and blind manufacturers, manufacturers of carriages and wagons, and chair and furniture factories.

Depending on when these woodworking industrial buildings were constructed, they could be housed in a variety of common industrial building types. Early in the nineteenth century, it would not be uncommon for these industries to be housed in a wood-frame building similar in design to a commercial or residential building. In more urban applications, the woodworking industry may be housed in a “store and loft” type of building.

By the later nineteenth century, industrial buildings were more commonly constructed of brick or stone for their fire resistant qualities. Typical of this type of industrial building, sometimes called “mill construction” or known as industrial lofts, was a long, rectilinear box of one or several stories, with numerous window openings to allow for interior lighting, and frequently a gabled roof, although flat roofs or roofs with monitors were also not uncommon. Heavy timber framing minimized the vibration of the machinery, however cast iron or steel structural members became more common in the late nineteenth century and into the twentieth century. Industrial buildings of this type were generally located in close proximity to transportation, especially railroad lines, as they acted as a means of receiving raw materials and conveying finished products. An excellent extant example of an industrial loft woodworking building is the former Binghamton Chair Company factory buildings, located on Montgomery Street in Binghamton (ca. 1890, see Figure B-14.)

II. Significance

Extant furniture factories and woodworking related resources are eligible under Criterion A in the area of industry, for their associations with a locally significant industry. They may also be eligible under Criterion C in the area of architecture as representative of a factory construction technique or architectural style utilized for their construction or in the area of engineering for representing machinery in use during the nineteenth and early twentieth centuries. Woodworking resources may potentially be eligible under Criterion B if they can be

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directly associated with an individual who contributed to the development of the timber, furniture or related industries in Broome County or the Southern Tier region.

Many of Broome County's citizens made their living in woodworking industries, turning the raw material into a more finished product. Wood products such as windows, doors and blinds were crucial to the construction of new houses and other buildings. Carriages and wagons provided transportation of both goods and people. Many of Broome County's most significant and influential residents owed their livelihood to the woodworking industry, including figures such as Alonzo Roberson who established the thriving Roberson Lumber Company, and Roswell J. Bump who founded the Binghamton Chair company which later relocated in a large factory complex on Montgomery Street (extant). The prominence of the Broome County woodworking industry is also underscored by the factory of Stickley & Brandt Company, opened by a brother of famed Arts and Crafts furniture maker Gustav Stickley who himself worked briefly in Binghamton with his brothers as Stickley Brothers Furniture between 1883 and 1892.¹⁸⁰

III. Registration Requirements

Broome County contains several identified resources associated with the woodworking industry. In order to qualify for listing the building must have a documented association with the woodworking industry in Broome County. The resource must be located within the defined boundaries of Broome County (as defined in Section G); woodworking resources must be directly associated with a significant historical context (as described in Section E); must be 50 years of age or older; and must display the distinctive features characteristic of the period of construction. The continued use of a factory may have resulted in changes or adaptations to the resource, and it need not still function as a woodworking factory if the physical integrity is largely intact. Individual properties must also meet at least one of the National Register Criteria in order to be included under the MPDF. If a factory is eligible under Criterion C for architecture it must retain a sufficient portion of original architectural fabric to illustrate the design, layout, materials and other elements that represent industrial architecture. If a property is to be eligible under Criterion C for engineering it must retain a sufficient portion of its characteristic machinery to represent the process. Factories may also have additions which reflect the growth of the enterprise, and still be eligible so long as the design of the original structure is still evident and the feeling of the original resource is also present.

Buildings which substantially retain integrity of form, detailing and an overall historic appearance to their exterior may qualify as contributing components in the context of the potential historic areas. While the woodworking industry does not have a specific building type with which it is associated, general requirements included open workspaces, good ventilation, and good natural lighting. Many woodworking and furniture factories were also located adjacent to or in close proximity to transportation routes, primarily railroad lines. Industrial architecture which retains significant historical associations and/or architectural distinction, and which retains integrity of architecture, construction, form, materials and detailing, satisfy the requirements for individual listing. Related groups or series of resources may have the potential to become historic sites or districts within Broome County.

¹⁸⁰ "Explore Stickley History." THE STICKLEY MUSEUM, 2007. Web. 23 Aug. 2011.
<<http://www.stickleymuseum.com/ExploreStickleyHistory.cfm>>.

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3.) Resources Associated with the Tanning & Shoemaking Industry

I. Description

a.) Tanning Resources

As industries such as timber and cigar manufacturing began to decline in Broome County around the turn of the twentieth century, tanning and the related industry of shoemaking emerged as the main economic engine in the region. Leather was a significant resource for early settlers, used for a variety of purposes including clothing, harnesses, shoemaking and other uses. Tanning had been a relatively prominent industry in the area for many years, thanks to the ample supply of resources of game for skins and hemlock or oak bark used for tanning. However it was not until the 1900s that tanning became a significant industry in Broome County once it was incorporated into large-scale operations as part of the shoemaking industry at firms such as Endicott-Johnson.

Resources used for the purpose of tanning can vary widely based on the size and scale of production and also the time period in which the resource was constructed. Early tanning resources could be constructed of wood frame or brick, while later examples may be constructed of reinforced concrete or steel frame. Buildings used for tanning can include the following elements: a dry house, kiln or furnace, tanning vats, racks for drying and storage, rollers, tables, shaving machinery, hand-beaming equipment, wood walkways, storage rooms, warehouses and other related spaces or buildings. Because of the highly noxious fumes emitted during the tanning process, it was common for many tanneries to be constructed on the outskirts of communities.

b.) Shoemaking Resources

Shoemaking may be one of the industries most associated with Broome County and Binghamton, due to the large-scale productions of Endicott-Johnson (EJ) in the twentieth century. While EJ dominated the shoe industry in Broome County, numerous smaller shoe manufacturing factories sprung up throughout the area in the nineteenth and twentieth centuries.

Buildings used for the function of making shoes vary, based on the era of construction and also the size of the operation. Early, small scale shoe factories could be “store and loft” configurations, with shoes made and repaired largely by hand in a ground-level shop with residential space on upper floors. As shoe making became a more mechanized production in the late nineteenth century, larger operations could utilize the industrial loft building type for their operations. During the nineteenth century, industrial loft buildings were typically constructed of brick or stone masonry for their fire resistance, often with an interior structure of wood frame. Wood framed industrial loft buildings were also not uncommon. Later in the century the use of iron or steel framing became more popular. Industrial lofts typically featured numerous windows, allowing for interior illumination and ventilation, and sometimes rooftop monitors. Following the turn of the twentieth century, the use of reinforced concrete frame in the construction of industrial loft buildings became immensely popular as it proved to be more fire resistant, created flexible interior spaces, allowed for large windows to be inserted into the non-load-bearing wall and had surfaces that could be easily cleaned and maintained. The entire process of

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shoemaking could be contained within one building in smaller operations, or have the separate processes contained in individual buildings in a complex of buildings.

Historic photographs depict the interior of shoemaking buildings during the late nineteenth and twentieth centuries as large, generally open spaces with wood or metal columns, and containing rows of large pieces of machinery. Machinery included a variety of cutting, stitching and sewing, gluing and other types of machinery, primarily driven by a series of belts and wheels on axles run by steam or later electric power sources.

II. Significance

Extant tanning and shoe factories and related resources are eligible under Criterion A in the area of industry, for their associations with a locally significant industry. In the case of buildings related to the Endicott-Johnson company, the case could be made for national significance. They may also be eligible under Criterion C in the area of architecture as representative of a factory construction technique or architectural style utilized for their construction. Broome County contains many extant examples of former shoe manufacturing buildings which were designed utilizing the popular designs and construction techniques of the day, including several reinforced concrete and steel framed industrial loft examples. Shoe manufacturing resources and related industrial properties may potentially be eligible under Criterion B if they can be directly associated with an individual who contributed to the development of the tanning, shoe making or related leather industries in Broome County or the Southern Tier region.

Broome County became one of the nation's leading shoe manufacturing centers in the United States during the twentieth century. It was estimated that 20,000 people worked at Endicott-Johnson in the 1920s, about 17% of Broome County's population of 113,610 in 1920, and the firm employed even more during the 1940s when it was awarded a contract to provide shoes for the United States military, making it a significant employer in the region. George F. Johnson's policy of welfare capitalism, known as the Square Deal, provided comprehensive benefits to workers such as health care, recreation, entertainment, profit sharing and other services; a rare occurrence in the early twentieth century.

Shoe manufacturers in Broome County not only employed thousands of workers, attracting many immigrants from southern and eastern Europe especially, they also shaped the design and layout of the physical communities in Broome County as well. Incorporated in 1892, the village of Lestershire was designed and created in 1888 by shoe manufacturer G. Harry Lester, as an ideal community on the western outskirts of Binghamton. Lestershire was later renamed as Johnson City in honor of another shoe manufacturer, George F. Johnson of Endicott-Johnson. Similarly, Endicott-Johnson would also be instrumental in founding the community of Endicott, NY. The company purchased large tracts of available land to expand their factories at the turn of the twentieth century, and surveyed and laid out roads and offered parcels to workers for the construction of houses. Companies devoted to shoe manufacturing had a significant impact on all aspects of the lives of Broome County residents for well over a century, affecting not only how they made their living, but also influencing where they lived and how they lived.

III. Registration Requirements

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Broome County contains many identified resources associated with the tanning and shoemaking industries. In order to qualify for listing, the resource must have a documented association with the tanning and/or shoemaking industry in Broome County. The resource must be located within the defined boundaries of Broome County (as defined in Section G); shoemaking and related resources must be directly associated with a significant historical context (as described in Section E); must be 50 years of age or older; and must display the distinctive features characteristic of the period of construction. Many of these tanning and shoe manufacturing facilities have been adapted to other uses (industrial, commercial and in some cases residential) following the demise of the shoe making industry in Broome County, and this may have resulted in changes or adaptations to the resource; a resource need not still function as a shoe factory if sufficient physical integrity is intact. Individual properties must also meet at least one of the National Register Criteria in order to be included under the MPDF. If a factory is eligible under Criterion C for architecture it must retain a sufficient portion of original architectural fabric to illustrate the design, layout, materials and other elements that represent industrial architecture. If a tanning or shoe factory is eligible under Criterion C for engineering, it must retain a sufficient portion of its characteristic machinery to represent the process. Shoe making or related industrial buildings may also have additions which reflect the growth of the enterprise, and they may still be eligible so long as the design of the original structure, site or historic district is still evident and the feeling of the original resource is also present.

Buildings which substantially retain integrity of form, detailing and an overall historic appearance to their exterior may qualify as contributing components in the context of the potential historic areas. While the tanning and shoemaking industry does not have a specific building type with which it is associated, general requirements included open workspaces, good ventilation, and good natural lighting. Buildings used for tanning can include the following elements: a dry house, kiln or furnace, tanning vats, racks for drying and storage, rollers, tables, shaving machinery, hand-beaming equipment, wood walkways, storage rooms, warehouses and other related spaces or buildings. Many factories were also located adjacent to or in close proximity to transportation routes, primarily railroad lines. Industrial architecture which retains significant historical associations and/or architectural distinction, and which retains integrity of architecture, construction, form, materials and detailing, satisfies the requirements for individual listing. Related groups or series of resources may have the potential to become historic districts within Broome County.

4.) Resources Associated with the Camera/Film Manufacturing Industry

I. Description

Industrial buildings utilized for producing camera and film vary widely depending on when the building was constructed. In some cases, existing industrial buildings were repurposed for manufacturing cameras and film. Buildings associated with the camera and film industry can range from the residential-style two-story wood framed building on Charles Street (demolished), once used by the Monarch Paper Company to produce roll film, to the modern reinforced concrete complex of industrial loft buildings later built by Ansco on Charles Street in Binghamton. Other types associated with the camera and film industry include steel-reinforced industrial loft buildings, as typified by the former Ansco factory on Emma Street, Binghamton (1927) and also the unusual polychrome Streamline Moderne building located at 18 Park Avenue in Johnson City (1947).

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Industrial buildings associated specifically with the Ansco company, Broome County's largest and most prominent camera/film company, reflect influences of Modern architecture in the late 1920s through the 1940s. After the company was purchased by German company Agfa in 1928, the German scientists and workers brought the influence of European Modernism, including the International Style and Moderne styles, to Broome County with the design and construction of their private residences, office buildings, new factory buildings and other examples.

Camera and film manufacturing buildings may contain any or all of the following elements: machinery used to shape and create cameras such as dies, presses, belts, forms, conveyors and work tables; machinery used to create photographic film including spools, punches, blades, belts, conveyors, dryers, vats or other similar machinery.

II. Significance

Extant camera and photographic film factories and related resources are eligible under Criterion A in the area of industry, for their associations with a locally significant industry. They may also be eligible under Criterion C in the area of architecture as representative of a factory construction technique or architectural style utilized for their construction. While many resources have been demolished following the collapse of the photographic industry in Broome County, the area does contain several examples of former camera manufacturing buildings which were designed utilizing the popular designs and construction techniques of the day, including several brick industrial loft examples. Camera manufacturing resources and related industrial properties may potentially be eligible under Criterion B if they can be directly associated with an individual who contributed to the development of the camera, film or other related industries in Broome County or the Southern Tier region.

Broome County had a thriving photographic industry in the twentieth century, and was notably home to the Ansco (later Agfa Ansco) camera company. The emergence of the camera industry in the twentieth century is indicative of the economic and industrial shift occurring in Broome County. After the region had moved from the extractive economy based on lumber resources it transitioned into the manufacturing and production-based economy of the late nineteenth and early twentieth centuries, dominated by cigar manufacturing. The emergence of the camera and film industry illustrates a third type of economy in Broome County, one driven by technology-based companies. In Broome County, the Ansco company pioneered advancements in photographic roll film and affordable mass-market cameras. Ansco film products were used by NASA in recording some of the earliest images of space exploration. As the cigar industry dried up, and shoe manufacturing moved to Endicott and Johnson City, Ansco became the largest employer in the City of Binghamton after the turn of the twentieth century.

The Ansco company also had a significant affect on the architectural vocabulary in Broome County, as well. When acquired by the German-firm of Agfa in the 1920s, Agfa-Ansco became an important conduit for bringing European Modernism to the Southern Tier. Many of the houses built by the German engineers and technicians brought Modernist styles, such as the International Style, to the area, a style rarely seen in residential architecture in Upstate New York. Likewise, Ansco utilized Modern architectural styles in the design and construction of its factory buildings as well, including the Art Deco design of the Charles Street Administration Building (demolished) and later its Streamline Moderne factory building on Park Street (1947).

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Broome County contains several identified resources associated with the camera manufacturing and photographic film industries. In order to qualify for listing the building must have a documented association with the camera and/or film manufacturing industries in Broome County. The resource must be located within the defined boundaries of Broome County (as defined in Section G); camera manufacturing and related resources must be directly associated with a significant historical context (as described in Section E); must be 50 years of age or older; and must display the distinctive features characteristic of the period of construction. Many of these former camera and film manufacturing facilities have been adapted to other uses (both industrial, commercial and in some cases residential) following the demise of the camera and film industry in Broome County, and this may have resulted in changes or adaptations to the resource; a resource need not still function as a camera factory if sufficient physical integrity is intact. Individual properties must also meet at least one of the National Register Criteria in order to be included under the MPDF. If a factory is eligible under Criterion C for architecture it must retain a sufficient portion of original architectural fabric to illustrate the design, layout, materials and other elements that represent industrial architecture. If a camera and/or film factory is eligible under Criterion C for engineering, it must retain a sufficient portion of its characteristic machinery to represent the process. Camera making or related industrial buildings may also have additions which reflect the growth of the enterprise, and still be eligible so long as the design of the original structure is still largely evident and the feeling of the original resource is also present.

Buildings which substantially retain integrity of form, detailing and an overall historic appearance to their exterior may qualify as contributing components in the context of the potential historic areas. While the camera and film manufacturing industry does not have a specific building type with which it is associated, general requirements included open workspaces, good ventilation, and good natural lighting. Many factories were also located adjacent to or in close proximity to transportation routes, primarily railroad lines. Industrial architecture which retains significant historical associations and/or architectural distinction, and which retains integrity of architecture, construction, form, materials and detailing, satisfies the requirements for individual listing. Related groups or series of buildings may have the potential to become historic districts within Broome County.

5.) Resources Associated with the High-Technology & Computer Industry

I. Description

While Broome County's initial economy was based on the extraction of natural resources including timber, later followed by an economy based on manufacturing and producing products from these raw materials, by the twentieth century Broome County's economy was driven by advancements in the high-technology and computer industry. Broome County contains an impressive collection of industrial buildings designed and constructed for the technology and computer industry. Buildings associated with this category include but are not limited to those companies which developed, tested, or manufactured "high-tech" or cutting-edge electronics, software, computers, data storage and processing equipment or other related industries. These buildings may include any or all of the following equipment: dies, molds, soldering irons or welding machinery,

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cutting devices such as saws or lasers, hoists or armatures for moving equipment and a wide variety of other machinery and equipment.

Buildings associated with the high-technology and computer industry in Broome County include a large group of buildings once utilized by International Business Machines (IBM), located around the intersection of North Street and McKinley Avenue in Endicott, which were constructed from the 1900s until the 1970s. This sprawling campus of buildings ranges from Colonial Revival and Art Deco styled buildings to reinforced concrete and steel framed industrial lofts to modern steel frame examples. The former IBM Plant No. 1 in Endicott illustrates an evolution of industrial architecture from its early 1900s-era reinforced concrete portions, to its gargantuan steel framed buildings, clad with a white skin of concrete giving them a sleek, clean and uniform appearance, and emblazoned with the International Business Machine globe-style logo used mid-century.

Broome County contains other buildings associated with high-technological industries, primarily dating to around the mid-twentieth century. Many of these are large, modern production shed types of industrial buildings featuring what seem to be vast interior spaces to accommodate production and manufacturing.

II. Significance

Computer and technology factories and related resources are eligible under Criterion A in the area of industry, for their associations with a locally significant industry. Buildings associated with International Business Machines (IBM) may potentially be eligible under Criterion A for their associations with a nationally significant industry. They may also be eligible under Criterion C in the area of architecture as representative of a factory construction technique or architectural style utilized for their construction. Broome County was found to contain several examples of former computer and technology-related manufacturing buildings which were designed utilizing the popular designs and construction techniques of their day, including an excellent collection of steel reinforced industrial loft buildings in Endicott built in the 1930s and 40s by IBM. Computer manufacturing and technology resources and related industrial properties may potentially be eligible under Criterion B if they can be directly associated with an individual who contributed to the development of the computer and technology industries in Broome County or the Southern Tier region.

Broome County was the home of a significant technology and computer industry, beginning in the nineteenth century, and thriving in the mid-twentieth century. Many innovations in data recording, processing and computing had their origins in Broome County. With the rise of International Business Machines (now simply known as IBM) in the 1920s, Broome County (more specifically, Endicott) became a center for innovation and technology development with an international impact. Significant developments at "Plant No. 1" included time recorders, punched card data recording systems, accounting machines, electronic calculators, printers (including IBM's first color printer in 1980), software, computers and other technology which helped to shape the way information has been collected, recorded and transmitted across the world. At its peak in the 1940s, IBM employed over 10,000 people in the region.

Inspired by the Endicott-Johnson welfare capitalism program, IBM also played an active role in the lives of its workers and the community. IBM formed numerous bands, musical groups and sports teams to provide

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entertainment to the community, and parades and public concerts were regularly held. In the 1930s, IBM was also one of the earliest companies to provide life insurance, survivors benefits and paid vacations to its workforce, and the company established an education department (in Endicott, at IBM School #33 built in 1934) which helped to educate its workforce. IBM also made strides to incorporate minority and disabled workers into the workforce decades before this was common practice. Like its neighbor Endicott-Johnson, IBM also took a progressive interest in the welfare of its workforce.

III. Registration Requirements

Broome County contains several identified resources associated with the technology and computer industries. In order to qualify for listing, the resource must have a documented association with the high-technology and/or computer industries in Broome County. The resource must be located within the defined boundaries of Broome County (as defined in Section G); technology and computer related resources must be directly associated with a significant historical context (as described in Section E); must be 50 years of age or older; and must display the distinctive features characteristic of the period of construction. Several of these former technology and computer manufacturing facilities have been adapted to other uses (industrial, commercial and in some cases residential) following the downsizing of the high-technology and computer industry in Broome County, and this may have resulted in changes or adaptations to the resource; a resource need not still function as a technological or computer manufacturing facility if the physical integrity is sufficiently intact. Individual properties must also meet at least one of the National Register Criteria in order to be included under the MPDF. If a factory is eligible under Criterion C for architecture it must retain a sufficient portion of original architectural fabric to illustrate the design, layout, materials and other elements that represent industrial architecture. If a computer factory is eligible under Criterion C for engineering, it must retain a sufficient portion of its characteristic machinery to represent the process. Computer making or related industrial buildings may also have additions which reflect the growth of the enterprise, and these resources may still be eligible so long as the design of the original structure, site or historic district is still largely evident and the feeling of the original resource is also present.

Buildings which substantially retain integrity of form, detailing and an overall historic appearance to their exterior may qualify as contributing components in the context of the potential historic areas. While the high-technology and computer industry does not have a specific building type with which it is associated, general requirements included open workspaces, good ventilation, and good natural lighting. Many factories were also located adjacent to or in close proximity to transportation routes, primarily railroad lines. Industrial architecture which retains significant historical associations and/or architectural distinction, and which retain integrity of architecture, construction, form, materials and detailing, satisfies the requirements for individual listing. Related groups or series of buildings may have the potential to become historic districts within Broome County.

6.) Resources Associated with the Aerospace Industry

I. Description

Similar to the computer and high-tech industry, Broome County was also home to a significant technological field specifically related to aerospace. The aerospace industry can be generally identified with researching,

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designing, manufacturing, operating, and maintaining vehicles designed to move through space or air. This industry can produce airplanes, engines, missiles and projectiles, space vehicles or other related technologies.

Buildings used for the aerospace industry are varied and diverse, depending on the period of construction. Many buildings have been repurposed, originally constructed for other industrial functions, and used for the aerospace industry when it emerged around the mid-1900s. Typical of extant examples, aerospace industry-associated buildings tend to be large buildings or complexes of buildings which made use of the production shed industrial building type. Materials can vary, but as this industry required large open spaces, reinforced concrete or steel framing would appear to be the most common. Examples of buildings used by the aerospace industry range from brick-clad production sheds and ancillary buildings located in the town of Fenton (originally 1917-18) used by the Link Aviation company to vast modern production shed-type buildings such as that located at 600 Main Street in the town of Union (1947) which was the long-time home of aeronautics company Lockheed Martin and is currently used by global aerospace company BAE Systems. While they vary in materials, construction and appearance, these production sheds are similarly designed to accommodate cranes and hoists to maneuver the massive components around the assembly room floors. These large industrial buildings may also contain equipment to mold and shape sheet metal, cutting machinery such as saws, blades or even lasers, welding machinery, tool storage, and a variety of other machinery and equipment. Also common to these examples is a building used as an office, separated from the manufacturing areas.

II. Significance

Resources related to the aerospace industry are eligible under Criterion A in the area of industry for their associations with a locally significant industry. Buildings associated with Link Aviation may potentially be eligible under Criterion A for their associations with a nationally significant industry. They may also be eligible under Criterion C in the area of architecture as representative of a factory construction technique or architectural style utilized for their construction. Broome County was found to contain a few good examples of former aerospace-related factory buildings which were designed utilizing the popular designs and construction techniques of their day, including an excellent group of brick production shed buildings in Binghamton built in the early 1900s and later the home of Link Aviation. Aerospace resources and related industrial properties may potentially be eligible under Criterion B if they can be directly associated with an individual who contributed to the development of the aerospace industry in Broome County or the Southern Tier region.

While the aerospace industry was not as large as other industries in Broome County due to its specialized nature, the area does contain several resources which are noteworthy and unique in the industry of aerospace. Perhaps the most significant resources are the buildings formerly used by Link Aviation company, located on Nowlan Road in the Town of Fenton. While initially constructed for use as a milk condensery, the site consisted of several large production shed-type industrial buildings which were transformed into factory buildings used to produce the Link Trainer, the first flight simulator, invented by company founder Edwin A. Link, Jr. First patented in 1929 by Link, the flight simulator revolutionized the way pilots and aviators were trained, and pioneered "virtual reality." During World War II, the Link Trainer became the most popular pilot trainer utilized by the United States military. Now a standard component of flight training for military, commercial and private aviators, the flight simulator improved training and safety, reducing crashes and casualties sustained during the training process.

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III. Registration Requirements

Broome County contains several identified resources associated with the aerospace industry. In order to qualify for listing the building must be associated with the development and operation of the aerospace industry in Broome County. The resource must be located within the defined boundaries of Broome County (as defined in Section G); aerospace-related buildings and resources must be directly associated with a significant historical context (as described in Section E); must be 50 years of age or older; and must display the distinctive features characteristic of the period of construction. Many of these former manufacturing facilities have been adapted to other uses (industrial, commercial and in some cases residential) following the downturn in the aerospace industry in Broome County, this may have resulted in changes or adaptations to the resource; a resource need not still function as a aerospace-related factory if the physical integrity is sufficiently intact. Individual properties must also meet at least one of the National Register Criteria in order to be included under the MPDF. If a factory is eligible under Criterion C for architecture it must retain a sufficient portion of original architectural fabric to illustrate the design, layout, materials and other elements that represent industrial architecture. If an aerospace factory is eligible under Criterion C for engineering, it must retain a sufficient portion of its characteristic machinery to represent the process. Aerospace-related industrial buildings may also have additions which reflect the growth of the enterprise, and these resources may still be eligible so long as the design of the original structure, site or historic district is still largely evident and the feeling of the original resource is also present.

Buildings which substantially retain integrity of form, detailing and an overall historic appearance to their exterior may qualify as contributing components in the context of the potential historic areas. While the aerospace industry does not have a specific building type with which it is associated, general requirements included open workspaces, good ventilation, and good natural lighting. Many factories were also located adjacent to or in close proximity to transportation routes, primarily railroad lines in the nineteenth and early twentieth centuries, or near highways in the mid-twentieth century. Industrial architecture which retains significant historical associations and/or architectural distinction, and which retain integrity of architecture, construction, form, materials and detailing, satisfy the requirements for individual listing. Related groups or series of buildings may have the potential to become historic districts within Broome County.

7.) Resources Associated with other Miscellaneous Industries

I. Description

The physical description of buildings relating to miscellaneous industries in Broome County is varied and diverse. A building in this category could potentially date to anywhere within the late eighteenth, nineteenth or twentieth century, and could have been constructed for a variety of purposes. Materials and construction techniques will vary, based on the era of construction, the function and other factors.

Examples of buildings which fall into this category would be the small group of excellent late-1800s “store and loft” type brick industrial buildings located at 122 and 129 Park Avenue in Binghamton. These buildings demonstrate load-bearing brick construction, with interior wood columns and floors, and are modestly

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ornamented with a late Italianate style which included numerous segmental arched windows and a decorative cornice. 122 Park Avenue once served the cigar industry but was also utilized as a silk mill, while 129 Park Avenue was constructed as a woolen factory and was later used as a shoe factory. Both of these buildings are excellent examples of load bearing masonry factory construction which was common in the second half of the nineteenth century, and they reflect the variety of industries which could occupy this early type of industrial building. The former Cream Dove Manufacturing building, later the Binghamton Knitting Co., located at 11 Alice Street is a good example of a simple brick-constructed industrial building with the many segmentally arched window openings typical of the era when natural light was critical for illuminating workshop interiors. Examples of fire-resistant reinforced concrete industrial buildings include the small-scale building at 10 Jackson Street (ca. 1920s). The reinforced concrete building at 2 Eldridge Street, formerly the A. & J. Manufacturing Company (ca. 1909) in Binghamton features a unique skin of textured terra cotta panels, with an unusual rock-like patterning embossed into the surface. A rare modern example can be found on Court Street in Binghamton at the Sheltered Workshops for the Disabled. Constructed and enlarged in several stages, the building features an elegant Moderne portion (1958) which features a rounded, full-height glazed entry area flanked by curved stone walls.

Miscellaneous industrial buildings may be of the industrial loft, production shed, power house, warehouse or other type of structure. They may be constructed of wood frame, brick or stone masonry, reinforced concrete, steel frame (either clad or revealed) or other type of material. The size and scale of these buildings may also vary, depending on when a building was constructed and what function it housed. Likewise, any extant machinery and equipment specialized to the individual industrial use of the building and can potentially include a wide array of items. Miscellaneous industrial buildings may be single resources or may be complexes of several buildings.

II. Significance

Resources related to miscellaneous industries are eligible under Criterion A in the area of industry, for their associations with a locally significant industry. They may also be eligible under Criterion C in the area of architecture as representative of a factory construction technique or architectural style utilized for its construction. Broome County was found to contain numerous good examples of former industrial buildings which were designed utilizing the popular designs and construction techniques of their day. Industrial properties may potentially be eligible under Criterion B if they can be directly associated with an individual who contributed to the development of a specific industry in Broome County or the Southern Tier region.

Like any other area, Broome County contains numerous historic resources associated with a wide range of industries which do not necessarily relate to the above categorized industries. Many of these other industries served a wide range of functions, vital to the every-day life of Broome County residents. While they may not be nationally significant, ground-breaking and innovative companies, these smaller industries served a vital role in the growth and development of the communities in Broome County. Many of these former industrial buildings would have produced products used in daily life, such as clothing, cooking equipment, household products, transportation-related products (horse-and-buggy or automobile) and a wide variety of other objects and goods. Each industry may be represented by several buildings, or may be identified with a single building or property.

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Broome County contains several industrial resources associated with a broad range of industries which do not fit into the previously mentioned categories, representative of key industries found in the greatest concentrations within Broome County. Industrial buildings which fall into this category may not represent one of the prominent industries in Broome County, but will generally reflect the day-to-day manufacturing needs of the community, unique or “one of a kind” industries which may or may not still be present in modern life, or a wide variety of other functions. Examples of industries which fall into this category may include clothing factories, “quack medicine” factories, machine shops, iron or metalworking factories, brick making resources, barrel manufacturing, mines or quarries or any range of other factory or site used to produce or extract resources or produce goods and products used by consumers.

In order to qualify for listing the building must have a documented association with the development and operation of a specific, identifiable industry in Broome County. It must be related to a company which manufactured, produced, processed or extracted some manner of goods or objects. The resource must be located within the defined boundaries of Broome County (as defined in Section G); miscellaneous industrial resources must be directly associated with a significant historical context (as described in Section E) or attributable to the general history of a municipality within Broome County; must be 50 years of age or older; and must display the distinctive features characteristic of the period of construction. Many of these former manufacturing facilities may have been adapted to other uses (both industrial, commercial and in some cases residential) following the demise of the specific industry in Broome County, and this may have resulted in changes or adaptations to the resource; a resource need not still function in the same manufacturing capacity as its initial design if the physical integrity is sufficiently intact. Individual properties must also meet at least one of the National Register Criteria in order to be included under the MPDF. If a factory is eligible under Criterion C for engineering, it must retain a sufficient portion of its characteristic machinery to represent the process. Miscellaneous industrial buildings may also have additions which reflect the growth of the enterprise, and still be eligible so long as the design of the original structure, site or historic district is still largely evident and the feeling of the original resource is also present.

Buildings which substantially retain integrity of form, detailing and an overall historic appearance to their exterior may qualify as contributing components in the context of the potential historic areas. A building associated with a miscellaneous industry may be of a variety of materials, construction methods, shapes and forms. In general most industrial buildings contain large, open workspaces, numerous windows for good ventilation and natural illumination, and many are located in close proximity to transportation including railroad lines and highways. Industrial architecture which retains significant historical associations and/or architectural distinction, and which retain integrity of architecture, construction, form, materials and detailing, satisfies the requirements for individual listing. Related groups or series of buildings may have the potential to become historic districts within Broome County.

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G. GEOGRAPHIC DATA

This multiple property cover document for historical industrial resources in Broome County, New York includes any historical remains of industries that operated in the county at least fifty years ago or earlier. Properties may be located in any municipality or region within the current physical boundaries of the county as defined by New York State. Field work has found that many of the extant industrial resources are located within the Triple Cities (Binghamton, Endicott and Johnson City) corridor along (future) I-86/NYS Route 17, however additional resources (especially early millsites) are potentially scattered throughout the county.

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H. SUMMARY OF IDENTIFICATION AND EVALUATIONS METHODS

This multiple property document began with a reconnaissance level historic resources survey of industrial resources in Broome County, completed by Jennifer Walkowski, Architectural Historian of Clinton Brown Company Architecture, in July 2011 using a property list established through identifying those existing industrial properties in Category 710 – Manufacturing and Processing of the Broome County Geographic Information System (GIS), which are properties still functioning for industrial uses. Properties were also added from reviewing preexisting documentation including National Register nominations, Brownfield Opportunity Areas and Municipal Planning Documents, the Susquehanna Heritage Management Area Plan and Amendment, and other planning documents. Additional properties were added by Broome County Planning Staff from their knowledge of the industrial architecture of the region. During the course of field work and visual review coupled with preliminary historical research, other industrial properties were added. This work resulted in a list of 154 extant industrial resources located throughout the county, and formed the basis for studying the history of industry and industrial architecture, including its pattern of development, in Broome County. As a result of this field survey, CBCA prepared an annotated list of properties to be utilized by Broome County for future nomination and planning efforts with the goal of encouraging new investment and revitalization of both occupied and vacant industrial buildings. Depreciable properties listed in the National Register of Historic Places may be eligible for tax credits and other financial assistance for their rehabilitation.

“Industry” encompasses those buildings used to house manufacturing facilities (by far the most common), extractive facilities (such as mining or quarrying), energy facilities (including power plants), and other processing and extraction facilities as identified in “Data Categories for Function and Use” section of the *How to Complete the National Register Registration Form*, bulletin 16A, page 22. The field survey focused on buildings dedicated to the wide variety of industries associated with Broome County.

The Multiple Property Documentation Form was prepared by Ms. Walkowski for Gail Domin, Chief Planner for the Broome County Department of Planning and Economic Development. Using the findings of the field work, Ms. Walkowski also prepared the individual National Register registration form for the former AnSCO Company Charles Street Factory Buildings at 15 and 17 Charles Street and 219 Clinton Street, and the AnSCO Camera Factory Building at 16 Emma Street in the city of Binghamton, to accompany the MPDF. The draft MPDF cover document was completed in August 2011, and finalized with the NY State Historic Preservation Office staff in December 2011.

While this is the first survey work to focus specifically on industrial building types in Broome County, other sources have reviewed industrial buildings as a part of their documentation. These include National Register nominations for the Johnson City Historic District (which reviewed a large collection of existing Endicott-Johnson factory buildings), the Railroad Terminal Historic District in Binghamton (which documented several excellent late 1800s brick industrial buildings), and the State Street-Henry Street Historic District in Binghamton (containing several good examples of buildings used by the cigar trade). Other documentation included a 1993 survey of properties in Johnson City and the resulting Historic Building Inventory Forms which were created. In addition, numerous histories and texts have focused on industrial history in Broome County, including several specialized studies on individual companies such as IBM, Endicott-Johnson and Link Aviation. Municipal planning documents, including the Susquehanna Heritage Area Management Plan and Amendment (SHAMPA), also provided information not only on specific industrial sites but also established broad themes in the history of industry in Broome County which have been utilized for this MPDF. Information

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for this MPDF has been drawn from these above mentioned documents, as well as numerous historical and contemporary books, maps and other materials.

The intent of the Multiple Property Documentation Form is to formally submit for listing in the National Register historically and architecturally significant historic districts and individual properties which reflect over 200 years of industrial development throughout Broome County. The highlighted properties give an overview of the types of industries which were prominent in the county at different eras in history, as well as the variety of industrial building types which developed as new building technologies and advancements were made in industrial architecture. Properties selected illustrate the social, economic and architectural developments pertaining specifically to industrial architecture, as detailed in the historic context statement. Each building or structure documented is an excellent example of a given architectural style or industrial use under requirements of Criterion C, or are associated with events that have made a significant contribution to the broad patterns of history under the requirements of Criterion A of the Criteria for Evaluation (36 CFR 60) as outlined in *How to Apply the National Register Criterion for Evaluation*, NPS Bulletin 15. Further research and specialized study may yield information which identifies additional industrial archeological sites, such as former mill sites or early manufacturing sites, which may be significant under Criterion D. In addition, further historical research on individual properties may yield information making them eligible under Criterion B for their associations with significant figures in history.

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APPENDIX A – MAPS

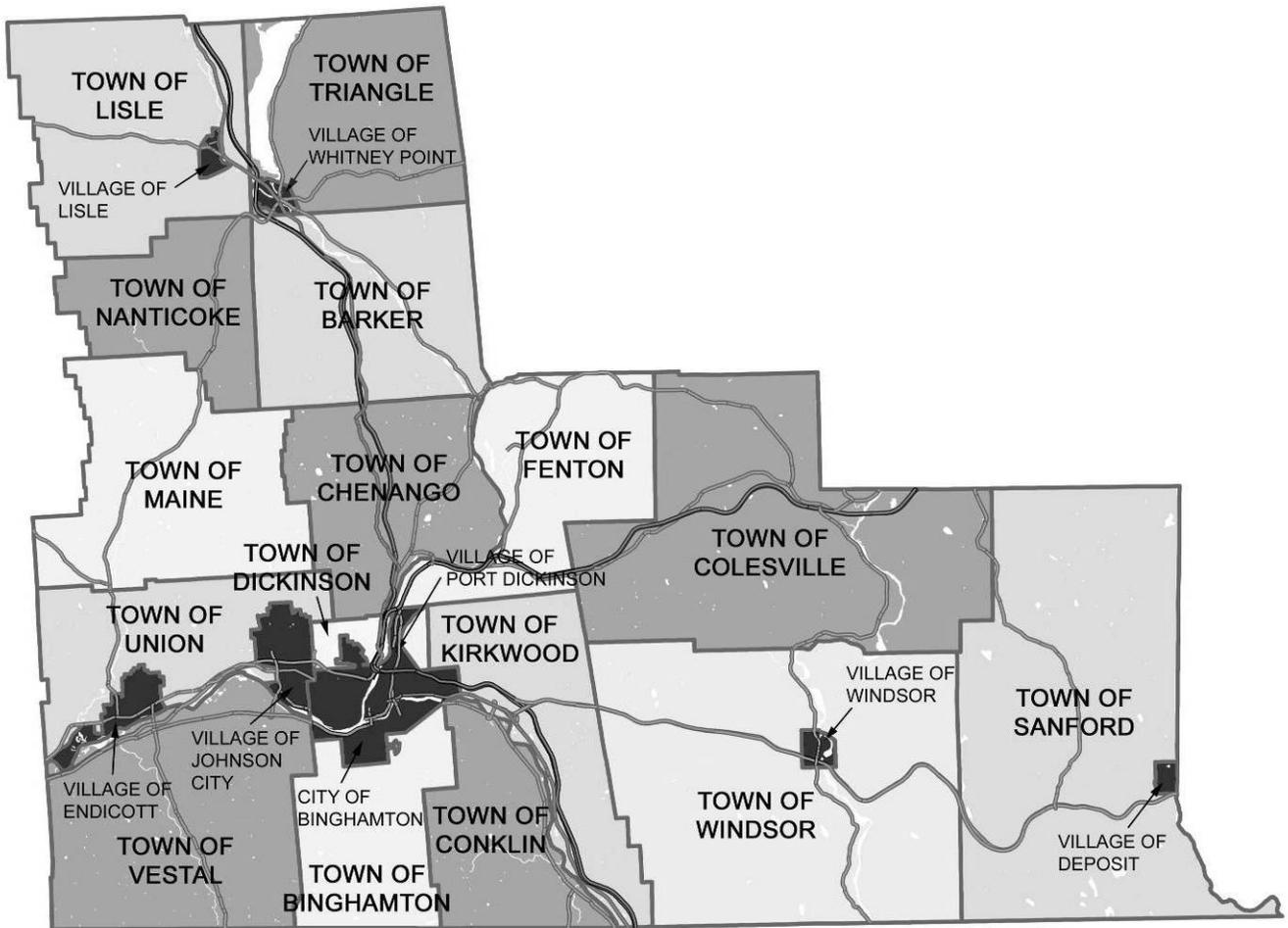


Figure A-1:
Boundary Map, Industrial Resources of Broome County, NY

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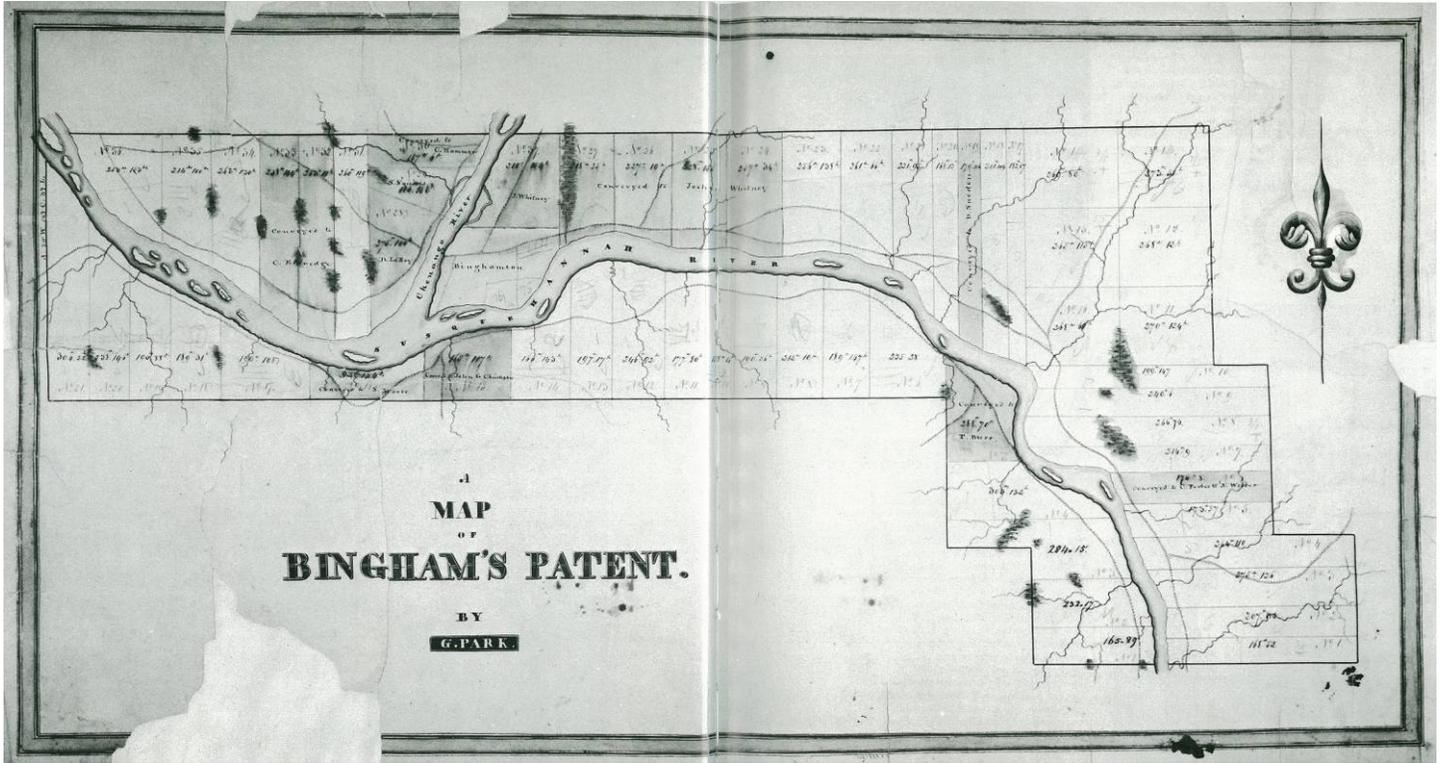


Figure A-2:
Map of Bingham's Patent by G. Park (from *The Valley of Opportunity*, page 24-25)

This map depicts the land patent granted to William Bingham in 1786. While it was relatively small in size compared to other land grants of the time, it contained some of the region's most valuable land, at the confluence of the Susquehanna and Chenango Rivers. The valuable water transportation and later railroad corridor in this river valley area would serve as the location of much of Broome County's growth and development during the nineteenth century. In these areas the city of Binghamton would grow, along with the villages of Endicott and Johnson City, the "Triple Cities."

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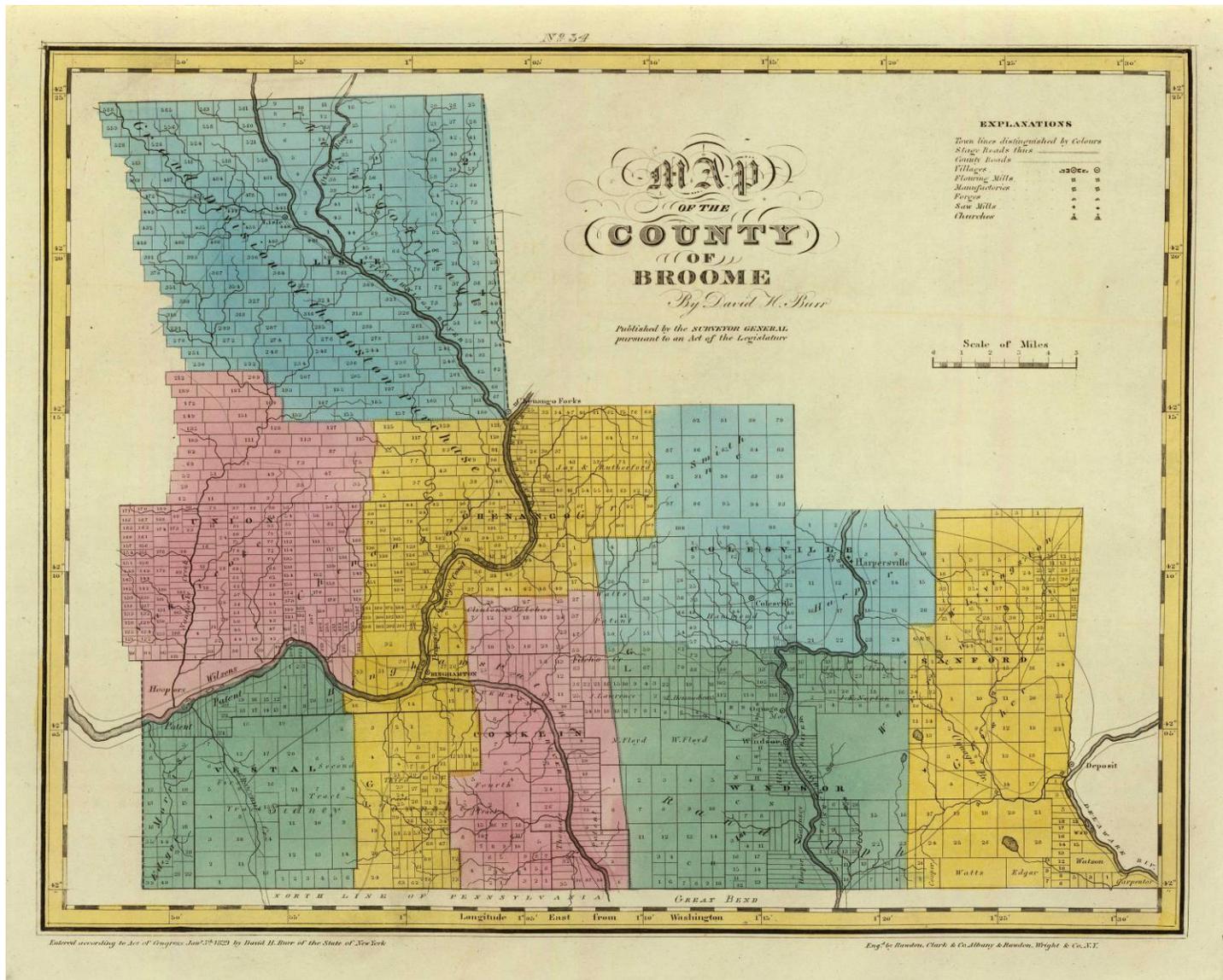


Figure A-3:
Map of the County of Broome, by David H. Burr (1829)

Note the county's large towns, as well as the notable waterways which lace the area. In the 1820s and 1830s, Broome County's timber and logging industries would have been at their peak. These rivers and streams provided not only water power used to drive the sawmills, but also provided the region's most reliable transportation network.

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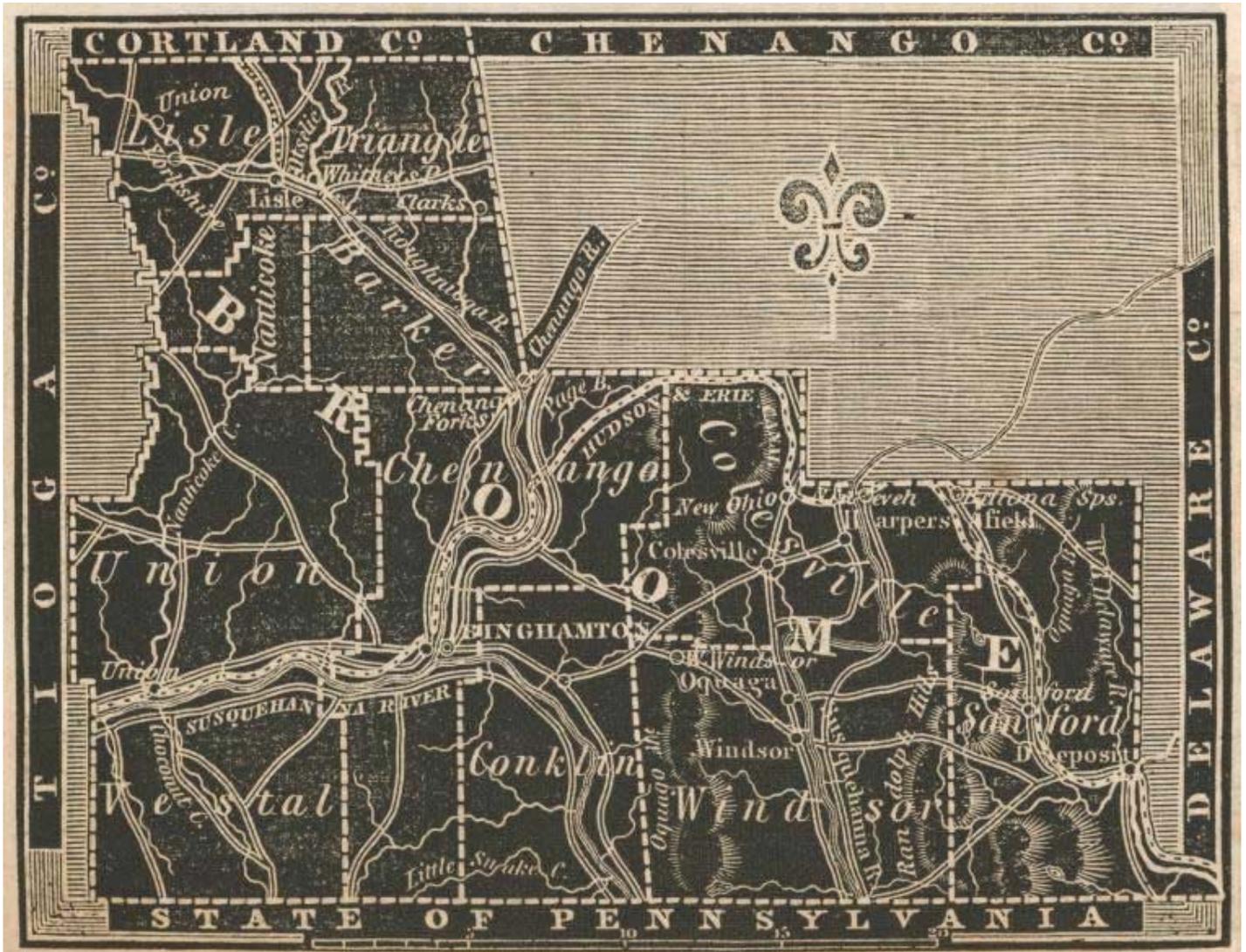


Figure A-4:
Map of Broome County (1836) by David H. Burr

Note the division of the county into smaller municipalities. Also prominent on this unusual map are the primary routes of transportation in the county, which by this time included not only natural waterways, but the Chenango Canal and rail lines. In these transportation corridors the majority of Broome County's industrial growth would occur.

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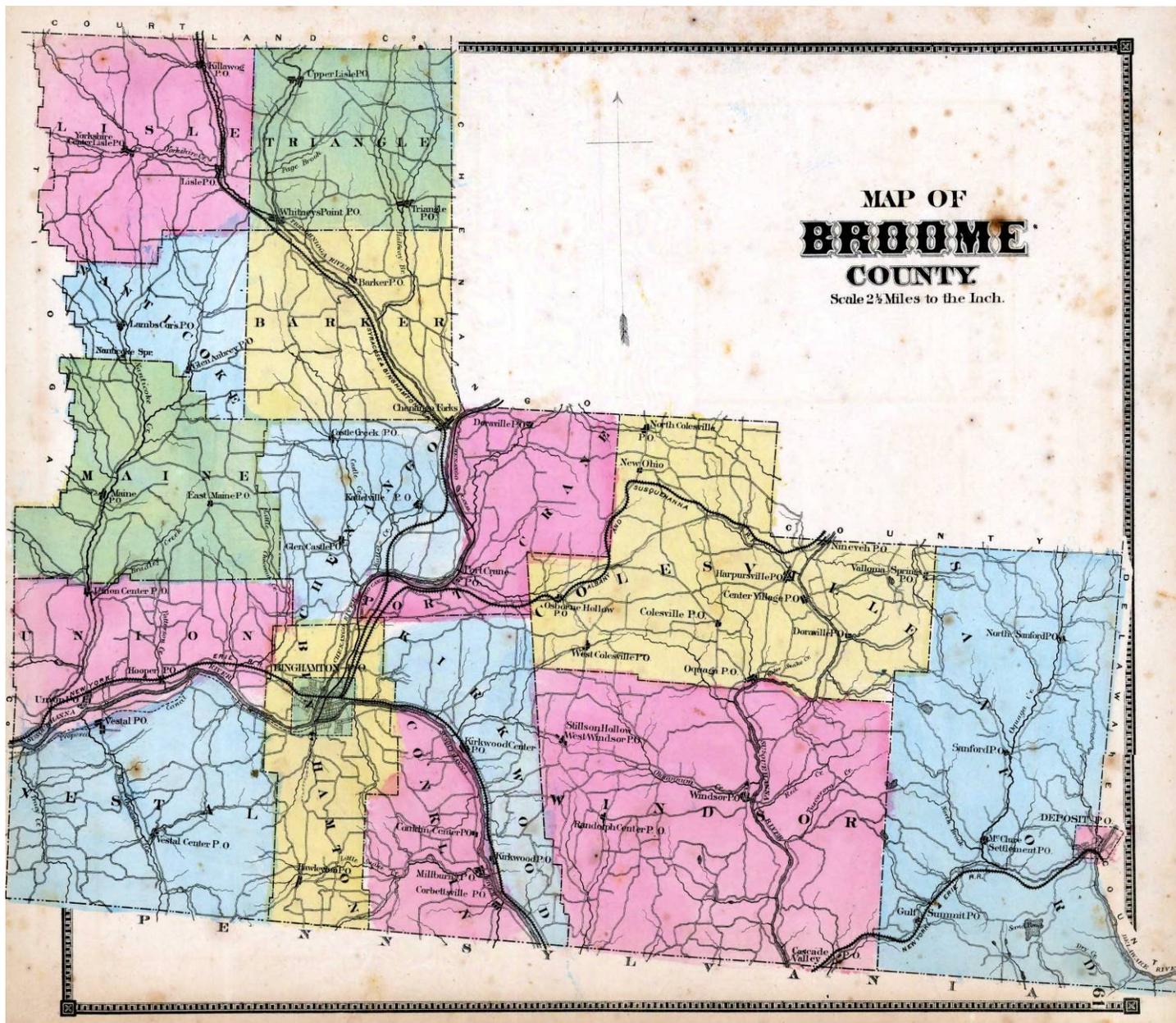


Figure A-5:
Map of Broome County (1866)
From Broome County 1866 atlas by Beers & Beers

Note that the towns have started to take their more familiar shapes. Also of interest on this map is the relative size of the City of Binghamton to the surrounding Town of Binghamton, which completely surrounds the city in the Civil War era.

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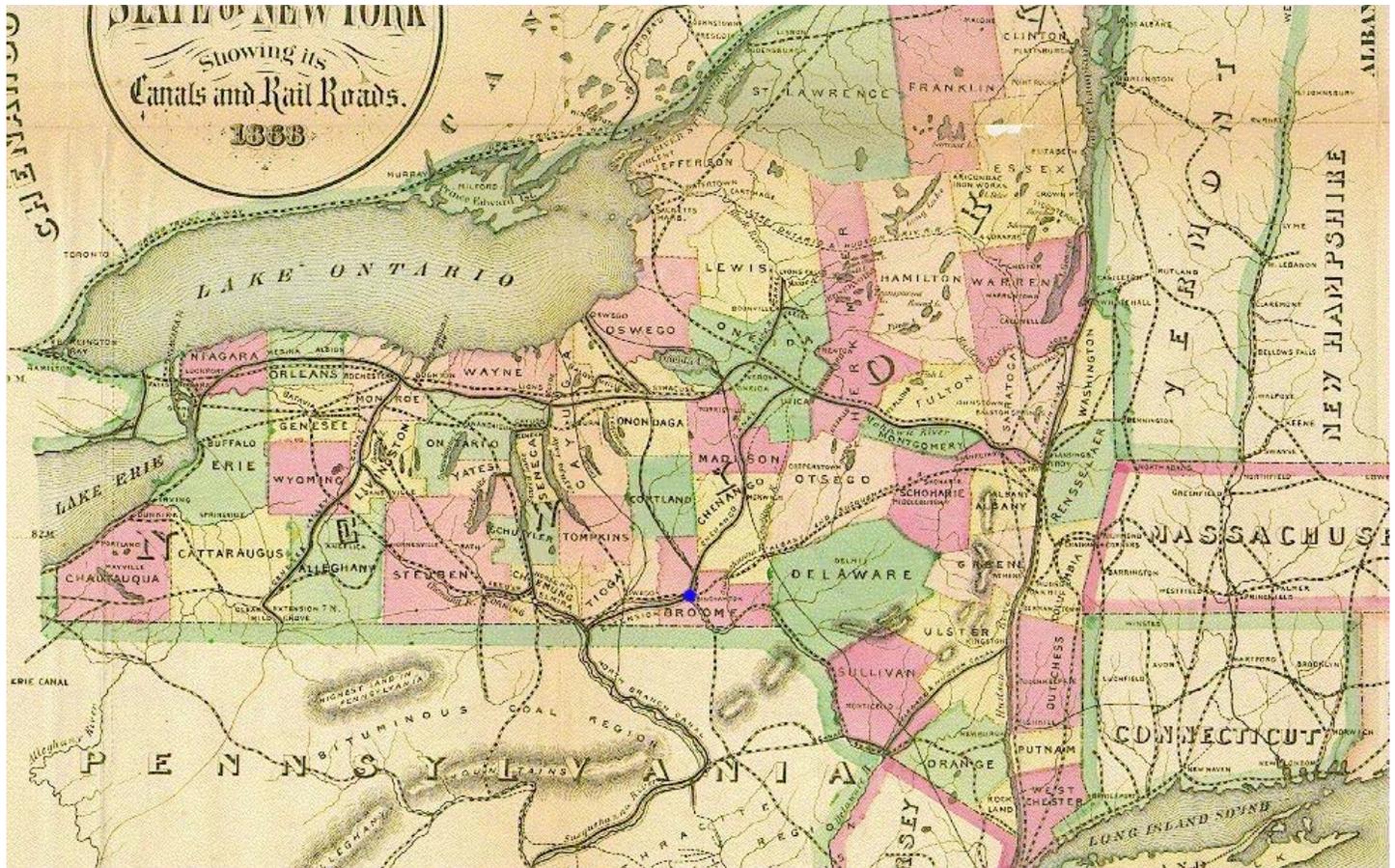


Figure A-6:
Map of the State of New York, showing its Canals and Railroads (1868)
From <http://www.history.rochester.edu/canal/index.htm>

This map from shortly after the Civil War depicts the routes of railroads and canals throughout New York State. Binghamton is marked here with a blue dot; note its role as a transportation hub for many rail lines and the Chenango Canal during this area. Through this rail network, Broome County was connected to all parts of New York State, including Buffalo, Albany and New York City, and other East Coast cities. Additional rail lines would continue to be added throughout the late nineteenth century.

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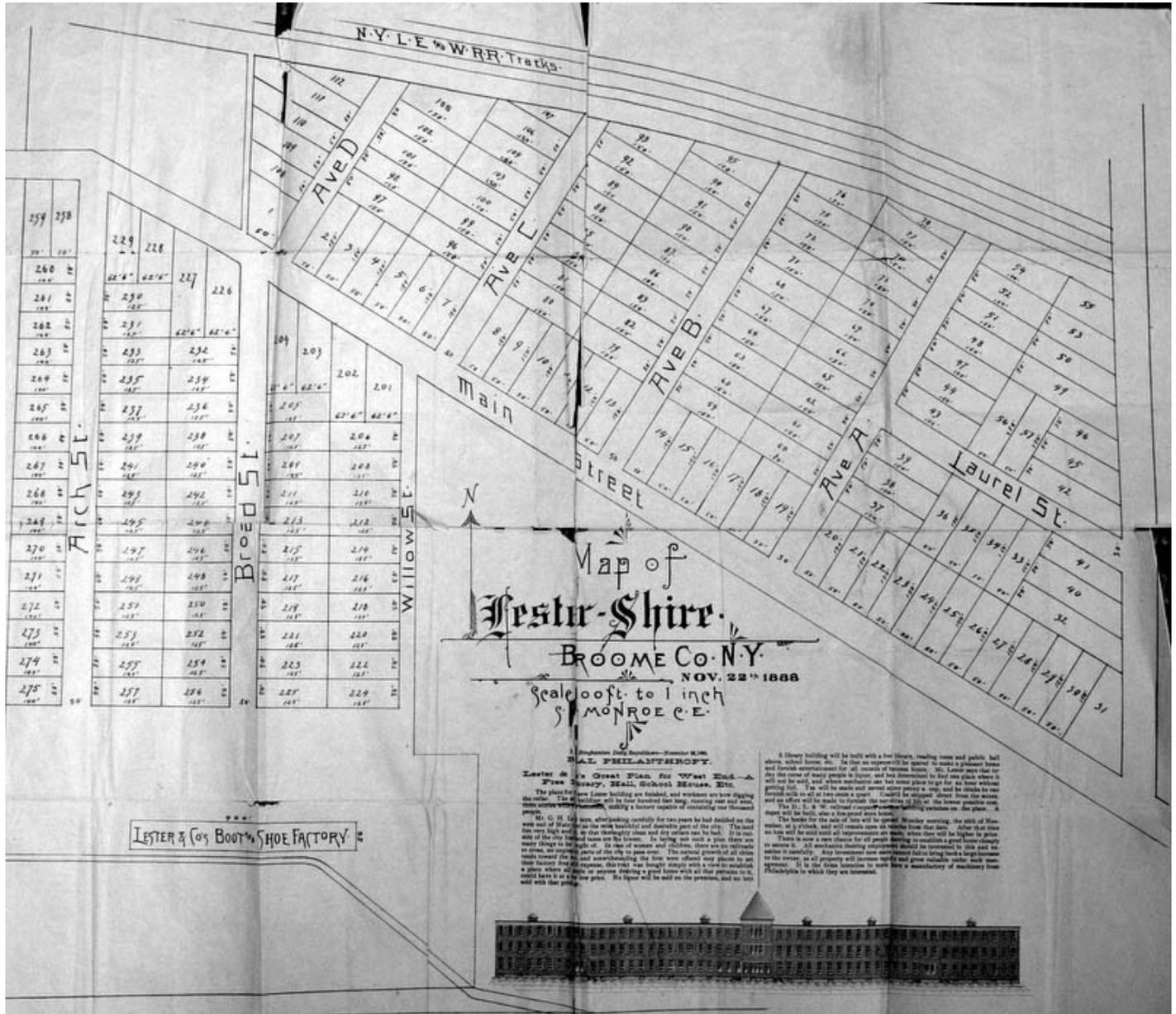


Figure A-7:
Map of Lester-Shire, Broome County, NY (November 22, 1888)
From the Johnson City Historic District NR Nomination

The original plan for the Lester company's planned factory town of Lester-Shire, focusing on Main Street between two railroad lines (north and south). Note here that the original Lester Company factory building was located just south of the newly laid out streets, adjacent to a rail line. An elevation of the building is also depicted (see Figure B-24 for photo). This neighborhood for later become home to the Endicott-Johnson company, and be renamed as Johnson City in 1916.

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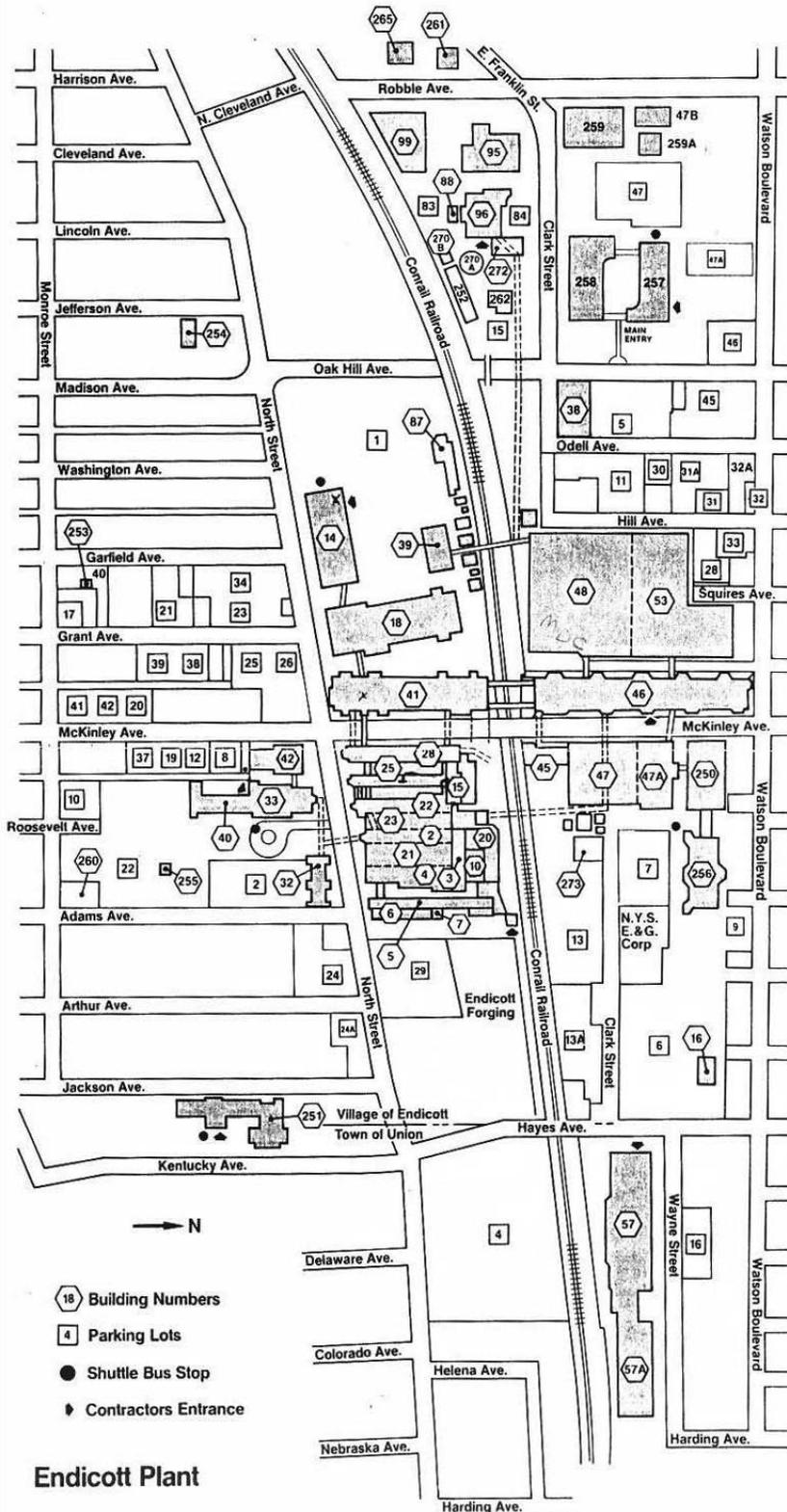


Figure A-9:
Site map, IBM Endicott Plant, undated
(from IBM Archives)

This undated, but recent, map identifies many of the IBM buildings by number, and also gives an overall sense of the size and scale of these massive industrial buildings. The original building from 1905 is numbered 15 on this map.

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APPENDIX B – HISTORIC PHOTOS



Figure B-1:
Sawmill near Deposit, NY, ca. 1890 (from *Working Lives*, page 1)

An excellent image depicting the early timber and logging industry in Broome County.

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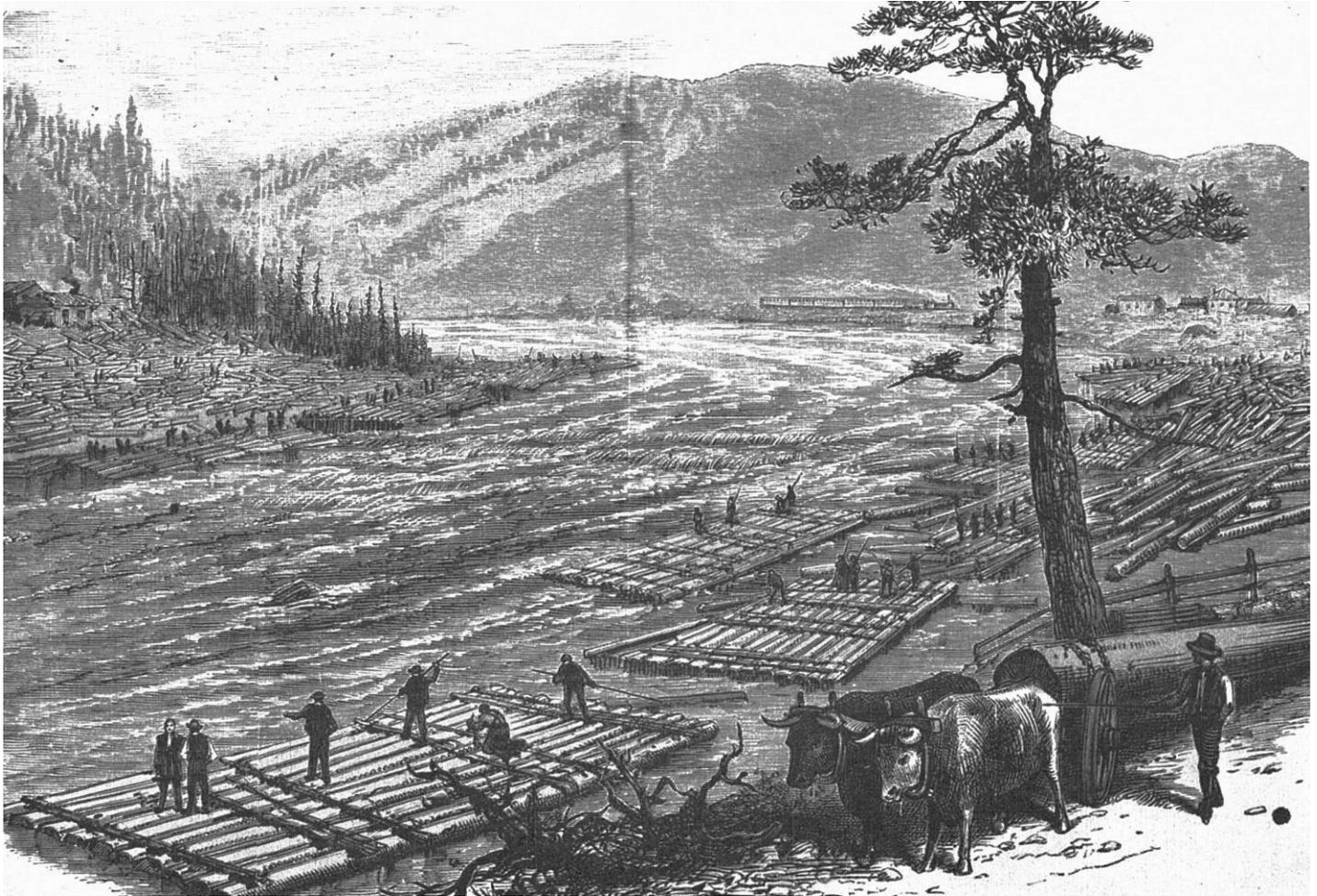


Figure B-2:

“Making Rafts on the Susquehanna,” engraving (from *Working Lives*, page 7)

This engraving, as well as other images, illustrates the transporting of logs by water. Known as “rafting,” the logs were lashed together and floated to saw mills to be processed into lumber, or directly to markets throughout the region. Images like this one underscore how valuable waterways were to transportation, aiding the development of industry in Broome County.

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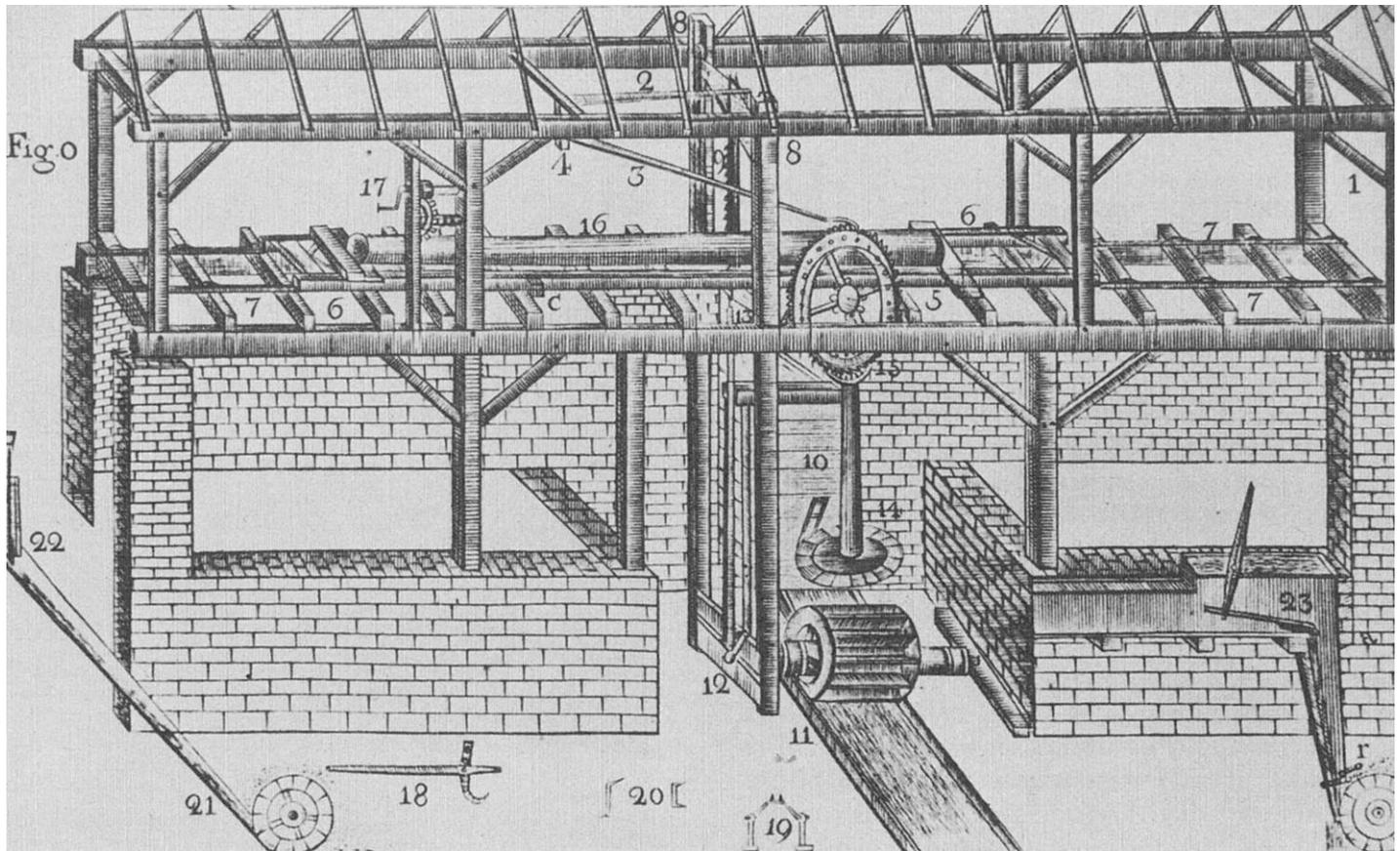


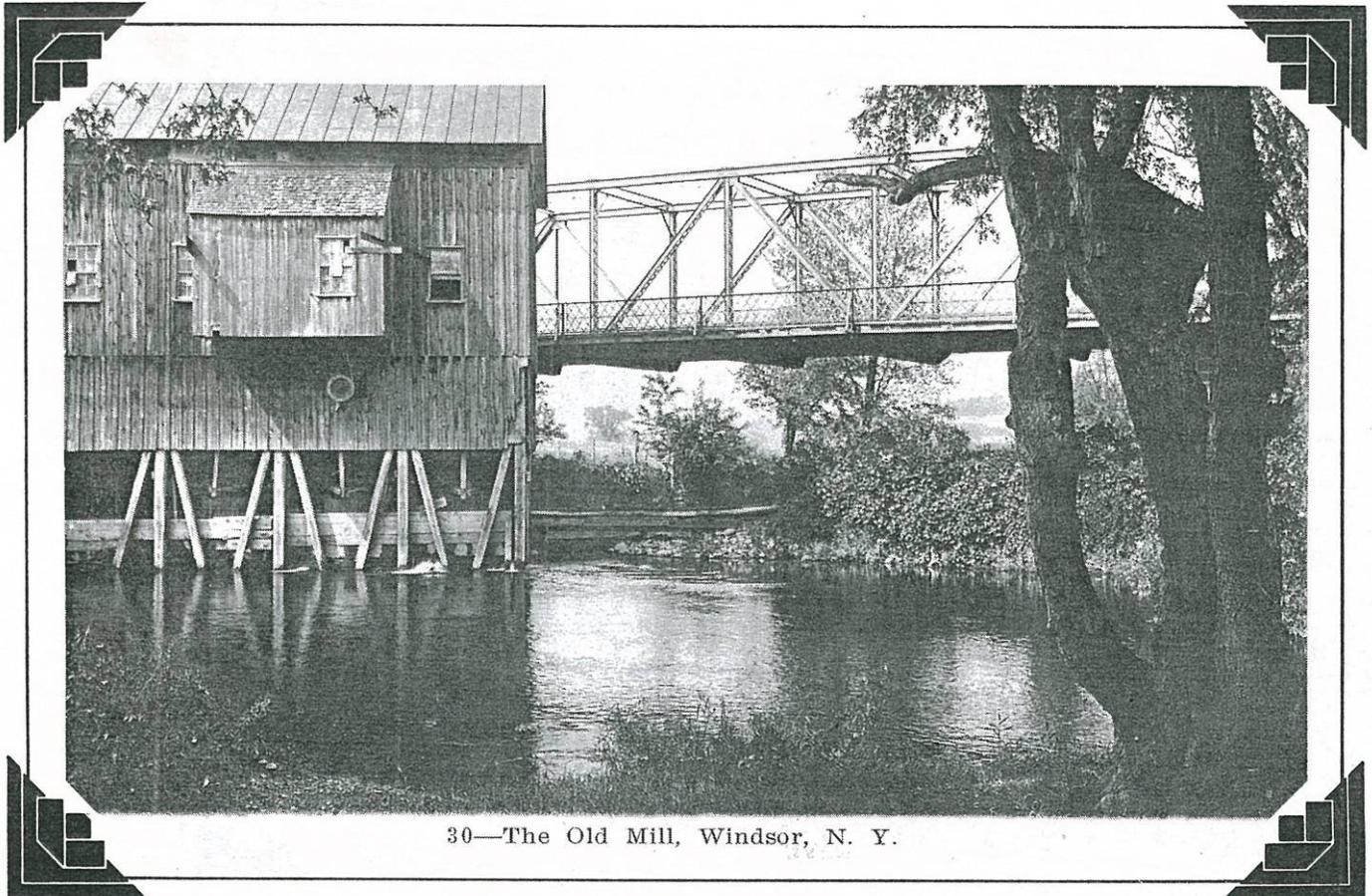
Figure B-3:
Early sawmill plan (from *Working Lives*, page 10)

An early diagram of a sawmill, this drawing comes from Oliver Evans' "The Young Millwright's Guide," from 1897. Note that this drawing illustrates a water course (center) that turns a wheel, driving a saw blade through a log. Evans was perhaps the best-known mill engineer in the country, and did much to help spread knowledge about how to design and construct flour and sawmills to the early American pioneers. The first edition of his invaluable guide was published in 1795, with numerous other editions it became the "bible" for millwrights. It was filled with information on the physics and mechanics of mill design, highlighted the various types of mills, and other information.

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30—The Old Mill, Windsor, N. Y.

Figure B-4:

“The Old Mill, Windsor, NY” postcard (from *A Picture Postcard History of New York’s Broome County Area*)

This image depicts a grist mill located at the foot of Bridge Street in Windsor. The water in the foreground is the mill’s raceway, while the Susquehanna River is just in the background at the right of the island. Note the mill’s construction as a front-gabled wood-frame building, built on stilts above the waterway, with a connecting elevated walkway.

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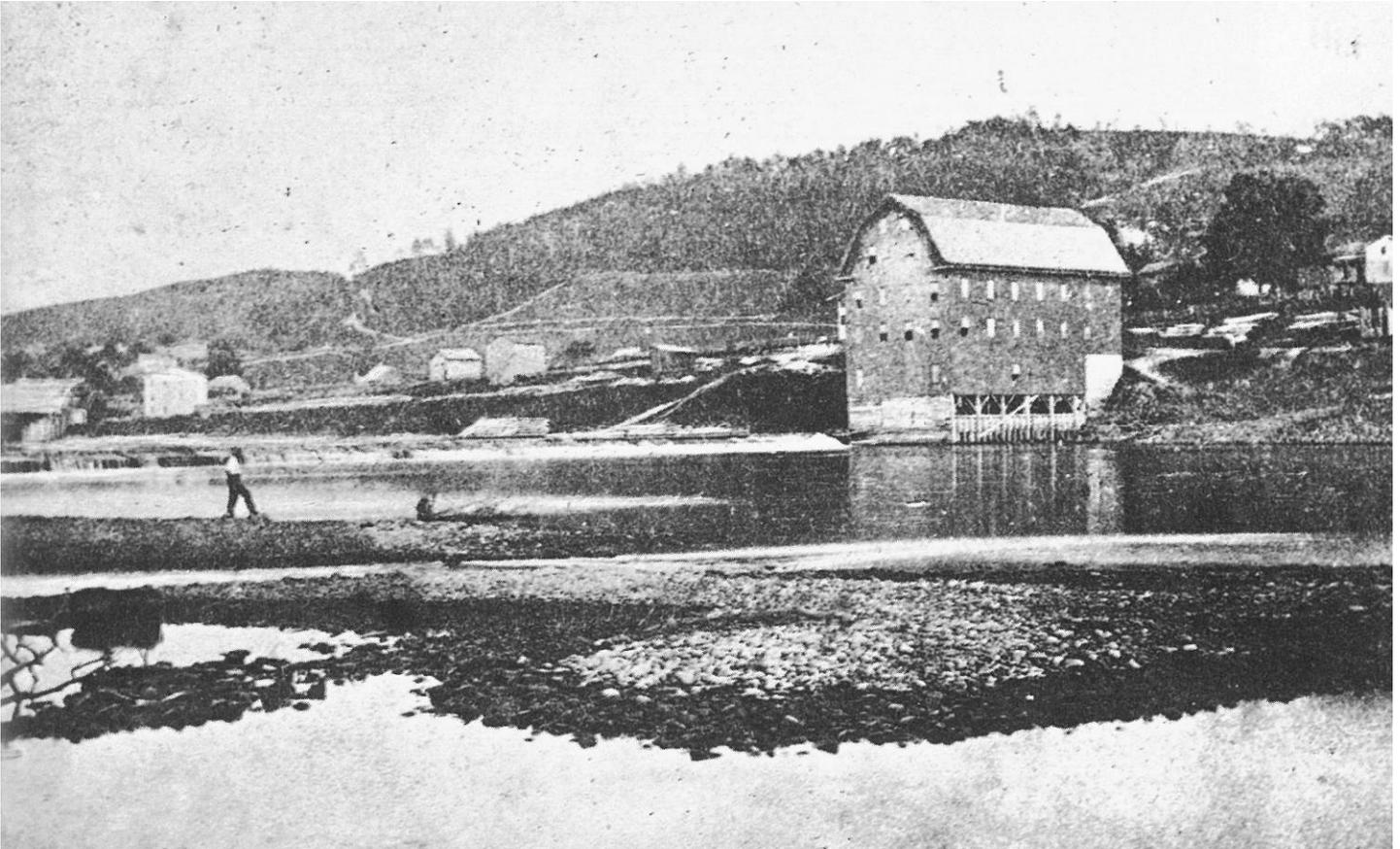


Figure B-5:

Mill on the south bank of the Susquehanna River in "Millsville," next to Conklin Avenue near present-day Mill Street in Binghamton (ca. 1860s image, from *The Valley of Opportunity*, page 47)

While no longer standing, this image depicts a front-gambrel masonry mill building, built on stilts above the water course. Demolished.

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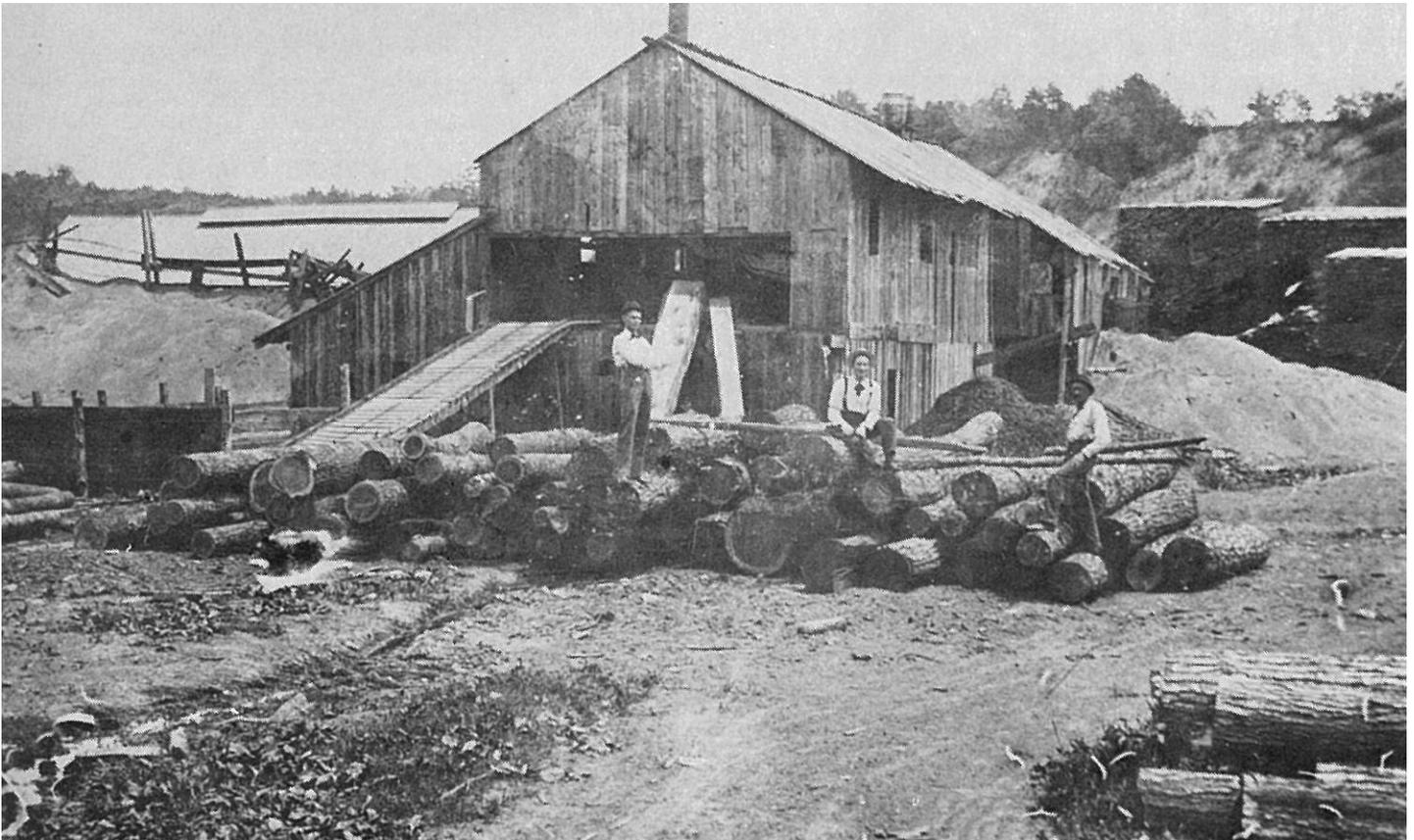


Figure B-6:
Sawmill in Deposit, NY, ca. 1900 (from *Broome County Heritage*, page 31)

An excellent image of a sawmill, this later example featured a steam engine which allowed it to operate without relying on a natural water source which could freeze or flood at different times of the season.

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Figure B-7:

The George A. Kent & Co. cigar factory (from *The Valley of Opportunity*, page 90)

A “store and loft” type of industrial loft building, this example features commercial shops on the ground floor with work spaces above. Note the numerous window openings to provide light and air to the workers. This building is of load-bearing masonry construction, in a modest Italianate style.

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Figure B-8:

The Barlow, Rogers and Simpson cigar factory, located on North Depot Street, Binghamton
(from *The Valley of Opportunity*, page 90)

Another example of a “store and loft” load-bearing brick factory building, this building is still standing (minus its decorative wooden signboard at the cornice) as a part of Binghamton’s Railroad Station Historic District. Extant.

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Figure B-9:
The Hull, Grummond & Co. cigar factory at 218 Water Street, Binghamton
(pre-1912 artist rendering, from *The Valley of Opportunity*, page 91)

This existing former cigar factory building is a more decorative and highly designed example. A “store and loft” example, this load-bearing masonry building features numerous windows on the upper workspace floors. Extant, NR listed.

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Figure B-10:
Cigar factory, interior (from *The Valley of Opportunity*, page 74)

A typical interior of a cigar factory, likely dating to the nineteenth century. Note the lack of machinery or heavy equipment, as hand tools and work tables serve the needs of workers. Here, the needs for open workspaces and lighting from numerous windows are also apparent. Also note the prevalence of women in the cigar manufacturing industry.

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Figure B-11:

Cigar Manufacturing Department, F.B. Richards Cigar and Company (from *The Valley of Opportunity*, page 91)

Another view inside a typical cigar factory, again the use of work tables and simple hand tools is visible in this open work room.

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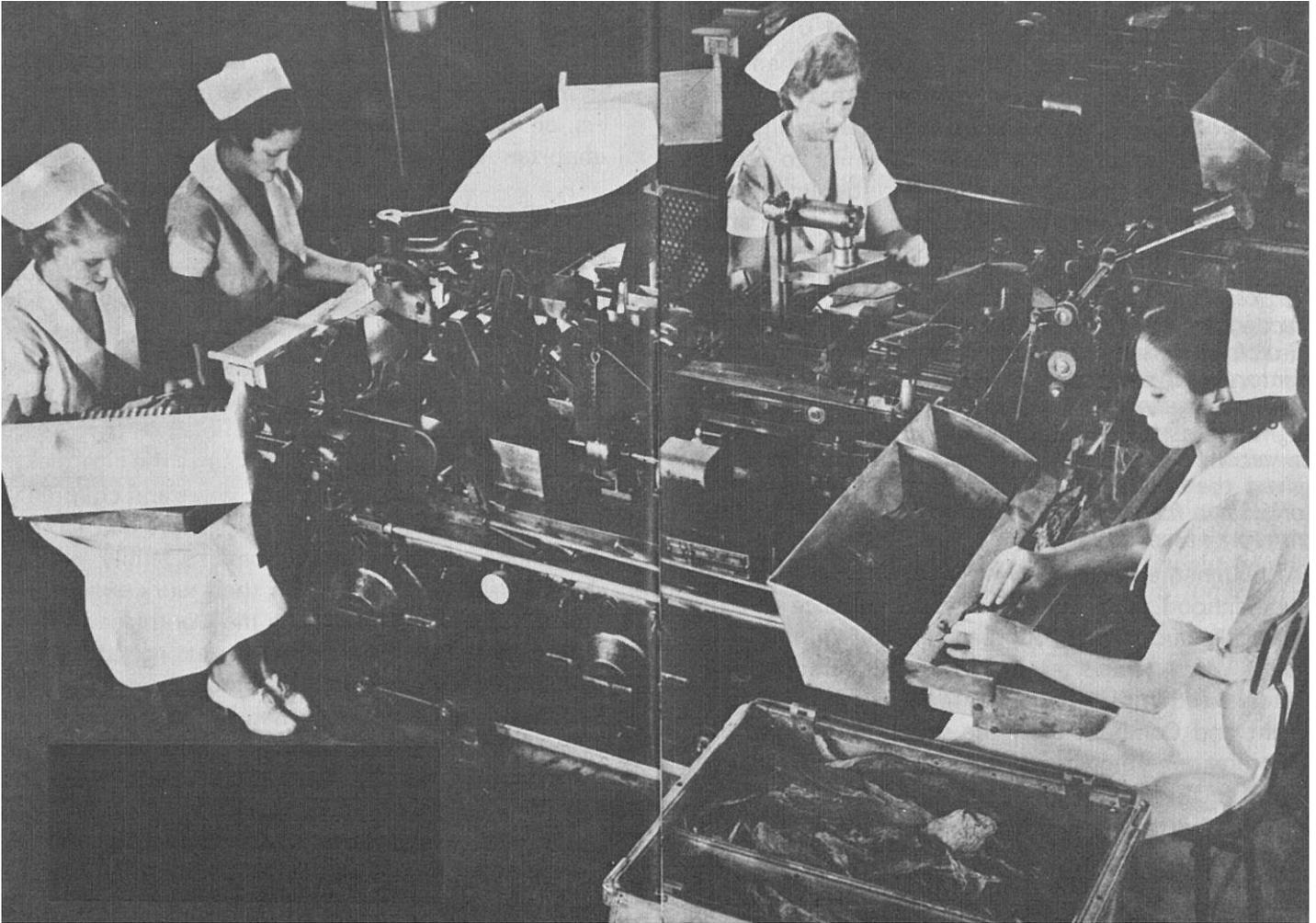


Figure B-12:

Automatic cigar-making machine, ca. 1940s (from *Working Lives*, page 62)

Later on, the use of machines became more common in the cigar industry. This example is operated by four women, stationed at different points. A relatively small machine, this example could easily have been inserted into an existing open workspace in an older factory, underscoring the importance of having a building with large, open rooms that could accommodate the changing technologies of the industry.

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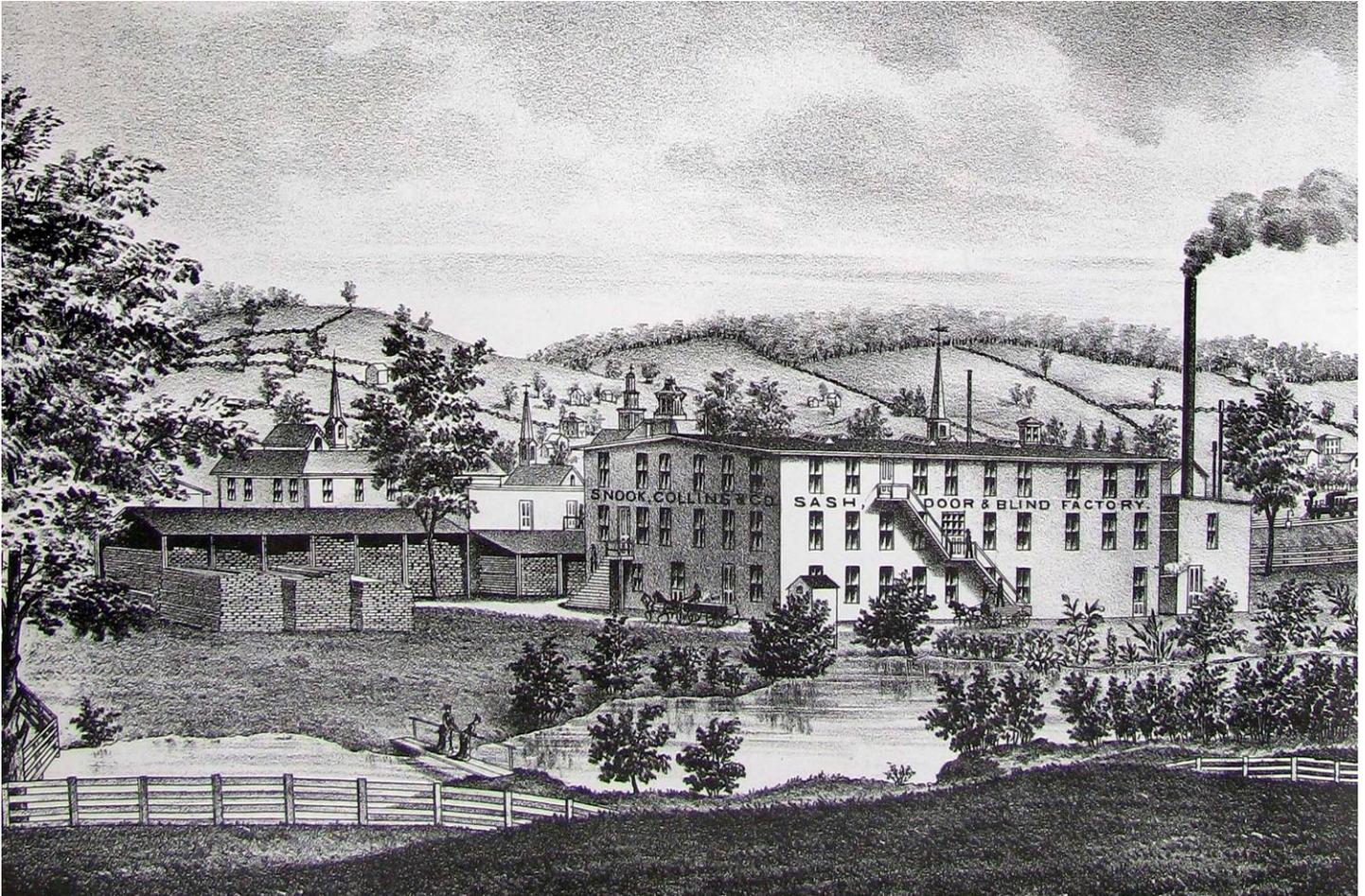


Figure B-13:

The Snook, Collins & Co. Planing Mill and Sash Door and Blind Factory, Whitney's Point
(from *Combination Atlas Map of Broome County, 1876*)

An example of a brick industrial loft building with a low-pitched gable roof. Common features of this type of industrial building are here demonstrated, including a tall chimney or smoke stack, proximity to water for power and transportation, and numerous windows for both air and light.

Demolished.

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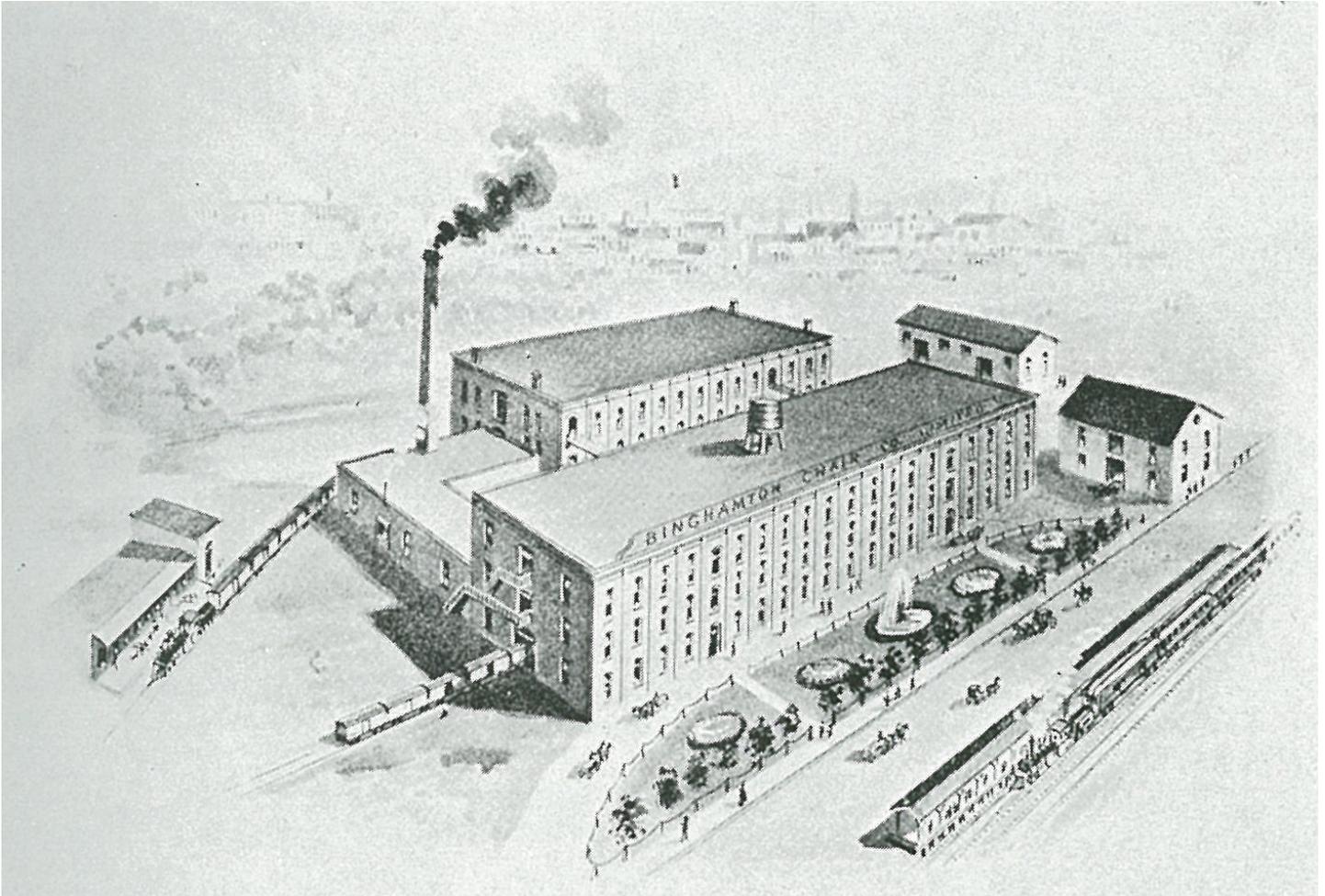


Figure B-14:

The Binghamton Chair Company, located at 111-115 Montgomery Street in Binghamton (ca. 1890s image, from *The Valley of Opportunity*, page 84)

Excellent examples of load-bearing masonry with heavy timber constructed industrial lofts, this factory complex was home to the Binghamton Chair Company that specialized in producing fine decorative wood chairs. This site also had excellent rail connections, as noted at the bottom right of the image, allowing for the import of raw materials and the export of finished chairs from the factory. Extant.

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Figure B-15:

The George Norton Wagon Shop at Bowers Corners, Maine (from *Working Lives*, page 37)

This example of a woodworking shop is a front-gabled, 2-story wood framed industrial loft building. Note here a large door used for moving finished wagons out of the workshop.
Demolished.

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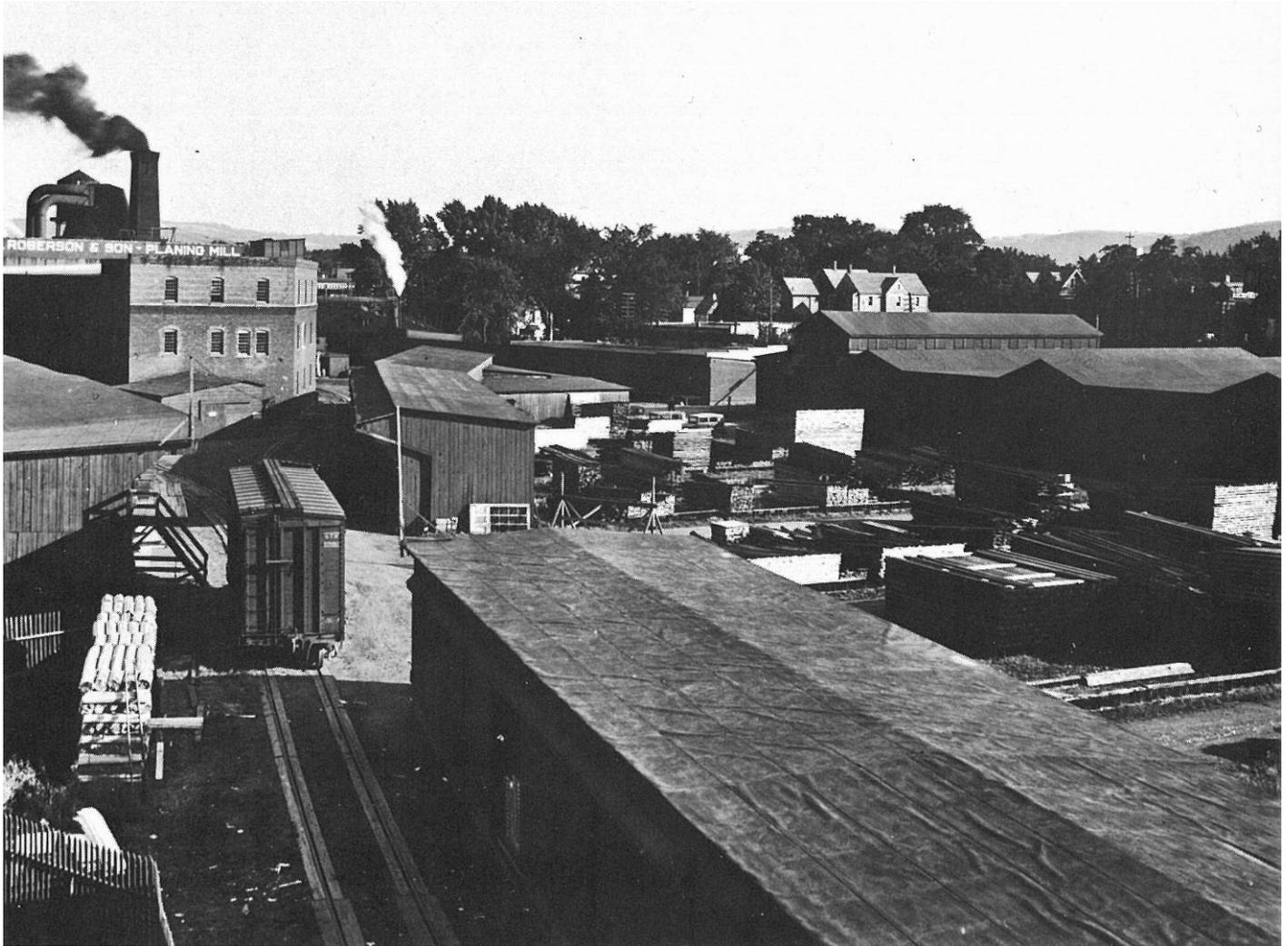


Figure B-16:

The Roberson & Son Planing Mill, (from *The Valley of Opportunity*, page 106)

One of Binghamton's most successful sash and blind manufacturers, this factory was located off of Floral Avenue in Binghamton by Alonzo Roberson, Sr. in 1893. This area was selected due to the relative inexpensive land in the area, coupled with the excellent access to many rail lines in the area. Notice here the rail line running through the factory site (at center-left). Demolished.

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Figure B-17:

The Marshall Furniture Factory, near Corliss Avenue in present Johnson City
(from *Working Lives*, page 46)

An excellent example of load-bearing masonry industrial loft factory buildings, these were constructed in the late nineteenth century. Demonstrating the versatility of the industrial loft, this building was also used by the AnSCO company and later the Ozalid company to manufacture cameras and camera equipment. Demolished.

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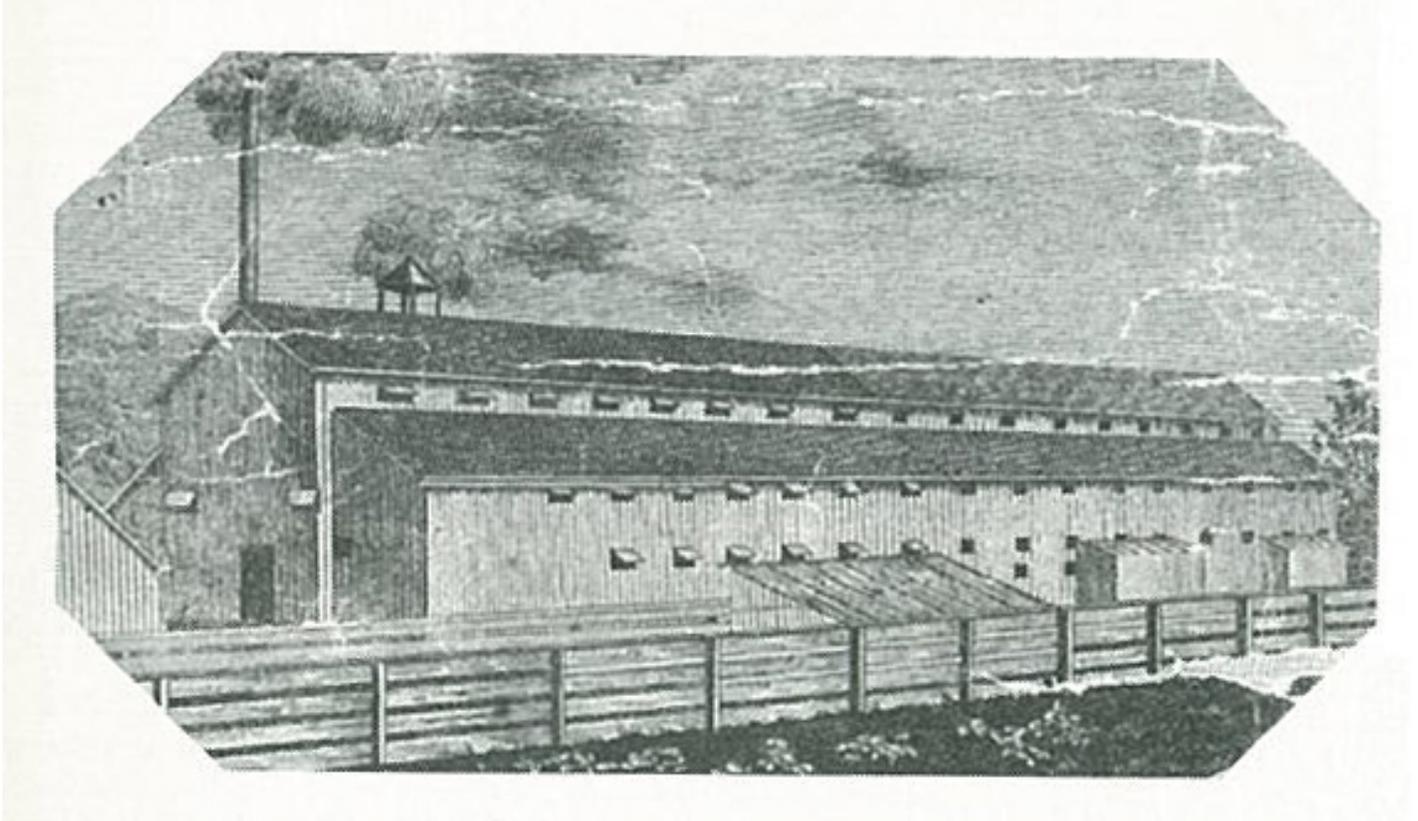


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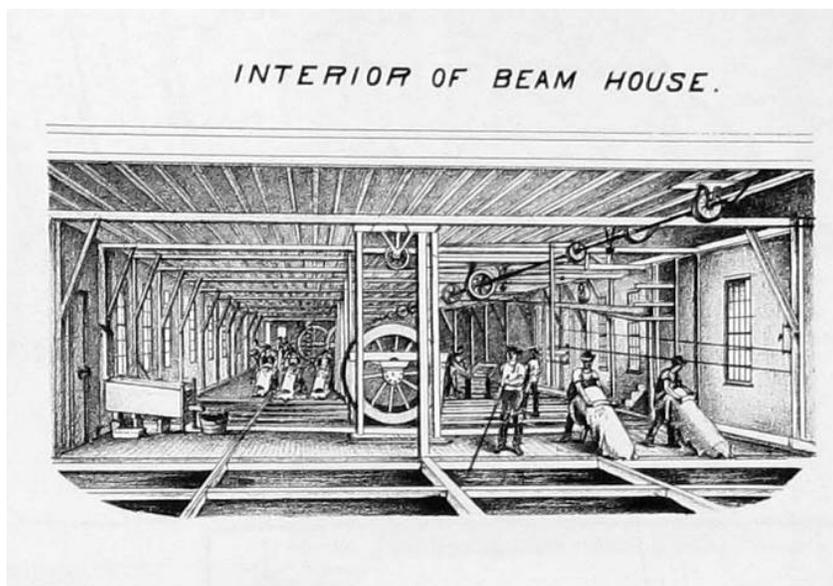
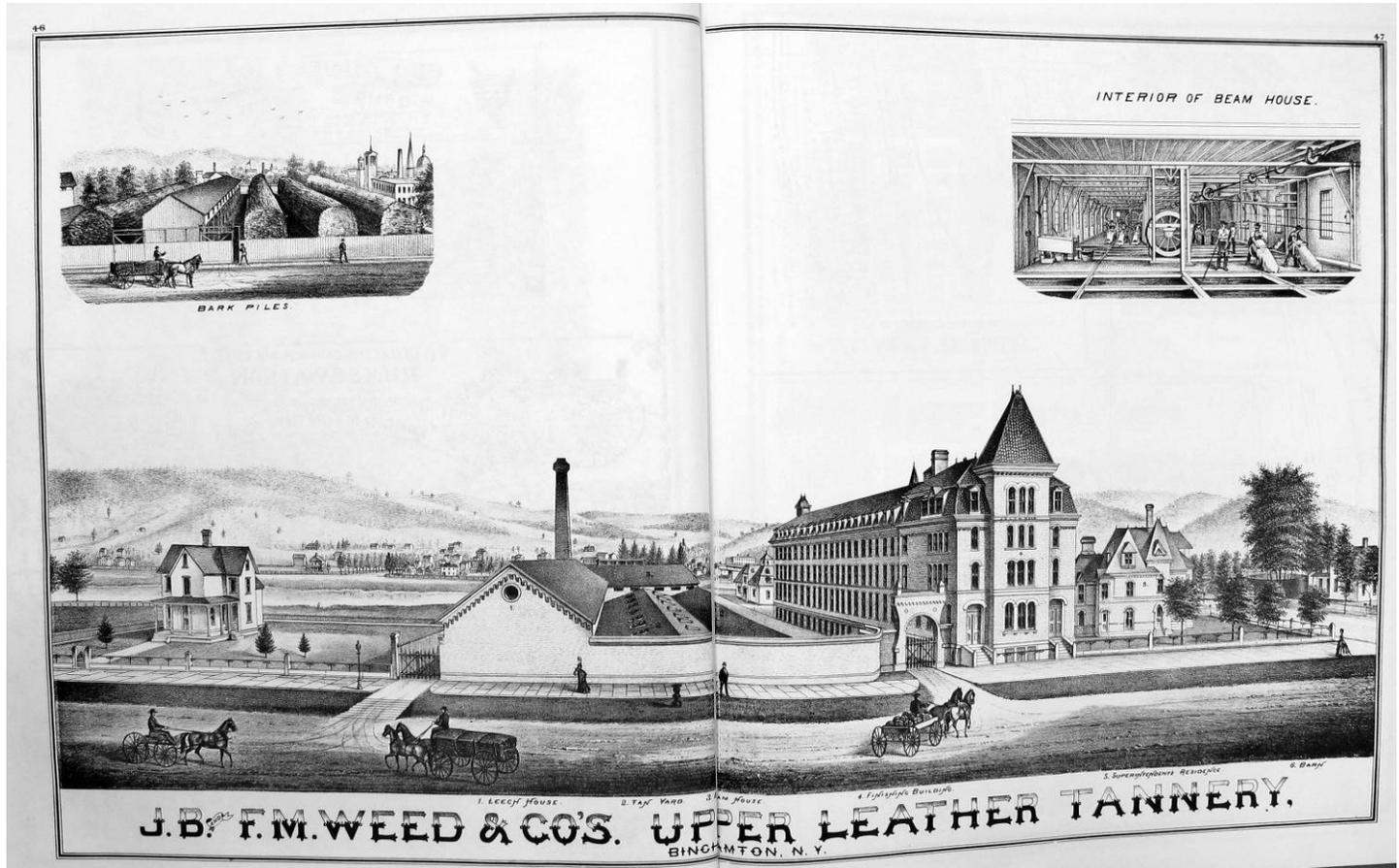
The Glen Aubrey Tannery, town of Nanticoke, ca. 1855 (from *Broome County Heritage*, page 41)

An early depiction of a tannery in Broome County, note that this building appears to have been built in the production shed typology, which includes a single-level work space with a gabled roof, flanked by two smaller shed-roof lean-to wings on each side of the building. Note here relatively small window openings. Demolished.

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Detail, "Interior of Beam House"

Figure B-19:
Weed & Co. Upper Leather Tannery,
located on Susquehanna Street in
Binghamton, 1876
(from *Combination Atlas Map of
Broome County*
pages 46-47)

Perhaps one of the most elegantly styled industrial loft factory buildings in Broome County, this was noted by the 1880s as one of the largest tanneries in New York State, producing over 1,200 hides of leather per week and employing between 100 and 200 workers.

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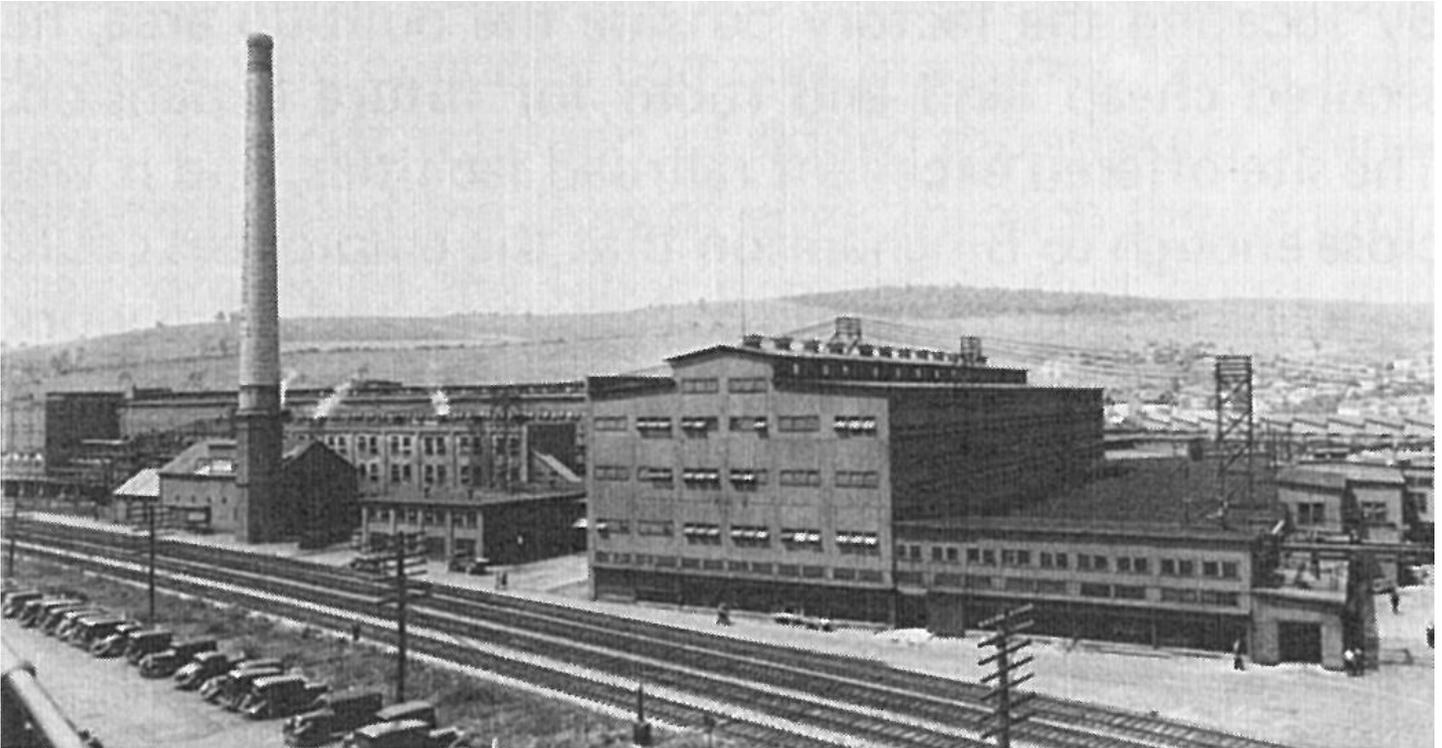


Figure B-20:

Sole Leather Tanneries, Endicott-Johnson Company, Endicott, ca. 1936 (from *Working Lives*, page 65)

An example of an industrial loft type of tannery, note the close proximity of the factory to the rail lines.

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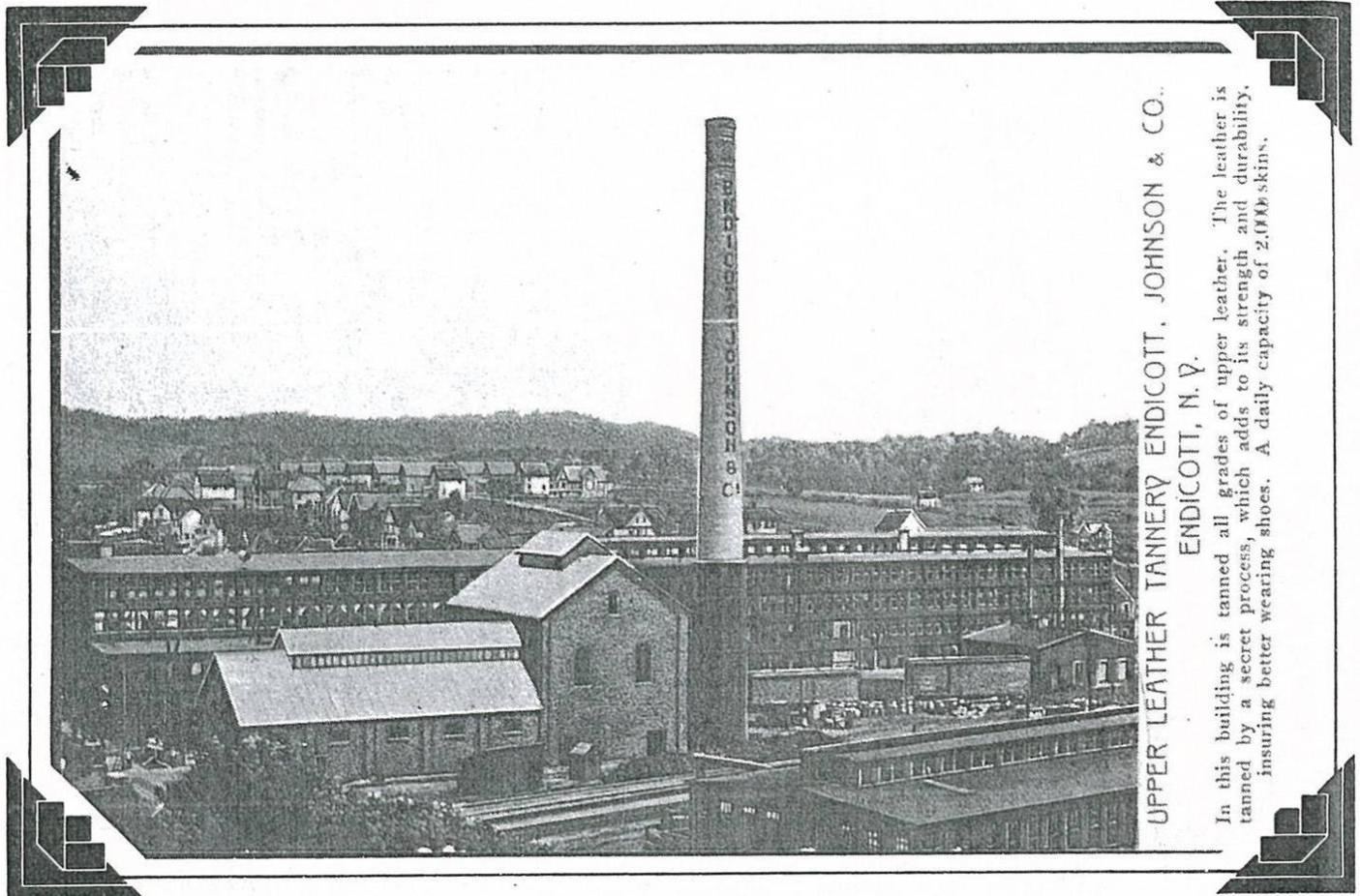


Figure B-21:
The Upper Leather Tannery of Endicott-Johnson, Clark Street in Endicott
(from *A Picture Postcard History of New York's Broome County Area*, page 44)

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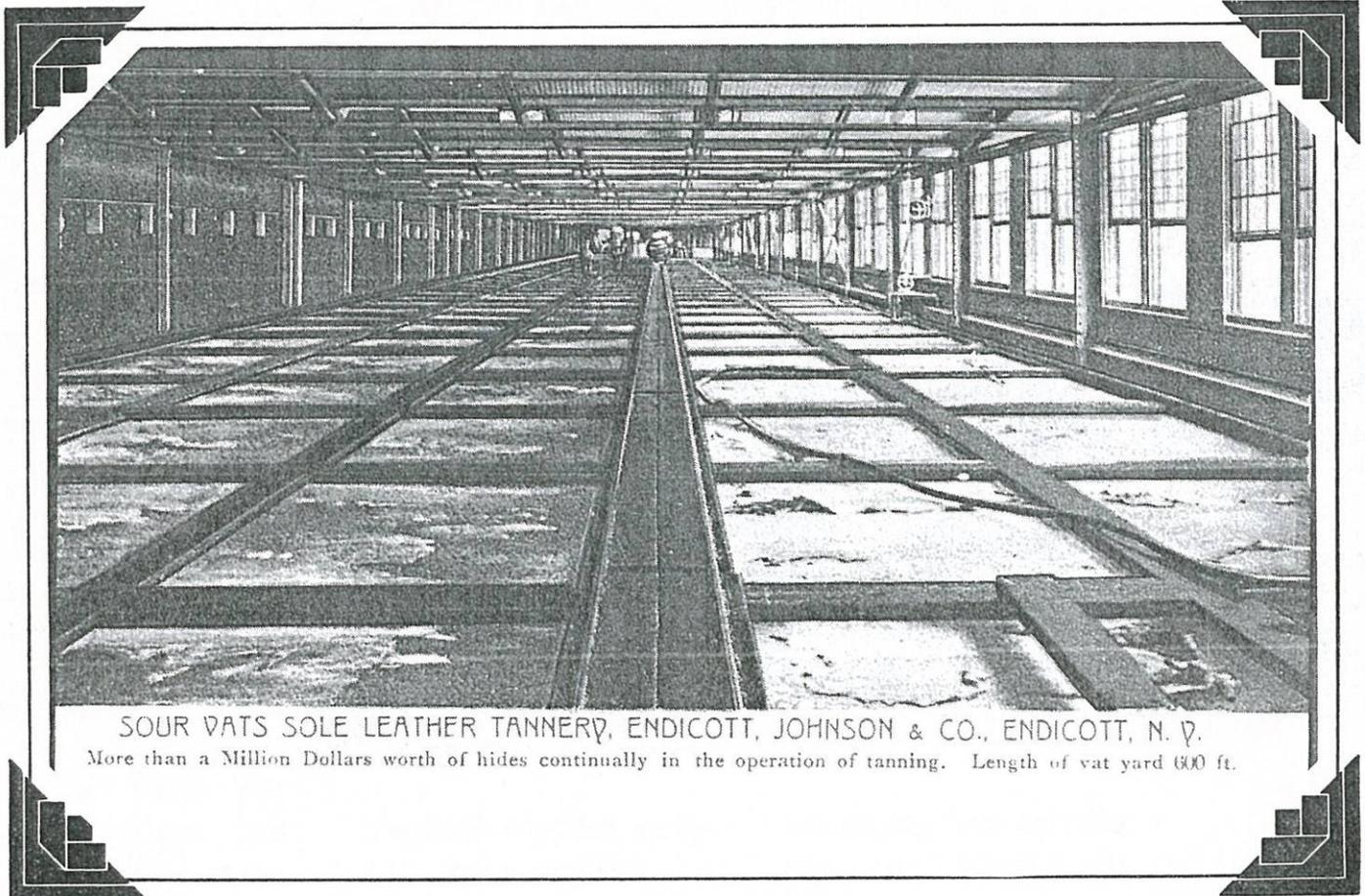


Figure B-22:

Interior view of “Sour Vats Sole Leather Tannery” of Endicott-Johnson tanneries, Endicott
(from *A Picture Postcard History of New York’s Broome County Area*, page 44)

This interior image of the tannery building demonstrates how these wide open interior spaces were so valuable for the tanning industry. Here are the many vats used during the tanning process, with wood walkways used by the workers to maneuver in the factory. The numerous large windows are all open in this image, allowing for the nasty fumes from the process to escape. “Sour liquor,” which could be made from allowing a mixture of rye flour and water ferment and adding this to the hemlock vat, was used as a part of the tanning process to prevent cracking in the leather.

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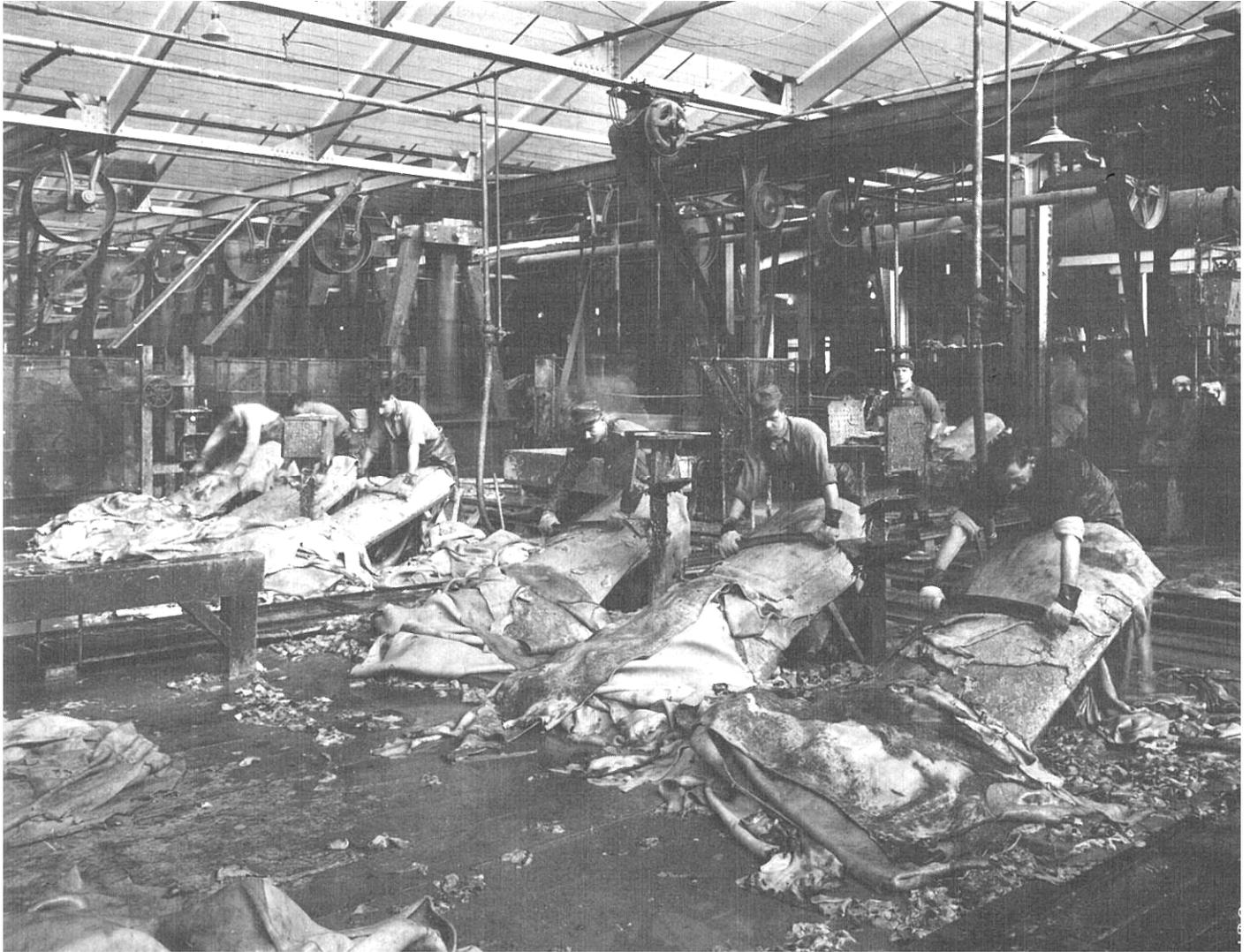


Figure B-23:

Interior view showing the beaming of hides, Endicott-Johnson tanneries, Endicott, ca. 1917
(from *Working Lives*, page 97)

Another interior view of the leather making process. Here, hides are scraped by hand to smooth them and remove excess hair and other materials. Again, notice the open workspace. In this space, large belts and wheels are used for powering machinery.

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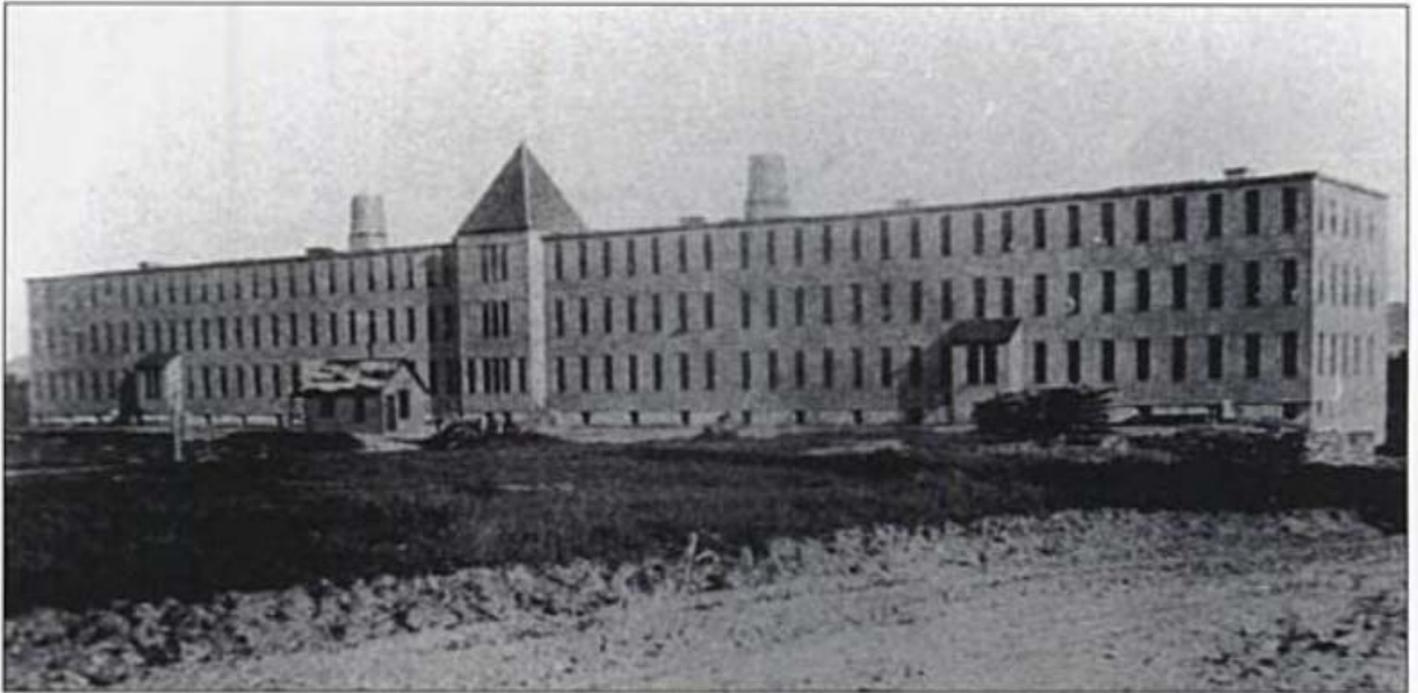


Figure B-24:

The Lester Bros. Boot and Shoe Company's Pioneer Factory, located in present Johnson City, ca. 1888-1890
(from *Johnson City Firefighting*, page 18)

Constructed between 1888 and 1890, this was the first shoe making factory that the Lester Bros. Company built in the newly-established Lestershire factory town just west of Binghamton. Note here that the building is an excellent example of an industrial loft, with a narrow rectilinear form and multiplicity of windows to allow for maximum light and ventilation inside. This austere building was constructed of load-bearing masonry with heavy timber framing, and featured a pyramidal hipped roof above the entry pavilion. It was located adjacent to the rail lines in the area, as well. This building later served as the core of the Endicott-Johnson shoe making buildings. Demolished.

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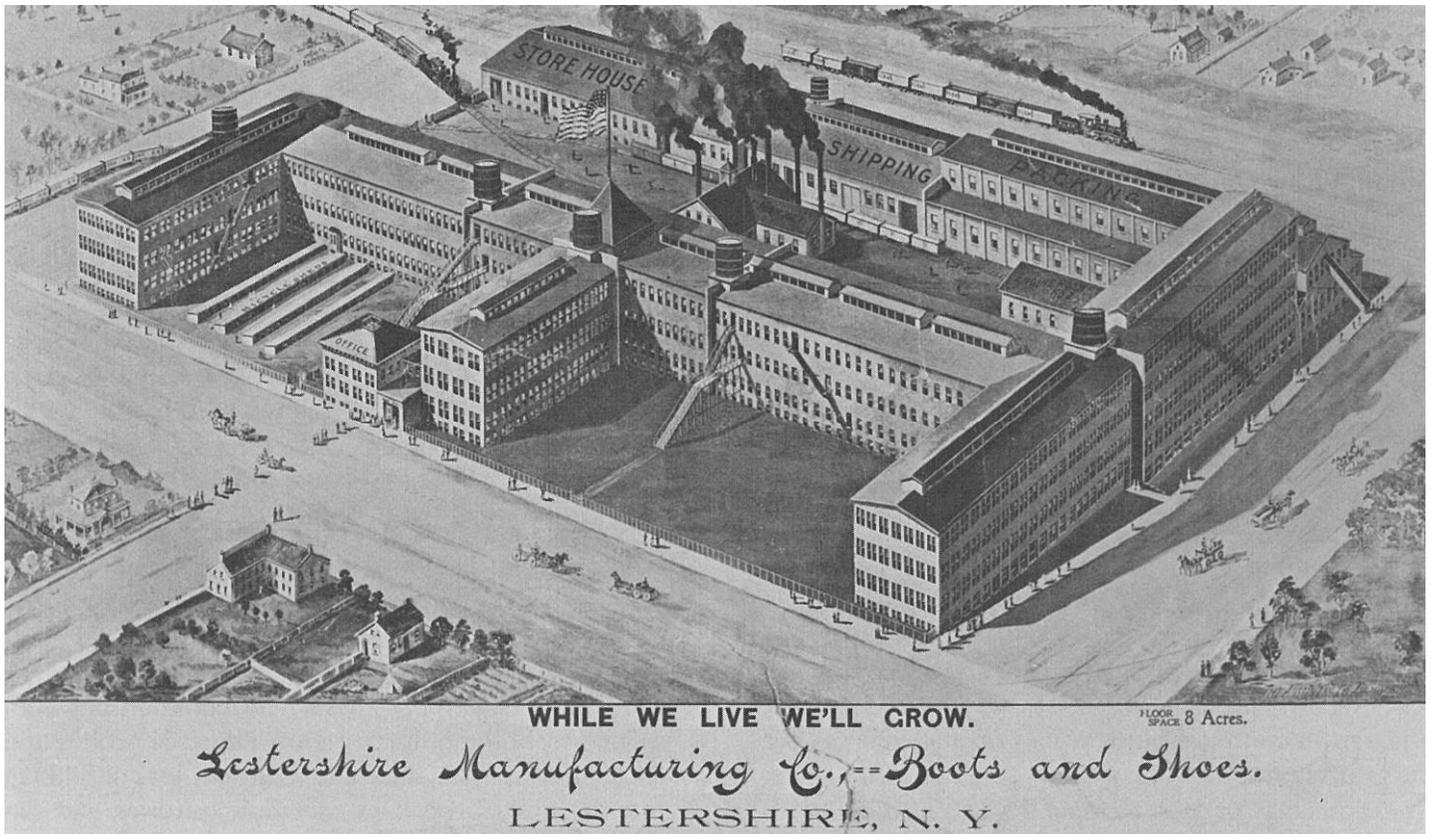


Figure B-25:

Another view of the Lestershire Manufacturing Company, located in present Johnson City, ca. 1897
(from *Working Lives*, page 65)

This view shows subsequent expansion of the original Pioneer Factory (at center) with the addition of numerous wings. Note the use of rooftop monitors to allow for additional lighting on upper levels of the buildings. Water towers are also mounted on the roof of the buildings, and the many smoke stacks indicate the steam boilers used to power the machinery within. In this view, which looks south-east, notice the railroad tracks adjacent to the building.

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Figure B-26:

Birds-eye view of the Endicott-Johnson factory (looking south), Johnson City
(from *Gerald Zahavi website*)

This image from sometime in the early twentieth century depicts the massive works of the Endicott-Johnson factory in Johnson City. The original Pioneer Factory is located near the center, and what once was a massive industrial building, appears much smaller compared to its giant new neighbors. This image depicts the evolution of the industrial loft used by Endicott-Johnson, from the load-bearing masonry Pioneer Factory to the use of reinforced concrete and steel framing that allowed these buildings to have more floors and workspaces. These structural systems, which relied on structural columns rather than walls, maximized the openness of the interior spaces and also allowed for larger exterior windows to be inserted into the non-structural walls. Most demolished, some extant.

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Figure B-27:
Birds-eye view of the Endicott-Johnson Plant, Endicott, 1917
(from *NYS Archives*)

Comparable in size and scale were the Endicott-Johnson factory buildings in Endicott. The company operated most of its tanning industry from these buildings, and others were used for various types of shoe production. Here as in Johnson City, we can see that the more useful building type was the industrial shed, which acted as generic containers for the activities within. Most demolished.

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Figure B-28:

Street view in Johnson City, showing Pioneer Factory, Endicott-Johnson Company, 1936
(from *Working Lives*, page 64)

This street view shows what life in Johnson City was like during the hey-day of the Endicott-Johnson Company. This image, taken looking south-west from the corner of Corliss Avenue and Willow Street shows the size and scale of these buildings against the hustle and bustle of the streets. Demolished.

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Figure B-29:

Looking north on Washington Avenue, Endicott, 1938 (from *Working Lives*, page 67)

This view demonstrates the connectivity between the Endicott-Johnson Company and the planned factory town of Endicott. Washington Avenue was originally designed the primary commercial thoroughfare in the village, and the view here is terminated by the omni-present E-J company. While the commercial street remains largely intact, the E-J buildings have been replaced by later IBM buildings.

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Figure B-30:
Sewing uppers together, Endicott-Johnson Company, Endicott, 1917
(from *NYS Archives*)

This view depicts the sewing of the upper portions of the shoes, using industrial-strength sewing machines. Here we can see the arrangement of the open workspaces in such a department, where the sewing machine tables are abutting and located in rows in the building. Note here how the steel structural columns do not intrude into the workspace, in fact they are integrated into the rows of workstations, and large windows illuminate the space.

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Figure B-31:
Cutting soles and heels, Endicott-Johnson Company, Endicott, 1917
(from *NYS Archives*)

Note here the use of overhead line shafts to drive the machinery. Line shafts were commonly utilized during the nineteenth century as a way to distribute power typically generated from a water wheel or a large steam engine throughout floors and between numerous machines. This system was popular before the invention of smaller electrical motors that could power each individual machine in the twentieth century. Connected to the power source, the rod would turn the large wheels, connected with a wide leather belt to the individual machine.

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Figure B-32:
Stitching Room, Endicott-Johnson Company, Endicott, 1917
(from *NYS Archives*)

Again note the large, open workspace and illumination provided by numerous windows including a rooftop monitor.

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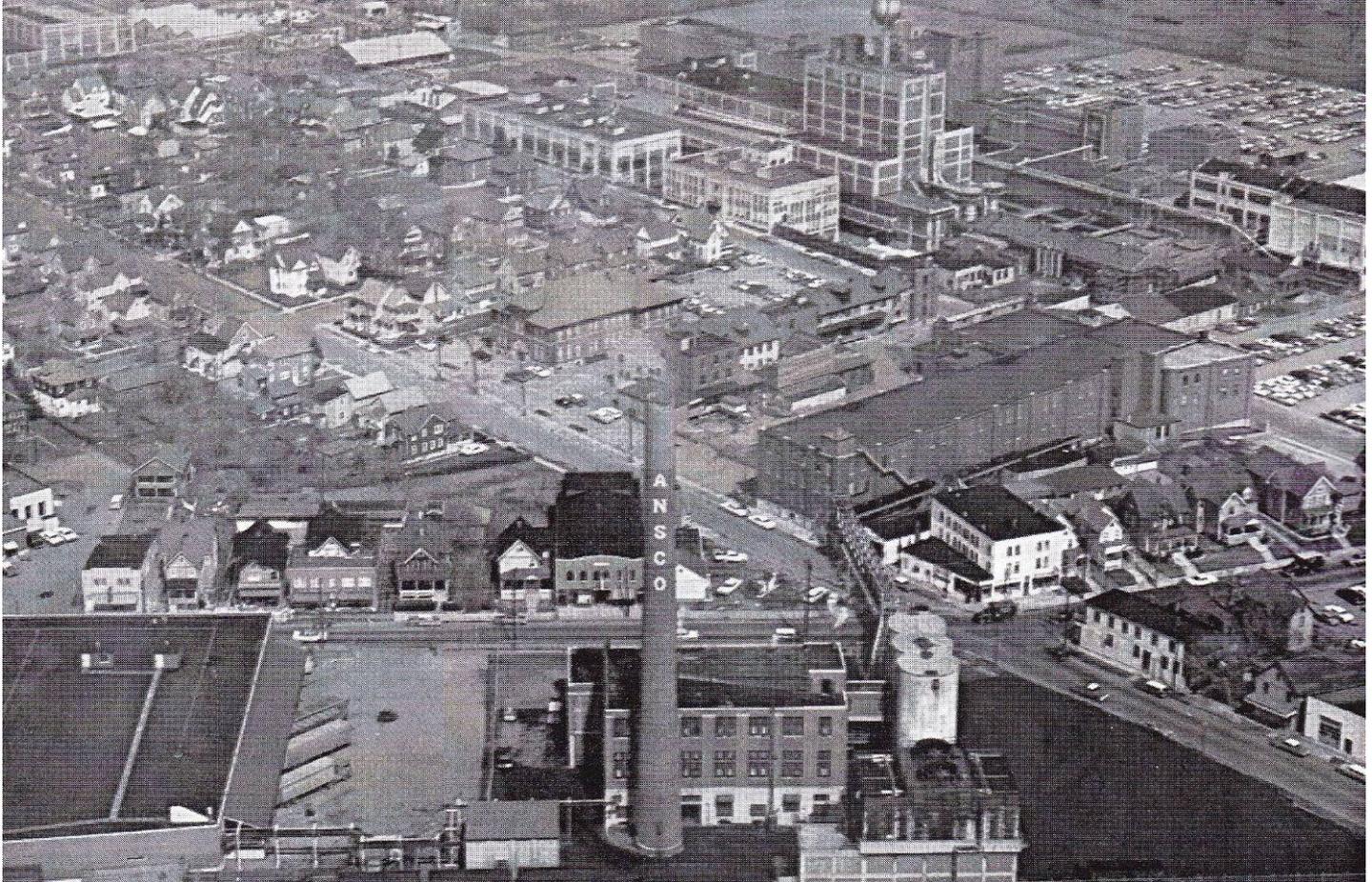


Figure B-33:

Aerial photograph of AnSCO Charles Street complex, Binghamton, ca. 1963
(from *ANSCO: Cameras, Construction & Community*)

This view is taken looking north-east, and shows the variety of buildings once utilized by the AnSCO camera company at their Charles Street plant. This facility was largely used for producing films and photographic paper. In this image, the large brick building at the center-right demonstrates an industrial loft of load bearing masonry construction, while in the center background of the photo, the 1920s reinforced concrete industrial loft buildings are visible.

Today, the site has been largely cleared of the former industrial buildings due to the toxic chemicals used in producing the films and treated paper. The extant AnSCO buildings at the main Charles Street site are the two brick buildings at the center-right of the photo – 15 and 17 Charles Street. The large rectangular building on Charles Street (lower left corner) dates to somewhere after 1950 and appears to have also been used by the company in its later years.

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Figure B-34:

Postcard, Birds-eye view showing AnSCO Camera Works, Johnson City, ca. 1920s

This image is taken looking south-west down Corliss Avenue from Willow Street in Johnson City. Located in the former Marshall Furniture Factory, this industrial loft building housed the AnSCO company's camera works. Demolished.

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Figure B-35:

Ansko Camera Works, 16 Emma Street, Binghamton, ca. 1940s (from *Broome County Heritage*, page 176)

Originally built in 1927 for the General Cigar Company, this steel-framed industrial loft building became the new home to the Ansko company's camera manufacturing works in 1938, after the company vacated its facility in the former Marshall Furniture Factory building. The building typified the flexibility of the industrial loft, with its large open spaces and numerous windows, transitioning from cigar making to camera making. The building was also conveniently located adjacent to a rail line to its north. Extant.

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Figure B-36:

The Bundy Time Recorder Company, 183-185 Water Street, Binghamton, ca. 1898-1900

The original home of the Bundy Time Recorder Company, this building is a good example of the “store and loft” industrial loft type. The ground floor housed commercial space, serving as a shop for the time recorders.

The upper three floors served as factory space. The building is load-bearing masonry construction, with a modest Commercial Italianate style, and contains as many window openings as possible.

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Figure B-37:

The International Time Recorder Company factory building, Endicott, ca. 1905 (from IBM Archives website)

Persuaded to relocate to Endicott by the vast expanses of cheap land and close proximity to rail lines, the former Bundy Company/ then ITR relocated to this building, located at North Street and McKinley Avenue in 1907. Extant (integrated into later buildings)

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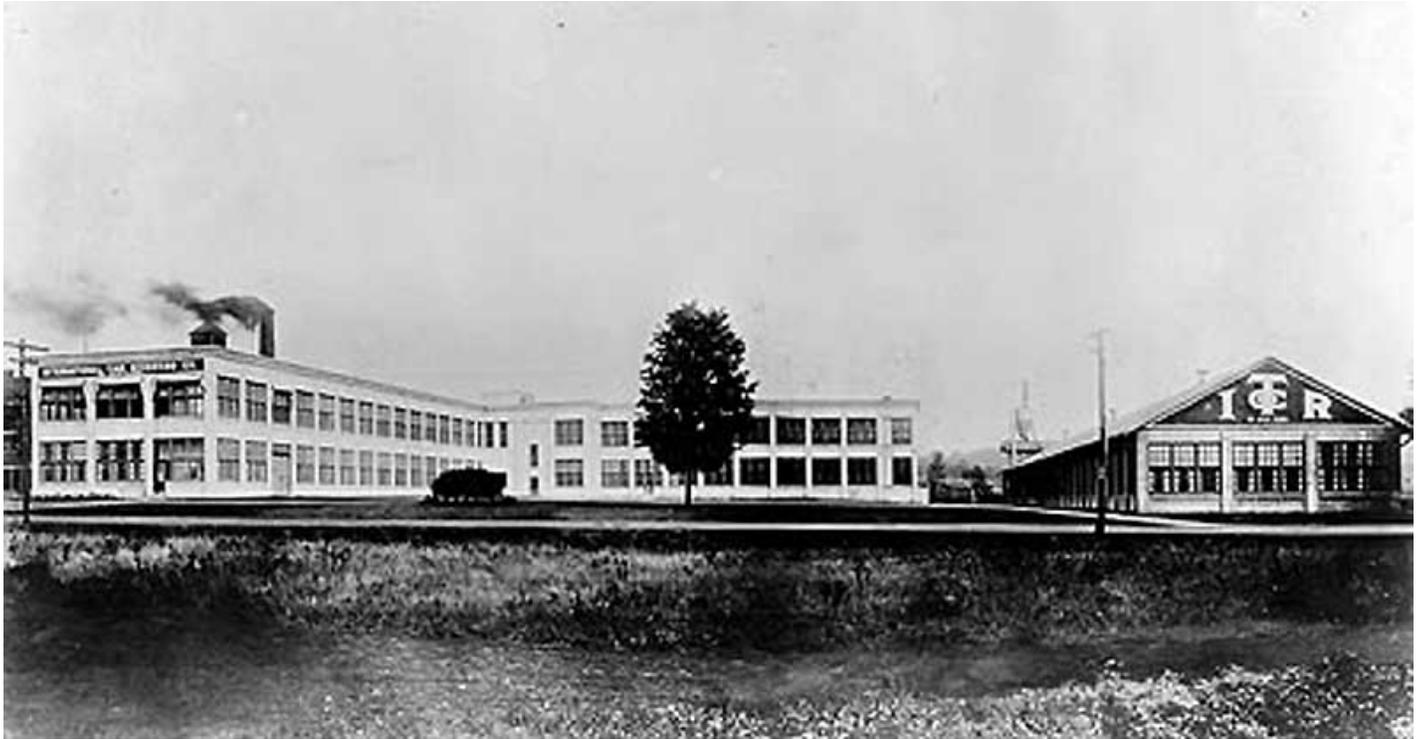


Figure B-38:

The International Time Recorder Company factory buildings, Endicott, ca. 1915 (from IBM Archives website)

This view shows two additional buildings at the ITR site in Endicott, the two-story East Wing, added in 1913, and the one-story International Time Recording Company (ITR) facility. These buildings are examples of reinforced concrete industrial sheds. Extant.

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Figure B-39:

Aerial View of International Business Machine (IBM) Complex, Endicott, 1929 (from IBM Archives website)

Renamed as International Business Machine (IBM) in 1924, by the late 1920s “Plant No. 1,” as the Endicott site was known, had been significantly expanded. The complex is at the center of the image, and the original 1905 building is at the left of the site. Note here that the majority of buildings are built of reinforced concrete, which created open interior workspaces and allowed for large windows to be installed. At the time of this photo, about 2,000 people were employed at the IBM Endicott facility. Extant.

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Figure B-40:

IBM Research Laboratory Building #32, North Street, Endicott, 1933 (from IBM Archives website)

Constructed in 1933, IBM established this elegant Colonial Revival-style building to be used to develop and engineer new products and technology. The building housed all of IBM's development work until 1945. The style has clear associations with many educational buildings which also were frequently designed in the Colonial Revival style. Barely visible in this photo are the inspirational phrases carved into the building's entablature, including Thomas J. Watson's iconic motto "THINK." Extant.

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Figure B-41:

IBM Schoolhouse Building #33, North Street, Endicott, 1948 (from IBM Archives website)

Also built in 1933, IBM established this Art Deco-styled building to house the new Education Department. This department was tasked with training and education IBM's growing staff of salesmen, engineers, apprentices, and supervisors, as well as providing education for customers and clients as well. Extant.

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Figure B-42:
Aerial View, IBM Plant No. 1, Endicott, 1960 (from IBM Archives website)

The IBM Endicott facility continued to expand during the mid-twentieth century. This image from the 1960s shows the IBM Research Lab (center right) and the IBM Schoolhouse (center, left) that were built on the south side of North Street in the 1930s. Additional reinforced concrete industrial lofts were built on the north side of North Street (center) in the 1920s and 30s. Massive new reinforced concrete buildings were built on the west side of McKinley Avenue in the early 1940s. At the time of this photo, the complex encompassed 2.5 million square feet of space in the 27 buildings, covering 39 acres. Extant.

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Figure B-43:
IBM's Time stamp assembly,
Endicott, 1919
(from IBM Archives)

This interior view of the A.E. Mead's team in Endicott shows how necessary natural light was for the factory. Delicate work on small objects was performed next to the windows on work tables. Note the open interior plan, where work stations could be moved around as needed.



Figure B-44:
IBM's card manufacturing,
Endicott, 1937
(from IBM Archives)

The signature mushroom-shaped columns visible in this photo indicate that the card manufacturing department was housed in a reinforced concrete building in Endicott. An almost continuous row of machinery is visible in this image, which turned out over 10 million punched cards each day.

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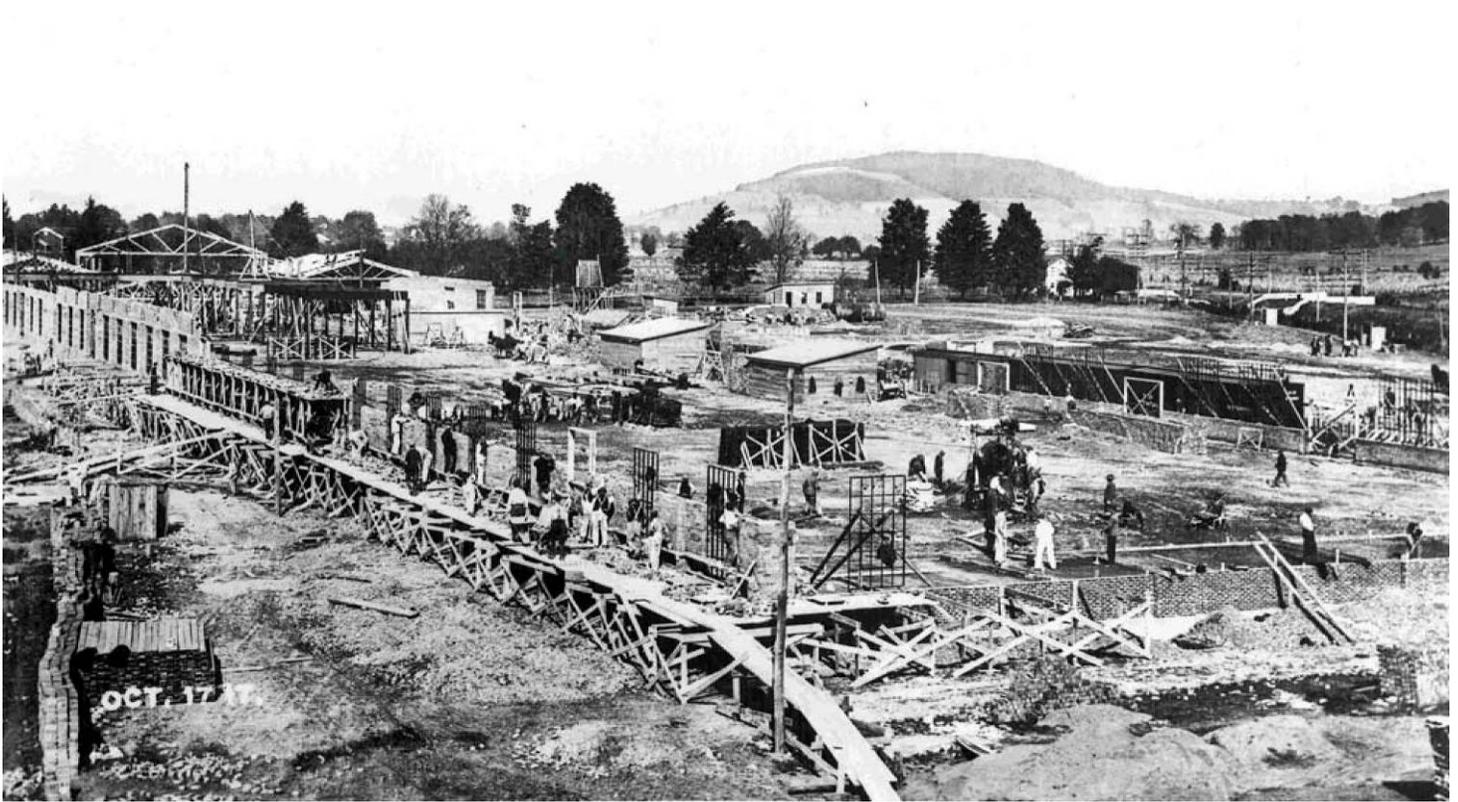


Figure B-45:
Constructing the Hires Condensed Milk Company factory, town of Fenton, 1917
(from Binghamton University digital collections)

This image is a rare view of the construction of what would become the home of the Link Aviation company in the 1940s. Visible here is the brick foundation, with the metal industrial windows set on top. This photo indicates the windows may have been built into the masonry walls, rather than set into the wall after the building was finished. Extant.

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Figure B-46:

Aerial view, the Link Aviation factory, town of Fenton, ca. 1940s
(from Binghamton University digital collections)

This image, apparently taken sometime after the company located in the facility around 1941, shows Link Aviation buildings on Nowlan Road in Fenton. At the time, the main approach to the complex was via Beckwith Avenue, which terminated at the smaller cafeteria and classroom building. The large production shed buildings were located behind, and were conveniently adjacent to a railroad line. Extant.

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Figure B-47:
Aerial view, the Link Aviation factory, town of Fenton, ca. 1950s
(from Binghamton University digital collections)

Another view of the Link Aviation factory complex.

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Figure B-48:
Interior, Link Aviation Factory, Nowlan Road, town of Fenton, 1941
(form *Working Lives*, page 101)

This interior view of the factory shows the workers assembling numerous “blue box” flight simulators. Note here how the wide open interior production space allows for the manufacture of the rather large simulators. The clerestory and skylights in the production shed building allow for additional light and ventilation.

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Figure B-49:

The Coburn Whip Works, Windsor, ca. 1900 before 1907

Founded by Adin Coburn, a shoemaker, in 1855, the Coburn Whip Works was perhaps the biggest manufacturer of whips in Broome County. The company eventually became a nationally-prominent business with offices in New York City and San Francisco. This image shows the 3-story wood frame industrial loft building from the 1850s, and an additional brick industrial loft building (at right) in a decorative Romanesque Revival style, built ca. 1880s. Lost to fire, 1907.

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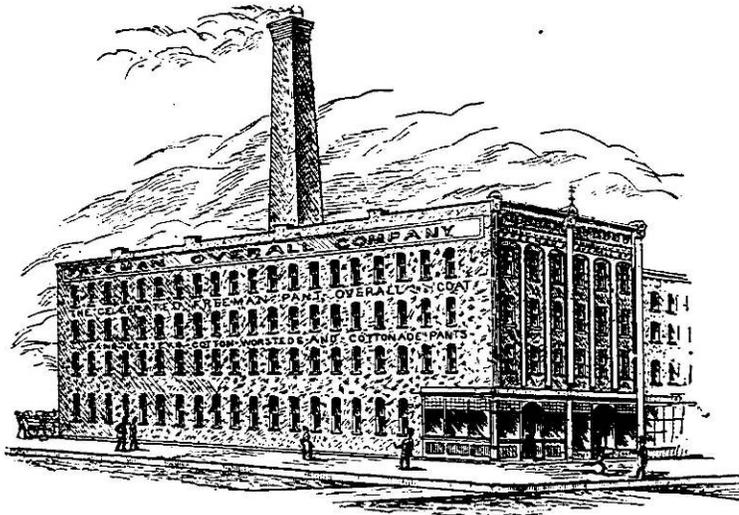
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THE
FREEMAN OVERALL CO.

MANUFACTURERS OF THE CELEBRATED

FREEMAN PANT, OVERALL AND SACK COAT.



*Unexcelled in the
market for
MATERIAL,
CUT, or WORK-
MANSHIP.*

*Each seam sewed
TWICE with the
BEST LINEN
THREAD.*

*Warranted not to
rip.*

The "Binghamton" & "U. S." Overalls.

*The Best LOW-PRICED Overalls known to the trade. Made and
Stayed in a durable and superior manner.*

SPECIAL INDUCEMENTS & PRICES TO JOBBERS.

*Coats and Overalls made in any style with special tickets adapted to a
Jobber's trade. Correspondence Solicited.*

FREEMAN OVERALL CO.,

48 AND 50 COMMERCIAL AVE.,

JAMES S. CARY, President.
REED B. FREEMAN, Secretary.

Binghamton, N. Y.

ix

Figure B-50:

Advertisement, the Freeman Overall Company, Binghamton, 1888
(from *Resources and Industries of Binghamton*, page ix)

One of the many miscellaneous companies operating in Broome County, the Freeman company at their Water Street location would later become associated with the devastating fire of 1913.

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Figure B-51:
The Fair Play Caramels Company, Johnson City, ca. 1920s
(from *The Valley of Opportunity*, page 150)

Founded as the E.F. Hopton Caramel factory, this factory was built in 19007 in the shadow of the numerous Endicott-Johnson Company. An example of an industrial loft building, the bottom two floors are poured in place concrete, with stuccoed brick upper floors. It reflects several wings and additions. Extant.

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Figure B-52:

The Cream Dove Manufacturing Company, Alice Street, Binghamton, ca. 1920s
(from *The Valley of Opportunity*, page 150)

This building demonstrates a rather plain and austere flat-roofed industrial loft building. It once manufactured a variety of food products, and was best known for their peanut butter. Extant.

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Figure B-52:

The Sheltered Workshops for the Disabled, Court Street, Binghamton, ca. early 1960s
(Provided by the Sheltered Workshops)

This stunning Moderne building was built in 1958 as an addition to the earlier 1940s building (visible at far right). The Sheltered Workshops for the Disabled provided new industrial job opportunities to disabled residents, allowing them to actively participate in the manufacturing community. Extant.

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APPENDIX C – CURRENT PHOTOS



Figure C-1:

Former Endicott-Johnson Company Fair Play Factory, 1 Page Street North, Town of Union (built 1923)



Figure C-2:

Buildings of the IBM Plant No. 1, 1803 North Street, Endicott (built 1905-1934)

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Figure C-3:

Former A. & J. Manufacturing Company, 2 Eldridge Street, Binghamton (built ca. 1909, ca. 1929 addition)



Figure C-4:

Former Cloverdale Farms, Inc. 10 Jackson Street, Binghamton (built 1923-24)

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Figure C-5:
Buildings of the IBM Plant No. 1, 15 & 17 Charles Street, Binghamton (built 1910-1911)



Figure C-6:
Former General Cigar/Agfa-Ansco Camera Company factory, 16 Emma Street, Binghamton (built 1927-28)

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Figure C-7:

Former Binghamton Chair Company factory, 111-115 Montgomery, Binghamton (ca. 1890, ca. 1898 addition)



Figure C-8:

Former Binghamton Woolen Co./Gotham Shoe Mfg. Co., 129 Park Ave, Binghamton (ca. 1891, ca. 1898 add.)

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Figure C-9:
Crowley Milk Company factory, 135 Conklin Street, Binghamton (built ca. 1920s)