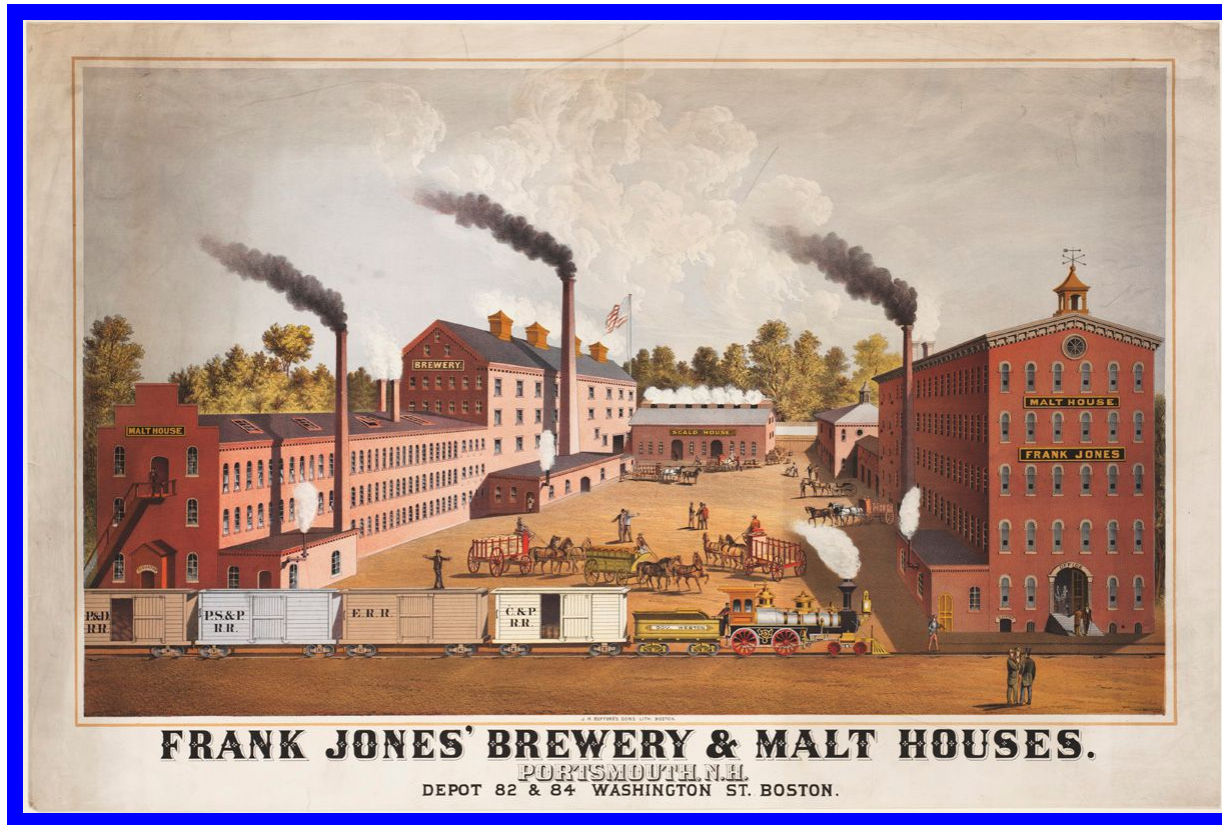


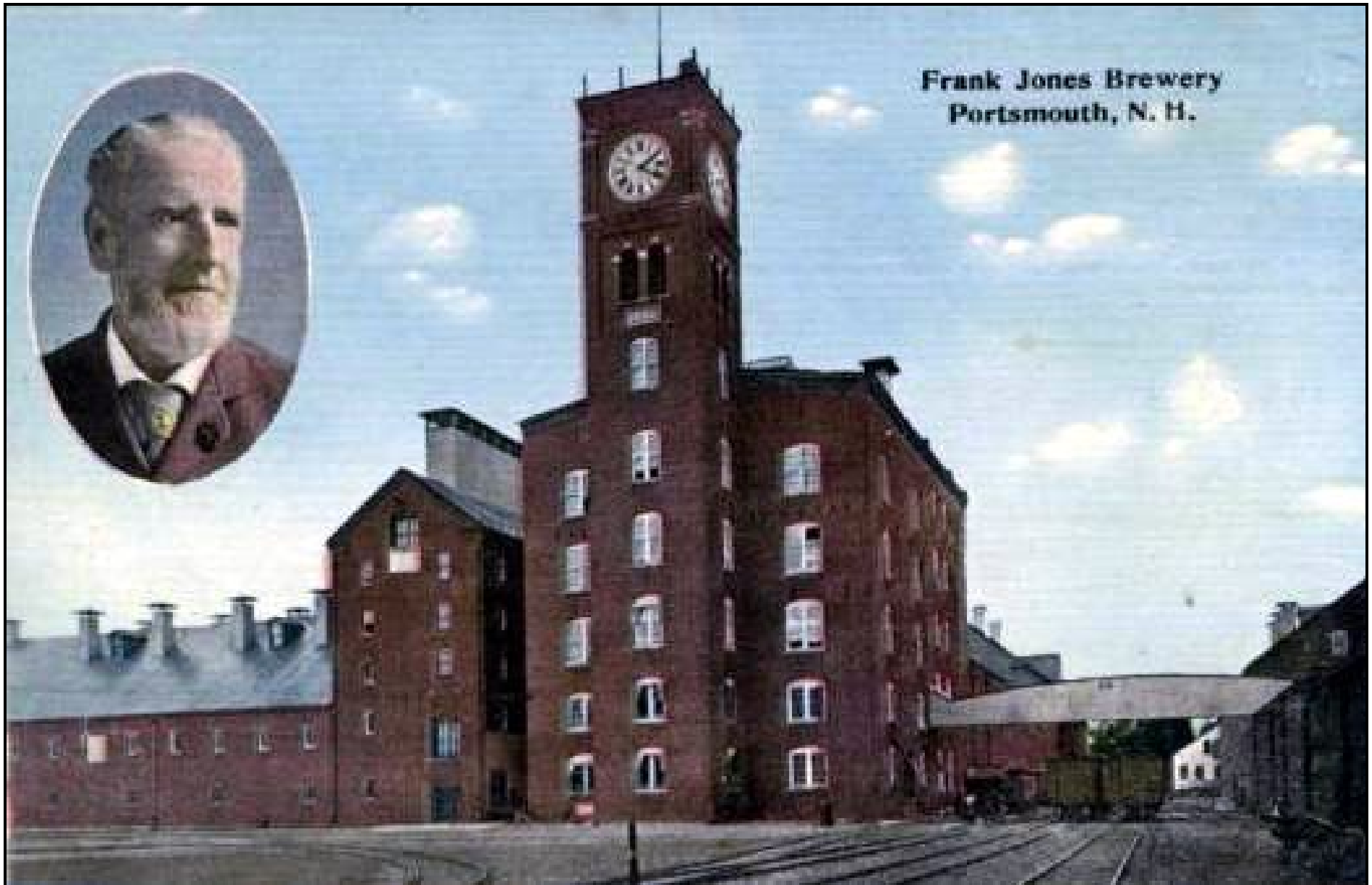
Refrigeration in American Breweries 1860-1920

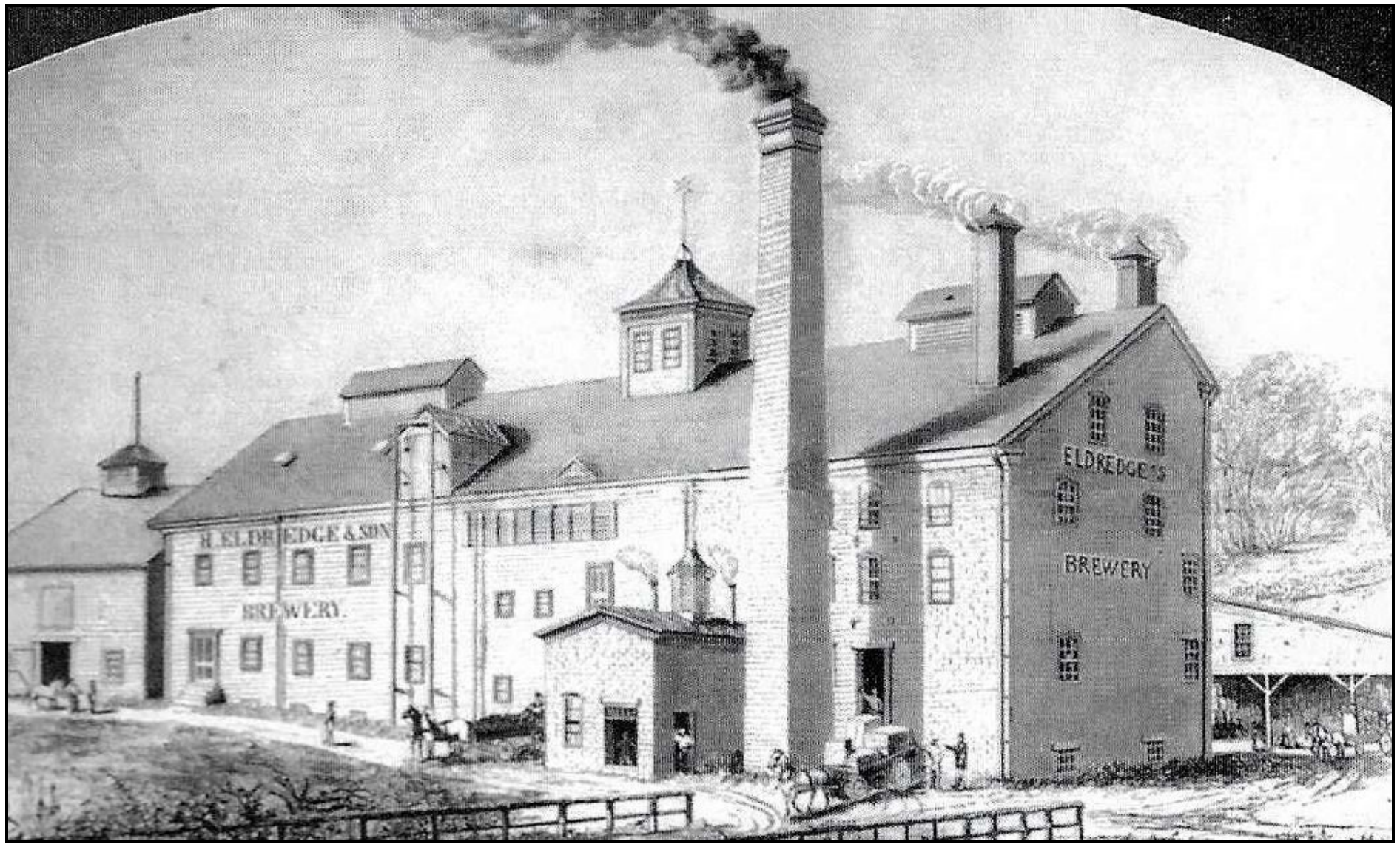


New Hampshire Breweries

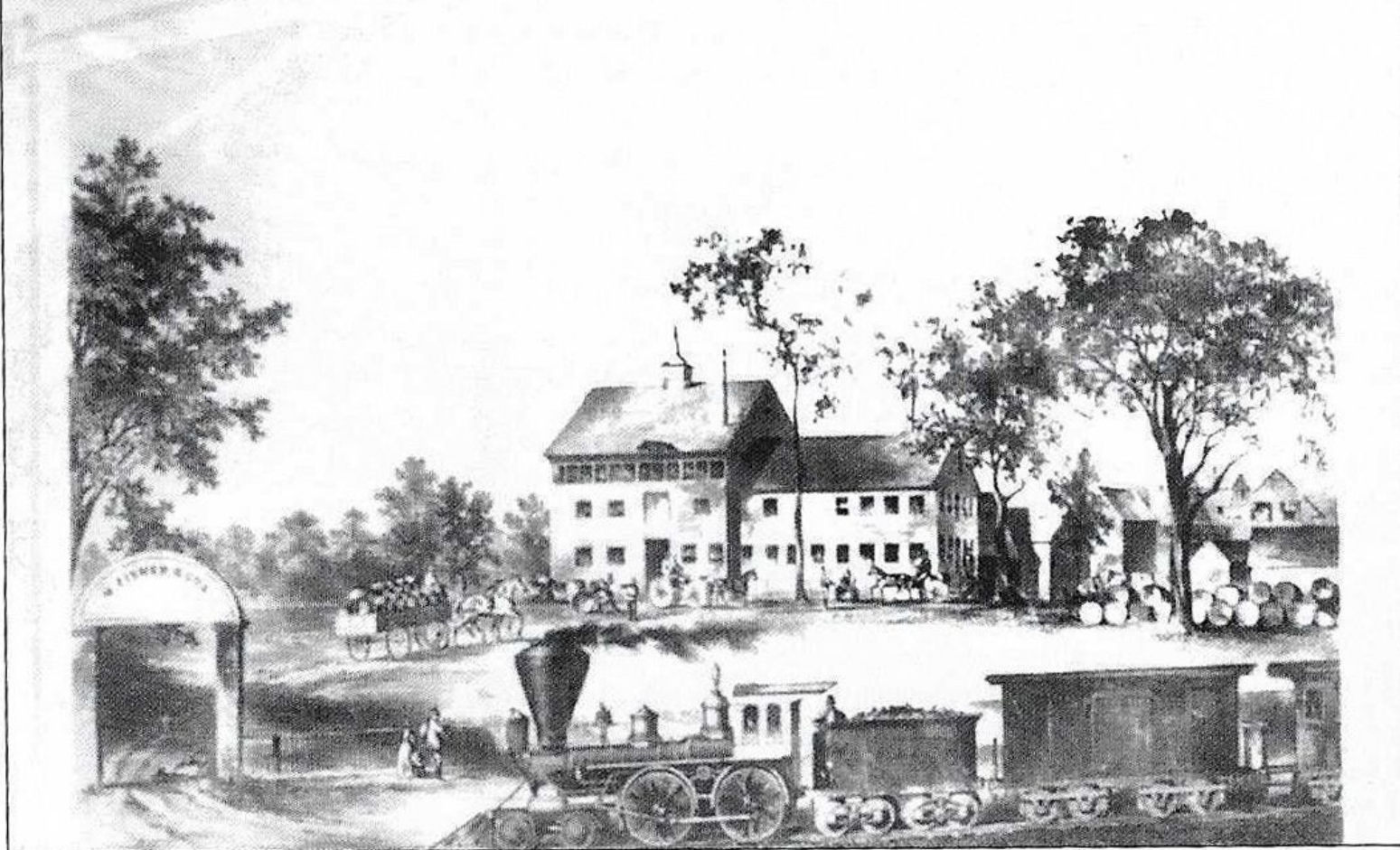


**Frank Jones Brewery
Portsmouth, N. H.**

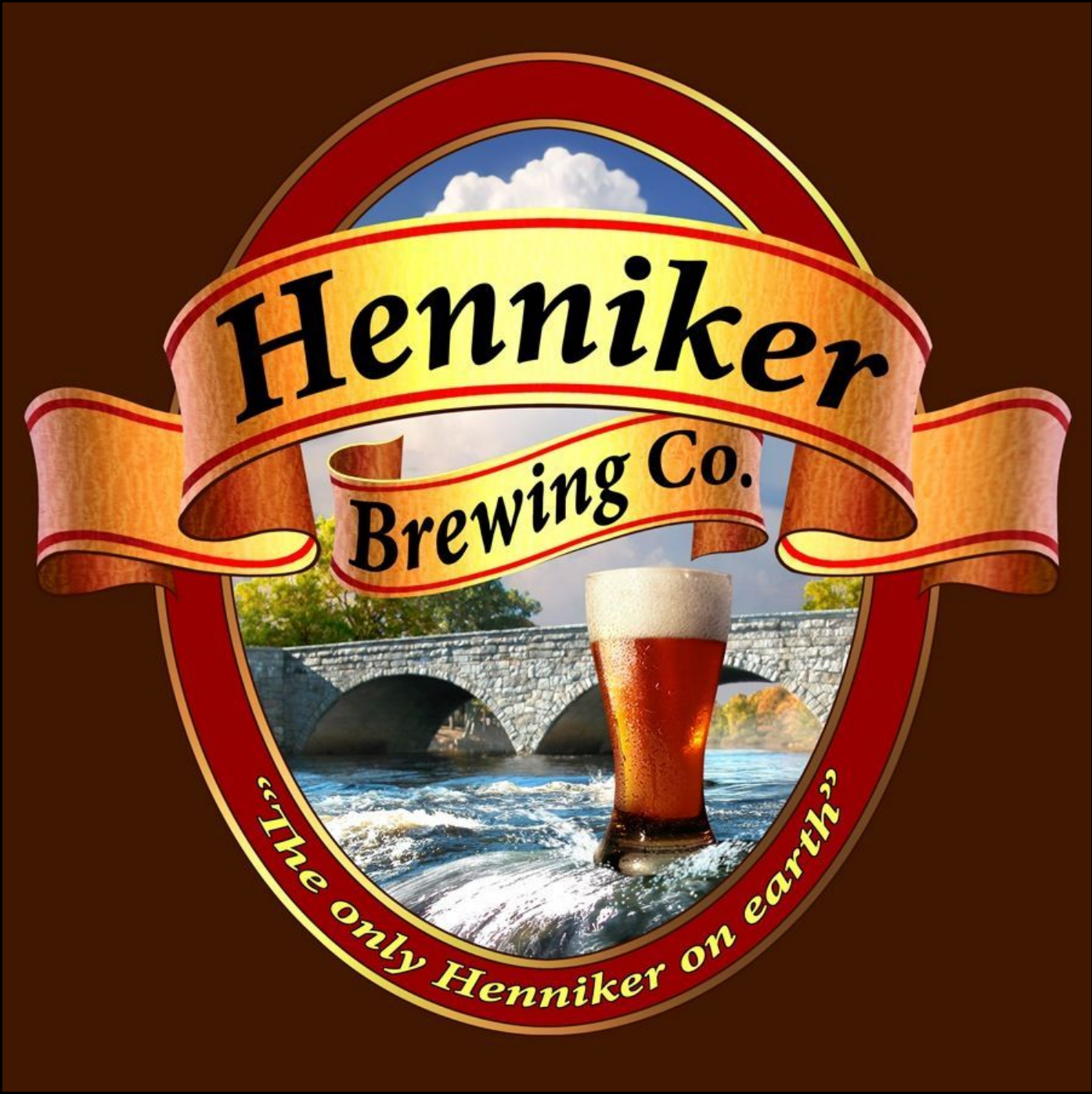




M. FISHER & CO'S.



AN M. FISHER ADVERTISEMENT. This rare lithograph is one of the few known artifacts from the early days of the Eldredge family brewing business. Before the family started brewing, Heman Eldridge and his family, including sons Marcellus and Heman, came to Portsmouth in 1852. Marcellus first worked at his father's store as a clerk and soon worked at the newly opened brewery c. 1861. (Courtesy Rus Hammer.)



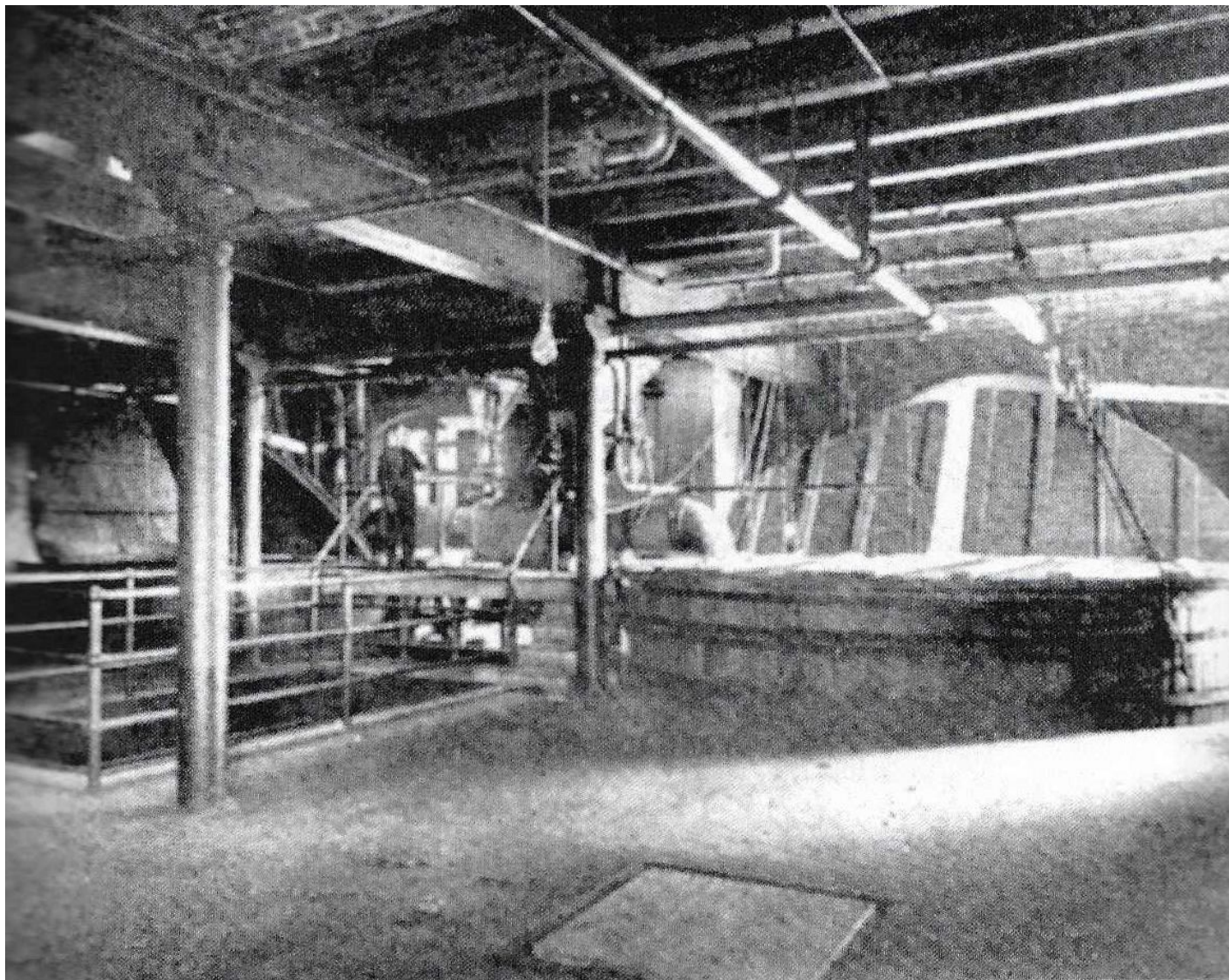
Henniker

Brewing Co.

The only Henniker on earth

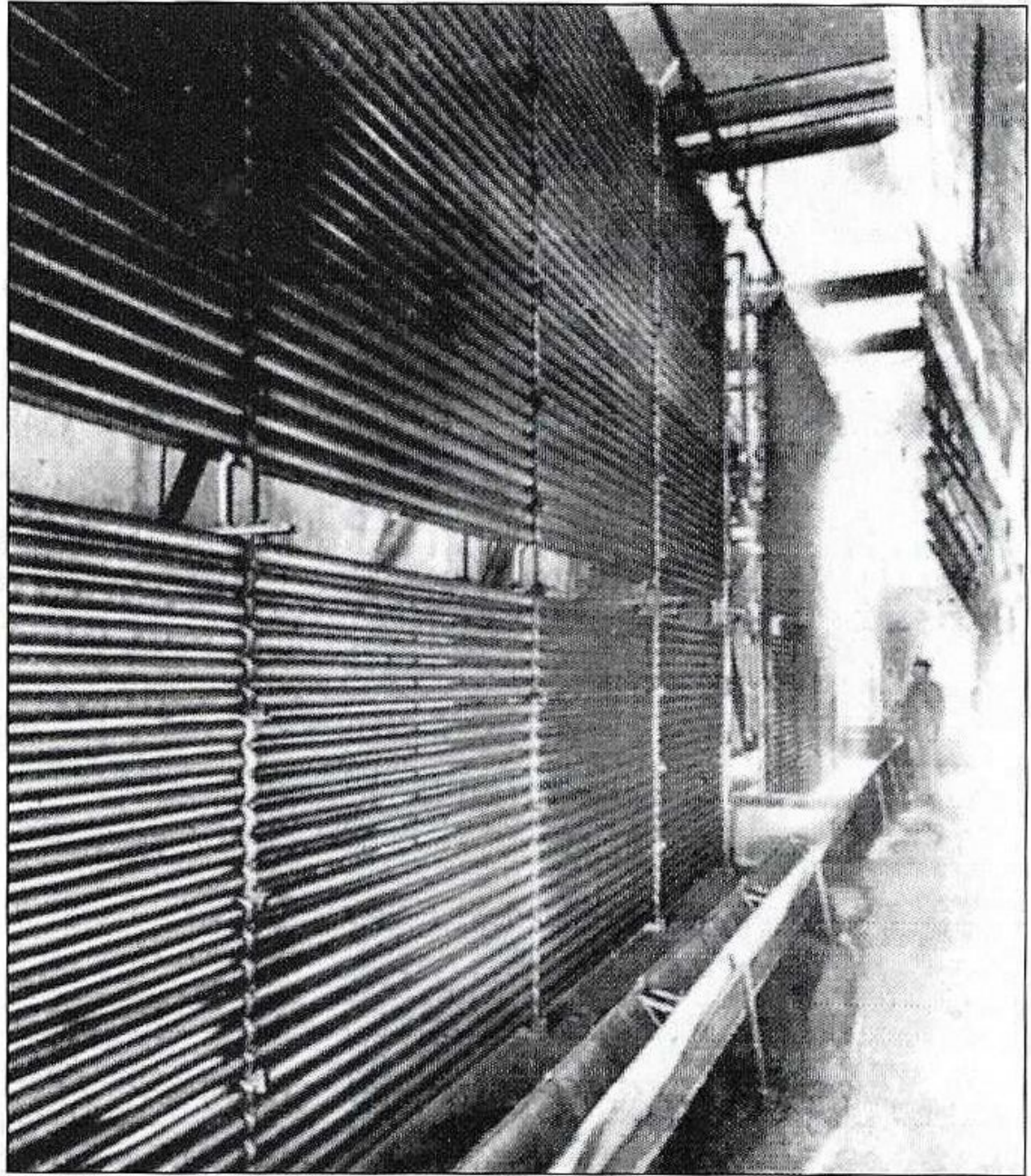
The Frank Jones Brewing Co. Portsmouth, N. H.

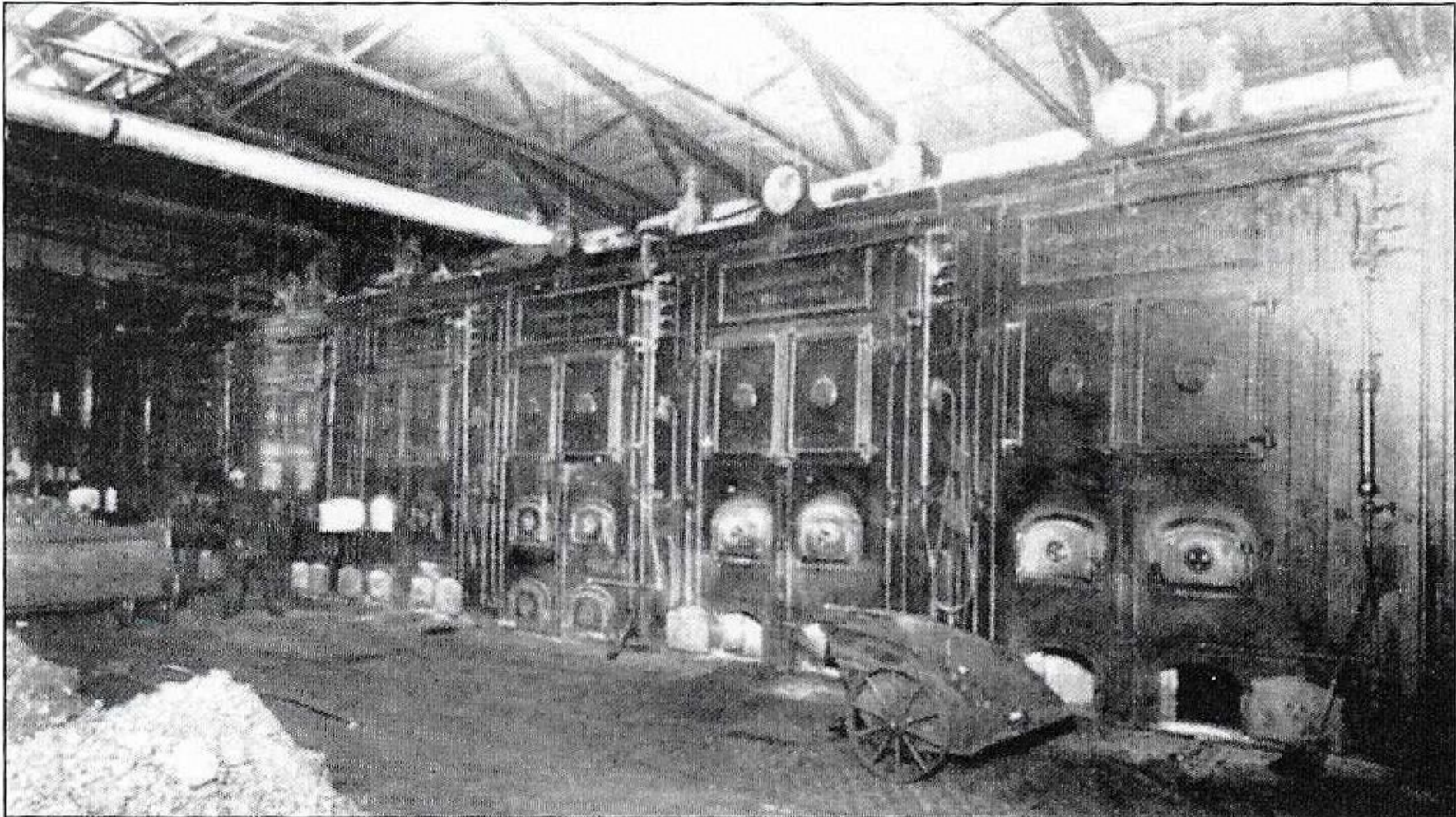




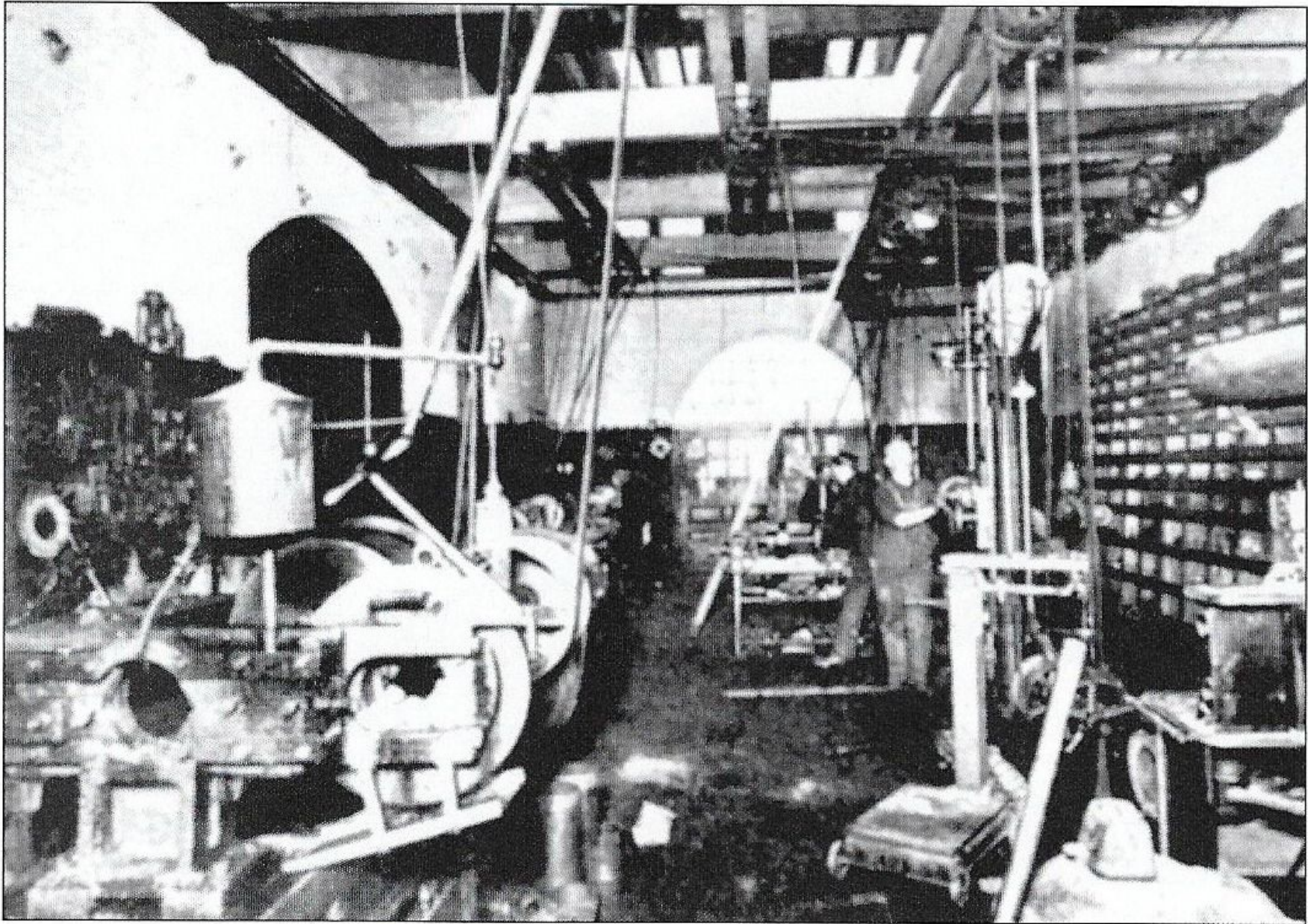
THE MASH TUN. The mash tun was originally just a giant wooden vat. It was made no different than the wooden kegs in which the final product was stored. The vat was recessed into the floor for insulation and ease of operating. This giant vat was where the malted barley was mixed with hot water at a temperature between 150 and 160 degrees. The hot water caused the starches to break down and become sugar. After the sweet liquid was separated from the spent grain it was called malt extract. This extract was pumped to another container to make the beer. (Courtesy Rus Hammer.)

HOW THE WORT WAS COOLED. The wort needs to be cooled before it goes to the fermentation tank. All of the boiling wort was pumped through these pipes. The pipes acted like a radiator to remove the heat from the liquid. The liquid needs to be cooled so yeast could be added. If the wort was too hot, the yeast would die, and no alcohol would be produced. (Courtesy Rus Hammer.)

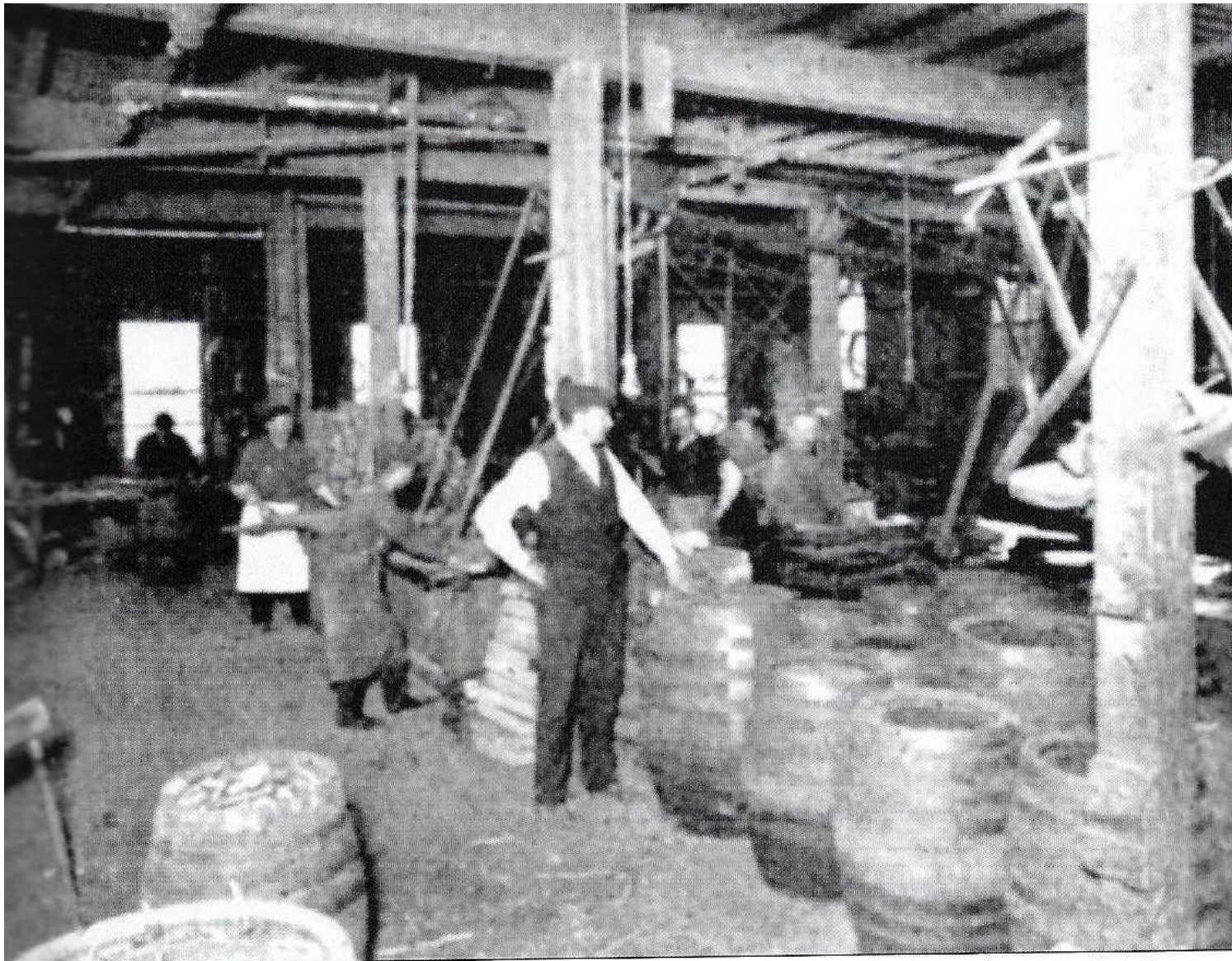




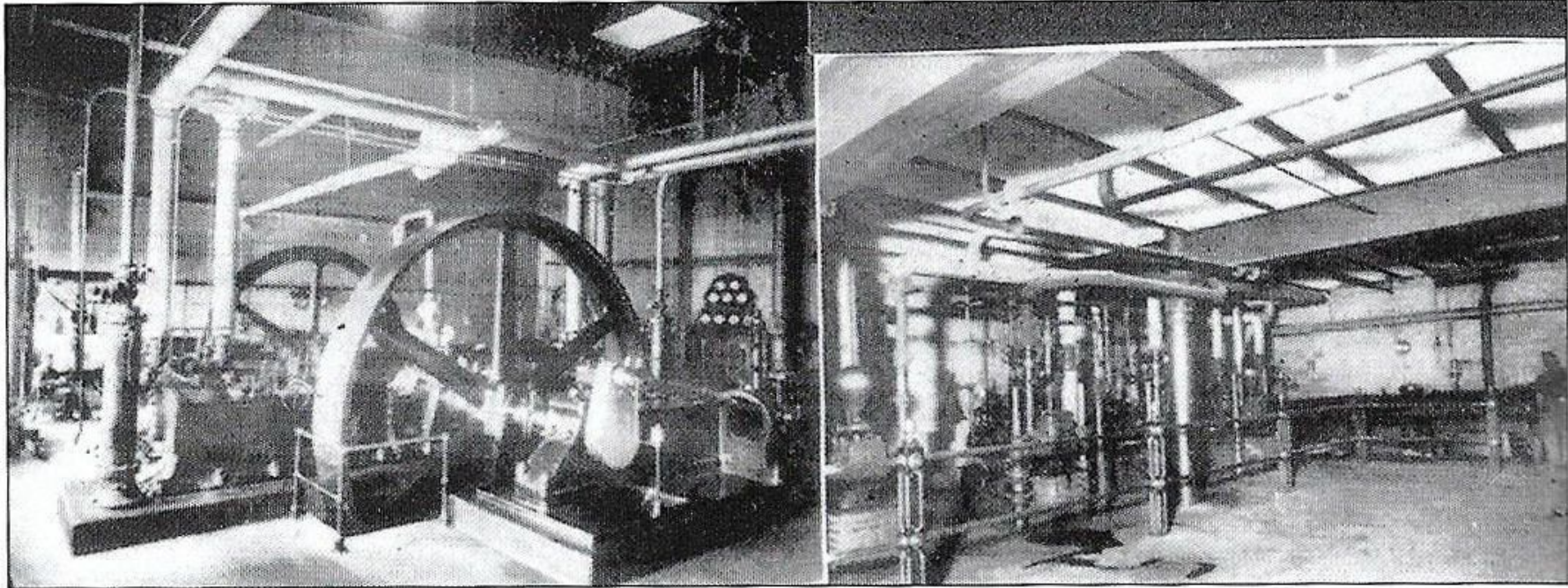
STOKING THE FIRES. Consider the amount of energy needed to run the brewery. These boilers were needed to generate steam to boil the wort, run generators, and drive pumps. They were coal fired and were maintained by hand. They were probably run 24 hours a day, 7 days a week. It was a hot job, even in the winter. (Courtesy Rus Hammer.)



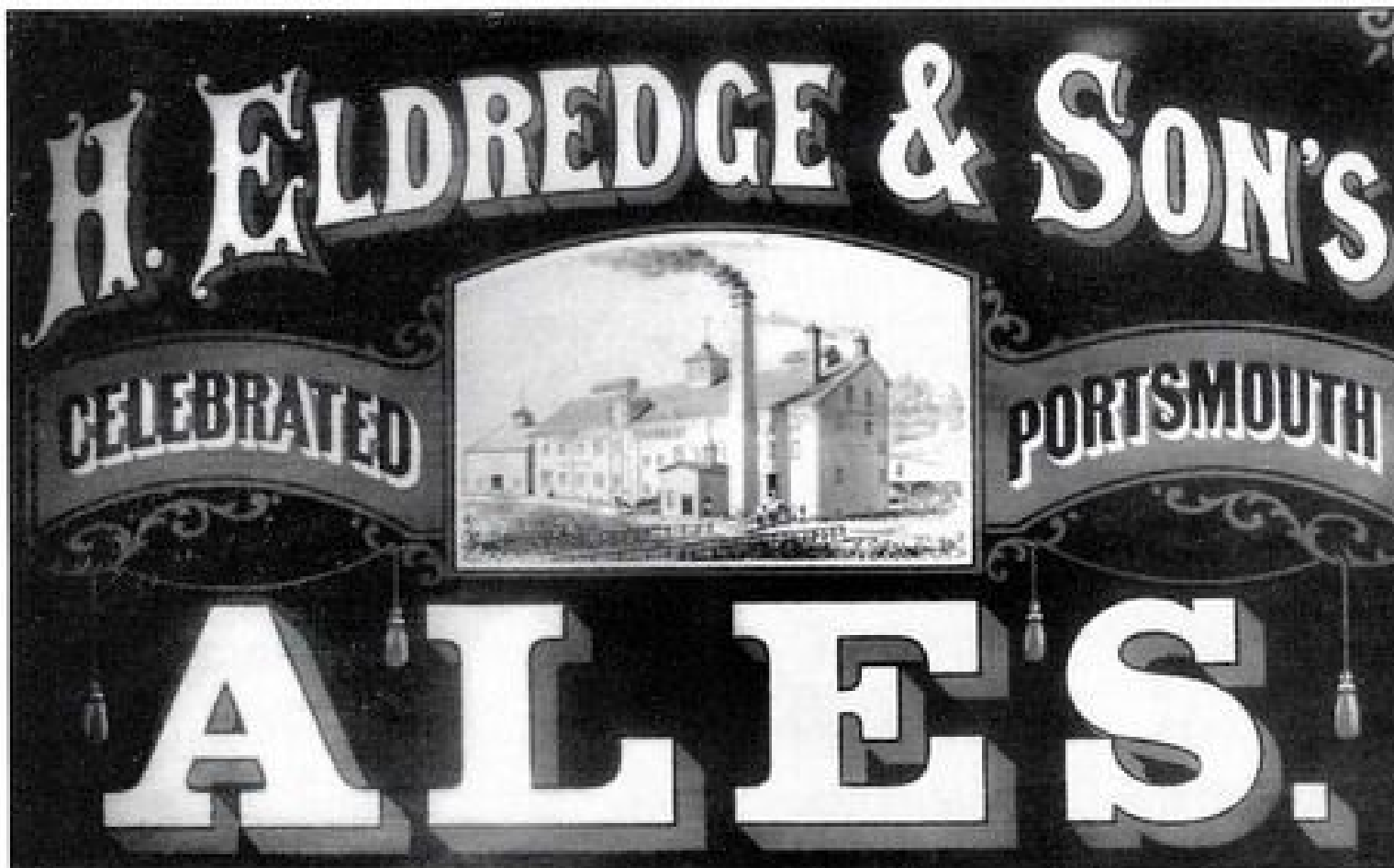
THE MACHINE SHOP. At the beginning of the 20th century, mass production was in its infancy. If something in the brewery was damaged or broken, it was probably not a part that could be ordered, but rather needed to be made in a shop. It was a necessity to have a machine shop on-site to keep the beer flowing. (Courtesy Rus Hammer.)



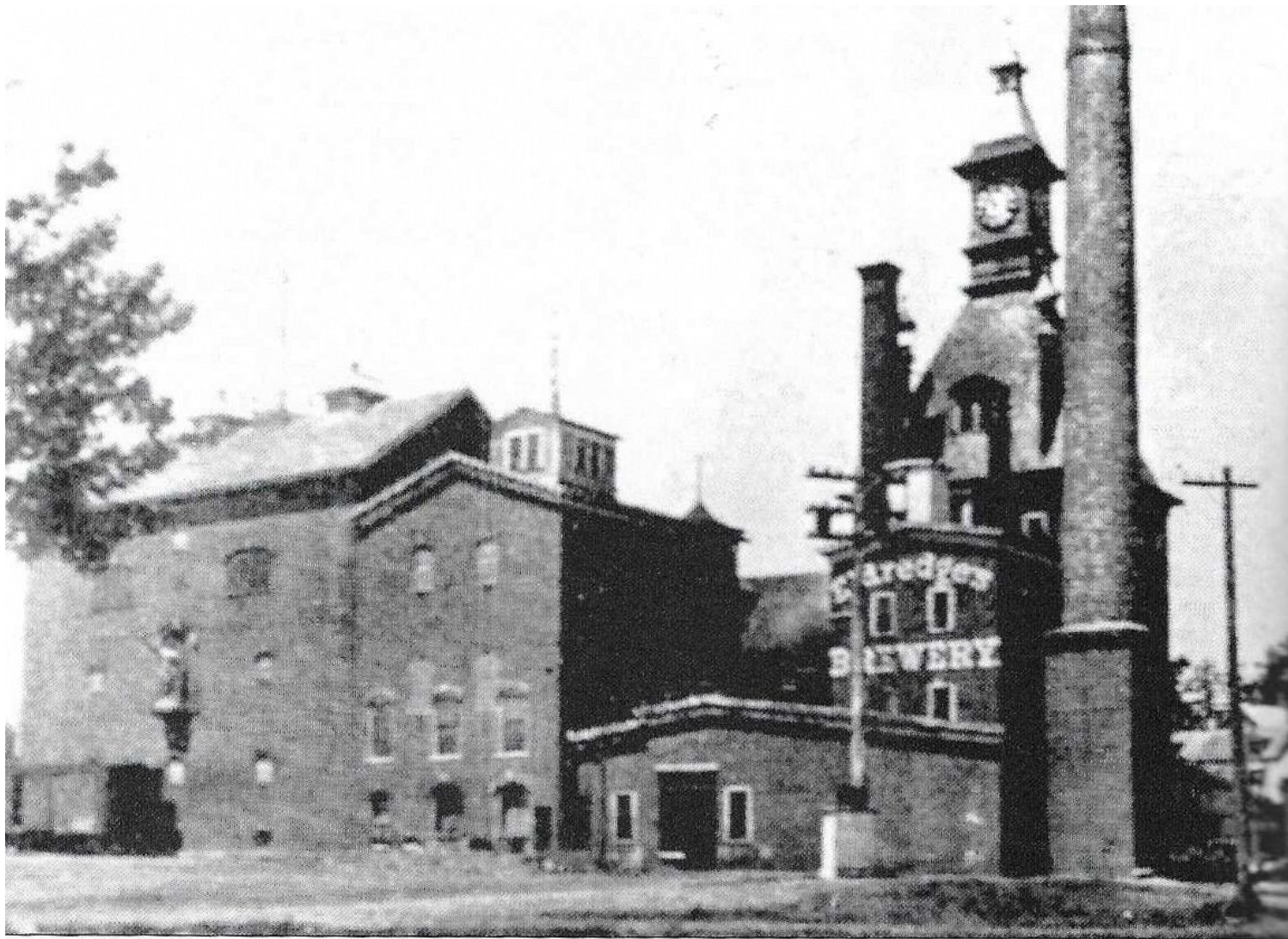
ROLL OUT THE BARRELS. As the Frank Jones Brewery was so large, it made sense for them to have their own cooper's shop. It was here that all of the kegs were made and maintained. The gentleman in the middle is more than likely the foreman. He oversaw the production of all barrels. This was a key part of the brewery. If things did not run smoothly here, the whole production of beer stopped, which meant no kegs and no storage. Today's kegs are made of stainless steel and hold only half of the amount of beer as the wooden barrels did. One can only imagine how heavy full or empty barrels must have been. (Courtesy Rus Hammer.)



KEEPING THINGS COOL. With the mass production of beer, refrigeration was needed. To let the beer age correctly and keep it from spoiling, it had to stay cool. A smaller brewery could use an icehouse, but with the size of this brewery, that would not do. Fortunately, they were able to use the new technology of refrigeration to keep the beer cold. (Courtesy Rus Hammer.)



AN ELDRIDGE BREWERY LITHOGRAPH, c. 1872. This advertising lithograph depicts the Eldredge Brewery (see detail below) after it had undergone some expansion from its early days. The brewery was expanded again in 1878, a sure indicator that the Eldredges were having no problem keeping up with the Joneses. The Eldredges were not as wealthy as Frank Jones, but they were equally committed to keeping their brewery as modern as possible. In fact, they bested Jones in several technological areas, being the first brewery in Portsmouth to install telephone service (1881) and the first to install machinery to make ice for cooling beer (1890). Despite this competition, Marcellus Eldredge and Frank Jones remained close friends and, for the better part of their careers, political allies. (Courtesy Rus Hammer.)

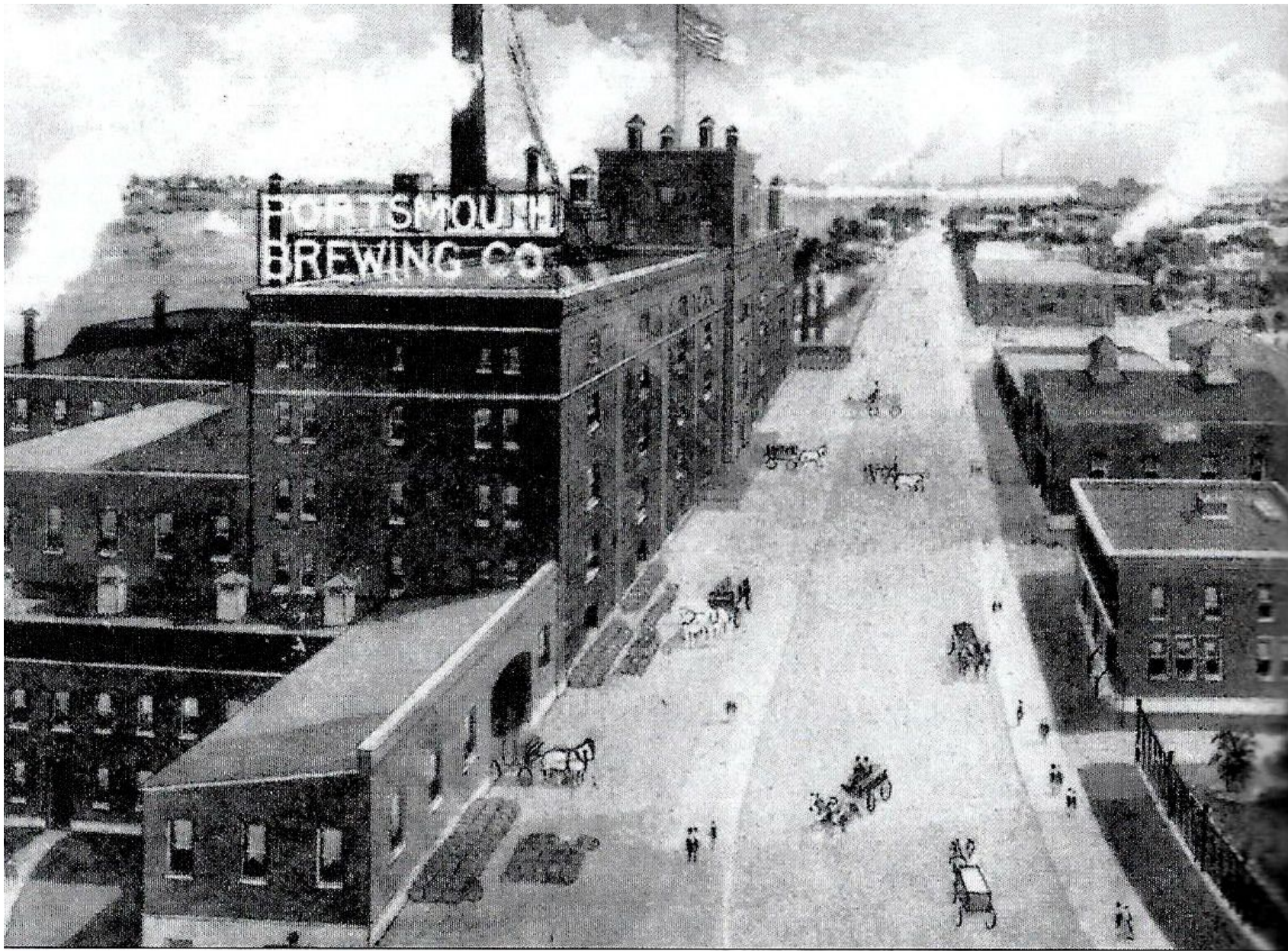


THE ELDREDGE BREWERY, c. 1900. Complete with its King Gambrinus statue (visible at the far left on the brewery wall), this view shows the Eldredge Brewery in its final form. Note the elaborate clock tower to the right. Marcellus Eldredge and his brothers were as fanatical about their brewery as Frank Jones was when it came to both style and substance. Not only was their building architecturally interesting, but they also installed the most modern brewing equipment whenever possible. Not to be forgotten were the brewery workers themselves. All indicators point to the fact that the Eldredges paid their workers fairly and treated them well. In July 1884, when the coopers went on strike at all of Portsmouth's breweries to increase their daily wages from \$2.50 to \$3.00, the Eldredges were the first to meet their demands. (Courtesy Rus Hammer.)

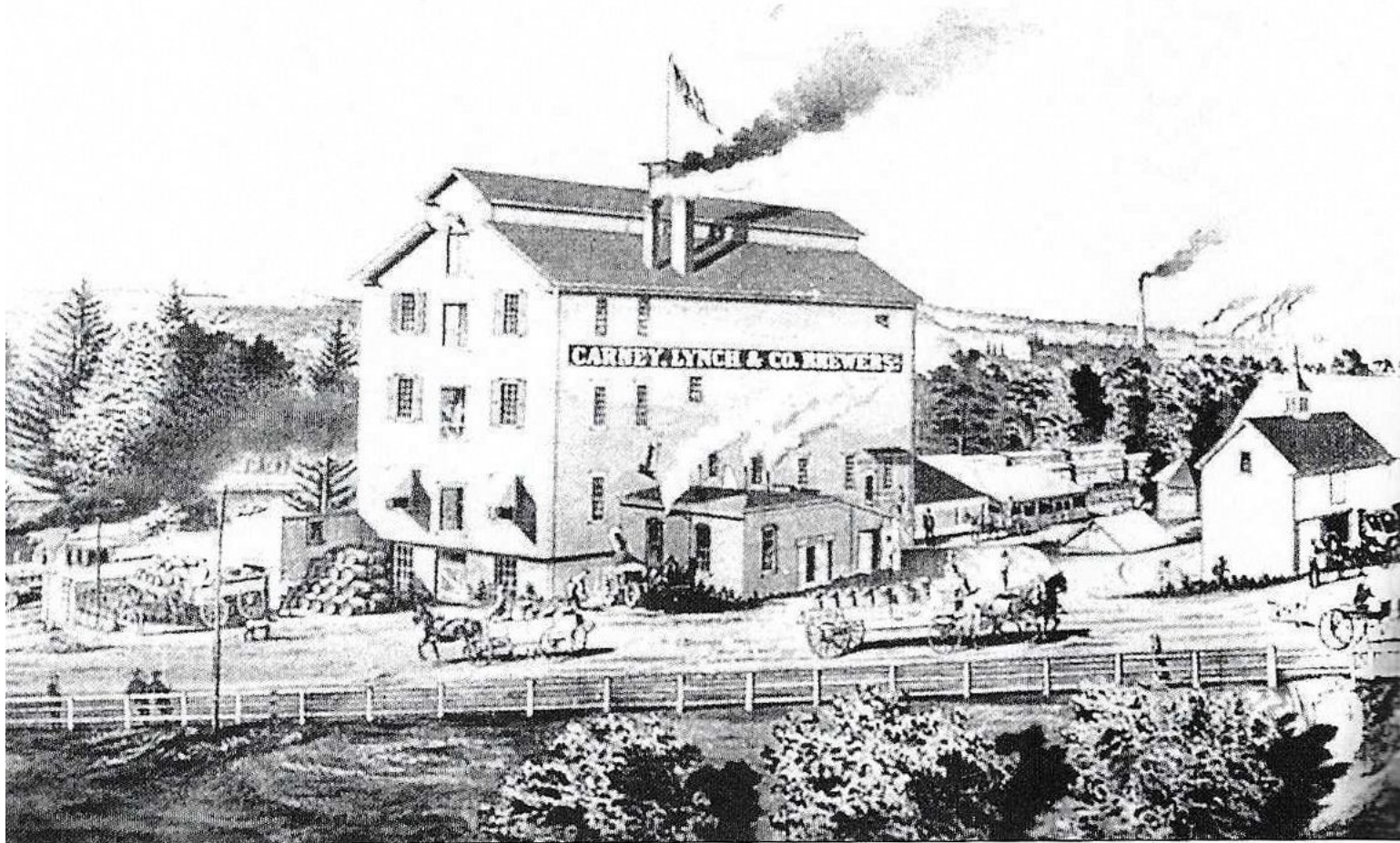
MILLYARD



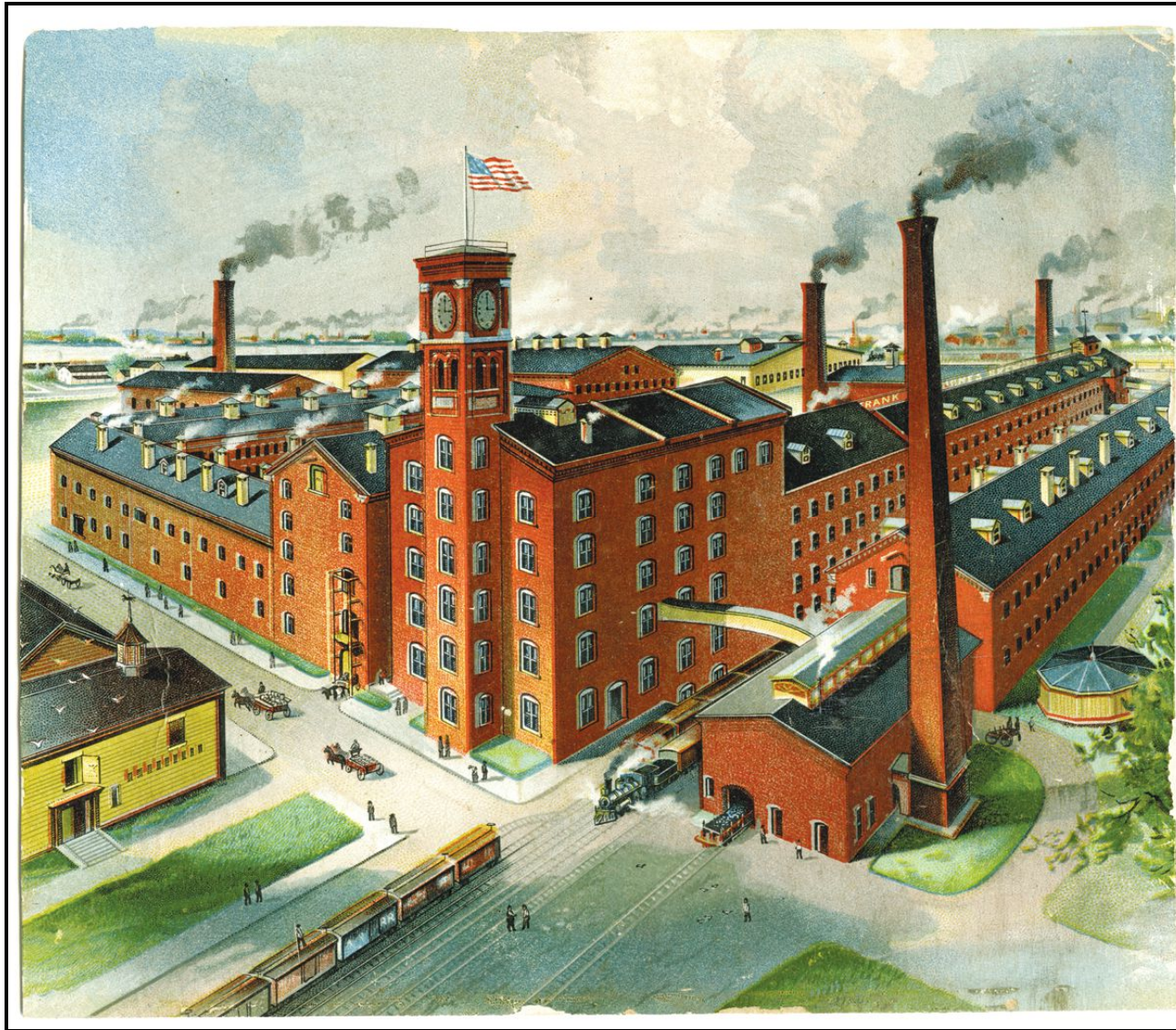
BREWERY



THE PORTSMOUTH BREWING COMPANY. This postcard view of the Portsmouth Brewing Company dates from c. 1900 and shows the company's waterfront location on Bow Street. Note the many horse-drawn beer wagons on the street out front coming in for deliveries, and the many casks, probably empties, stacked outside. (Courtesy Rus Hammer.)

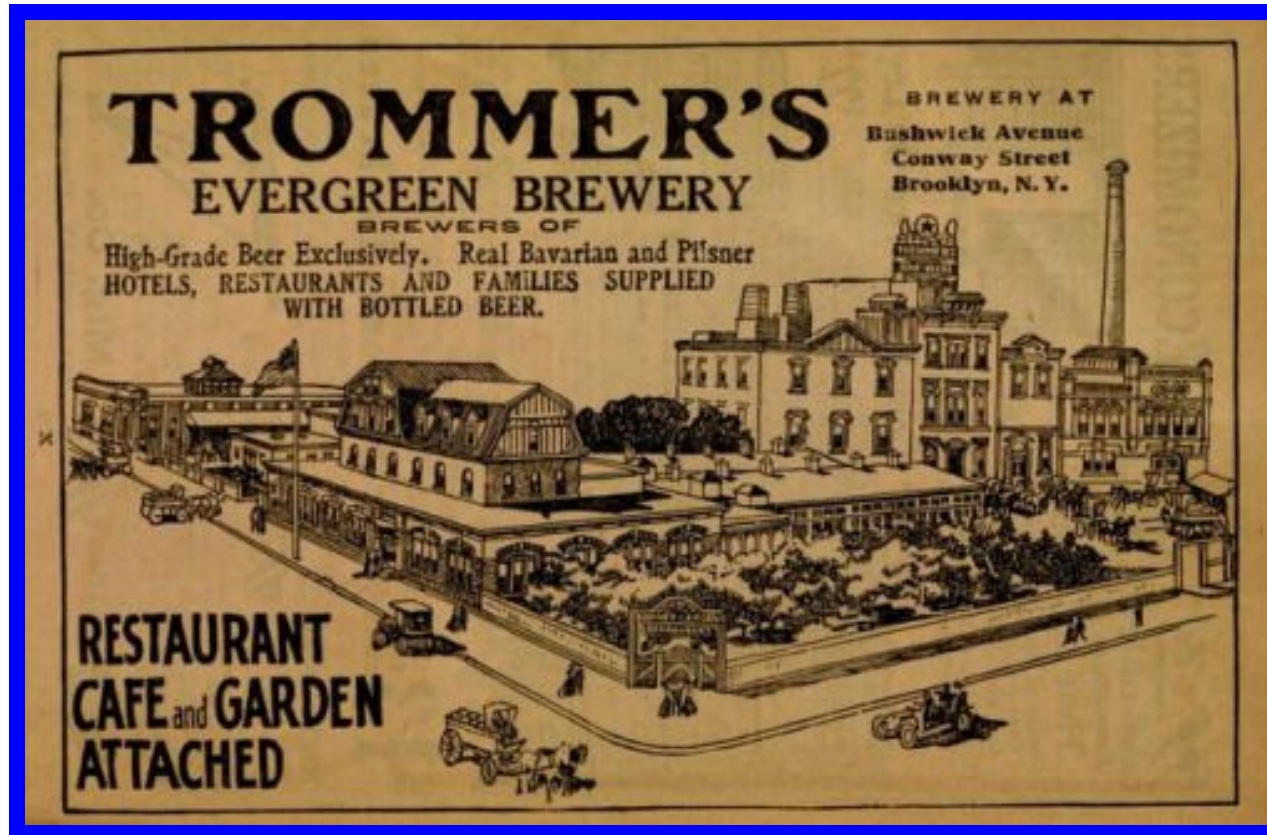


A CARNEY LYNCH AND COMPANY LITHOGRAPH, c. 1870. With a background skyline of chimneys belching smoke, this view shows just how industrialized and successful Manchester had become by the end of the 19th century. Almost every city of importance and size in the Midwest and New England boasted a brewery or two, and Manchester was no exception. Interestingly, the brewmaster for Carney and Lynch from 1879 to 1881 was William "Billy" Moat, a former employee of the Frank Jones Brewery in Portsmouth. After his stint with Carney and Lynch, Moat returned to Frank Jones for the remainder of his brewing career. (Courtesy Rus Hammer.)



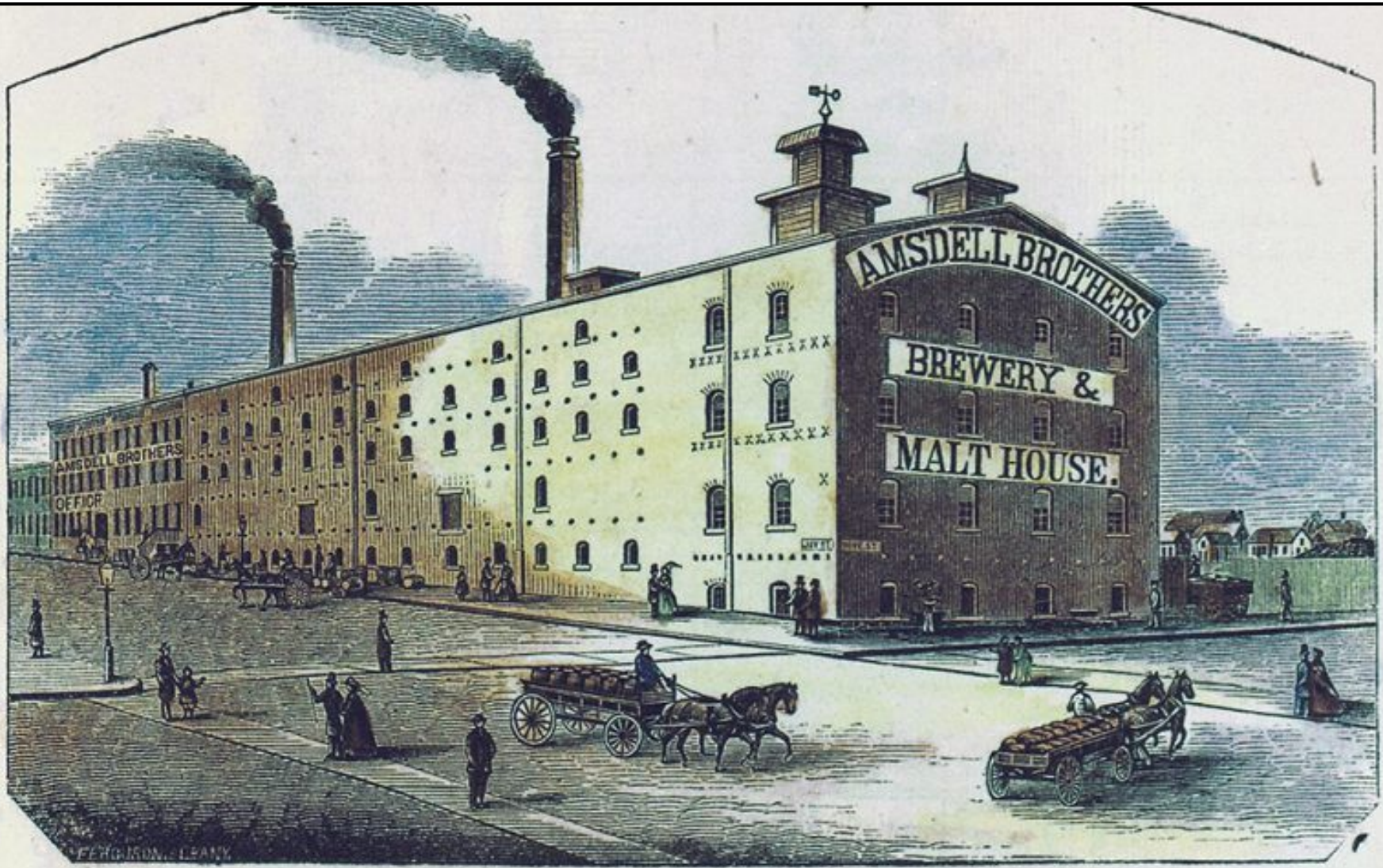
Acknowledgment: Those black and white illustrations with captions are taken from *Brewing in New Hampshire*, Glenn A Knoblock & James T Gunter, Arcadia Publishing, 2002, with photo credits as indicated.

Refrigeration in American Breweries 1860-1920



Breweries in New York State

ALBANY, BROOKLYN & NEW YORK CITY



AMBER ALE & PORTER

ALBANY BREWING COMPANY

ARCH ST. BREWERY ALBANY
Established 1797.



ELEVATOR.

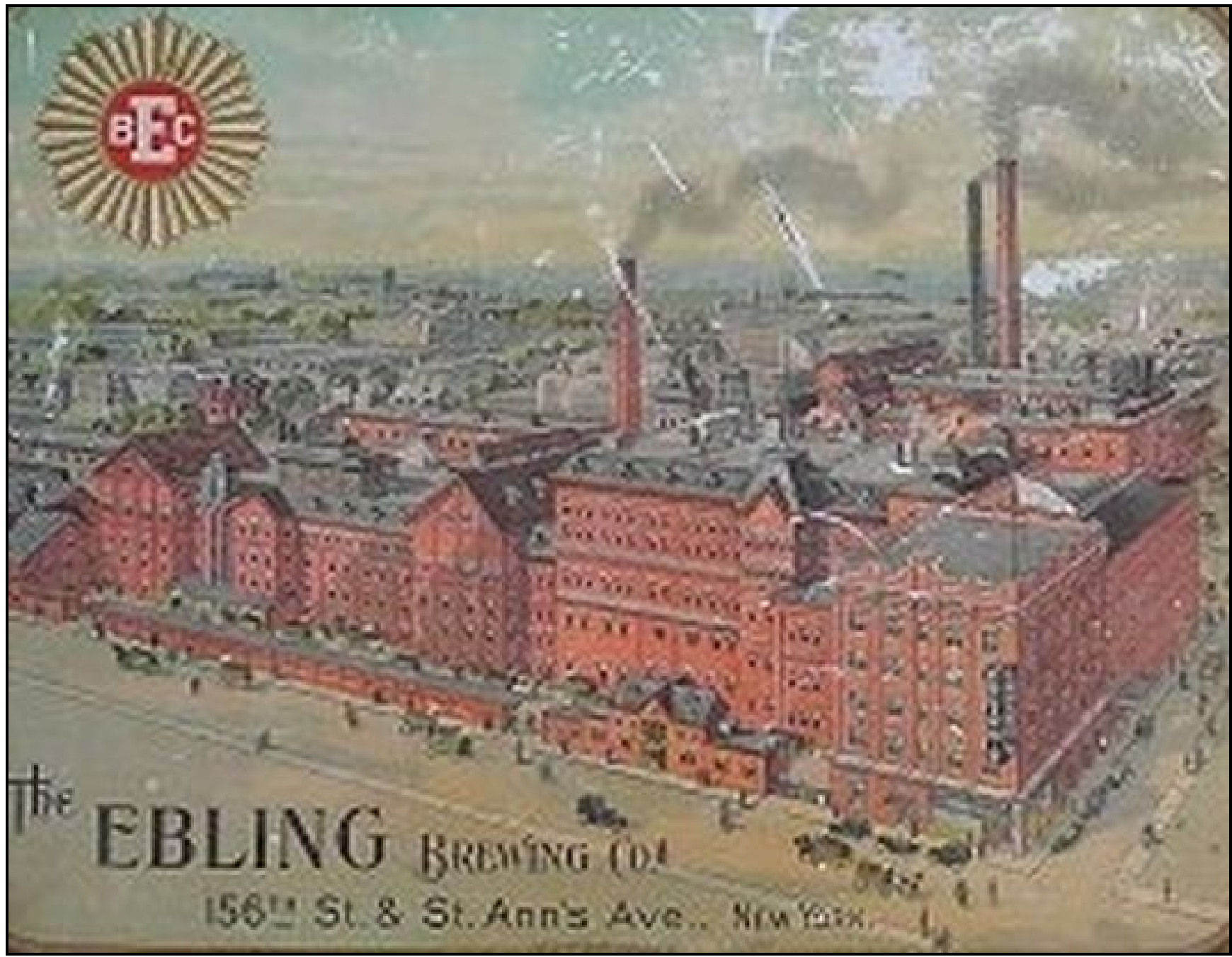
NEW YORK DEPOT.

365, 366 & 367 WEST STREET.

AMBER XXXX PALE ALES,
BURTON INDIA PALE ALES & PORTER.



365, 366 & 367 WEST ST. N.Y.



The
EBLING BREWING CO.
156th St. & St. Ann's Ave., New York.

WHERE THE BEST ALE IS BREWED

BREWERS
OF FINE
ALES
AND
PORTER

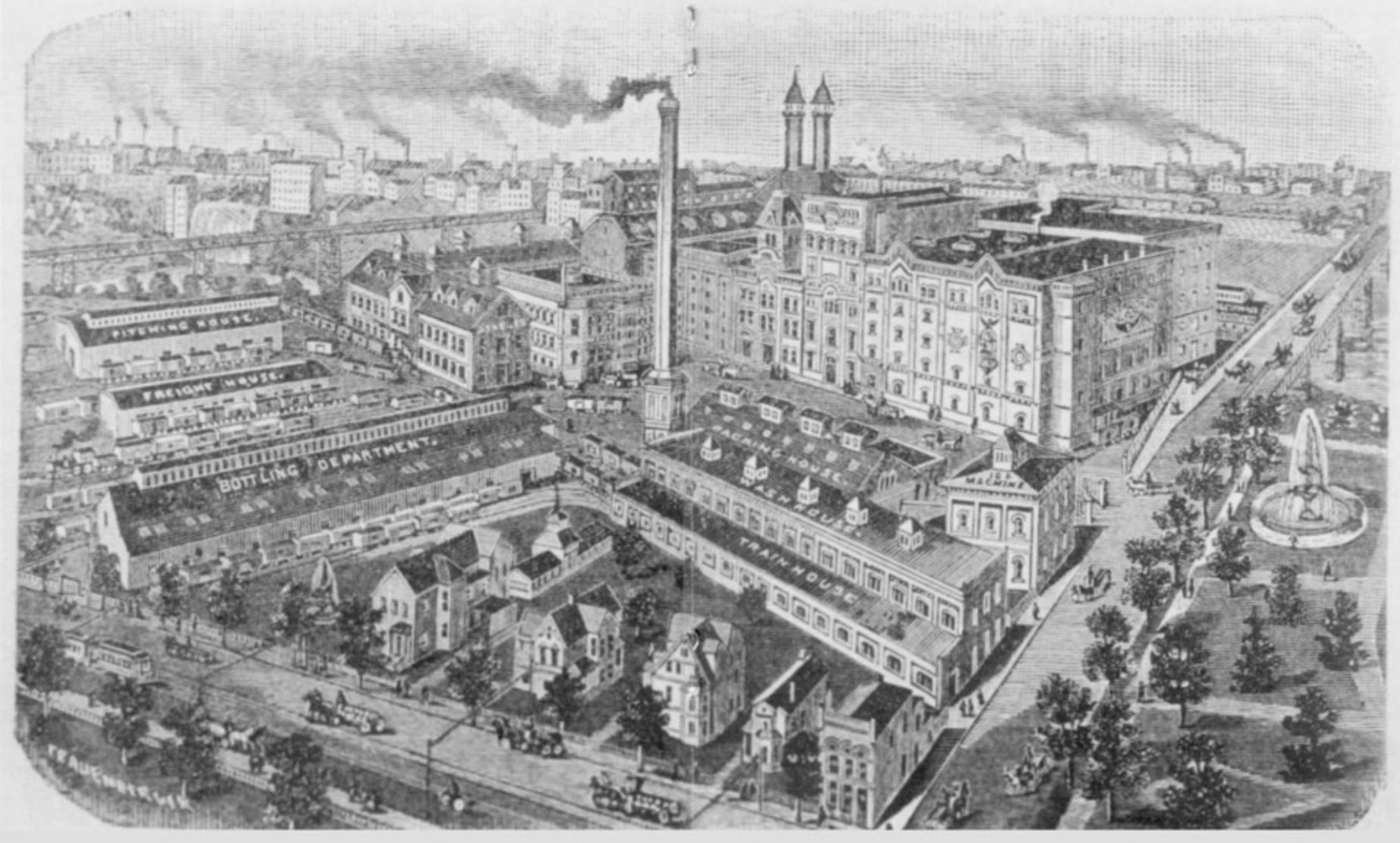
BURTON
ALE
—A
Specialty



QUINN & NOLAN ALE BREWING CO.

ALBANY, N.Y.

BARTHOLOMAY BREWERY CO.,



OTTO HUBER, PRES. AND TREAS.

JOS. HUBER, Secy.

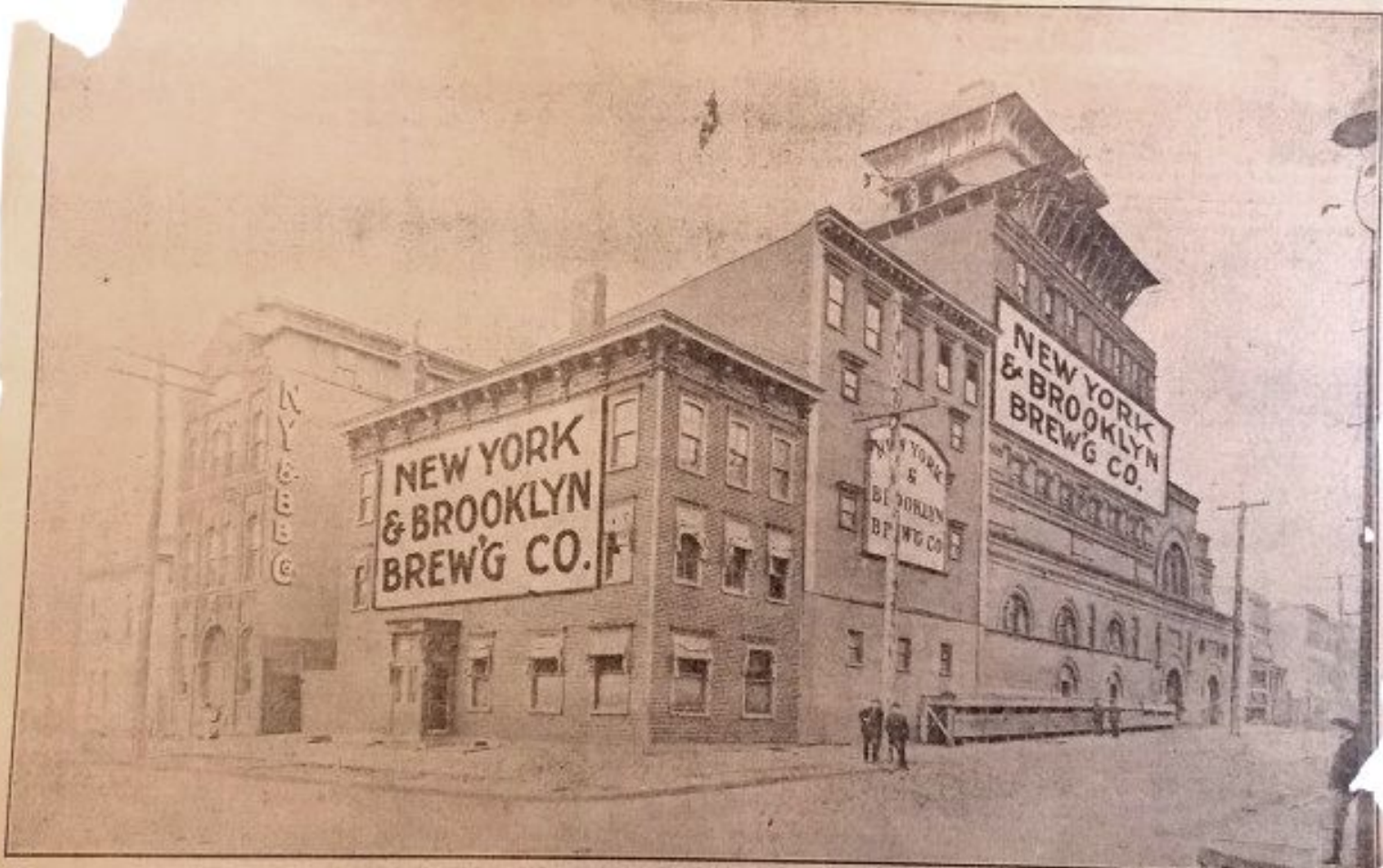
OTTO HUBER BREWERY



MESEROLE ST.

FROM BUSHWICK AVE. TO WATERBURY ST.

BROOKLYN, N.Y.



New York & Brooklyn Brewing Co.
 Brewers of **LAGER BEER**

Corner of Bushwick Avenue and Scholes Street,

TEL. 2884 WILLIAMSBURG.

BROOKLYN, N. Y.

JOHN TAYLOR & SONS'

DEPOT

No. 356 GREENWICH STREET,

New York.



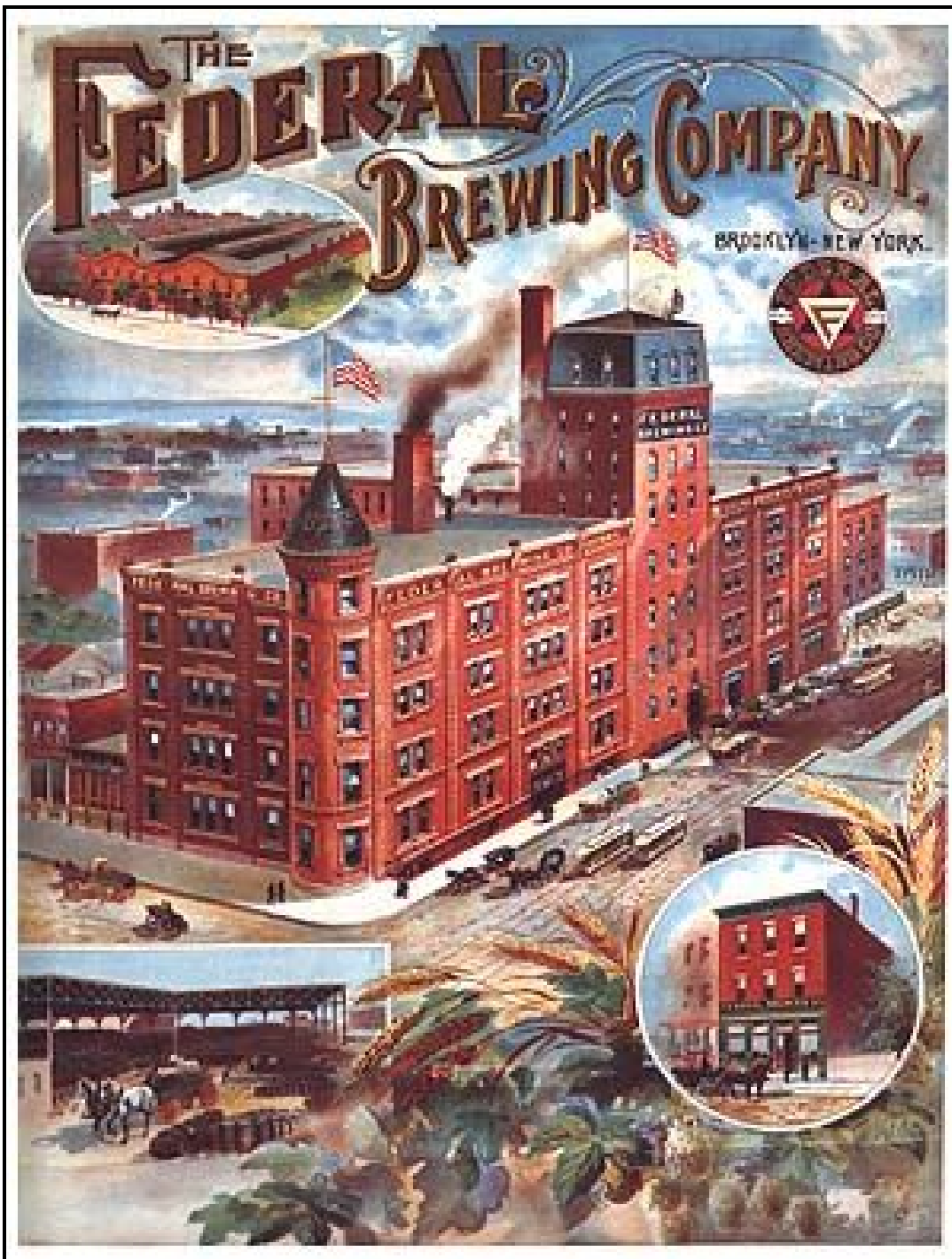
DEPOT.

No. 286 COMMERCIAL STREET,

DEPOT

ALBANY IMPERIAL XX ALES,

Brewery, corner Broadway and Arch Streets, Albany, New York.



GEORGE EHRET'S

HELL GATE BREWERY.

ESTABLISHED
1866.



GEORGE EHRET'S

91ST TO 94TH STS.
BETWEEN
2ND & 3RD AVES.

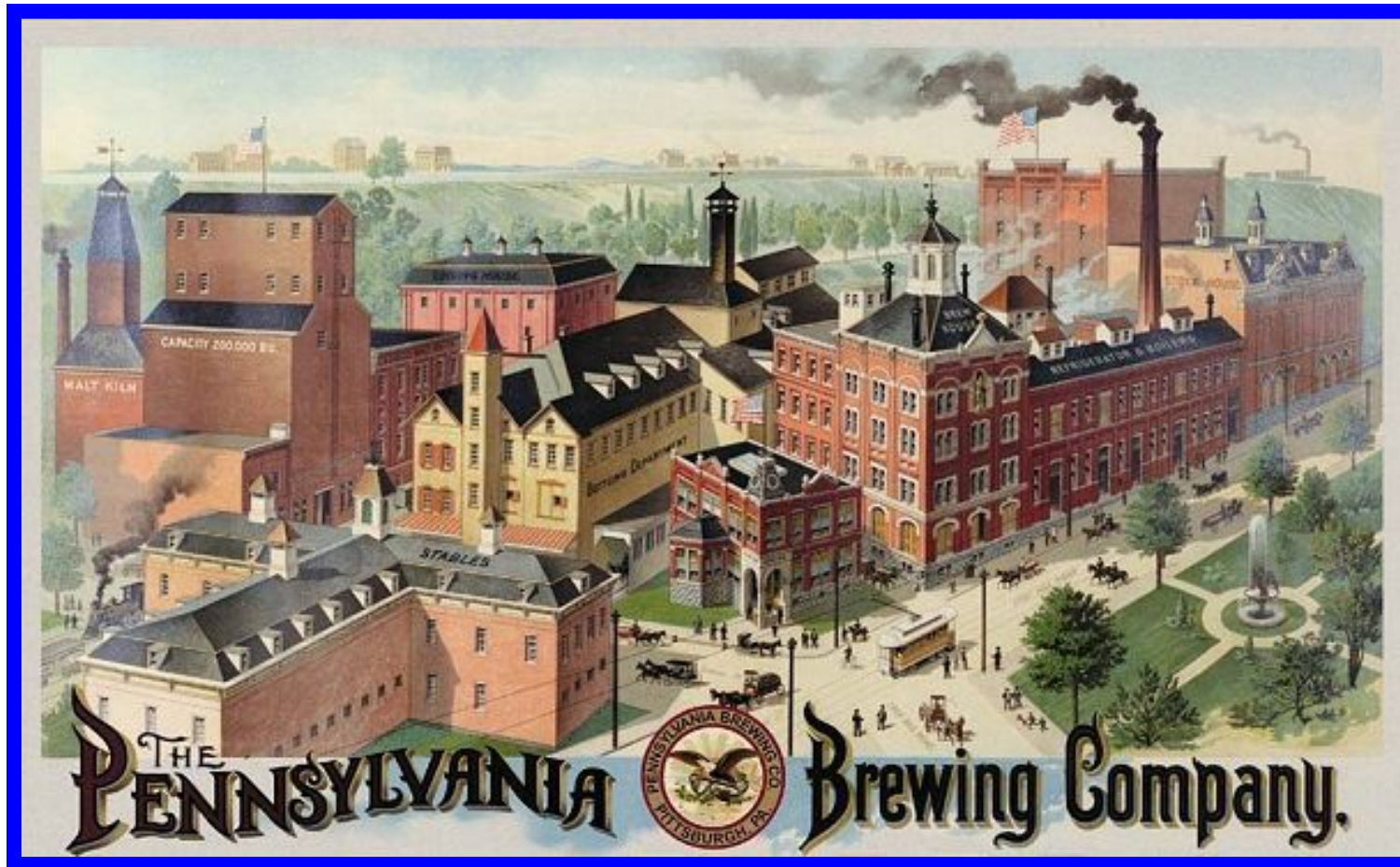
TELEPHONE: 77-79TH ST.



HELL GATE BREWERY

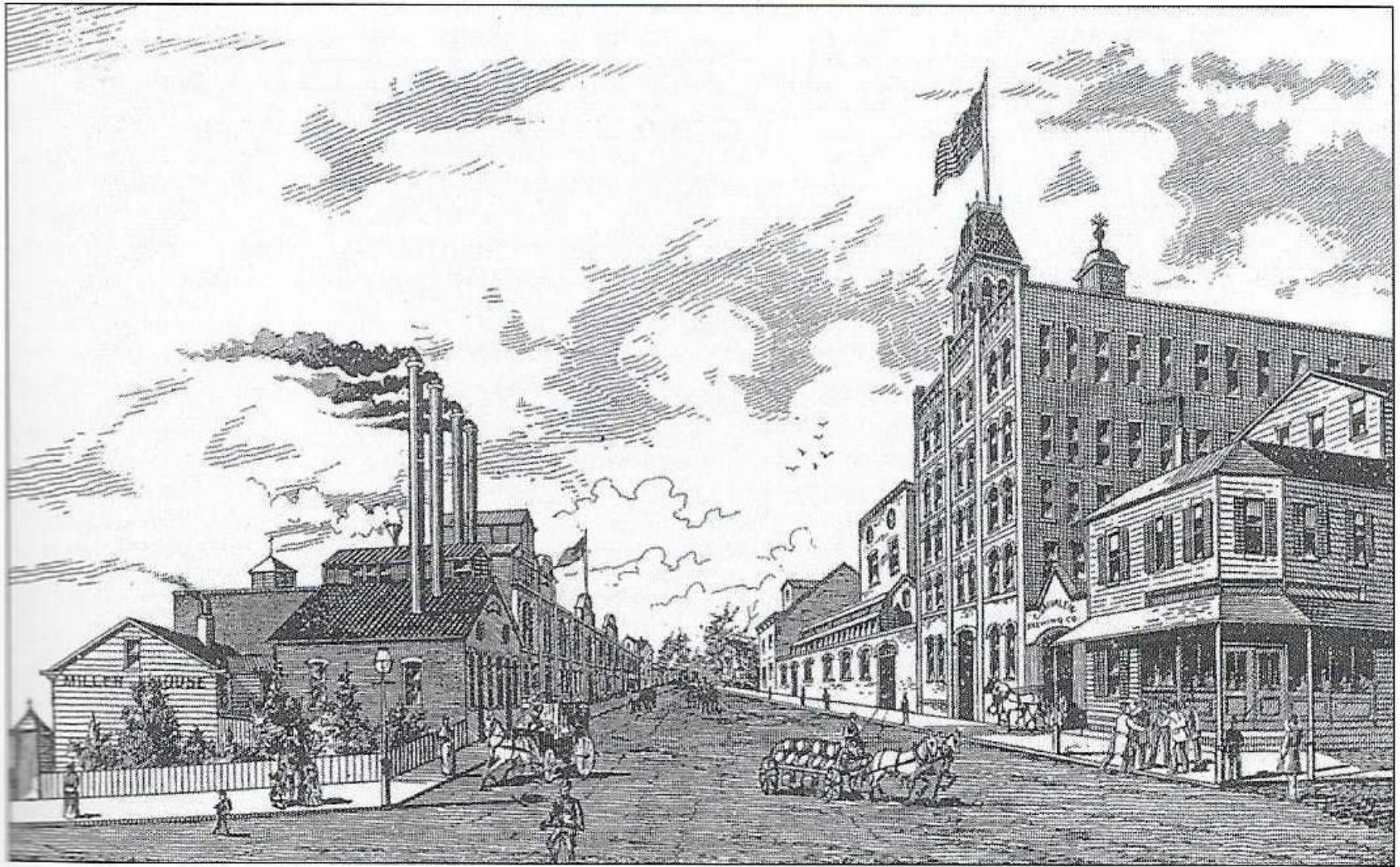
OFFICES:
235 E. 92ND ST.
NEW YORK,
U. S. A.

Refrigeration in American Breweries 1860-1920

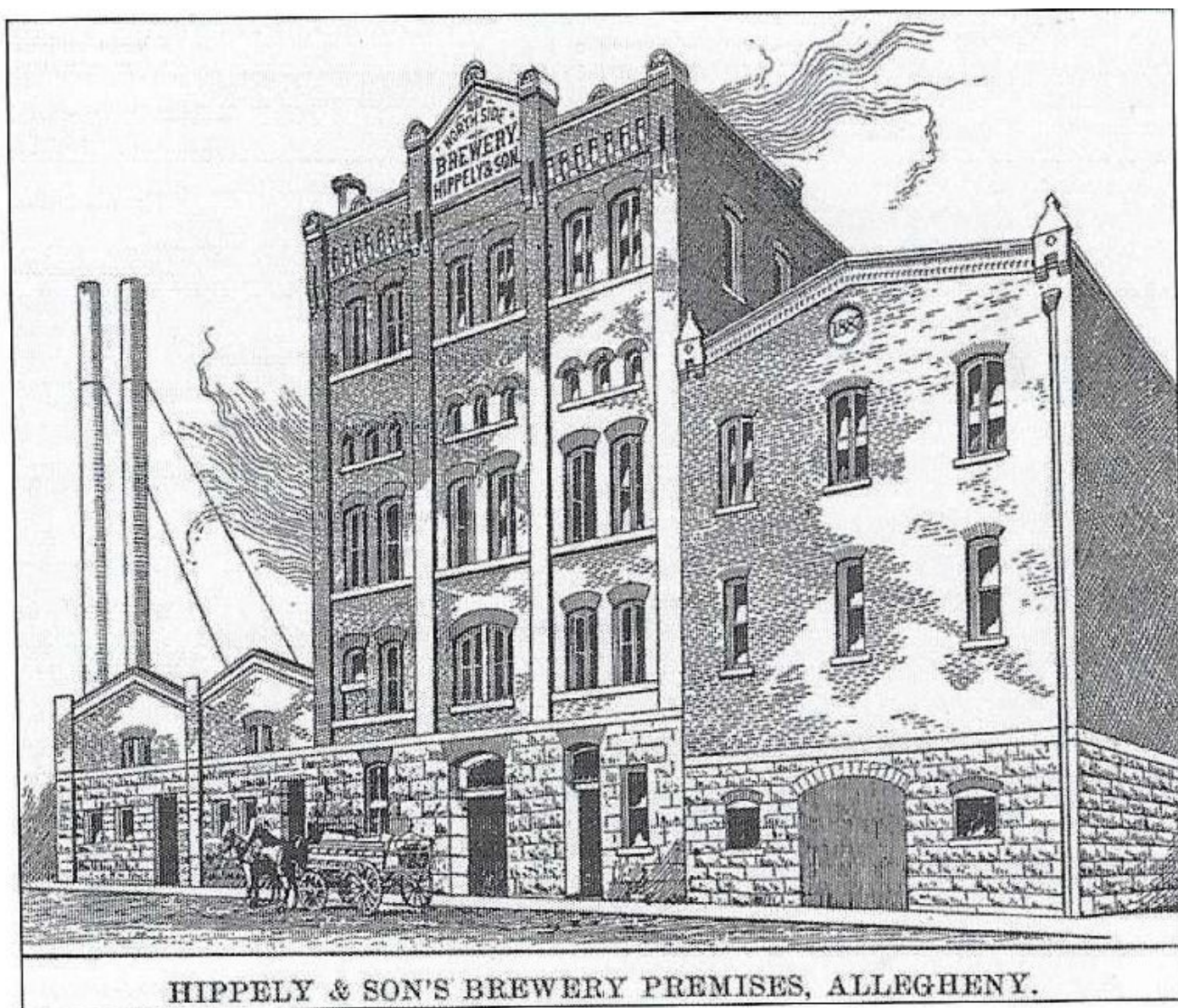


Greater Pittsburgh Breweries

PENNSYLVANIA



This drawing from *The Western Brewer* shows the new, ornate Baeuerlein brewhouse, built in 1892 next to the original building, and the bottling house and power plant across the street. These additions raised the company's annual output to roughly 35,000 barrels, making it one of the city's largest breweries. The brewhouse and the offices seen in the far right of the image were razed in the 1960s to make way for expansion of Pennsylvania Route 28.



John Mueller sold his plant in 1884 to Isaac Hippely; just three years later, the frame building was destroyed by fire. It was quickly rebuilt as a larger brick structure, and business grew significantly until 1899, when it became part of the Pittsburgh Brewing Company. Despite its yearly production of over 10,000 barrels, the plant was closed at that time, and the buildings are no longer standing. This drawing is from *The Western Brewer* in 1891.

JOHN M. MUELLER,



BREWER AND MALTSTER,

J. W. MUELLER, Collector.

J. KUNZMAN, Agent.

BEER DEPOT,

Corner Gist Street and Fifth Avenue

PITTSBURGH.

All Orders Promptly Attended to.

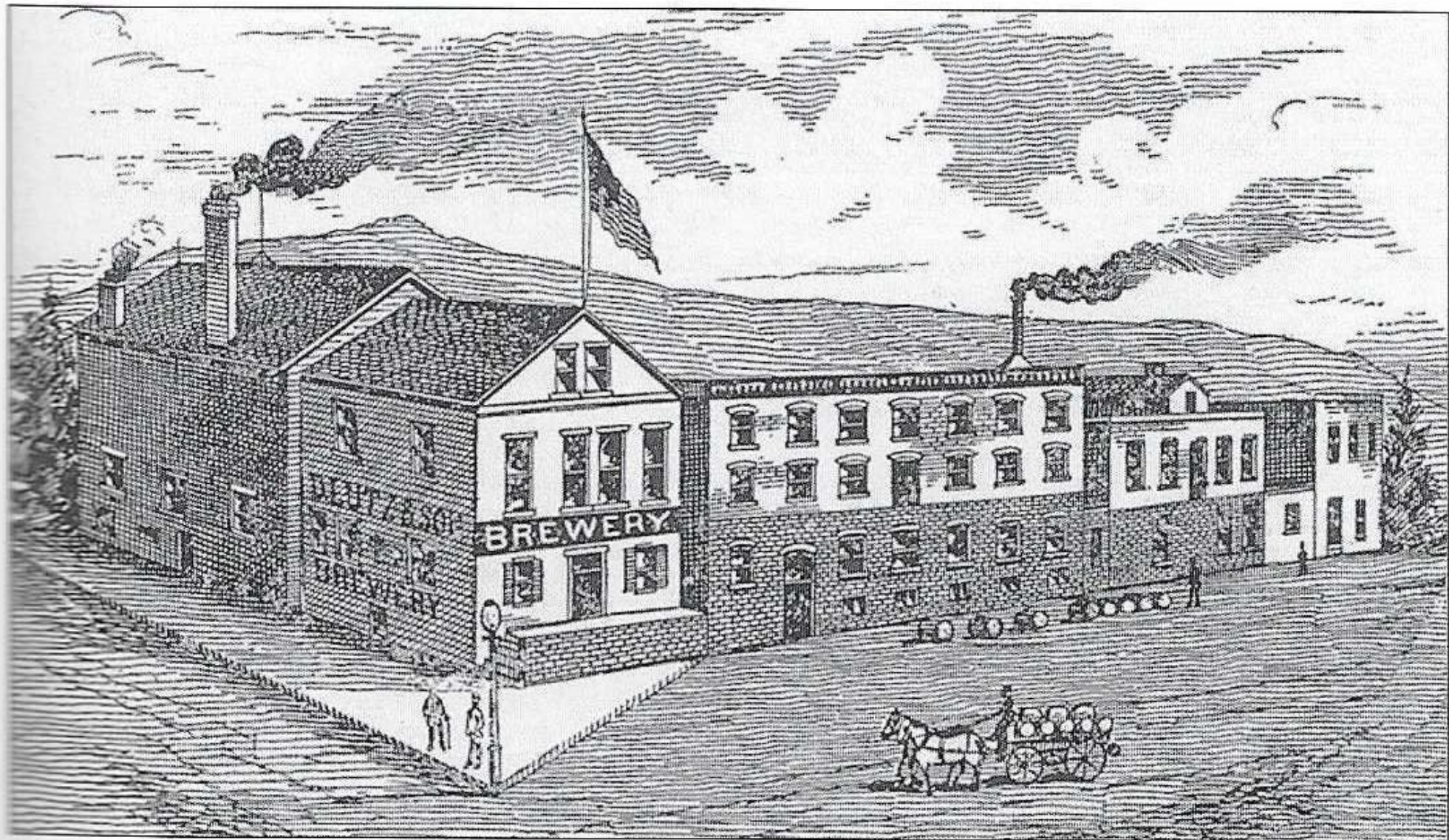
Shipments Made to all Parts of the State.

No. 314 Spring Garden Avenue,

ALLEGHENY CITY, PA.

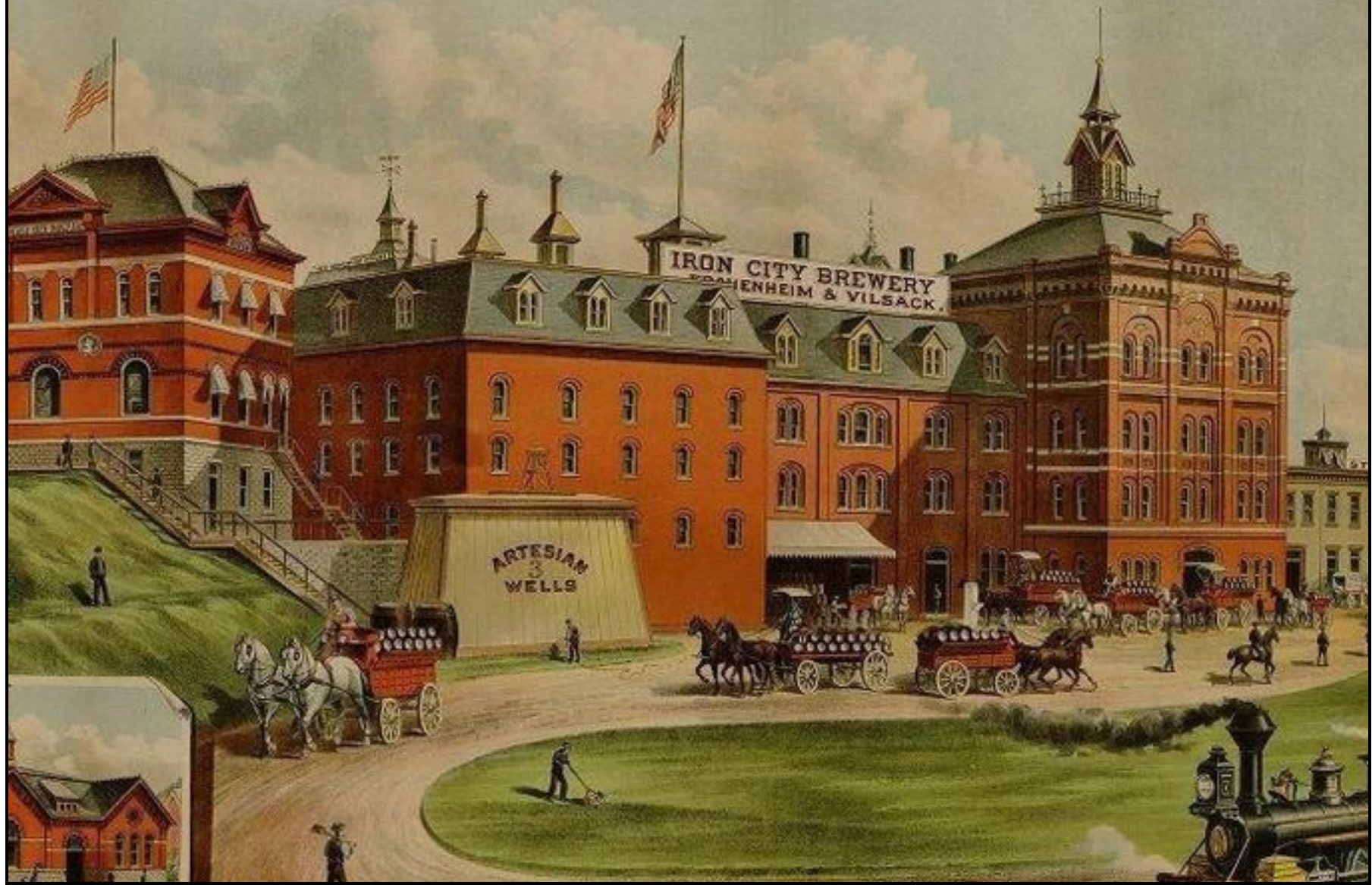
Most of the area known today as Pittsburgh's North Shore or North Side was once the city of Allegheny, although that was annexed into Pittsburgh in 1907. The brewery that stood at 314-322 Spring Garden Avenue in Allegheny was established in 1859 by Philip Gast (also spelled as "Gerst"). The plant was producing less than 2,000 barrels of lager beer per year when it was sold to John Mueller, who soon increased its output threefold. This local advertisement is from 1882.

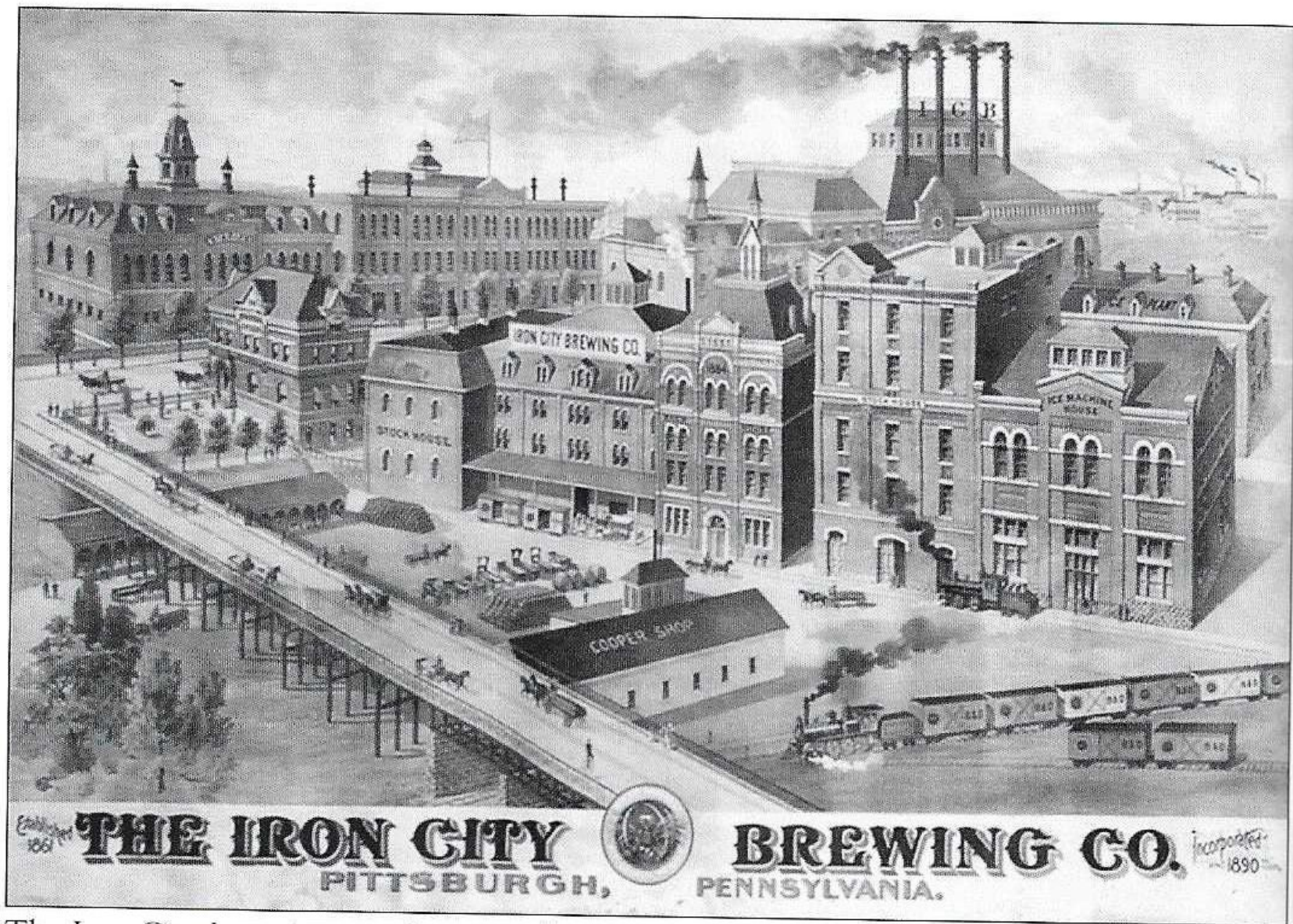




The Lion Brewery stood at the corner of Vinial and Villa Streets in Allegheny. Founded in 1854 by Heckelmann & Company, it was purchased in 1874 by Lutz & Walz (later known as D. Lutz & Son), which also owned its much larger plant nearby. Operating with an annual capacity of 12,000 barrels, the Lion Brewery closed in 1892 and was used for storage until it was sold and razed in 1904. This illustration of the brewery was first published in *The Western Brewer*.

The Iron City Brewing





The Iron City brewery grew dramatically over the last two decades of the 19th century. This lithograph from the mid-1890s shows significant growth of the plant compared to the image from 1870, beginning with the ornate brewhouse in the center, built in 1884. Other large buildings were gradually constructed to surround that, with the plant's annual capacity having increased to 200,000 barrels of ale, porter, and lager beer by the early 1890s. (Courtesy of Chuck Puckett.)



TRADE MARK

THE IRON CITY
PITTSBURGH,



BREWING CO.
PENNSYLVANIA.

ESTD 1854
1800

PERMIT
PA-U-331

CONTENTS
12 FL. OZ.

IRON CITY



PITTSBURGH
BREWING COMPANY

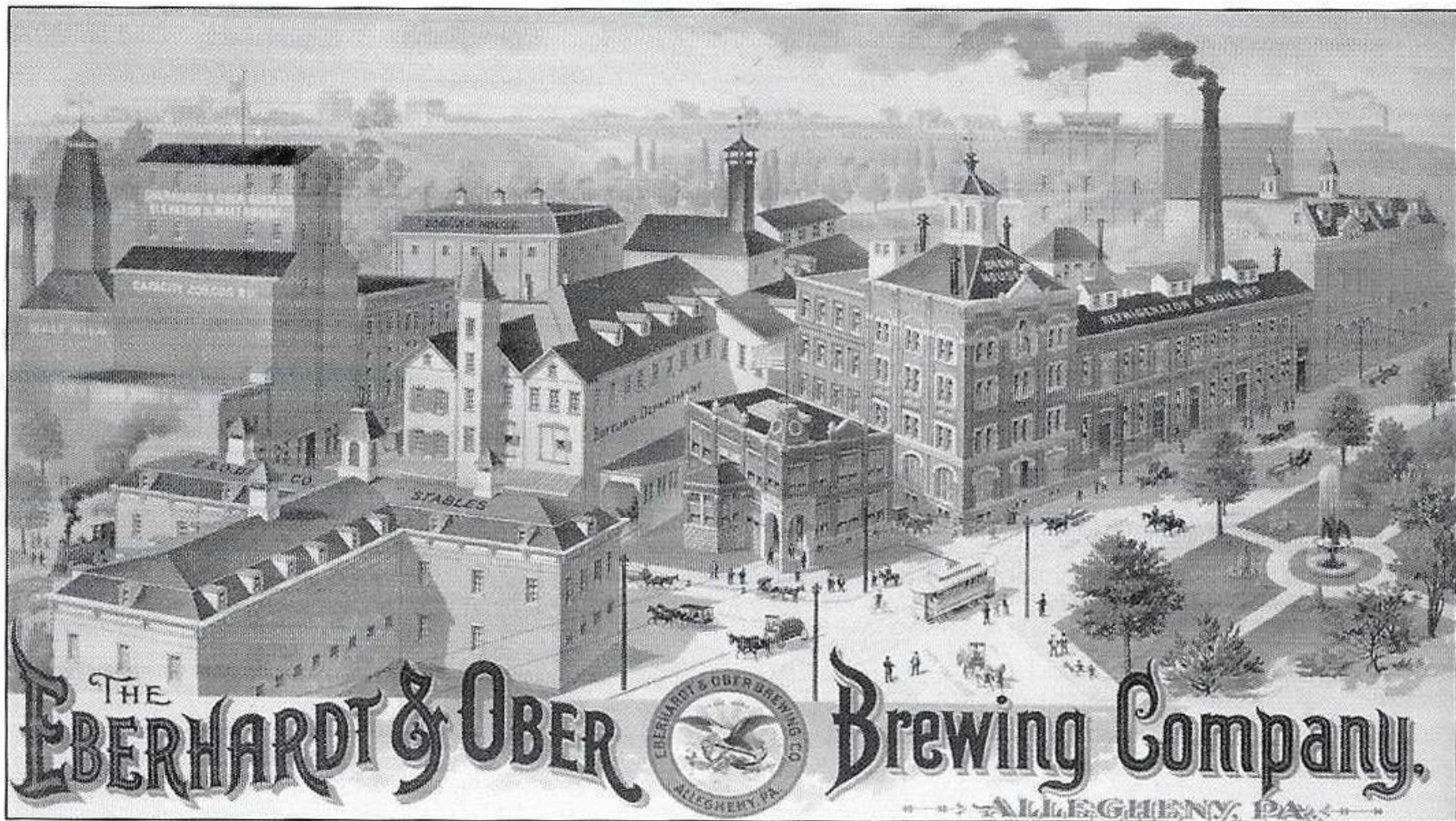
PITTSBURGH
PENNSYLVANIA

BEER

DOES NOT CONTAIN MORE
THAN 4 PER CENTUM
OF ALCOHOL BY VOLUME

TAX PAID
AS REQUIRED AT THE RATE
PRESCRIBED BY INTERNAL
REVENUE LAW

COPYRIGHT 1933 BY PITTSBURGH BREWING CO.



Founded in 1852 by Conrad Eberhardt, the Eagle Brewery stood at the corner of Vinial Street and Troy Hill Road in Allegheny. In 1870, Eberhardt was joined by his son William and his son-in-law John Ober, forming a new partnership known as Eberhardt & Ober. The above lithograph shows an artist's rendition of the brewery complex around 1890, although the tall building at the left (elevator and malthouse) was actually the former John N. Straub Brewery, owned by Eberhardt & Ober but located a distance away on Canal Street. Below is the most prominent building remaining at the site today; at one time, it housed the bottling plant. Built in 1883, it appears in the lithograph above but was later remodeled to its current appearance. Today, it houses much of the Penn Brewery's brewpub.



The image above shows the employees of the Eberhardt & Ober Brewery in the 1880s; most notable are the two main partners of the company in the center of the front row. William Eberhardt is on the left side of the barrel, and John Ober is on the right. Eberhardt retired in 1890, with Ober purchasing his share. Below is another image of company employees in the mid-1890s; here, two children made it into the picture, one of whom is holding a mug of beer. By this time, additions to the plant had given it an annual capacity of 100,000 barrels, and the number of workers in the plant had increased as well. (Both, courtesy of Dick Ober.)

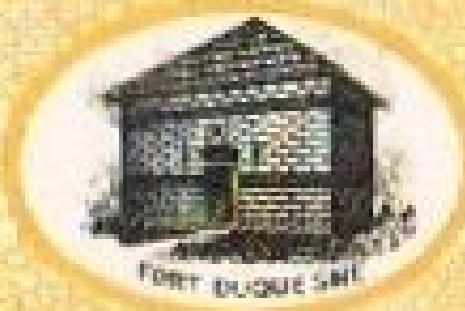




The borough of Carnegie lies five miles southwest of Pittsburgh and was home to the Chartiers Valley Brewery for more than 50 years. Standing at Chestnut and Jane Streets, the brewery, seen here in an architect's drawing from 1901, operated independently from 1901 to 1904 before being purchased by the Independent Brewing Company, which continued to operate it until Prohibition arrived in 1920. (Courtesy of Dick Ober.)

DOES NOT CONTAIN MORE THAN 4 PER CENTUM OF ALCOHOL BY VOLUME

TRADE



MARK

DUQUESNE BEER

CONTENTS
12 FL. OZ.
PERMIT PA-U-319

TAXPAID AT THE
RATE PRESCRIBED
BY INTERNAL
REVENUE LAW

**INDEPENDENT BREWING COMPANY
OF PITTSBURGH, PA**

BOTTLED AT THE BREWERY

LABEL DESIGN REGISTERED

ALCOHOL

1000000

ALCOHOL

1000000

ANYONE USING THIS LABEL WITHOUT AUTHORITY WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW



Standing on Hamilton Avenue along the Pennsylvania Railroad in the city's Homewood District, the Liberty Brewing Company opened for business in 1904. It operated independently with moderate success until Prohibition brought an end to its brewing in 1920. Although the brewery had an annual capacity of 100,000 barrels, it actually produced around 30,000 barrels of beer, ale, and porter yearly. The building, pictured above, was designed by noted architect Otto Wolf but is no longer standing. The company's flagship brand of bottled beer was Liberty Oldstyle Lager, a label for which is seen below. (Above, courtesy of Dale Van Wieren; below, courtesy of Bob Kay.)

Oldstyle Lager



BREWED

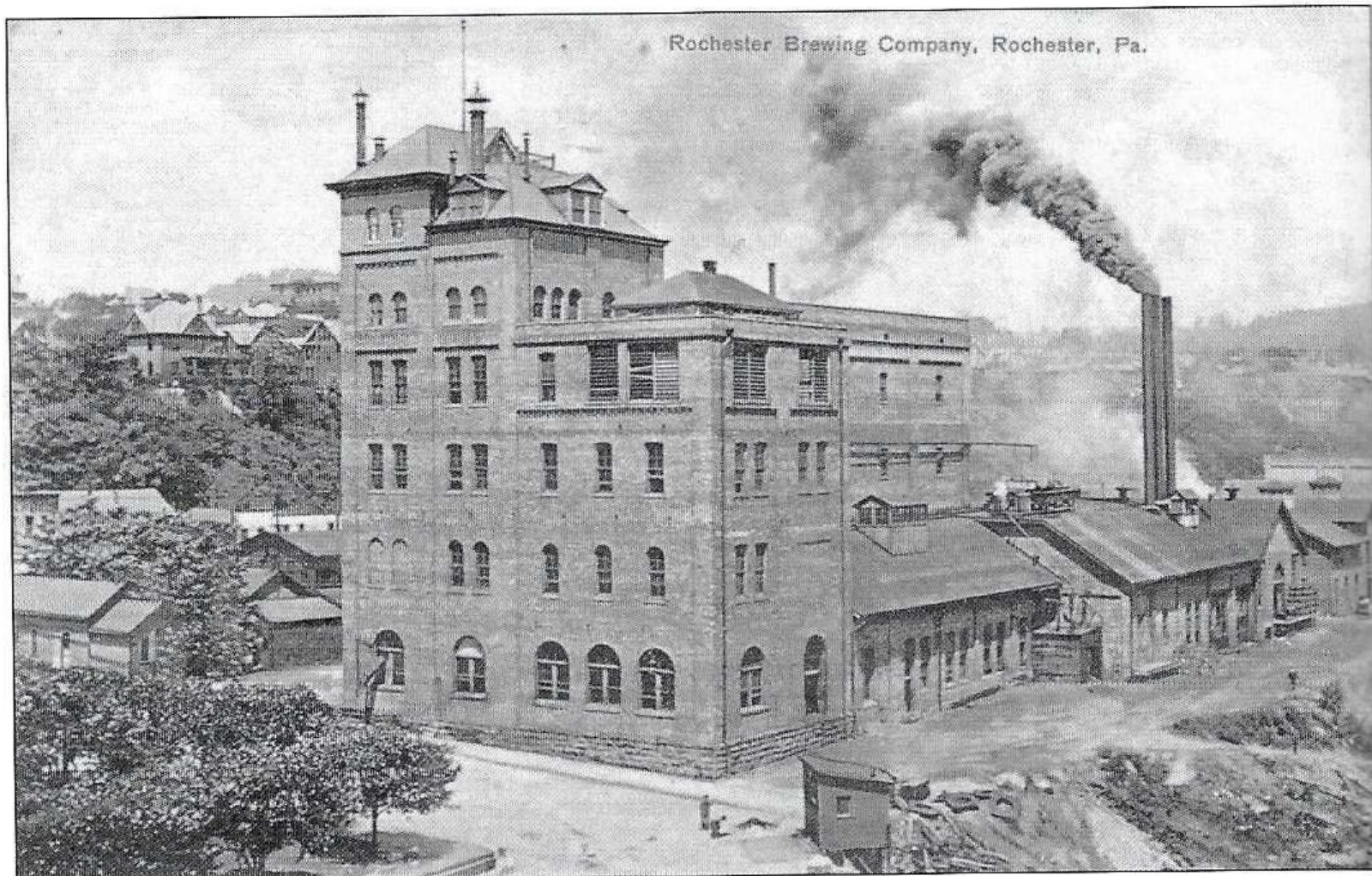
BY

Liberty

BREWING CO.

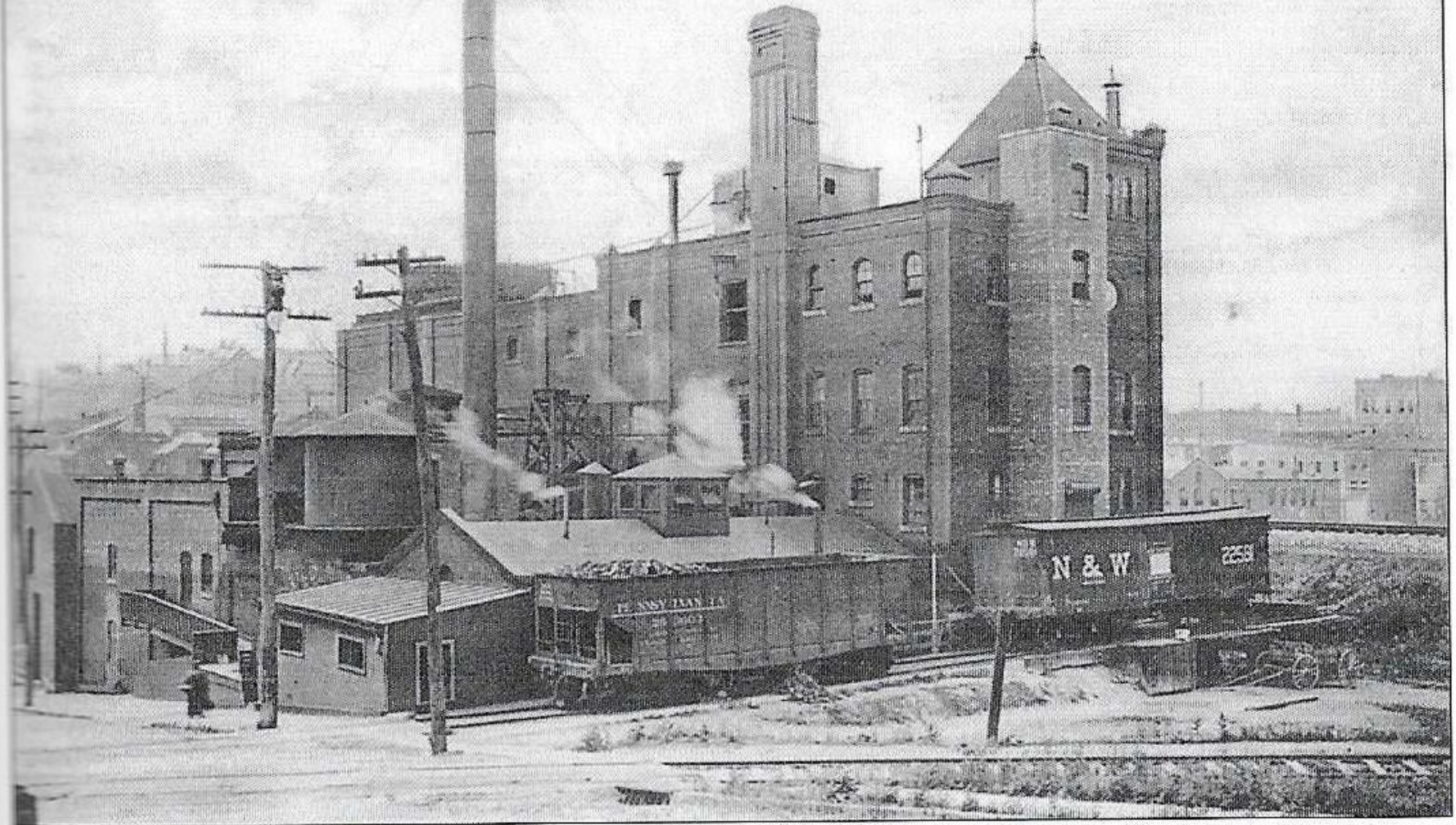
PITTSBURGH, PA.



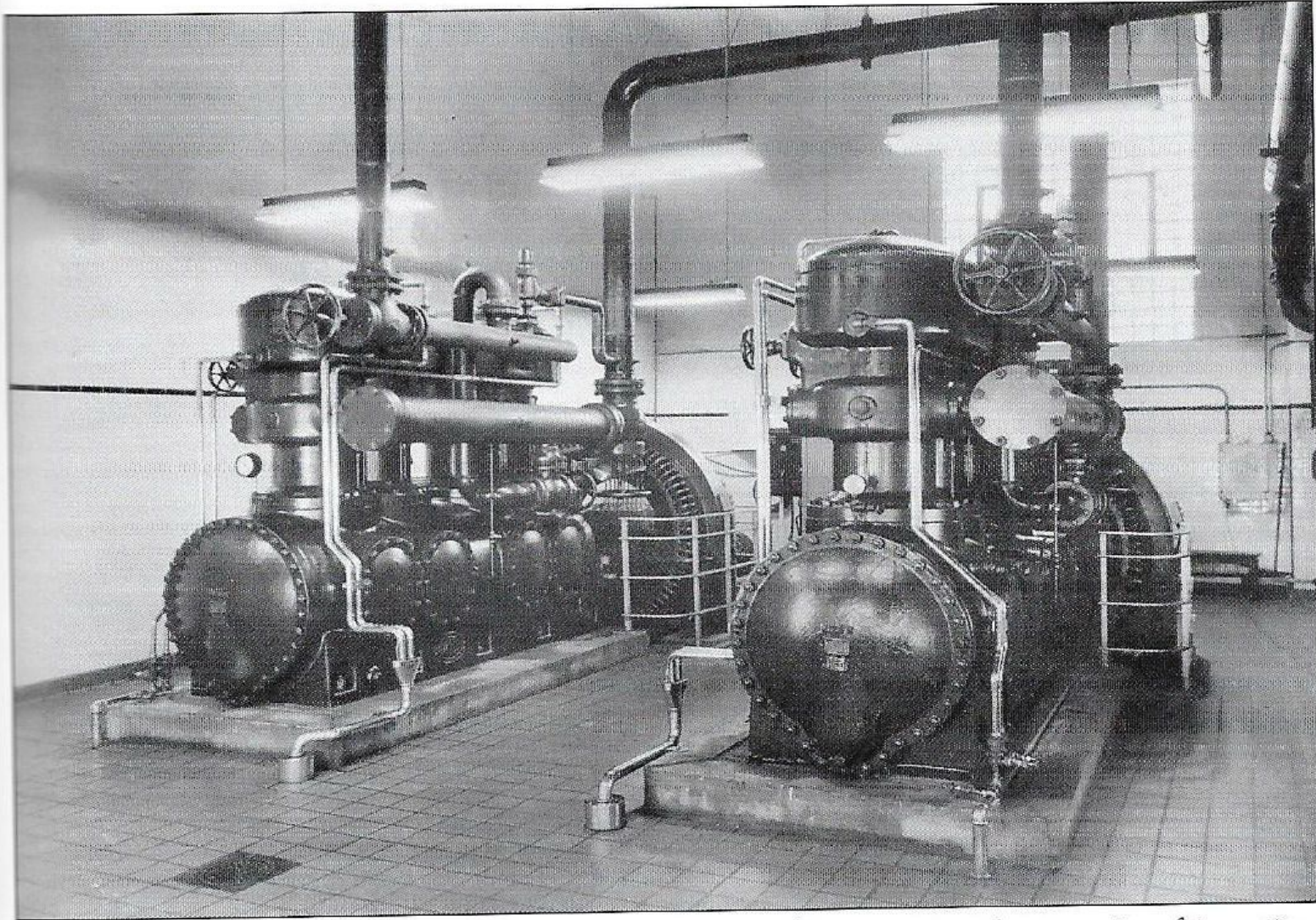


The Beaver Valley Brewing Company erected the large plant seen above at the corner of New York and Sycamore Avenues in the town of Rochester 25 miles northwest of Pittsburgh in Beaver County. Opening for business in 1905, the building stood just a few feet from the bank of the Ohio River. Fraught with financial troubles, the company ended business in 1910, and an attempt to reopen as the Beaver Brewing Company one year later also failed. The building has remained standing for more than a century despite producing beer for only six years. In the 1960s, a bowling alley was installed on the building's second floor, and it remains open today. The building, pictured below, remains one of the largest structures along the river. A well-known landmark, it is easily visible from Pennsylvania Route 51.

Jeanette Brewery, Jeanette, Pa.



Although the town of Jeannette was better known for its glass industry, it was home to two breweries. The first of those opened for business in 1896 as the National Brewing Company, standing on Gaskill Avenue. Just three years after opening, it was purchased by the Pittsburgh Brewing Company consortium, and brewing continued under that name at the plant until the onset of Prohibition in 1920. The brewery is no longer standing today.



One of the most underappreciated yet most important functions in a brewery is refrigeration, as proper temperature control is critical to all stages of the brewing process. Above, two large ammonia compressors provide more than 500 tons of refrigeration effect in the mid-1950s. This cooling effect traveled through 26 miles of coils throughout the brewery. Below, in these glass-lined tanks holding around 300 barrels apiece, the beer was stored and aged. The company's caption of this photograph states, "Proper aging is one of the reasons why Pittsburgh Brewing Company products are known as 'Beers of Perfection.'" (Both, Pittsburgh Brewing Company archives, courtesy of Chuck Puckett.)



Acknowledgment: Those black and white illustrations with captions are taken from *Brewing in Greater Pittsburgh*, Robert A Musson, Arcadia Publishing, 2012.