NPS Form 10-900
(January 1992)
Wisconsin Word Processing Format (Approved 1/92)

1202

United States Department of Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900A). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Gund Brewing Company Bottling Works
other names/site number

2. Location

street & number	2130 South Avenue						N/A	**not for publication**	
city or town	La Crosse						N/A	**vicinity**	
state	Wisconsin	**code**	WI	**county**	La Crosse	**code**	063	**zip code**	54601

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this X nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property X meets _ does not meet the National Register criteria. I recommend that this property be considered significant _ nationally _ Statewide X locally. (_ See continuation sheet for additional comments.)

James Draeger 10/30/08

Signature of certifying official/Title Date

Deputy State Historic Preservation Officer-WI

State or Federal agency and bureau

In my opinion, the property _ meets _ does not meet the National Register criteria.
(_ See continuation sheet for additional comments.)

Signature of commenting official/Title Date

State or Federal agency and bureau

Gund Brewing Company Bottling Works	La Crosse	Wisconsin
Name of Property	County and State	

4. National Park Service Certification

I hereby certify that the property is:

X entered in the National Register.
___ See continuation sheet.
__ determined eligible for the National Register.
___ See continuation sheet.
__ determined not eligible for the National Register.
___ See continuation sheet.
__ removed from the National Register.
__ other, (explain:)

Edson N. Beall — 12/15/08

for

Signature of the Keeper — Date of Action

5. Classification

Ownership of Property (check as many boxes as as apply)

X private
public-local
public-State
public-Federal

Category of Property (Check only one box)

X building(s)
district
structure
site
object

Number of Resources within Property (Do not include previously listed resources in the count)

contributing	noncontributing
1	buildings
	sites
	structures
	objects
1	0 total

Name of related multiple property listing:
(Enter "N/A" if property not part of a multiple property listing.
N/A

Number of contributing resources is previously listed in the National Register
0

6. Function or Use

Historic Functions (Enter categories from instructions)	Current Functions (Enter categories from instructions)
AGRICULTURE/SUBSISTENCE/Processing	DOMESTIC/Multiple dwelling

7. Description

Architectural Classification (Enter categories from instructions)	Materials (Enter categories from instructions)	
	Foundation	Limestone
Late 19th and Early 20th Century American Movements	walls	Brick
	roof	Synthetics
	other	Stone

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for the National Register listing.)

X A Property is associated with events that have made a significant contribution to the broad patterns of our history.

_ B Property is associated with the lives of persons significant in our past.

_C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

_ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)

Property is:

_ A owned by a religious institution or used for religious purposes.

_ B removed from its original location.

_ C a birthplace or grave.

_ D a cemetery.

_ E a reconstructed building, object, or structure.

_ F a commemorative property.

_ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)

Industry

Period of Significance

1903-1920

Significant Dates

1903

Significant Person
(Complete if Criterion B is marked)

N/A

Cultural Affiliation

N/A

Architect/Builder

Lehle, Louis

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographic References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous Documentation on File (National Park Service):
X preliminary determination of individual listing (36 CFR 67) has been requested
_ previously listed in the National Register
__ previously determined eligible by the National Register
_ designated a National Historic Landmark

_ recorded by Historic American Buildings Survey #
_ recorded by Historic American Engineering Record #

Primary location of additional data:
X State Historic Preservation Office
_ Other State Agency
_ Federal Agency
_ Local government
X University
Other
Name of repository:
Murphy Library Archives, University of Wisconsin, La Crosse
Anheuser-Busch Corporate Library, St. Louis, MO

10. Geographical Data

Acreage of Property **4.97 acres**

UTM References (Place additional UTM references on a continuation sheet.)

		Zone	Easting	Northing
1		15	641380	4850270
2				
3				
4				

☐ See Continuation Sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet)

11. Form Prepared By

name/title	Gary Tipler				
organization	Tipler & Associates			**date**	August 11, 2006
street & number	807 Jenifer Street			**telephone**	608-286-1844
city or town	Madison	**state**	WI	**zip code**	53703

Gund Brewing Company Bottling Works	La Crosse	Wisconsin
Name of Property	County and State	

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs Representative black and white photographs of the property.

Additional Items (Check with the SHPO or FPO for any additional items)

Property Owner

Complete this item at the request of SHPO or FPO.)

name/title	Historic Gund Brewery Lofts, LLC				
organization	Gorman & Company			**date**	August 2008
street&number	200 N. Main Street			**telephone**	608-835-5502
city or town	Oregon	**state**	WI	**zip code**	53573

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. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 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, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects, (1024-0018), Washington, DC 20503.

The Gund Brewing Company Bottling Works building was built in 1903, at the south edge of La Crosse, Wisconsin, set back from the west side of Mormon Coulee Road, now South Avenue, along the east bank of the Mississippi River. The early 20th Century industrial building was the last of the prominent buildings of the brewery complex to have been built as a part of a reconstruction of the Gund Brewery following a devastating fire in 1897. The brewery complex was spread over three blocks along Mormon Coulee Road, and the bottling works was located at the south end of it. Currently, only the bottling works building, the stables, and a cold building/stock house remain.

The stables building, built in anticipation of the new bottling plant in 1902, stands opposite it, east of South Avenue, or Mormon Coulee Road. A private house once separated the bottling works from the main brewery complex to the north and west. The former stock house stands several hundred yards northwest of the bottling plant. Presently, the bottling building stands on a five-acre lot that is oriented east/west and parallel to the north and south walls of the building. The west edge of the lot is irregular, based on the edge of the bank that was the east bank of the Mississippi bottom lands, since developed for commercial use.

The two-story, red brick building's façade, which faces east and South Avenue, has a red, pressed-brick masonry façade ornamented with slightly projecting piers and a central pavilion and narrow end pavilions, set on a coursed limestone raised foundation with a watertable course. The sides and rear of the building are unornamented except for returns closest to the façade. The overall dimensions of the building are 137 feet wide by 187 feet deep.

A roofline of the otherwise low parapet of the façade features a raised central stepped parapet wall ornamented with brick finials crowned by copper caps and coping, along with a modest, projecting, classically styled cornice. These raised and ornamented parapets appear to crown the center pavilion and the corner pavilions. An original metal sign, "BOTTLING WORKS," made of individual letters was fastened across the top of the center pavilion parapet of the façade. The sign was removed sometime after April 2003.

The red-brick masonry of the façade is contrasted by simple limestone sills, lintel courses and pier capitals. The cornice is enhanced by corbelled dentils, and the piers framing the pavilions feature corbelled detail.

The otherwise rectilinear forms of the windows is broken by the arched lintels of the windows of the second floor central pavilion and the pair of large arches over the grouped windows and door/window sets of the first floor. In these arches, the stone alternates with the brick to create an eye-catching though simple detail.

The rest of the façade's window openings of the second floor (and many of the first floor) are relatively tall and narrow. Originally, these had two-light transoms above four-over-four light double-hung windows. The wide masonry openings of the three center second-floor bays had similar, though flat-topped paired windows. On the first floor façade, the arched windows of the first floor had a wider center window flanked by narrow windows; the center window was three-lights wide and corresponded to a passage door below in the two window sets toward the outside corners.

In the 1950s, a rambling, enclosed, one-story concrete-block truck-loading dock was built to extend close to South Avenue. This addition was removed in 2006.

The north side of the building has a corner pavilion with masonry and fenestration details similar to the dressed masonry façade, and is three-window-bays wide. The second and third window bay from the façade have two vertically paired short windows one above each other on the first floor. The remainder of the elevation has paired window openings, with two sets of double windows within each larger bay. The one exception is in the middle of the elevation where a three part window is flanked on each side by a narrow window within the bay. All windows on the second floor had previously been replaced with glass block with ventilators. Those of the ground floor had been sheathed. The openings have been reopened and new windows were installed. A brick chimney added to the exterior stood about midway and was removed. Prior to the recent renovation, a one-story concrete block enclosed loading bay projected toward the rear, near the north wall.

The rear (west) side of the original building was joined with a new three-story wing in 2006-2007. Prior to the addition, the north half of the second floor had more bays of one or two narrow windows. The south half of the second story has two separate windows between brick piers. Prior to the recent addition, the first floor originally had in sequence from north to south: an enclosed loading bay, a newer raised garage door for interior loading, infilled narrow windows, and vertically doubled small windows. The south half of the first floor has a passage door centered in the large arched, windowed bay similar to those on the facade, which had largely been infilled with brick. Another double loading bay door had previously been completely infilled with brick and remains as such.

The south half of the building has a different bearing structure than the north half, with the structural piers spread further apart. This structural system is expressed in the fenestration with sets of three individual single narrow window masonry openings, within the larger three central structural bays. The bay nearest the front (excluding the wrap around pavilion) has only two windows, while the back most bay is much narrower and has only a single window. The masonry openings of the first floor were broad loading doors, many of which were later widened for more modern doors. These have been replaced with windows and doors. The partly enclosed truck-loading dock may have been built in the 1920s or 1940s and replaced an original narrow boxcar loading dock. The concrete dock is seventeen feet wide, built for rail access, with an open steel truss awning with posts, originally with corrugated metal roofing. Until the recent renovation, the west end was sheathed as a wind break and the east end enclosed with individual truck-loading bays and recent doors. While different in appearance from the north side of the building, the entire plant was built at one time. The different types of construction separated the manufacturing part of the plant from the labeling, storage and shipping departments. The construction reflected the structural needs of the different functions performed in the building.

The interior of the building originally had an uncomplicated floor plan. The building is divided in half with the masonry partition wall running mid-way east and west. In general, the north half served for processing and bottling and the south half served for materials storage and shipping. The semi-raised basement was used for storage for bottles, beer in bond, and sterilizing tanks. The north half of the first floor held the electric motors

and was used in beer bottling. The structure of the north half of the building, between the basement and the first floor, and the first floor and the second, is a concrete- and steel-vaulted ceiling/floor system with vaulted concrete arches bearing on a steel beam structure set on cast-iron posts, spaced 16 feet by 24 feet in a grid. The south half of the building served the packing and shipping on the first floor, with cases and bottles storage in the basement and second floor. The shipping office was also on the first floor. The second floor of the south side of the building originally held two lunchrooms and a storage room for labels and a storage bin for wood shavings for the packing operation in the room below. The structure of the south half is timber and steel frame with steel posts and wood flooring. The south half of the building has steel posts at 16 feet in a grid and a wood structure with wood floors. The interior had few partitions originally, and had four elevators run by electric motors, fed by electrical generators on site. The building was heated with steam from the brewery's plant nearby. The interior finishes were few.

2006 Renovation

The building was renovated by Gorman & Company, a Madison-based development company, in 2006 and completed in 2007. It was a Historic Tax Credit project and all alterations were done according to the Secretary of the Interior's Standards for Rehabilitation and approved by the State and the National Park Service.

The concrete block additions between the original building and the street were removed, an enclosure of the west end of the loading bay similar to the one at the east end was built, and a three-story addition was built to the rear. The site was redone with concrete walks, lawns, concrete curbs, asphalt paved lots, and drives.

In the renovation, the non-historic masonry alterations were largely reversed, the glass block windows removed, and new windows installed to closely match the configuration and detail of the old windows. A garage door and ramp to the basement level was cut to the rear of the building, south of the new addition.

The interior was partitioned and finished for modern apartments. Original structural elements and materials were left exposed as much as possible.

Integrity

The relationships between the Gund Brewing Company Bottling Works building and much of its setting, surrounding landscape, and street views remain the same as when the building was built in 1903. The relationship with its site, adjoining the river and former rail lines represent the evolution of industrial shipping that helped the brewery to contribute to the prosperity of La Crosse. What is missing is the brewery, though the few historic photos suggest that a direct visual relationship was impaired due to physical distance, set-back, tree coverage, an intermediary building and property. As for integrity of original design elements, materials and workmanship of the original building remain relatively intact, with exception of windows, related masonry openings and loading bay additions from the 1950s or later, which were reversed in the recent renovation.

The interior of the building retains much of the integrity of the original industrial facility. Though the building was renovated to serve as apartments, key structural features were retained, and remain visible. These include the interior masonry wall dividing the north and south half of the building, the front utilitarian iron stair, the structural posts, beams, and ceiling features. In addition, the floor plan permitted retention of the full ceiling height throughout most of the first floor apartments and halls, by the placement of lofted sleeping rooms away from the exterior of the building. This also serves to provide the interior with original lighting to much of the interior. Drywall-finished ceilings are found, for the most part, only beneath the first floor lofted areas in bath and hall. The effect upon entering most of the first floor apartments is that the space opens up to the original high ceilings with structural components visible.

Statement of Significance

The Gund Brewing Company Bottling Works is locally significant under Criteria A (Industry). It was constructed as a state of the art beer bottling facility designed for a modern bottling line with innovative sanitizing and pasteurizing machinery. The modern bottling line, with standardized sterilization which ensured the purity of the product, enabled Gund to become a leader in producing and maintaining high-quality beer that had a dependable shelf-life for a broad distribution to markets nationally and internationally. The building represents the technological advances that were occurring within the bottling process which contributed to the expansion of product sales for the beer industry.

The bottling plant, built in 1903, during the prime era of innovation and modernization in the beer bottling industry, incorporated historical industrial developments in plant layout and production line mechanization that helped revolutionize sanitary beer packaging, which changed marketing and distribution methods and procedures that remain relatively unchanged today. The facility and its equipment were considered exemplary in the beer bottling industry years later by the Barry-Wehmiller Co., a manufacturer of bottle rinsing and pasteurizing machinery.

The bottling plant was key to the growth and success of the Gund Brewing Co., once the largest brewing and bottling facility in La Crosse, and helped to elevate the city as one of the primary beer producing and exporting cities in the Midwest.

The period of significance was from 1903, when the building was built and equipment installed, to 1920 when Prohibition laws and local labor strikes led to the final closure of the brewing business.

Innovation, Sanitation and the Modern Bottling Line

The Gund Brewing Company Bottling Works was at the forefront of modernization of the beer bottling industry. The Gund Bottling Works operation was ahead of its peers, and in step with the giants in the industry. This is apparent from a review of the equipment used in the first years of the facility. Most of the bottling equipment was newly on the market when the bottling works went into full operation in the bottling season of 1903-1904. The bottle-soaking and pasteurizing machines of the Barry-Wehmiller Machine Company were among the earliest of their installations. The brewery's manager, Henry Gund, kept up to date with the latest inventions and industry improvements, such as with the replacement of the bottle-filling machinery soon after the plant was in operation.

Gund's "modern" bottling plant employed changes that incorporated a high level of order and rational organization of equipment in the bottling line; permitted by increased electrification in the use of machines with individual electric motors; substantially increased mechanization of bottle washing and pasteurizing functions; and improvements in virtually all functions of bottling. In addition, the significantly larger floor plan permitted greater efficiency and flexibility to install additional bottling production lines.

Louis Lehle, one of the nation's leading brewery architects, designed the plant. Lehle designed dozens of brewery facilities including those for Schlitz, Anheuser-Busch, and Blatz, among others. Initially he was in partnership with Frederick W. Wolf, one of the nation's leading brewery engineers -- the firm was credited with the design of hundreds of brewery plant projects world-wide. Wolf and Lehle had worked independently for several years prior to the construction of the Gund Bottling Works. Wolf worked increasingly with refrigeration system design and contracting, while Lehle addressed broader concerns of brewery modernization. Lehle likely worked with Barry-Wehmiller to design the bottling production line layout, naming the "National" line of soaking and pasteurizing machines designated on Lehle's plans, perhaps at Henry Gund's request.

The new facility had a high level of order and organization of equipment in the bottling line based on bottling production requirements permitted by electrification, rather than limited to its organization around a central steam-driven, belt-driven power source. The published plans of bottling house layouts demonstrate the difference between previous plant layouts for bottling operations without full mechanization, versus the modern layout reflected in the Gund bottling works and in several other bottling houses that were published in the following years. Older technologies were often employed in the years following the outfitting of the Gund plant and were treated as exemplary models, as published in The Western Brewer. A bottling house built by the Vilter Manufacturing Co. of Milwaukee for the prominent brewery of Samuel Allsopp & Sons, Ltd., in Burton-on-Trent, England in 1901[1] and that for a bottling house in Cerveceria, Moctezuma, Orizaba, Mexico in 1901[2] were both American- designed and used bottling equipment manufactured in the American Midwest. Their layouts were complicated by equipment with fewer motors connected to steam-driven drive shafts and belts. The plans also show that considerably more hand work and employee movement among workstations was required.

In contrast the "modern" bottling house layouts for Jacob Ruppert's new bottling department in New York City in 1908, and the Stroh Brewery in Detroit in 1910[3], reflected the same linear organization, combining electric motors and large machinery, as employed in the Gund bottling house in 1903.

Substantially increased mechanization of the bottling process was the result of the development of machinery that replaced the handwork that had been labor intensive and imperfect. The machinery that was employed in the Gund Bottling Works included the following:

1. bottle soaking machines, one of the principal machines that ensured perfectly clean bottles and ensured a high quality product and shelf life;
2. washing and rinsing machines;
3. filling machines;

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[1] The Western Brewer: and Journal of the Barley, Malt and Hop Trades, Chicago and New York: H.S. Rich & Co., February 1901, p. 66-68.

[2] The Western Brewer. January 1901, p. 21-29.

[3] Brewers and Bottlers Universal Encyclopedia, Chicago: Brewers Publishing Company of America, 1910. Plans by Barry-Wehmiller Machinery Co., St. Louis, dated Jan. 24, 1910.

4. corking and capping machines;
5. pasteurizing machines, large and highly mechanical machines.

At the time the bottling works opened, labels were still hand-applied by female employees, as they were at most bottling operations at the time. Packaging and shipping functions in the bottling house remained largely unchanged, except for the vertical storage capacity afforded by the four elevators, and the volume increased over the years.[4]

The first equipment in the bottling production line was the National bottle soaker, specified by Lehle on his equipment layout for the Gund Bottling Works, manufactured by the Barry-Wehmiller Machinery Company of St. Louis.[5] The four-compartment National soaking machine was a two-story machine that dipped and drained bottles in four compartments of progressively hotter to cooler soda-water baths.[6] The National soaker permitted the bottling room to remain clean of contamination from returned bottles, with the mammoth tank in the basement and the clean bottle discharge on the bottling room floor.

Beer bottles were used multiple times and returned to the plant for refilling. Empty and dirty returned bottles and cases were stored and loaded in the basement, and the bottling room was kept free for bottling operations exclusively. In older and smaller bottling operations, the soiled returned bottles were loaded into the soaking tanks within the bottling room, which increased the chance for contaminating the air with bacteria. The National soaker was the top of the line equipment for the manufacturer, apparently first installed in 1903 in the Gund bottle house and in the Schlitz Brewing Co. in the same year. Barry-Wehmiller Machinery Company was the exclusive manufacturer of the National bottle soaking and National pasteurizing machines.[7] A high standard in cleaning was critical to the preparation of the bottles for the bottling process to eliminate the risk of yeast and bacterial contamination, which threatened the clarity, taste and shelf life of bottled beer.

The next step in bottle preparation was washing and rinsing the bottles to remove the balance of the detritus to achieve a sanitary condition. The Eick washer, specified on the floor plan by Lehle, is illustrated in historic photographs of the bottle-filling section of the bottling production line. Eick's bottle washing machines were manufactured by the S.S. Wenzell Machine Company of Philadelphia. The small upright machine washed and rinsed 16 bottles at a time, more than 100 cases per hour and up to 30,000 bottles per day according to the company.[8] The Eick washer became a popular product, and was widely copied. Inventor Otto Eick of Baltimore, Maryland, continually revised the machine to stay ahead of the competition.[9]

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[4] Sanborn Map, 1906.

[5] Brewers and Bottlers Universal Encyclopedia, Chicago: Brewers Publishing Company of America, 1910, p. 56. Cut line of Gund equipment: "Now containing three four-compartment Barry-Wehmiller Soakers and three Style "A" 200-barrel Barry-Wehmiller Pasteurizers and one half-gallon Barry-Wehmiller Soaker. First outfit installed in 1903."

[6] Brewers and Bottlers Universal Encyclopedia, Chicago: Brewers Publishing Company of America, 1910, p.39. Four-Compartment Barry-Wehmiller National Soaker.

[7] Brewers and Bottlers Universal Encyclopedia, Chicago: Brewers Publishing Company of America, 1910, p. 35.

[8] Eick washer advertisement, Hantke's Letters On Brewing, advertising 1903; The Western Brewer, advertisements, 1903.

[9] The Western Brewer, several, including July 1905, p. 328.

The bottles were then carried to the filler on a tray, hand loaded to the two "improved" eight-spout counter-pressure filling machines of Henes & Keller Company of Menominee, Michigan.[10] (The counter-pressure system had been developed to retain the carbonation of the beer during the bottling process.) These machines were likely moved from Gund's previous bottling house, since they had been on the market for at least two years. However, within a few years after the bottling house was first outfitted (1904-1909), the filler machine was replaced with the newer counter-pressure rotary Henes & Keller filler machine[11], demonstrating the Gund penchant for keeping things up to date. Both fillers were promoted as among Henes & Keller's best products for their respective years, and were manufactured in Menominee, Michigan.[12]

The next machine in the production line was the Crown Cap capping machine, an industry standard. The Crown Cork & Seal Company of Baltimore had introduced the crimped metal cap with a cork ring seal. The company continually updated a line of patented capping machines used by larger bottlers. In 1903, both Gund and Anheuser-Busch began capping beer with the Crown Cap.[13] By 1903, inventor William Painter had developed nine capping systems of machinery, with Crown caps similar to the ones used throughout the Twentieth Century.[14] Although hundreds of other bottle caps have been invented since then, Painter's Crown Cap, slightly modified, is still the one which is most widely used.

The last machine in the bottling production line at the time the bottling works was equipped was the two-story behemoth, the Style "A" Barry-Wehmiller National Pasteurizing Machine. According to company literature, the first unit was installed in 1903 in the Gund plant, and in the same year in the Schlitz Brewing Company.[15] Gund's early installation and long-term use of the National Pasteurizing Machine was sufficiently notable to feature in a photo in the literature of the company published in 1910 in the Brewers and Bottlers Universal Encyclopedia. One of the largest manufacturers of Pasteurizing machines, Barry-Wehmiller produced the machinery and specified it as late as 1910, for installation in new bottling plants and equipment lines that the

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[10] Henes & Keller counter-pressure filling machines advertisement, Letters On Brewing. Milwaukee: Hantke's Brewers' School & Laboratories, 1903.

[11] Henes & Keller rotary counter-pressure filling machines advertisement. Brewers and Bottlers Universal Encyclopedia, Chicago: Brewers Publishing Company of America, 1910, p. 176a.

[12] Henes & Keller counter-pressure filling machines advertisement, Letters On Brewing. Milwaukee: Hantke's Brewers' School & Laboratories, 1903.

[13] From an Anheuser-Busch history chronology.

[14] In 1891, American William Painter invented the Crown Cap, first patented the following year, and the machinery development followed.

[15] Brewers and Bottlers Universal Encyclopedia, Chicago: Brewers Publishing Company of America, 1910. Source of Barry-Wehmiller Company cut sheets on Gund's soaking and pasteurizing machines, along with a Gund photo of the pasteurizing machine and note (p. 56): Now containing three four-compartment Barry-Wehmiller Soakers and three Style "A" 200-barrel Barry-Wehmiller Pasteurizers and one half-gallon Barry-Wehmiller Soaker. First outfit installed in 1903."

company was designing for customers in the United States and abroad. The earliest advertisement for the Barry-Wehmiller Pasteurizing Machine was in Hantke's Letters on Brewing, from 1904[16] though patent wrangling with three competitors was revealed in October 1903 and April 1904.[17]

To accommodate the increased electrical requirements of the new bottling operation and the additional refrigeration equipment for the stock houses to meet the demand of the bottling plant, a new coal-fired power plant was built by the brewery in 1902 by C. A. Chapman, contractor of Chicago. The capacities of the stock houses were increased with the installation of refrigeration equipment by the Fred W. Wolf Company.[18]

Lastly, the large floor plan of Gund's new bottling house was more than four times that of the previous one, which stood east of the brewery across Mormon Cooley Road. Due to its location, it had survived the fire of September 23, 1898 and was in use following the reconstruction of the brewery in 1899. It was updated, though not expanded. Planning for the new bottling works by owner Henry Gund may have begun as early as late 1899 with the discussion of extending the "government pipeline" to the then functioning bottling house. The expansive floor area of the new bottling works was required for the sizable machinery of the largely mechanized plant. It was also needed for planned expansions of bottling production lines. When Gund's bottling plant was built in 1903, the floor plan laid out by architect Louis Lehle, published in the November issue of The Western Brewer, displayed the new floor plan with equipment specified for two production lines and the potential for two more lines to be added.[19] By 1909, a third production line had been added.[20]

The growth and success in Gund's sales are attributed to its bottled beer, which competed in distant markets. Its considerable growth was measured in its output of beer. Gund's beer production had grown from 45,000 in 1890 to 200,000 in 1900 and 600,000 barrels in 1910. Gund's success was due, in no small part to the success of its "Peerless" bottle beer sold throughout the United States and "practically every known country in the world."[21] The expansion of sales outside of the regional market was made possible by its modern bottling works.

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[16] Barry-Wehmiller Machinery Company, manufacturers of National Pasteurizing and Bottle-Soaking Machines St. Louis, advertisement, Letters On Brewing. Milwaukee: Hantke's Brewers' School & Laboratories, July 1904, p. 8.

[17] Hantke's Letters On Brewing. Milwaukee: Hantke's Brewers' School & Laboratories, Oct.1903, p. 254; Trade Correspondences from Barry-Wehmiller Machinery Co. and Model Bottling Machinery Co., Western Brewer, April 1904, p. 171.

[18] Wolf-Linde Collection, John Gund Brewing Co. architectural and engineering drawings of Wolf & Lehle; Louis Lehle, Architect & Engineer; and Fred W. Wolf Co., Engineers & Architects., Chicago Historical Society.

[19] "Gund's New Bottling House at La Crosse", The Western Brewer: and Journal of the Barley, Malt and Hop Trades. Vol. 28, Nov. 15, 1903, p. 476.

[20] Brewers and Bottlers Universal Encyclopedia, Chicago: Brewers Publishing Company of America, 1910. Source of Barry-Wehmiller Company cut sheets on Gund's soaking and pasteurizing machines.

[21] La Crosse Tribune, "Gund's Brewery a Great Concern," July 20, 1910. p. 5.

CONTEXT

The Gund Bottling Works was built in the prime era of innovation and development in the beer bottling industry in 1903.[22] The bottling house was built at the beginning of a flush of changes to modernize the beer bottling industry, and subsequently develop, expand and compete in distant markets.

Long the largest brewery in La Crosse's largest industry, Gund was at the forefront of an aspect of the Progressive Movement in adopting the best sanitary procedures in its new bottling plant with the newest bottle cleaning, sterilizing, and pasteurizing equipment. The packaging of beer in sterile bottles and stabilizing it through pasteurization allowed what was formerly a highly perishable product to be shipped great distances and stored for weeks without significant changes to its quality. As a result, leading breweries, such as Gund, were able to compete in marketing their beer across the nation and even abroad. The percentage of bottled beer as a part of total sales grew from about 5 percent in 1890 to about 20 percent in 1903. [23]

Modern beer bottling facilities helped launch a new era of growth for large breweries. Initially beer was bottled by companies entirely separate from the beer manufacturers. Businessmen at the time regarded brewing and bottling as distinctly separate industries. When breweries engaged in bottling their own product, federal law maintained strict separation of the functions for the purpose of levying taxes. The law required that the brewery and the bottling plant be separated by a public street, that there be no connection between the two plants, and that beer be transported in barrels from the brewery to the bottling plant. In 1890 the law was relaxed only enough to permit steam lines and a pipe carrying beer to run under a public street from the brewery to the bottling works, while still prohibiting any other connection. The siting, orientation to the street, and access to wagon and rail shipping of the Gund Bottling Works reflects this separation.

For centuries, beer had been made locally by hand and consumed at a pub or carried home in unsealed containers and consumed before it spoiled in two or three days. During the late nineteenth century a series of industrial innovations, scientific and technological changes led to the preservation of the qualities of beer for extended times and during transit. Louis Pasteur synthesized methods for controlling fermentation, and technological innovations in industrial refrigeration, gas compression, electrification, and mechanization resulted in further innovations in product processing, mass production, packaging, marketing, and distribution; these systems are still broadly-applied to present beer industry systems.

The Gund Bottling Works was built and equipped according to newly developed principles and methods of beer packaging. It was erected concurrently with other modern bottling houses of the leading giants of the brewing

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[22] La Crosse Leader & Patriot, July 4, 1903, p. 3.
[23] The Western Brewer, June 1903. Diehl, Albert F., "Bottle Shop and Beer Bottling," a lecture to the Siebel Brewing Academy.

industry -- Schlitz [24] and Anheuser-Busch.[25] The facility was planned and overseen by Henry Gund, son of the founder, John Gund, a leader in the Wisconsin Brewers' Association, and a business leader in La Crosse. It was likely designed with the involvement of Henry Gund, who appeared to have become current with industry changes. The published account stated the plant as being "representative of the latest style of bottle house construction" and "equipped with the most modern and approved machinery obtainable."[26]

Brewer W. L. Strauss wrote in 1912 on the innovations that led to the modernization and success of the beer bottling industry: "Only a few leaders saw and took advantage of the opportunity, and it is less than ten years since the awakening became general. And yet I believe there is no important branch of any other industry in which such tremendous improvements have taken place..."[27]

The Gund Bottling Works was built with the highest standards of line production available, was a prized facility of the company, and was prominently featured in company promotional materials. It was built following the success the company had after receiving honorable recognition and a medal at the Paris Exposition in 1900 for its "Peerless" beer. As a result, "Peerless" beer, one of the best known beers in the United States, also became one of the best known American beers abroad. Following the award, the company expanded its advertising nationally and promoted the beer with the prominently labeled bottle in its print and billboard ads.[28] In 1904, the company received a gold medal for merit at the St. Louis Exposition. By 1910, John Gund Brewing Co. grew to become the largest brewery in the region outside of Milwaukee, due in no small part to its export to points east and west.[29] It was the widespread sale of "Peerless," Gund's primary "bottle product," that both fueled the development of Gund's modern bottling house and, in turn, made the rapid growth in sales and success of the company's product possible.[30]

Federal Tax Code and Its Impact on the Bottling House Design and Location

Bottling house design and location at the turn of the century was influenced, in part, by changes in shipping, packaging and federal tax law. Prior to the mid-1880s, beer was distributed primarily locally, by wagon in 31-gallon wooden barrels. As train shipping began to extend markets, greater opportunities and greater challenges

[24] The Western Brewer, November 1902, p. 440.
[25] American Brewer, Jan. 2003, p. 94. The Schlitz Brewing Co. of Milwaukee, Wis. "This company's plant is complete in every respect. ...The pasteurizing system of sterilizing bottles is used in the bottling house."
[26] "Gund's New Bottling House at La Crosse", The Western Brewer: and Journal of the Barley, Malt and Hop Trades. Vol. 28, Nov. 15, 1903, p. 476.
[27] Strauss, W.L. "The Growth and Development of the Bottle Beer Industry in the United States," The Western Brewer: and Journal of the Barley, Malt and Hop Trades. Oct. 1912, p. 154.
[28] American Brewer, Dec. 1902. An elaborate booklet on the history of the John Gund Brewing Co. and 'Peerless' beer was announced by the editors.
[29] "Gund's Brewery A Great Concern." La Crosse Tribune, July 20, 1910, p.5; Miller: 1959, p. 29.
[30] "Gund's Brewery A Great Concern." La Crosse Tribune, July 20, 1910, p.5. "A history of the Gund plant would be incomplete without reference to the Peerless beer. The excellence of this bottle product is not a secret confined to La Crosse..... the capacity of the brewery being sufficient to permit the proper aging of every bottle before it reaches the market."

to the preservation of the qualities of beer began to force innovative changes and resulted in a modernization of the ancient practice of bottling beer.

Initially, only a portion of the volume of beer produced by breweries was bottled, a process generally done by a separate company, at a separate location, though near the brewery. The beer was moved in barrels to the bottlers where the beer was drawn off in the bottling process. As the demand for bottled beer increased, the transfer of beer in barrels became increasingly a cumbersome and expensive part of the process, and it affected the quality of the bottled product, since the beer from a barrel was often more likely to go bad quickly even after bottling.[31] In order to control the quality of the bottled product, particularly for shipping to distant markets, breweries began incorporating bottling houses into their direct control, often within their ownership, and in buildings near their brewing plant. However, the tax collection method remained tied to the barrel as a unit of measurement and dictated the parameters for bottling house "communication" with the brewery.

The Gund Bottling Works was built apart from the brewery proper, per the Internal Revenue Service code, enacted into law in 1890.[32] The federal law required that bottling houses be built to be accessed or served primarily by a major public thoroughfare "without direct communication" with the brewing facility. No private roads, only the pipelines for steam and beer product, were permitted to connect the separate facilities. This was prescribed to avoid the possibility of discrepancies in the measured volumes of beer on which taxes were based. The separation between the Gund brewing facility and the new bottling house was provided by a private residence between them and the principal physical movement of people and vehicles between them was via Mormon Cooley Road, a major thoroughfare.

As bottled beer grew in demand for home and outdoor consumption, so grew the sizes of bottling plants, which became conspicuous and prominent buildings in the urban landscape. This was often due to their free-standing buildings separate from the breweries they served, as required in the Internal Revenue Service tax code, and often due to their location on public thoroughfares, rather than placed within a complex and served by inner circulation and transportation routes.

In spite of the growing substitution of bottles for barrels, the federal tax codes prior to the 1890 law required the transfer of brewed beer to separate bottling facilities outside the main brewery building in barrels for easy monitoring of production volumes. The code stated, "Bottling must be performed in a building entirely distinct and separate from any brewery, or any warehouse, and having no communication therewith."[33] The code went on to say, "To insure such an absence of communication it is prescribed that bottling premises must be so separated from any brewery that the beer in its passage from the brewery premises to the bottling house must be carried upon a street or road which is a public highway, and is actually and commonly used as a thoroughfare by the public."[34]

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[31] Pankrath, Dr., "Bottle Beers," American Brewer, Nov. 1902, p. 1351-1355.
[32] Section 3354 of the Revised Statutes of the United States, as amended by the act approved June 18, 1890. Reprinted in the article, "A Modern Bottle House Pipe Line." The Western Brewer, June 1907.
[33] "A Modern Bottle House Pipe Line." The Western Brewer, June 1907, p. 364.
[34] "A Modern Bottle House Pipe Line." The Western Brewer, June 1907, p. 365.

Since no physical connections between a bottling plant and a brewery were initially permitted, the time-consuming and cumbersome method of transfer of beer from brewery to bottling house in bulky wooden barrels became burdensome as the demand for bottled beer increased. The code was challenged by Frederick Pabst, who prevailed upon his Milwaukee Congressman to change the law, then passed by Congress in 1890. Thereafter, though the building separation and access via a public thoroughfare were still required between brewery and bottling house for overland shipping or transfers, underground pipelines delivering the beer to the bottling houses were then permitted to be installed. Exacting specifications for their installation and monitoring were required. The regulations called for the pipeline from the brewery or cold storage buildings to be joined to measuring tanks or "bonded tanks"[35] in the bottling house cellars, with elaborate monitoring gauges and locks. The locks were replaced by agents of the Internal Revenue Service at the time measurements were documented for each transfer of beer.

Gund first announced it would install the "government pipeline" to its older small one-story bottling house across Mormon Cooley Road in 1899. The change in process required Gund to provide an office for the federal revenue agent.[36] Four years later the "government pipeline" and bonded measuring tanks were installed in Gund's modern bottling works building. The bonded cellar had ten steel measuring cisterns of 125 barrels capacity, which were situated directly beneath the bottle-filling machines on the first floor.[37]

Technology and Developments in the Brewing and Bottling Industries

As the brewing industry played an important role in the development of technological advances which, in turn, were applied to so many aspects of modern culture, so too, were the inventions for applications to bottling beer. Gund relied on these innovations and modernization of its bottling and shipping departments to hone its productivity, guarantee quality and uniformity, and thereby compete with distant markets. Thus, Gund marketed "Peerless," its pasteurized bottled beer, above other Gund products. The financial success and widespread sales of "Peerless" was made possible with the inventions of the modernization of the industries of brewing and bottling. The success of "Peerless" beer ensured the success and led to considerably increased levels of production by the Gund brewery.

In the early days of the industry, beer brewing was largely a small manual operation conducted by a few individuals. The product would keep without cooling only two or three days and its market was largely local. In

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[35] "A Modern Bottle House Pipe Line." The Western Brewer, June 1907, pp. 363 -367. The architectural section drawing for the article was by Bernard Barthel, architect, formerly of the brewery architectural firm of Wolf & Lehle (Fred W. Wolf and Louis Lehle, whose official partnership ended in 1894, though whose independent companies continued to work for Gund at least until 1912). The drawing depicts the bonded tanks similar to those as seen in the photo in the Gund promotional publication in the Murphy Library Archives.

[36] "Some Brewery Notes, Will Have a Pipe Line, Gund People Will Have a Special Revenue Office." La Crosse Daily Press, Feb. 25, 1899.

[37] "Gund's New Bottling House at La Crosse", Western Brewer: and Journal of the Barley, Malt and Hop Trades. Vol. 28, Nov. 15, 1903, p. 476.

the 1870s, the modernization of the brewing process was greatly expanded with the growing use of the steam engine, machinery, elevators for vertical transfer of materials, the pasteurization process, refrigeration, the liquefaction of gases (carbon dioxide), and other innovations which permitted larger scale production.

Louis Pasteur's work on the microbiology of fermentation, which began in 1856 and culminated in his publication in 1876, "Études sur la Bière," ("Studies Concerning Beer,") opened the doors for the commercial pasteurization of beer. He developed a heat treatment that eliminated unwanted micro-organisms that differed from beer yeast, and increased the quality and life of beer. His findings were quickly employed by the American brewing industry, because pasteurization "enhanced the quality and stability of beer." It thereby increased the life of the product and thereby the prospects for bottling and shipping to distant markets. The industrialization of beer pasteurization was significant in the development of American bottling industry, and consequently to the growth of the marketing and shipping industries.[38]

Another contribution to the purification and longevity of beer was the identification and development of a pure culture of brewing yeast by fermentation physiologist Emil Christian Hansen of the Carlsberg Laboratory in Denmark. This discovery further contributed to the industrialization of the manufacture of beer by improving its longevity and qualities, and thus its success in reaching distant markets with its flavor intact.

An industrial development that directly increased the market area of the brewing industry and led to the enormous expansion of bottling was the development of the compression pump and refrigeration, which the brewing industry quickly adapted. It replaced the ice-harvesting, storage and handling previously required to cool the product during fermentation, storage, and rail shipping in refrigerator cars. It resulted in the increased production of beer and extension of markets.

The liquefaction of carbon dioxide liberated during beer fermentation made possible the reintroduction of the gas into beer being bottled, which thereby provided the user with the full effervescence of the fresh product. Since beer becomes naturally carbonated during its storage prior to use or bottling, a process and machinery were developed to provide counter-pressure fillers, not only for the bottling process but for the increasingly larger quantities of beer in storage that were drawn off during the racking or bottling process. This was also applied during the filtration process which further purified beer for long term storage and bottling. [39]

Beginning in the late 1880s, on-site power generation and electrification of the brewery and bottling industries were first developed, which in turn lead to increased production capacities and larger facilities beginning in the late 1880s. With the advent of electrical generating equipment, breweries increased their efficiency in production with elevators to move materials and product between levels of the plant, with machinery to process the product, and with electrical lighting of work areas. These innovations permitted the development of the modern bottling plant, which was well lit, sanitary, at least partly automated, and efficient.

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[38] One Hundred Years of Brewing. Chicago and New York: H.S. Rich & Co., 1903.
[39] Corran, H. S. A History of Brewing. London: David & Charles, 1975, p. 234.

The transition in packaging and shipping beer by the brewing industry from barrels to bottles was gradual for the majority of brewing companies. As late as 1912, brewer W. L. Strauss wrote in The Western Brewer that it was somewhat difficult to obtain statistics on the proportion of bottled beer to total beer production and sales due to the fact that "many breweries continue to bottle their beers from the small packages [barrels]. They have not availed themselves of the facilities afforded by the government tanks or pipelines" and therefore are not measured. [40]

As the patenting and development of new bottling devices, equipment and procedures boomed, many but not all of the breweries and bottling companies adapted. However, many of the more progressive brewers who initiated change in brewing practices and methods were at the forefront of the transition. Among them were brewing giants Schlitz Brewing Company and Anheuser-Busch in 1900 and 1903 respectively, [41] while Gund was among the second tier of breweries which was a leader in the region in these developments. Gund's bottling plant was among the earliest of the modern fully mechanized bottling plants, following Schlitz, and building concurrently with Anheuser-Busch, among others. Similarly, Gund and Anheuser-Busch both began capping beer in 1903 with the Crown Cap, which was similar to the caps used throughout most of the twentieth century.[42] One writer opined on the industry changes just four years later: "There can be no dispute about the fact that the trade in bottle-beers is increasing into startling large proportions, nor does it seem to be doubted by all those who ought to know that the development will continue, and may have practically no limit." [43]

Bottling and Innovation

The beer brewing industry and the beer bottling industry increasingly demanded vast quantities of uniform bottles. This led to innovation that spread beyond these client industries to have broad applications. Early beer bottles varied from ceramic to crude blown or cast glass of varying sizes and shapes. Though glass had been used for centuries it was not until uniformity coupled with mass production was significantly introduced with the invention of chilled iron molds, patented in the U.S. in 1866.[44] This further introduced interest and

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[40] Strauss, W. L., "The Growth and Development of the Bottle Beer Industry in the United States," The Western Brewer, October 1912.

[41] The Western Brewer, July 1903, p. 403. New bottling plants were built for American Brewing, St. Louis; Anheuser-Busch, St. Louis; and three others.

[42] In 1891, American William Painter invented the Crown Cap, which he patented the following year, and the machinery development followed. By 1903 he developed nine capping systems of machinery. Although hundreds of other bottle caps have been invented since then, Painter's Crown Cap, slightly modified, is still the one, which is most widely used.

[43] Wyatt, Dr. Francis, "Notes on Bottle Beer Brewing," The Western Brewer, Jan. 1907, p. 30.

[44] Corran, H. S., A History of Brewing, London: David & Charles, 1975, p. 231. The shape of bottles used for storing beer and ale changed in the eighteenth century from bulbous flask shapes to the long cylindrical type presently used for Bordeaux wines. These had the advantage of easier filling and took less space in storage. Bottles were still hand-blown until 1814 when pressing into molds was first practiced in Britain and Holland. In 1820, at the French Baccarat factory, compressed air for blowing glass was first used, and in 1827 a side lever press was said to have been in use in the United States. In 1847 a U.S. patent for iron molds was granted to a Joseph Magown. But a pivotal advance in glass bottle manufacture was made in 1866 with the first use of chilled iron molds.

concerns for the visual qualities of beer -- clarity, purity and color, and thus increased the general standards for the industry. It was not until 1903, at the peak of interest in new bottling technology, that a bottle manufacturing machine was invented by Michael J. Owens of Toledo that was capable of producing as many as 13,000 bottles a day. This revolutionized the bottle-making industry, increased quality, safety, standardization, and efficiency. It also reduced labor costs and eliminated child labor from the industry. By 1912 inexpensive jars and bottles were widely available for pharmaceuticals, household products, food, and other uses.[45]

As bottled beer became more popular nationally, due to urbanization and rail transport, demands grew for improved bottling techniques and machinery to maintain purity of the product to meet the demand for a sanitary, tasty product with the qualities of freshness, and a longer shelf life. Newly designed bottle washing, rinsing, and capping machines guaranteed cleanliness, while the pasteurization process provided product stability and consistency. Such industrial innovations offered considerable reward and the number of patent applications for bottling related patents mushroomed. In 1902 and 1903, the years of the highest level of new bottling developments, The Western Brewer and American Brewer reported these industrial patents: the proportion of bottling-related patents of all brewing-related patents included eight of eighteen in April 1902, which rose to as many as eleven of eighteen in September 1903.[46]

Large scale beer bottling operations also aided the development of individual brands and specialty marketing, evidenced by Gund's well known "Peerless" label. Beers were no longer simply named after their breweries, but increasingly included references to the qualities, types of beers, and historical associations with the product.[47] Bottled beer could be shipped afar to markets that could not have supported keg sales. An example is an advertising campaign by Schlitz in Virginia in 1913 against chief competitors Pabst, Gund, and Miller which decried the use of clear bottles (Gund) versus the protective qualities of the "little brown bottle," Schlitz's trademark.[48] Of course, Schlitz overlooked the fact that pasteurization played a role in the resulting high quality of beer in glass storage, thus the retention of clear glass for bottles.[49]

Gund's famous "Peerless" beer had first been registered in 1893[50] bottled in their first (and small) bottling plant east of the brewing plant, across Mormon Cooley Road. Gund's marketing advertisements promoted its health

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[45] American Society of Mechanical Engineers, The Owens Bottle Machine, www.asme.org/history/brochures/h086.pdf.
[46] Source: American Brewer, unless otherwise noted. April 1902, 8 of 18 patents listed in the monthly American Brewer were for bottling patents; June 1902, 4 of 7 patents were for bottling; In Nov. 1902, 15 of 31 new patents were for bottling, corking, washing, filling, stops, carbonating liquids in bottles. In Dec. 1902, 6 of 12 patents for bottling, (American Brewer, p. 1418). In Sept. 1903, 11 of 18 patents the previous month were for bottling inventions. In Dec. 1903, 7 of 13 patents for bottling.
[47] Holian: 2001, p. 130-131.
[48] Virginian Pilot and The Norfolk Landmark, August 1913.
[49] Schneider, G.E., "Beer Bottling," The Western Brewer, Feb. 1903, p. 75. A lecture presented to the Siebel Brewing Academy in Chicago, with a detailed description of the process of bottling, including Pasteurization temperatures and timing.
[50] Kroll: 1976, p. 42.

benefits and targeted women as patrons. For example, an illustrated ad published in Saenger-Zeitung, a men's German language publication from Pennsylvania, showing a finely dressed lady presumably in a Gund tavern holding a "Peerless" bottle and a glass, with the script: "Gund's Peerless Beer acts as a tonic and aids digestion, enriches the blood wonderfully and promotes the health and longevity of men and women."[51]

While the promoting of women as sales figurehead did not represent progressive ideals, other aspects of Gund's bottling house practice and method did. Both historic photos of the finishing department of labeling and inspection show a predominant number of women on the bottling house floor, census records confirm that a higher than average number of women were employed in the brewing industry. Certainly the primary aspect of employing sanitary methods of bottling and marketing terms targeted progressive attitudes and pocketbooks. Even the prominent placement of the Bottling Works building façade and building title suggest the marketing of these methods to a generally accepting audience.[52]

Testimony of the commonplace acceptance of the importance of having a bottling department in a brewery was provided by William J. Farrell, who was in the cork stopper business, "Nothing has aided the great breweries in the country so much as the bottling department. My memory runs back to the time when the rich brewers thought it unworthy to give their time to bottling. It was the custom to sell the beer to firms who made a business of distributing it in glass. The business grew rapidly and some of these people got very rich."[53]

The Work of the Modern Bottle Shop

The modern process of bottling beer at the turn of the century evolved from developments based initially on Pasteur's work and experimentation at such institutions as the Carlsberg Laboratory in Copenhagen, Denmark; taught in the United States at the Siebel Brewing Academy in Chicago; and advanced to the trade with publications that included The Western Brewer: and Journal of the Barley, Malt and Hop Trades, and American Brewer, which was published in German and English. The processes of the modern bottling house incorporated mechanized methods of sterilization and handling to maximize the sanitary qualities of the bottles and the beer, to ensure that the qualities of taste, clarity, color, carbonation, and longevity were preserved. According to an editor of The Western Brewer, additional demands for quality were introduced by the prospect of bottling and shipping beer, "It is only natural that a beer which has to stand such rough treatment must be carefully prepared from the best materials, and this is evidently the reason why bottle beer is generally considered to be superior in quality to draft beer."[54]

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[51] Gund magazine ad.

[52] Census records. Author interview with Susan Appel, brewery architectural historian.

[53] Farrell, William J., Letter to the editor. The Western Brewer. January 1905: 29. Farrell adds: "I recall one case in a progressive western city [possibly St. Louis or Milwaukee] there was a rich brewer and a younger man with less money but more enterprise. The latter began to bottle in a small way, and when the older and richer man heard of it, he said with indifference: 'Oh! I shall let my bottler attend to the matter for me.' Before he knew it his rival had passed him, and his rival's product is known in every corner of the universe."

[54] "Further Remarks on Bottle Beer Brewing," The Western Brewer, Feb. 1907, p. 83.

At the time the Gund Bottling Works was under construction the following methods and procedures were being promoted in several articles published in The Western Brewer. Both new and used bottles were cleaned by soaking them in a hot soda solution of about 10 percent strength for at least 15 minutes, then emptied, rinsed, and washed on the outside, and rinsed again. The next step was to clean the insides of the bottles. For that process many brush and cleaning machines were designed. Good quality brushes were made of rubber and some used steel shot. Pure water, free of organic material, was used for rinsing to reduce the possibility of an infection to the beer, resulting in the loss of carbon dioxide. The bottles are then filled by a "counter pressure filler, several of which are now upon the market."[55] The beer was run into the bottles foamless, filled, then corked so that no air came into contact with the beer. The corks were prepared by washing, rinsing, though not completely drying. In some cases the corks were made more pliable by dipping them into a solution of equal parts of alcohol and glycerin. As of June 1903, Crown bottle capping machines were not yet in common use. Finally, the bottles were labeled, a procedure often still done by hand.[56]

Beer that was to be consumed in less than two weeks was put in cold storage to allow it to settle for a day or overnight, prior to shipping. The bottling house was to have a cold storage capacity equal to twice the barrels of beer bottled daily.

Beer expected to keep longer than fourteen days in bottles was pasteurized by heating or steaming the bottled and sealed beer. Control of the heating process, of controlling temperature over the period of time, depended on the type of beer and the longevity that was desired. These variables were set in each bottle house, based on the principles and likely results, thus differed for each product and the markets it served. Since the flavor of the beer was affected by pasteurization, it was advised to minimize it where possible. A standard practice for bottling house practice (1903, Siebel Brewing Academy) was as follows: "For keeping up to two months, the beer should be heated up slowly to 40 R.[57] Hold this temperature one-half hour, and then cool down slowly to the temperature of your water; for keeping up the three months, the beer should be heated up slowly to 45 R. and held at this temperature for one-half an hour, and then cool down to the temperature of water in half an hour; for keeping longer than three months, or for transportation to a distance, heat slowly to 48-52 degrees R. Hold at this temperature for one hour. Cool down slowly by cold water in one-half hour. It is immaterial whether the heating is by hot water or steam. For pasteurization, as well as for all other branches of work in the bottle shop, the work is done by machinery, and machines with a pasteurization capacity of 1,500 bottles per hour is one of the machines that is on the market today."[58]

Another graduate of the Siebel Brewing Academy, G. E. Schneider of Pittsburgh, wrote on the pasteurization

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[55] Diehl, Albert F., "Bottle Shop and Beer Bottling," The Western Brewer, June 1903, p. 273-274. a lecture to the Siebel Brewing Academy in Chicago.
[56] Diehl, Albert F., "Bottle Shop and Beer Bottling," The Western Brewer, June 1903, p. 273-274.
[57] R. represents the measurement of the Réaumur thermometer historically used in brewing and pasteurization. 0° marks the freezing point and 80° the boiling point of water.
[58] Diehl, Albert F., "Bottle Shop and Beer Bottling," The Western Brewer, June 1903, p. 273-274.

methods for various qualities of "high-class export bottling beer. ... I would advise the following time of steaming: Light beer, pints in 30 minutes to 48 degrees R. or 140 degrees F., kept at this temperature 20 to 25 minutes, cooling off to the lowest degree possible in fifteen to twenty minutes. Dark or colored beer, pints, in 30 minutes to 46 or 47 degrees R., or 138 degrees F.; kept at this temperature 20 minutes, cooling off in 15 minutes. Light beer, quarts, in 40 minutes, to 48 degrees R., or 140 degrees F.; kept at this temperature 30 minutes, cooling off to the lowest degree possible in 15 to 20 minutes. Dark beer, quarts, in 35 to 40 minutes to 46 to 47 degrees R., or 138 degrees F., kept at this temperature 25 minutes, cooling off in 15 to 20 minutes to the lowest degree possible. After steaming, every bottle is examined as to its clearness..."[59]

Gund Bottling Works - Architecture and Equipment

The Gund Bottling Works is a two-story, red brick, loft-styled industrial building with extensive fenestration for natural lighting, fire-resistant masonry exterior bearing walls and vaulted masonry ceilings/floor structures born on steel frame and post construction. It was served by city water, with steam heat and electricity from the brewery's power plant, and had four electric elevators.

On the north half of the first floor, was the bottling production line. On the south side of the building were the office and a packing and shipping department adjoining a rail siding where the product was shipped to points throughout the region and the United States, and abroad. On the street side, was a loading dock for local delivery by horse-drawn wagons. In the basement were the bonded tanks for measuring beer, the pasteurization tanks and rooms for beer bottles and beer storage. On the second floor were a men's lunch room and a women's lunchroom, a label room, bottle storage, and a bin for wood shavings for packing.

Architect Lehle had previously designed the new plant of Gund Brewing Co. rebuilt in 1898 and the stable, built in 1902, across Mormon Cooley Road from the Bottling Works.[60] A few years later, as Lehle & Sons, he was retained as the company's architect and provided services through about 1908. Lehle's other works included buildings of the Blatz Brewery and the Schlitz Brewery in Milwaukee, and the Gund Brewing Co. in Cleveland. Lehle designed Gund's bottling works and stables facades of an early 20th Century commercial style, with elements of the Jacobethan Revival style. The bottling works was likely built by masonry contractor builder David Wallace and Sons who built the brewery and stables. Interior photos of the bottling works showing employees at work and equipment were prominently displayed in a well-illustrated commercial promotional document published circa 1904.[61]

Lehle provided the floor plans and elevation in the November 1903 Western Brewer with the following description:

The building is of modern construction, consisting of concrete, brick, stone, steel and tile. The outside

[59] Schneider, G.E., "Beer Bottling," The Western Brewer, Feb. 1903, p. 75.
[60] Rausch, Survey: p. 99
[61] John Gund Brewing Co. coll., Murphy Library Archives.

dimensions are 136 by 185 feet. The bonded cellar, arranged for ten steel measuring cisterns of 125 barrels capacity, is situated in the basement, directly under the filling machines. The building is now in course of erection and will be equipped with the most modern and approved machinery obtainable.

This establishment is one of four lately designed by Mr. Lehle, the others being for the Jos. Schlitz Brewing Co., Milwaukee; the Terre Haute Brewing Co., Terre Haute, and the Independent Brewing Association, Chicago, and is representative of the latest style of bottle house construction.[62]

Described as follows is Lehle's equipment layout of the first floor plan where the bottling plants chief operations were noted, published in the November 1903 Western Brewer. The equipment shown in the drawings was half of the potential number, which anticipated future growth -- the projected units were shown in dashed lines. The plan shows on the north half of the first floor, in the main bottling room, from left to right (west to east) in the order of process, first, empty bottle cases were washed and stored. Next two soaking machines, labeled "National Soaking Machines" are shown attached to rinsing tanks, then Eick's Rinsing Machines, work tables, the filling machines, then the wiring and corking machines. Next were the National Pasteurizing Machines, then the labeling machines and tables. Three of the four elevators were in the bottling room, and the other on the common wall with the packing and shipping room to the south. The rooms were separated by a masonry wall and by fireproof iron doors. The rooms were separated by the masonry wall and by fireproof iron doors. Large exterior doors were located on the west side adjoining the case washing and storage area, presumably to accommodate the rare movement of the machinery for installations and removals. Other exterior doors were limited to loading doors along the south side of the packaging and shipping room adjoining the Chicago, Burlington & Quincy track spur and a couple of passage doors and loading docks to the street side.

Refrigeration for the measuring tanks room in the "bonded cellar" was likely engineered by Wolf who contracted for the refrigeration systems for the brewery from the 1890s through 1912 while Lehle provided the building and equipment plans during that time following their firm's split in 1894.[63]

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[62] "Gund's New Bottling House at La Crosse", Western Brewer: and Journal of the Barley, Malt and Hop Trades. Vol. 28, Nov. 15, 1903, p. 476.

[63] Wolfe-Linde Collection, John Gund Brewing Co. architectural drawings, Chicago Historical Society. Wolf & Lehle, Louis Lehle, Architect & Engineer, and Fred W. Wolf Co., Engineers & Architects.

Gund and La Crosse Breweries

Born in Baden, Germany in 1830, John Gund had arrived in the United States in 1848 and in La Crosse in 1854 and began making beer, the first to do so locally. In 1858 Gund partnered with Gottlieb Heileman and built the City Brewery on Third Street, the site now occupied by the old Heileman Brewery. In 1872, Gund withdrew from his partnership with Heileman and established his own brewery, the Empire Brewery on Mormon Coulee Road, now South Avenue, on land adjoining the subject building, and prospered. The location was on the south side just outside the developed part of town, adjoining the riverbank for access to ice, and shipping by river and by rail.

In the 1870s, Gund and its competitors, the Heileman's City Brewery, C. & J. Michel's Brewery and George Zeisler's Plank Road Brewery, all had benefited by considerable growth in the transportation options afforded to La Crosse industries. While steamboat service provided some shipping service, the railroads grew to become the predominant shippers, providing access to expanding markets. During the 1880s, when La Crosse grew to become the second largest city in Wisconsin, rail traffic in the Chicago and NorthWestern Railroad, the Chicago, Burlington and Northern (later Chicago, Burlington and Quincy) increased, and beer sales and production grew correspondingly. By 1884, the city's breweries produced the same volume of beer as the breweries in Milwaukee.

Reorganized as the John Gund Brewing Company in 1880, the company continued to grow, buying smaller breweries and saloons, even building hotels to serve Gund beer exclusively. The strongest markets for Gund products were not only local, but included Wisconsin, the Dakotas, Iowa, Illinois, Minnesota, and Nebraska. Newspaper ads revealed a significant market as far east as Virginia by 1913.[64]

On September 23, 1897, the largest fire in La Crosse's history destroyed much of Gund's stone and frame brewery, and the company rebuilt, larger and grander than ever. While the new brewery and malt house were completed in August of 1898, other buildings were erected in the following years. The power plant was replaced in 1902[65], the stables were built in 1902, and the last of these, the new bottling works was built in 1903, replacing the older, smaller bottling plant that had survived the fire on the east side of Mormon Coulee Road. The first bottling house measured 36 feet by 50 feet and had a capacity of 2,500 bottles per day.[66]

In mid-September 1903, Gund ran several full-page advertisements in the leading local newspaper inviting the public to inspect the brewery's facilities.[67]

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[64] Virginian Pilot and The Norfolk Landmark, August 1913.
[65] Wolfe-Linde Collection.
[66] Kroll : 1976, p. 42.
[67] La Crosse Leader and Press, September 13-15, 1903.

The Gund Brewing Co.'s production had grown from modest beginnings of 5,000 barrels a year in 1880 to 600,000 barrels of beer in 1910, when they had 450 employees with a payroll of about $500,000 annually, and expenses of $1,000,000 a year. By comparison, the second largest brewery, the G. Heileman Brewing Company, employed over 285 men. The C. & J. Michel Brewery was long the third largest of La Crosse's breweries. The other much smaller breweries of the time included the Monitor Brewery, Bartl's Brewery and the Kohn Brewery.[68]

Henry Gund, John Gund, Sr.'s son, managed aspects of the business from 1880 until Prohibition in 1920. He was elected vice-president of the Wisconsin Brewer's Association in 1901. It was under his leadership that the modernized Bottling Works was planned and built. With John Gund's death in 1910, and Henry's poor health, the company was left without strong leadership and Prohibition subsequently closed the company's doors; the property was sold in 1920.

Beer Bottling Houses in La Crosse

The three largest of La Crosse's breweries modernized shortly after the turn of the century. All three built and managed their own bottling houses, unlike many other breweries in other cities, in order to better control the quality of the product. Of these bottling houses, the Gund Brewing Co. bottle house remains as the best example employing the modern line. A second bottling house remains, of the C. & J. Michel Brewing Co., at Second and Division Streets, though nothing was published on its design or technology.

The Gund Brewing Co. bottling works was built in 1903. At about the same time, the G. Heileman Brewing Co. also built a new bottling house. The brew house of the old Heileman plant remains visible on Third Street, but the first and second bottling plants at 1027 S. Third Street were demolished and replaced with nondescript windowless steel-sided buildings in recent decades. The C. & J. Michel Brewing Co. brewery was demolished just a few years ago after its local landmark status was rescinded on appeal from the owner. All other brewery buildings and beer bottling houses in La Crosse have been demolished, other than those of Heileman, and a Gund storage house and stable. [69]

The G. Heileman Brewing Co. was the outgrowth of a business established in 1858 by John Gund and partner Gottlieb Heileman, the City Brewery, on Third Street between Winnebago and Mississippi Streets. Since 1872, the G. Heileman Brewing Co. grew in the same location, and remained the only brewery in La Crosse between 1957 until 1999 when a series of failed corporate mergers closed the plant.

The C. & J. Michel Brewing Co. grew from a small operation begun by Charles and John Michel, who settled in La Crosse in 1856. Their brewing business was established a few years later and grew into a complex occupying the 700 block of South 3rd Street which was rebuilt in 1907. At the time of Prohibition, the Michel Brewing Company turned to malt production and changed its name to La Crosse Breweries, Inc. which

[68] Miller: 1959, p. 29.
[69] Baier: 1976, p. 11-13.

conducted business until 1956 when it closed.[70] It was designated a landmark in 1995, though the designation was overturned and the buildings on that block have since been demolished, though a small bottling building remains nearby on the block west toward the river.

Conclusion

The Gund Brewing Company Bottling Works is locally significant under Criterion A in the area of Industry. The bottling plant, with its innovation in machinery, method and plant lay-out, represents historical industrial developments that helped revolutionize sanitary beer packaging, which changed marketing and distribution methods and procedures that remain practically unchanged today. It was built in the prime era of innovation and modernization in the beer bottling industry in 1903, and incorporated sanitary procedures in its bottling plant procedures and equipment.

The bottling plant played an important role in the success of the Gund Brewing Company, once the largest brewing and bottling facility in La Crosse, and it helped elevate the city as one of the primary beer producing and exporting cities in the Midwest.

[70] Apps: 1992, pp. 194-195.

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Verbal Boundary Description

Legal Description:
SEC 8-15-7 PRT S 1/2-NW1/4 (Township: 15; Range: 07; Section: 08; Qtr: SE-NW)
DESC AS FLWS: COM AT CENTER SD SEC 8, TH N47D17MW ALG C/L SOUTH AVE 496.0 FT TH W 180.39 FT TO POB TH CONT W 613.0 FT TH N53D46M39SW 302.52 FT TH N35D27MW 127.59 FT TH N89D5ME 743.25 FT TO WLY ROW SOUTH AVE TH S47D17ME ALG SD ROW 316.83 FT TH S42D54M37SW 65.93 FT TH S 31.30 FT TO POB SUBJ TO ESMT IN DOC NO. 1408057 & DOC NO. 1460858 & SUBJ TO RESTR IN DOC NO. 1501970 676/932

Boundary Justification

The boundary coincides with the legal parcel description that the property has had since the 1950s.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Gund Brewing Company Bottling Works
La Crosse, La Crosse County, WI
Photos by Gary Tipler, October 2007
Negatives on file at the Wisconsin Historical Society.

Photo 1 of 7. View of South Avenue Facade

Photo 2 of 7. View looking SW at façade and north side

Photo 3 of 7. View looking NW at façade and south side

Photo 4 of 7. View looking NW at south side, old loading dock

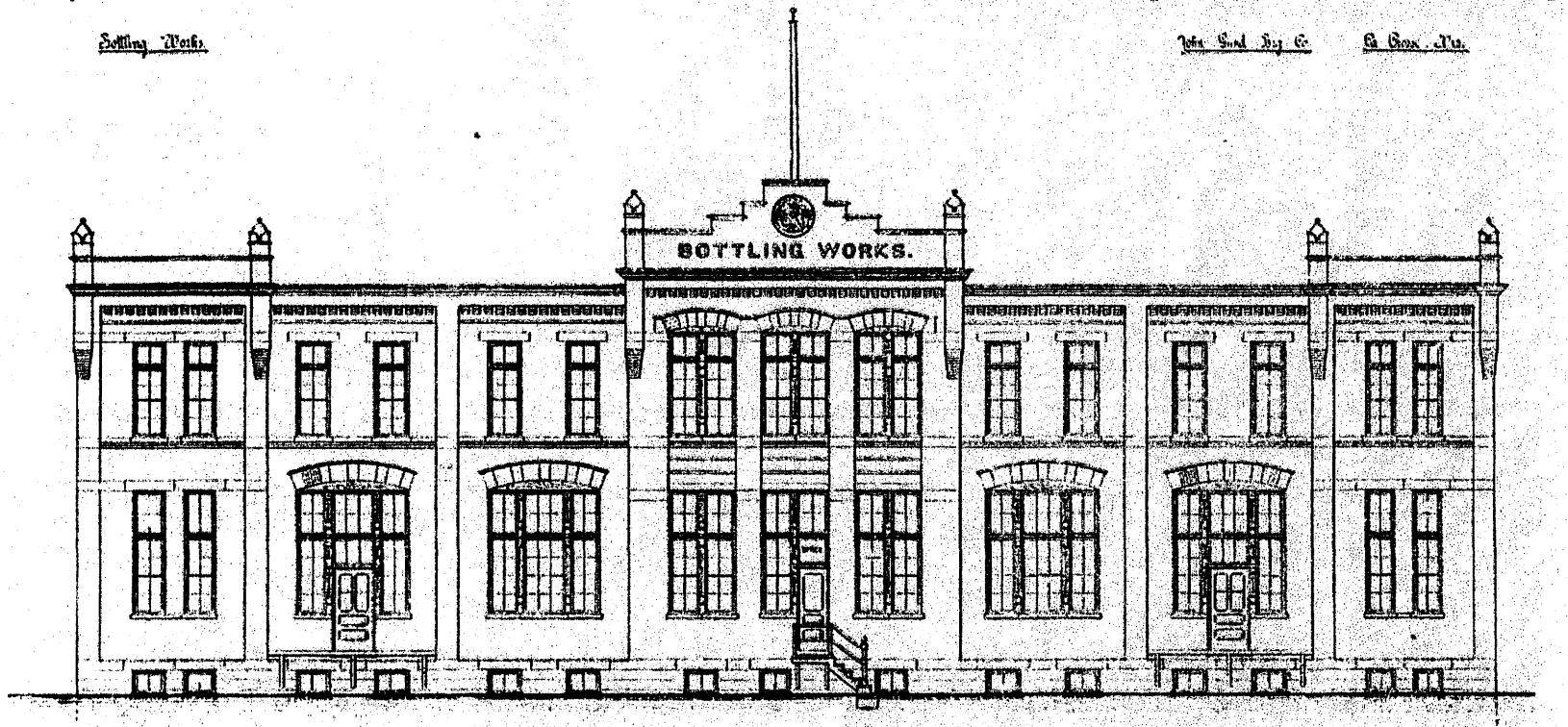
Photo 5 of 7. View looking NE at south side, old loading dock

Photo 6 of 7. View looking NW at rear wing and old loading dock

Photo 7 of 7. Interior view, typical exposed structure

GUND'S NEW BOTTLING HOUSE AT LA CROSSE.

The illustrations given herewith are reproduced from the working drawings prepared by Louis Lehle, architect, Chicago, for the construction of a bottling establishment on the premises of the John Gund Brewing Co., at La Crosse, Wis.



FRONT ELEVATION OF JOHN GUND BREWING CO.'S NEW BOTTLING HOUSE, LA CROSSE, WIS.

The building is of modern construction, consisting of concrete, brick, stone, steel and tile. The outside dimensions are 136 by 185 feet. The bonded cellar, arranged for ten steel measuring cisterns of 125 barrels capacity, is situated in the basement, directly under the filling machines. The building is now in course of erection and will be equipped with the most modern and approved machinery obtainable.

This establishment is one of four lately designed by Mr. Lehle, the others being for the Jos. Schlitz Brewing Co., Milwaukee; the Terre Haute Brewing Co., Terre Haute, and the Independent Brewing Association, Chicago, and is representative of the latest style of bottle house construction.

FIGURE 1: GUND BREWING COMPANY BOTTLING WORKS LA CROSSE, LA CROSSE COUNTY, WI.

GUND BOTTLING WORKS, ELEVATION, From THE WESTERN BREWER, NOV. 1903

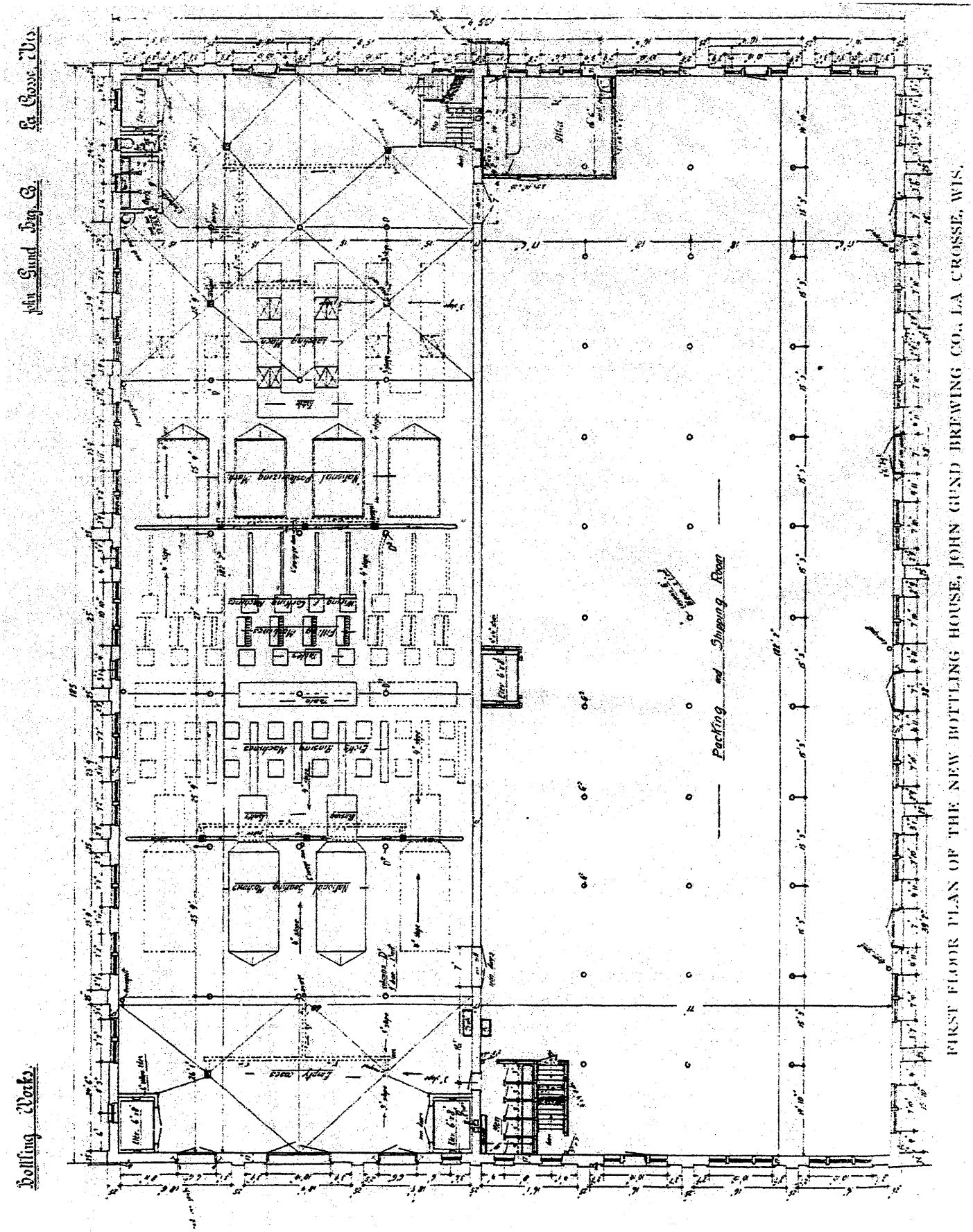


FIGURE 2: GUND BREWING COMPANY
BOTTLING WORKS
LA CROSSE, LA CROSSE COUNTY, WI.

GUND BOTTLING WORKS FLOOR PLAN,
From THE WESTERN BREWER, NOV. 1903