

**United States Department of the Interior
National Park Service**

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**National Register of Historic Places
Inventory—Nomination Form**

received JAN 8 1986

date entered FEB 6 1986

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic Russell Company Upper Mill

and/or common Sumner Brook Mill (or the Rubber Mill)

2. Location

street & number 475 East Main Street N.A. not for publication

city, town Middletown N.A. vicinity of

state Connecticut code 09 county Middlesex code 007

3. Classification

Category	Ownership	Status	Present Use
<input type="checkbox"/> district	<input checked="" type="checkbox"/> public	<input type="checkbox"/> occupied	<input type="checkbox"/> agriculture
<input checked="" type="checkbox"/> building(s)	<input checked="" type="checkbox"/> private	<input type="checkbox"/> unoccupied	<input type="checkbox"/> commercial
<input type="checkbox"/> structure	<input type="checkbox"/> both	<input checked="" type="checkbox"/> work in progress	<input type="checkbox"/> educational
<input checked="" type="checkbox"/> site	Public Acquisition	Accessible	<input type="checkbox"/> entertainment
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input checked="" type="checkbox"/> yes: restricted	<input type="checkbox"/> government
	<input type="checkbox"/> being considered	<input type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial
	N.A.	<input type="checkbox"/> no	<input type="checkbox"/> military
			<input type="checkbox"/> museum
			<input type="checkbox"/> park
			<input checked="" type="checkbox"/> private residence
			<input type="checkbox"/> religious
			<input type="checkbox"/> scientific
			<input type="checkbox"/> transportation
			<input type="checkbox"/> other:

4. Owner of Property

name Sumnerbrook Mill Development Corporation (Richard E. Bowley, President)

street & number 346 Quinnipiac Street P.O. Box 158

city, town Wallingford N.A. vicinity of state Connecticut 06492

5. Location of Legal Description

courthouse, registry of deeds, etc. Town Clerk's Office, Municipal Building

street & number deKoven Drive

city, town Middletown state Connecticut 06457

6. Representation in Existing Surveys See continuation sheet.

title State Register of Historic Places has this property been determined eligible? yes no

date 1986 federal state county local

depository for survey records Connecticut Historical Commission, 59 South Prospect Street

city, town Hartford state Connecticut

7. Description

Condition		Check one	Check one
<input type="checkbox"/> excellent	<input type="checkbox"/> deteriorated	<input type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site
<input checked="" type="checkbox"/> good	<input type="checkbox"/> ruins	<input checked="" type="checkbox"/> altered	<input type="checkbox"/> moved date _____
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed		

Describe the present and original (if known) physical appearance

The Russell Company Upper Mill is a three-to-four story, load-bearing, brick and brownstone building composed of three sections: an original gable-roofed extended main block with a stair tower, built about 1836, and two large mansard-roofed wings added between 1850 and 1880 (Photograph #1-6; see exhibit A for a schematic diagram). The mill is located on a triangular piece of land formed by the intersection of East Main and Russell streets and Fowler Avenue in the South Farms section of Middletown, historically the industrial section of the city. Site features include the Rubber Mill Pond and the stone dam associated with the mill located to the south and west of the building. Sumner Brook (originally Sanseer Creek) flows along the west side of the mill in a deep ravine and then continues in a northerly direction to the center of the city (about two miles) before emptying into the Connecticut River.

The neighborhood immediately adjacent to the mill developed in the last half of the nineteenth century. Primarily residential with some mixed commercial use, the area contains modest wood-framed dwellings; some of these were built to house workers at the nearby mills. Three more of the six Russell Company mills in the city were established downstream by the end of the nineteenth century. The Middle Mill and its dam were built by 1850. Less than a half mile north of the Upper Mill, it now contains steel and concrete buildings dating from the 1930s and 40s, interspersed with a few partially demolished, or drastically altered brick buildings, survivors from the late nineteenth century. After 1934 this complex was the main plant of the company. Most of these buildings were vacated in 1985. The next mills downstream were the Lower Mill (a modernized factory currently in use), and the Sanseer Mill, purchased and enlarged by the Russell Company about 1880. The latter complex is now a book storage facility.

The original section of the Upper Mill is the central main block (35' x 80'), three-and-one half stories high on the east elevation, which fronts on East Main Street. The four-story stair tower is also located on this side. An additional 20 foot section of the same configuration was added to the north end of the building by 1870, probably in 1850. Because the terrain slopes away towards the brook, the rear (west) elevation has an additional full story at the basement level.

The four-story additions at either end of the main block more than doubled the size of the mill. Both additions have dormered mansard roofs, providing a clear-span fourth level. The south wing (40' x 80') is connected to the main block by a four-story bridge tower, accessible from all floors. This wing was originally only three stories high with a slightly pitched flat roof. The mansard was added when the north wing was constructed (about 1875). The latter wing (30' x 40') incorporated a smaller building which was already in place, and extended it forward to the east another 25 feet.

The gable-roofed main block has the typical appearance of an early nineteenth-century mill. Regularly spaced openings for windows, with brownstone sills and

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Representation in Existing Surveys (continued)

Connecticut: An Inventory of Historic Engineering and Industrial Sites, Society for Industrial Archeology, 1981.

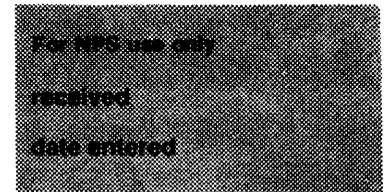
Middletown Connecticut: Architectural and Historical Resources, Greater Middletown Preservation Trust, 1979.

Depository for survey records:

Connecticut Historical Commission
59 South Prospect Street
Hartford, Connecticut 06106

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lintels, pierce and east and west elevations. Decorative corbelling in a dentil pattern enhances the cornice under the eaves of the main block and the stair tower. Cornice returns in the same pattern are found on the north gable which also displays a wooden rake board and bed molding (Photograph #8,9). The later south gable has a slightly more elaborate rake, defined by a denticulated, double-corbels course (Photograph #10).

The mansard roofs of the later additions have wooden curbs and terminate in an extended overhang with a wooden soffit (Photograph #11). Asphalt shingles have replaced the original shingles, which were wood instead of the more typical slate used on roofs of this type. A simple wooden bed moulding trims the top of the walls of the north wing; a double corbelled course of brick is used on the south wing. Regularly spaced dormers are located on the exposed sides of the mansards, except where these sections are joined to the main block with a flat-roofed bridge with clapboarded walls. Throughout both wings wooden sills are used in all window openings. The segmental arch of the upper sash of the dormers is repeated in the window openings of the walls and composed of a single header course, supplemented by interior wooden lintels.

A variety of materials and various types of construction were used in the Upper Mill during its 40-year building history. Brownstone rubble foundations support the entire building below grade. Brick laid in a common running bond with a lime-sand mortar is used throughout, although red sand was used in the later additions, a typical occurrence in late nineteenth-century buildings in Middletown. The walls range in thickness from 24 inches in the main block to less than 12 inches in the upper stories of the mansarded additions. The roofing system of the main block is typical of mills of this vintage: principal purlins, which extend the length of the building, are supported by posts which carry the weight of the rafters and the roof. The purlin extensions for the addition at the north end of the main block are joined to the originals by iron plates but the rest of the framing is pegged. Wooden floors with joists are currently supported by steel posts and beams in the main building. An unusual feature of this early twentieth-century change in the framing is the use of vertical steel columns on the exterior of the building which act as buttresses, relieving the walls of the loading of the floors (Photograph #2,8). A similar steel structural system was also introduced into the south wing, but there interior pilasters were added to the walls to support the beams. The north wing has retained its original framing system: plank construction supported by wooden columns and posts (Photograph #19). All of the sections have the typical textile mill floor plan where the weaving, spinning, or winding floors are divided into two longitudinal bays by center posts (Photograph #15-18).

The main tower contains stairs and a freight elevator, installed about 1900. The open staircase from the first to the fourth floor is constructed entirely of wood, with wooden treads and risers, square newels, and a balustrade consisting of a 24-inch board capped by a railing (Photograph #14). Exterior door openings with

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brownstone lintels and sills are located at all four levels (Photograph #12,13). A steel support beam for the hoisting winch is located above the third-floor door. Here the opening has been enlarged and the brownstone lintel replaced by angled steel. This door is a replacement, as is the door at grade, but the second and fourth floor doors are original. The rear bridge tower is also four stories in height and provided access between the main building and the south wing at each floor. It probably originally contained the toilets for the mill, which were customarily located over the tailrace.

The pattern of the original windows in the older section, twelve-over-twelve or eight-over-twelve sash, was repeated in the later additions (Photograph #7). The majority of these double-hung sash remain. Although most of the windows at grade level have been bricked in, the sash remains in place. A few of the original lower sash have been replaced with six-light sash. Most of the windows on the third floor have been replaced by modern aluminum sash. None of the original windows have a counterweight system in the jambs or spring latches; they were apparently propped open for ventilation. No casing is used on the inside of the windows except for the dormer windows which have deep wooden, triangular-shaped reveals.

Throughout most of its history the Upper Mill relied on waterpower. An eight-acre millpond (800 meters long), was created about 1834 by bridging a natural rock falls with a dam constructed of rubble and cut stone, producing a spillway approximately 80 feet long and 20 feet high (Photograph #20). At the east end of the spillway by the edge of the pond, an operating gate controls the level of the pond by releasing water through the base of the spillway. The gate is currently housed in a concrete structure. A similar but non-functional structure to the east (approximately 25 feet above the level of the non-extant water wheel) controlled the flow to the sluice, or race. The stairtower bridged the race where it entered the building with an extensive arched opening of brick. The opening has been filled in, but the double header course of the arch is still visible on the north wall of the tower. After passing around a granite ledge, part of the foundation on the east wall, the race extended across the building to the wheel in the south-west corner of the basement, before returning to the brook to the west. After 1900 coal-fired steam boilers, located in a separate boilerhouse at the rear of the building, provided supplemental power on a seasonal basis as well as heat for the mill. The boilerhouse was demolished by 1950 and the steam plant relocated to the northwest corner of the basement. A new stack was added at this location.

Two wooden additions to the building (ca. 1950) are located on either side of the stairtower (Photograph #2). They both have asphalt siding and tarpaper roofs. An earlier shed on the south side of the stairtower that housed the elevator machinery was removed, but the machinery remains in place. A wood-frame storage house on the site directly adjacent to East Main Street was demolished about the same time (ca. 1950). Other alterations to the building after it closed as a weaving mill include the addition of two modern, garage-type doors, one on the east elevation of the main block, the other in the east wall of the north wing. This wall also displays evidence of earlier, centrally located doors.

8. Significance

Period	Areas of Significance—Check and justify below			
<input type="checkbox"/> prehistoric	<input type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600-1699	<input checked="" type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/ humanitarian
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input checked="" type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> theater
<input checked="" type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> transportation
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input checked="" type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input type="checkbox"/> other (specify)
		<input checked="" type="checkbox"/> invention		

Criteria A, B and C

Specific dates 1836, 1850, 1880 **Builder/Architect** Not known

Statement of Significance (in one paragraph)

Distinguished by its late-nineteenth-century mansard-roofed additions, the Russell Company Upper Mill is an atypical and significant example of brick textile mill construction, a significance further enhanced by the integrity of the building and its site (Criterion C). Exceptionally well preserved for a mill that was in continuous operation for over 100 years, it is the oldest surviving cotton textile mill in Middletown. Together with its extant millpond and stone dam, it was the first of six mills in the city built by the Russell Manufacturing Company, major producers of elastic and non-elastic webbing. An unusually successful example of a family-owned corporation, and the only textile company in Middletown to survive from the nineteenth century, it was founded in 1834 by prominent members of the city's leading eighteenth- and nineteenth-century families (Criterion B). Under the direction and control of their descendants for more than a century, the company was a major force in the industrial growth of Middletown, and its largest single employer, a preeminent position it retained until the 1970s (Criterion A). The Russell Company's contributions to the development of the cotton textile industry were extensive. The earliest and most notable was the invention in 1841 of a power loom to produce elastic webbing, a product that prior to that time was produced on hand looms in England and America. These specialized looms were first installed in the Upper Mill and the elastic webbing was produced at this location until the mill closed in 1948.

Architectural Evaluation:

To viewers accustomed to the more conventional, elongated form of New England textile mills, the Russell Company Upper Mill is most unusual. With the addition of the mansard-roofed wings, the building achieved an unique configuration. Not only do these wings give distinction to the building, they radically changed its original appearance, giving the whole an uncommon vertical massing. Upon closer examination, however, it becomes apparent that the form and plan of the building were exceptionally functional, dictated by the requirements of narrow gauge weaving and the restrictions of the site.

The opportunity to analyze the 40-year building history of the mill is only made possible because of the exceptional integrity of the building and its site. The historic inter-relationship between the man-made components (the mill, the functioning stone dam, and the millpond) and its natural features (the ravine and the brook) has been maintained to an exceptional degree. It is one of the few mills in the region and the only one of the Russell mills to have this level of site integrity.

The 1836 main block of the mill with its stair tower is a quintessential example of early brick mill construction. It is a form particularly suited to narrow-gauge fabric weaving. The elongated bays of the weaving floors contained a series

9. Major Bibliographical References

See continuation sheet

10. Geographical Data

Acreege of nominated property 1

Quadrangle name Middletown

Quadrangle scale 1:24000

UTM References

A

1	8	6	9	6	9	5	0	4	6	0	1	5	8	0
Zone	Easting				Northing									

B

Zone	Easting				Northing									

C

Zone	Easting				Northing									

D

Zone	Easting				Northing									

E

Zone	Easting				Northing									

F

Zone	Easting				Northing									

G

Zone	Easting				Northing									

H

Zone	Easting				Northing									

Verbal boundary description and justification

Middletown Land Records: Volume 711, page 158.

List all states and counties for properties overlapping state or county boundaries N.A.

state code county code

state code county code

11. Form Prepared By

name/title Jan Cunningham, Preservation Consultant, Edited by John Herzan, National Register Coordinator.

organization Cunningham Associates date 8/9/85

street & number 98 Washington Street telephone (203) 347 4072

city or town Middletown state CT

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national state local

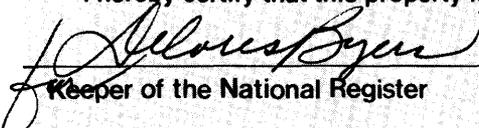
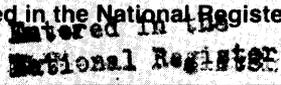
As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature 

title John W. Shannahan, Director, Connecticut Historical Commission date 12/26/85

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I hereby certify that this property is included in the National Register

  date 2/6/86
Keeper of the National Register

Attest: _____ date _____

Chief of Registration

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of narrow looms, set at ninety degrees to the exterior walls. Although mills built later in the century were to utilize pilastered masonry walls with broad sections of glazing, maximum light to the interior was achieved here by restricting the width of the building and depending on regularly spaced windows on the extended elevations. So functional was this form that this part of the mill was used for narrow-gauge weaving for a century. The stair tower, a common feature of brick mills, even in this early period, allowed access to all the floors but it could be closed off to prevent the spread of fire, always a concern in the cotton textile industry. Although the interior support system has been replaced by steel, undoubtedly the original mill building featured plank construction, with beams supported by cast iron posts. Until it was learned that the vibration in weaving mills from the power train and the rhythmic thumping of the looms could cause floors to collapse due to unseen structural faults in the castings, cast iron was the preferred material for posts. Later mills utilized wooden posts, as does the north wing of the Upper Mill, built about 1880. When such posts are combined with wooden beams and plank floors, as it is in the north wing, the most fire retardant construction system, called "slow burn" construction, is achieved.

The Upper Mill was powered by a water wheel for an extended period, until at least 1913.¹ Coal-fired steam boilers were used to produce steam power on a seasonal basis when the water level in the pond was low, or frozen in winter, and to heat the building. This unusual reliance on water power in the twentieth century is explained by the fact that as the first mill upstream on Sumner Brook, it had control of the water supply. It also explains why there is no physical evidence or documentation to suggest that a water turbine was ever used, even on a transitional basis. Undoubtedly the mill's power train was equipped with the company's own product, the more efficient continuous transmission woven belting, but the use of water power limited the expansion of the mill. Instead of continuing to expand the original mill to the north with a similarly elongated building, as might have been expected, a decision was made to expand to the east and west with four-story wings to make more efficient use of the existing power train. Undoubtedly the existence of Russell Street to the north of the building, laid out by this period, influenced the decision. Further expansion to the south was, of course, prevented by the location of the pond and dam.

The mansard roofs, which give this mill such a distinctive configuration and at first appear to be a concession to architectural style, did in fact serve a utilitarian purpose. They provided a clearspan full-height story with a maximum amount of light needed for the winding process. The top floors of both wings were reserved for winding during most of the building's history. Other apparently decorative architectural features belie their functional purpose. The segmental arch of the window opening of the walls of the later additions was in reality a cheaper form of construction. Stone lintels were not needed to support the thinner brick walls of these sections; a single header course in the arch was sufficient, especially with the addition of interior wooden lintels. The repetition of the same arch in the head

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rail of the dormer windows, however, was purely decorative and gives each wing a pleasing unity of design.

History:

The Russell Manufacturing Company was founded in 1834 by Samuel T. Russell and Samuel D. Hubbard. Based on a letter of understanding in February² of that year, the company was incorporated in June and capitalized for \$200,000. After purchasing the textile machinery of the defunct Spaulding and Collins factory, the company took in Spaulding as treasurer, but Russell and Hubbard retained control of the business. Within two years they had erected a new brick mill on a site owned by Hubbard, now known as the Russell Company Upper Mill. Both of the principals were experienced in the shipping and merchant trades, but they soon recognized the need for a company manager and brought in Henry G. Hubbard, Samuel D.'s nephew. In typical nineteenth-century fashion, the Russell-Hubbard alliance was reinforced by marriage, forming a dynasty whose association with the company continued until it was absorbed by an international conglomerate in the 1970s. The last Russells involved with the company, Thomas McDonough Russell, senior and junior, were direct descendants of the original partners through the marriage of Samuel Russell's grandson to Henry Hubbard's daughter, a merger which united Middletown's leading families.

Samuel Russell (1789-1862) was a descendant of William Russell, a settler of the New Haven Colony. William's youngest son Nodidiah, one of the 12 ministers who founded Yale College, came to Middletown in 1678 as a second pastor of the Congregational Church. Samuel, his direct descendant, was trained in the mercantile trade in Middletown and New York. Sent to China as an agent for Carrington of Rhode Island, he established his own trading station in Canton in 1818, one of the first in that country. He amassed a fortune in the profitable but illegal opium trade, importing opium from Bengal and Turkey and exporting tea and silk to Europe and the United States. He returned to Middletown in 1831 to become a prime mover in the industrial growth of the city, but retained an interest in the trading company for at least another 20 years.³ In addition to providing capital for the Russell Company and enabling Russell to build his exceptionally distinguished Greek Revival-style mansion (N.R., 1980), his profits from the China trade were invested in other business enterprises, such as Simeon North's fledgling arms factory, and later in land speculation in the West. His many philanthropies in Middletown included the donation of land for the first Roman Catholic church in the city, attended by many of the Russell Company workers.

Samuel D. Hubbard (1799-1855), another scion of a seventeenth-century Middletown family who settled there in 1650, was the son of Elijah Hubbard, the most successful of the several Hubbards who became quite wealthy from the West Indies trade in the late eighteenth century.⁴ Like his cousin Nehemiah, another wealthy trader from the port of Middletown, Elijah served in the Revolution. He was appointed as Commissioner and superintendent of Stores for the Continental troops in 1777. Nehemiah, Deputy Quartermaster for Connecticut, was later appointed Superintendent General of the Society for the Establishment of Useful Manufactures, responsible for

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the development of Passaic, New Jersey, and also invested in some early woolen textile factories in Middletown. With this background, it was not surprising that Samuel D. Hubbard became involved in industrial development in the city and later served as Postmaster General of the United States (1852-53) and a Connecticut congressman (1845-1849).

The early textile industry was highly competitive. To survive in the ante-bellum period, a company had to be heavily capitalized and have considerable skill, ingenuity, and courage to keep pace with rapid technological change. In spite of their long-standing reliance on an outmoded eighteenth-century management and investment style, one that proved to be the undoing of other companies in this period, the Russell Company not only survived but grew to be the largest industry in Middletown. The combination of almost unlimited Russell capital and the contributions of Henry G. Hubbard as a manager and inventor was the key to the company's prosperity.

Henry Hubbard (1814-1892) joined the company at age 21 and it was still under his control as president at his death. One of the first graduates of Wesleyan College in Middletown, this precocious young man was trained in the woolen goods house of Jabez Hubbard in New York and was a partner with Jesse Baldwin, a Middletown dry-goods merchant, at age 19. After joining the Russell Company, he was elected director of the National Bank of Middletown at age 25, the year he married Charlotte, the daughter of Commodore Thomas McDonough, Middletown's naval hero on the Great Lakes in the War of 1812. He later served as president of the Middletown Savings Bank and state senator in 1866. Under his leadership the company expanded to include seven mills, six of which were in Middletown. The basic product remained narrow-gauge cotton webbing, but Hubbard demonstrated an unusual ability to develop and market new products, all refinements of the web process. A policy, established by Hubbard, of extreme diversification and decentralization, with new mills constructed for the manufacture of specialized products, carried the Russell Company well into the twentieth century.⁶ His successors, however, faced stiffer competition and lacked his entrepreneurial inventive skills. In the 1930s, the company averted total failure by a period of retrenchment and consolidation. A few products which could be mass-produced were substituted for a product line of more than 10,000 items.

The production history of the Russell Company encompassed a century of American development. It responded to a period of rapid technological advances in transportation, met the needs of the government in five wars, and vigorously pursued the markets created by the often ephemeral tastes and needs of the American people. A variety of webbings, strappings, carpet binders, and harness was manufactured in the first years of production at the Upper Mill. Twenty-four workers, all women, were paid less than one dollar a day to run the web looms under the direction of a male foreman. In 1840 preparations were made to gear up for a new product, suspenders to be made of elastic webbing. According to the company records, in October a bank loan was obtained for \$12,000 from the Middletown Savings Bank, secured by Samuel Russell. Shortly thereafter the first shipment of India rubber was purchased. Henry Hubbard had already begun to experiment with weaving elastic webbing, perfecting a hand loom

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used for the process which he had purchased from George Eliot,⁸ a Scottish weaver from New Britain, who also joined the company as an employee. In addition to a successful power loom, Hubbard had to perfect the method used for setting the elastic. He replaced the cumbersome method of using heated flatirons to contract the web with heated, mechanized calender rolls which received the elastic web as it left the loom. By March of 1841 the first gross of suspenders was sold for \$2.50 a dozen. Suspenders proved to be a major item for the company as their popularity continued into the twentieth century, accounting for half its production in 1877. In that year the company was producing 3000 dozen per week, all woven on the looms of the Upper Mill.¹⁰

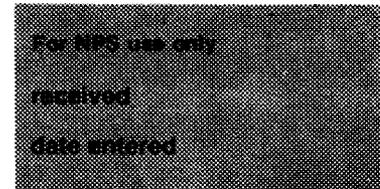
The Upper Mill was also the site of other pioneering efforts. It was there that Hubbard perfected his patented, multi-ply weaving loom. A complex piece of machinery, it required two shuttles, carrying the weft, to follow each other in a spiral fashion around the fabric reeds. Mechanized cams raised the lowered the treadles and the shuttle boxes were carried on an endless belt. The patent was consigned to the company after Hubbard determined through a patent search that his loom was the earliest device of its kind.¹¹ Tubular weaving had several applications, including firehose for both industrial and municipal use, which became another major product of the company.

During the Mexican War, Russell Company diversified even further. Not only did it supply the military with straps for their boots, but it also began production of webbing for hoop skirts. So popular was this item that a factory was acquired in Rockfall (a part of Middletown) for its exclusive manufacture. Webbing with woven-in loops to carry the wire hoops was developed by Hubbard, as were the first power looms in the country to weave continuous transmission belting for industry, just beginning to replace leather by mid-century. He soon perfected the product by interweaving wire reinforcement in the belting. Custom orders for webbing, tapes, and belting were so common that the daybook of the company in this period contains samples of special orders for colored cotton tapes and braids, as well¹¹ as larger orders such as 24 inch continuous transmission belting, 500 feet long.¹² A sensation of the World's Exhibition in Atlanta in 1895 was a Russell power loom which wove names in silk on suspenders while the customers waited, an adaption of the Jacquard process introduced into America for use on hand looms before 1850. Again a special plant was needed. It was constructed downstream at an earlier mill site, known as the Sanseer Mill. The company also made the most of the bicycle craze that swept the country in this period. Its webbing for bicycle tire rims was such a success that specially developed braiding looms had to run 24 hours a day to keep up with the demand.

As a result of Hubbard's management, by the end of the nineteenth century the Russell Company was financially secure and the city's largest employer. By 1899 a labor

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force drawn largely from Middletown's immigrant population worked in the mills. Some of these men and women lived in the South Farms district, where the company owned several boarding houses, but the paternalism of the earlier textile industry had declined. The majority of the employees lived elsewhere in the city, arriving for work by streetcar.¹³ With 868 "hands" the Russell Company employed two out of every five adults in the city, even allowing for those employed in the out-of-town mills.¹⁴ Ninety-four of these worked at the Upper Mill. The majority stockholders remained members of the Russell and Hubbard families, but shares which sold for \$200 in 1836 were now valued at more than \$1000. Including one million dollars worth of real estate and machinery, the company was worth 2.5 million¹⁵ dollars in 1897; employees received the high average wage of \$5.50 per day.

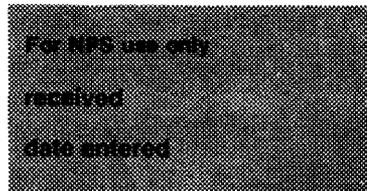
In the first decades of the twentieth century, the Russell Company was the first to produce transmission linings for the automobile, becoming the principal supplier for Henry Ford as long as his model T was in production. The company's products were used in the fledgling aviation industry as well. Webbing was needed for safety straps and launching gliders. By World War I, a product developed for the Spanish-American War, woven cartridge belts, was perfected for use as machine-gun belts. The company's experience in wartime production stood it in good stead again in World War II. During the National Defense period it was the sole supplier for machine-gun belts, along with millions of yards of webbing and belting for military use.

Between the world wars the chief products of the Russell Company were industrial belting and brake linings, but it was in competition with several other companies in the field. With an overextended physical plant and an overly generous dividend structure (24% per annum), the company went into receivership in 1931. New York and Boston banks brought in new management but retained Thomas Russell, Jr., as vice president. The new managers, who had experience in the automobile and aviation industries, instituted a three-year period of retrenchment. Obsolete factories were sold off or razed; useful buildings and machinery were modernized. Most of the older mill buildings at the Middle Mill were torn down, to be replaced by steel and concrete. The Upper Mill, the only historic building that still belonged to the company, was saved, perhaps from sentiment. It remained in production for another 15 years before it too was sold in 1950.

An intensive research and development program and the introduction of testing laboratories produced several products new to the American market: tape for slide fasteners (now known as zippers) and venetian blinds. Under license for U.S. Rubber and Owens-Corning, several new textiles (lastex and fiberglass) were manufactured, the first broadloom weaving done by the company. Fifteen hundred employees ran 1000 narrow and 100 broad looms; the majority lived in Middletown and had been with the company for more than ten years. Their loyalty to the company was soon demonstrated. The Middletown local of the Narrow Fabrics Textile Workers Union (American Federation of Labor), established in 1934, refused to call out their workers in the nationwide strike of the textile industry in 1935.

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Russell Company Upper Mill

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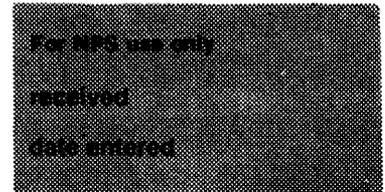
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Following the closing of the Upper Mill in 1950, the weaving machinery was removed. The buildings were used by several light industries, including the Middlesex Wire Company and later Carmelo Coats, Inc., which used several floors for piecework and a factory outlet until about 1980. The building was sold for redevelopment in 1984.

**United States Department of the Interior
National Park Service**

**National Register of Historic Places
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Notes:

1. Sanborn Insurance Map, Plate 27, (1913).
2. Samuel Russell to Samuel D. Hubbard, Middletown, Connecticut, February, 1834. Russell and Company MSS, Library of Congress, Washington, D.C.
3. Business correspondence between Samuel Russell and various individuals associated with the Canton firm confirm that he retained a financial interest in the trading company and the opium trade after 1831. See Business Papers, 1812-1849, Russell and Company MSS, Library of Congress. For a discussion of the opium trade and its enormous profits, with specific references to the Russell Company, see Foster R. Dulles, The Old China Trade (Boston: Houghton Mifflin Company, 1930), pp. 25, 119, 123, 150, 158.
4. J. B. Beers, History of Middlesex County (New York: J. B. Beers & Co., 1884), p. 160. See also Harlan Page Hubbard, One Thousand Years of Hubbard History 866-1895 (New York: Hubbard, 1895).
5. "American Wool and Cotton Reporter," November 25, 1948.
6. The history of the Russell Company here and the following is compiled from several published sources including Beers, History of Middlesex County, the "American Wool and Cotton Reporter" (cited above), and "Connecticut Circle," October-November, 1945, pp. 25-27. Additional primary and secondary source data is cited in the text.
7. Russell and Company Ledger, 1834, Russell Manufacturing Company MSS, Museum of Textile History, North Andover, Massachusetts.
8. "American Wool and Cotton Reporter," 1948.
9. Russell and Company Ledger, 1841, Russell Manufacturing Company MSS.
10. A Brainerd, Middletown Illustrated (Westchester, Connecticut: 1877).
11. Reference File on Tube Weaving Patent, Russell Manufacturing Company MSS, Museum of Textile History.
12. Russell Company Journal, 1867-1879, Russell Manufacturing MSS, Museum of Textile History.
13. The Sanborn Insurance Map of that year shows a streetcar stop on East Main Street directly opposite the Upper Mill.
14. Production and Shipping Report, 1897-1899, Russell Manufacturing MSS, Museum of Textile History. Population figures taken from Federal Census, 1900.
15. Stock Purchase and Dividend Ledgers, 1836-1917. Value of the company assets taken from the Textile Directory of the United States, 6th annual edition.

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National Park Service**

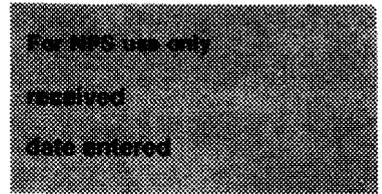
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Washington, D.C. Library of Congress National Archives. Russell and Company MSS.

Maps:

1874 Beers Atlas

1859 Map of Middlesex County, Connecticut, Walling.

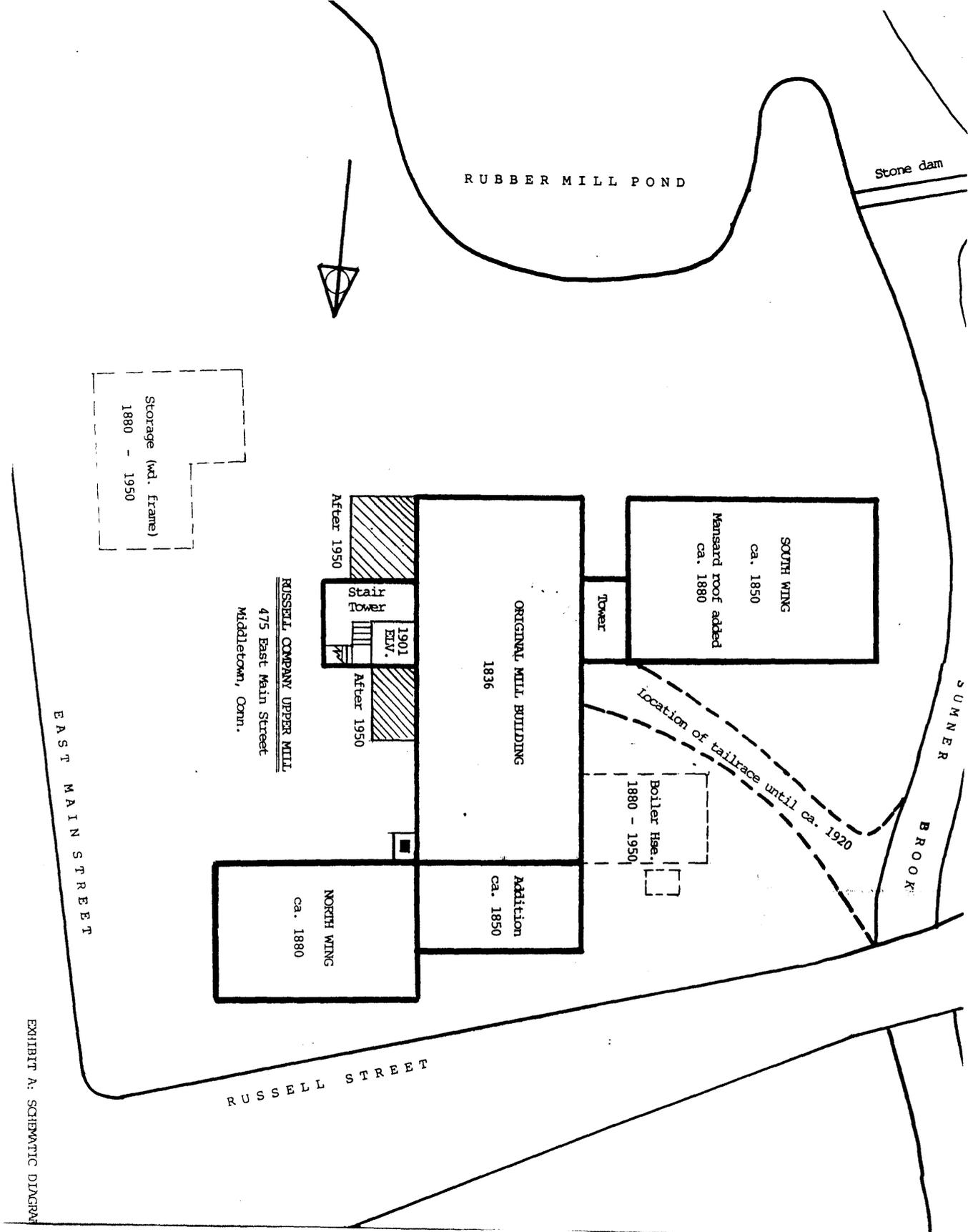


EXHIBIT A: SCHEMATIC DIAGRAM