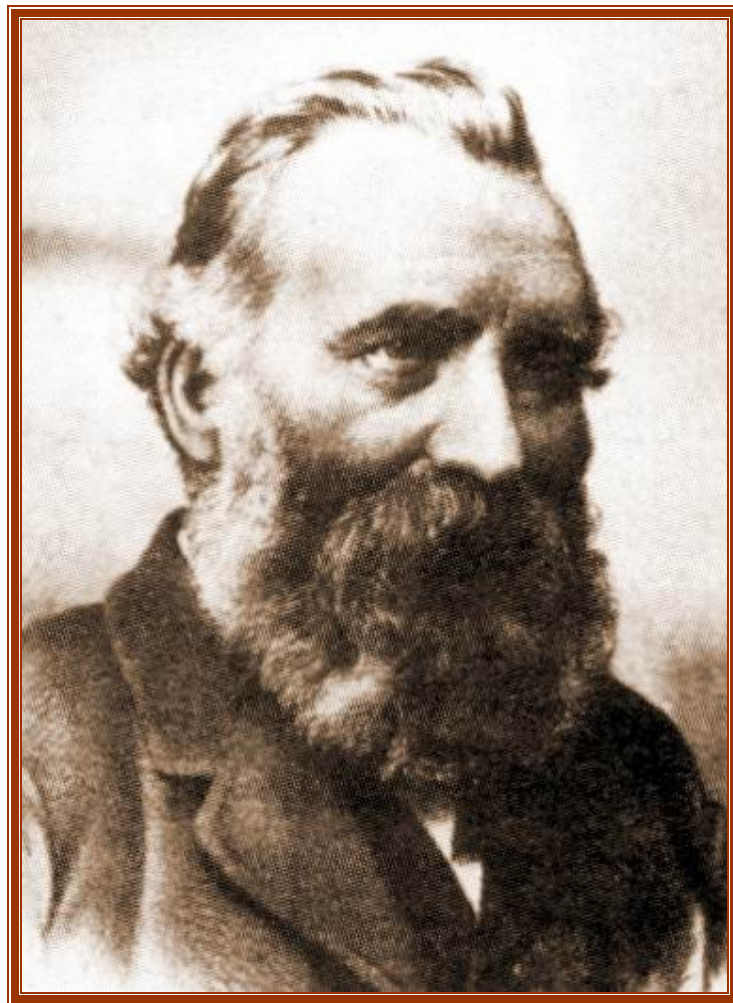




JOHN SHANKS
d.1895



Plumber & Company Founder



JOHN SHANKS began life as a plumber in relatively humble circumstances, but was to establish one of the leading sanitaryware companies in Britain. He was the son of a handloom weaver in Paisley and was apprenticed as a plumber to Wallace and Connell of Glasgow. He worked as a journeyman plumber in the Paisley area until the mid-1850s when he established his own plumbing business in Barrhead, 7 miles south-west of Glasgow. The firm began on a small site in Main Street, employing eight people.

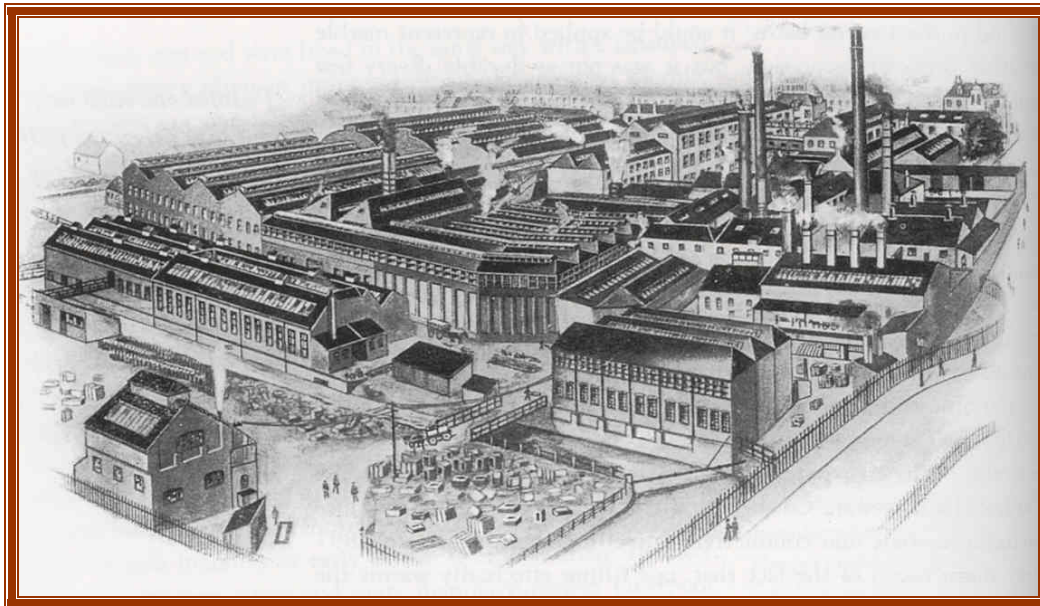
His first patent in 1863 featured a trapless water closet, which became the company's 'Number Four' and brought them sales nationwide. In 1875 he founded Shanks and Co., Sanitary Engineers, with his brother Andrew, who was also a plumber, and the firm expanded rapidly. They added an iron foundry to their works about this time, and in 1878 introduced the 'Independent' cast-iron bath with integral shelf, waste and overflow. By the 1890s the firm occupied a 7-acre site and employed 600 men. All stages of the production of sanitaryware were completed on the Main Street site, from iron moulding to enamelling; some twenty different trades were involved.

John Shanks showed considerable business acumen and technical skill. He recognised the potential of sanitaryware at a time when public awareness of the importance of public health and increased personal hygiene was growing. He was a prolific inventor, taking out some 100 patents by 1894. He took pride in the company's reputation for producing reliable, durable and reasonably priced goods which were found in hospitals and public buildings throughout Britain. They also supplied fittings to passenger liners including the *Lusitania* and the *Titanic*, and exported to many countries overseas, ensuring the company a worldwide reputation. Shanks married twice, and his son John with his nephew William carried on the business after his death in December 1895. The firm continued to flourish, adding the Victorian Pottery at Barrhead in about 1902. Shanks remained a household name in connection with bathroom fittings into the twenty-first century.



John Shanks. (Mitchell Library, Glasgow)

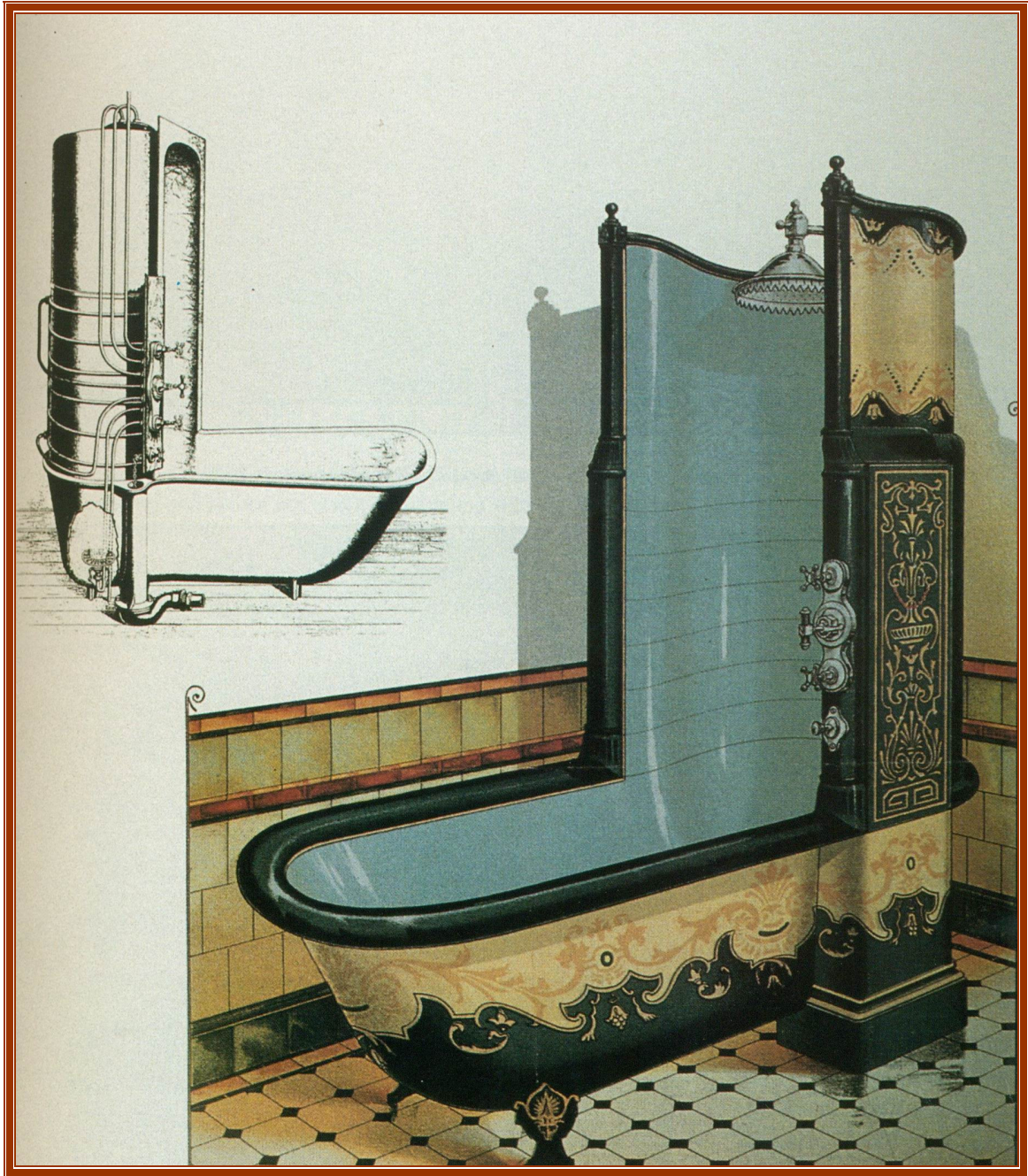
From Bogs, Baths & Basins," David J Eveleigh, 2002 (CIBSE Heritage Group Collection)



Shank's Tubal Works, Barrhead, Nr Glasgow, 1907



Shank's "Independent" Spray Shower & Plunge Bath c.1893



Shank's Cast-Iron Bath & Shower Enclosure, London, c.1900



Detail of Shank's "Torrens" Cistern Featuring "Mulberry Chrysanthemums" Design, 1899



THOMAS SHIPLEY

1861-1930



Thomas Shipley

President of the American Society of Refrigerating Engineers in 1912-13, he was instrumental in starting the work on establishing standards in the refrigerating industry.

[267] Thomas SHIPLEY

1861-1930

Eighth President of ASRE (1912). Worked in York, Penn. He was instrumental in starting the work on establishing standards in the refrigeration industry. Starting in 1903, the Ice Machine Builders Association set standards for dimensions of ice-cans and worked on defining a standard ton (capacity) of refrigeration. When ASRE was founded (1904), it took over the work of producing technical standards, though it was to be many years (1920) before the definition of a standard ton of refrigeration was agreed upon. The goal set by Shipley in his Presidential Address was that the leading companies in the industry “each could produce a plant that would perform as guaranteed.”

(From “The Comfort Makers,” Brian Roberts, ASHRAE, 2000)

Note: A standard ton (TR) of refrigeration was defined as 12000 Btu/hr



1912

ASRE

THOMAS SHIPLEY

1861-1930

YORK, PA

“My position in the battle we are fighting is in the manufacturers’ corps of the army, and that corps is always on the firing line, where action and initiative are necessary to keep one from being swept off his feet and buried among the failures.” (p. 41, ASRE Trans., 1912)

(From Proclaiming the Truth,” ASHRAE, 1995)

“The importance of standardization had been impressed upon my mind at every step in my experience, and now the necessity of getting away from the go-as-you-please method, which up to this time [1903] was the rule, became imperative, for at this time there were no standards.”

Thomas Shipley
1924

The refrigeration industry made its first attempts at standardization in 1888 and 1889. In his address to The American Society of Refrigerating Engineers’ 1924 Annual Meeting, titled “Twenty Years Ago,” Thomas Shipley, president in 1912, reviewed the beginnings of this effort, and clearly stated the need for standards in the refrigerating industry at the turn of the century:

(From Proclaiming the Truth,” ASHRAE, 1995)

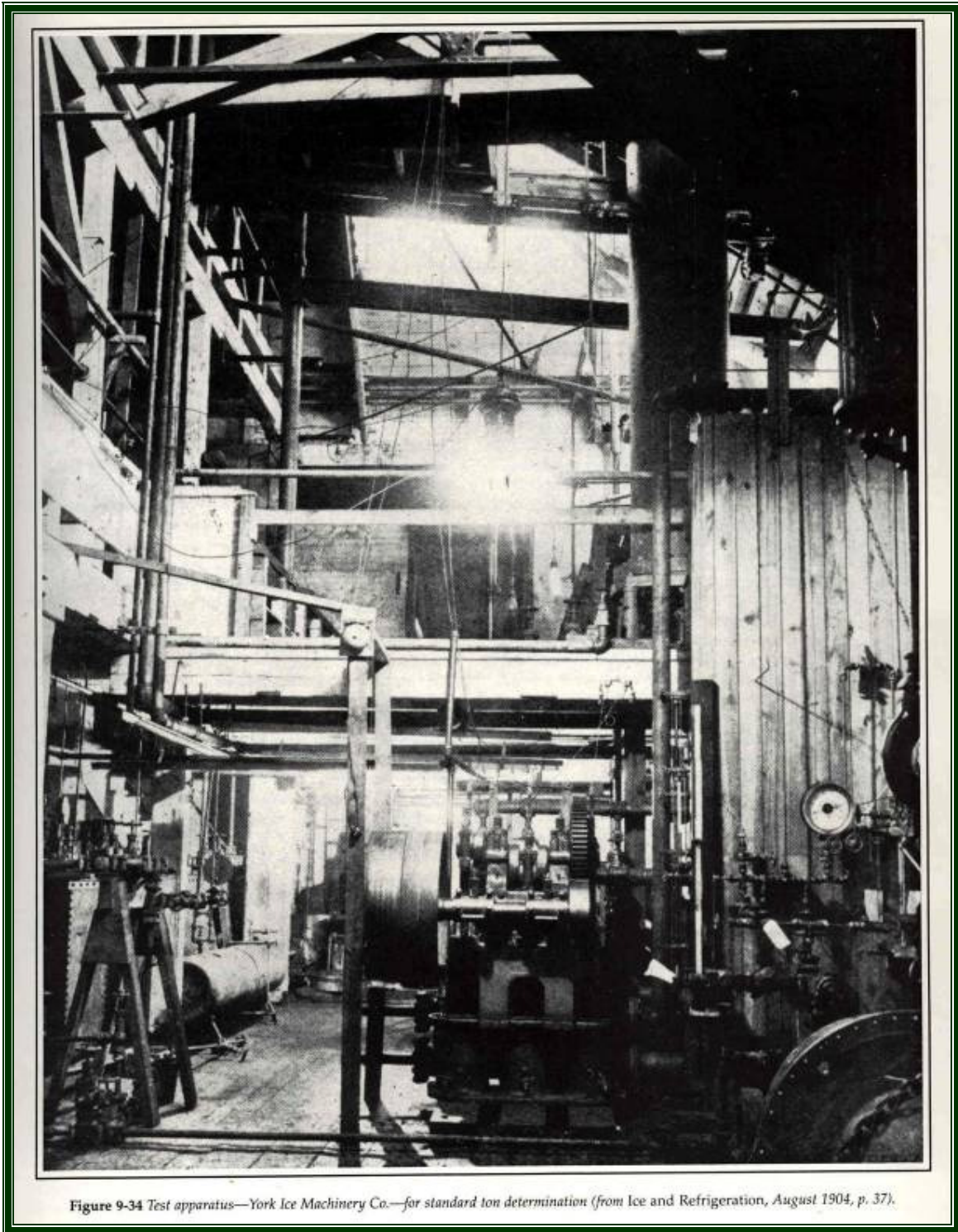


Figure 9-34 Test apparatus—York Ice Machinery Co.—for standard ton determination (from *Ice and Refrigeration*, August 1904, p. 37).

*(From "Heat & Cold: Mastering the Great Indoors,"
Barry Donaldson & Bernard Nagengast, ASHRAE, 1994)*

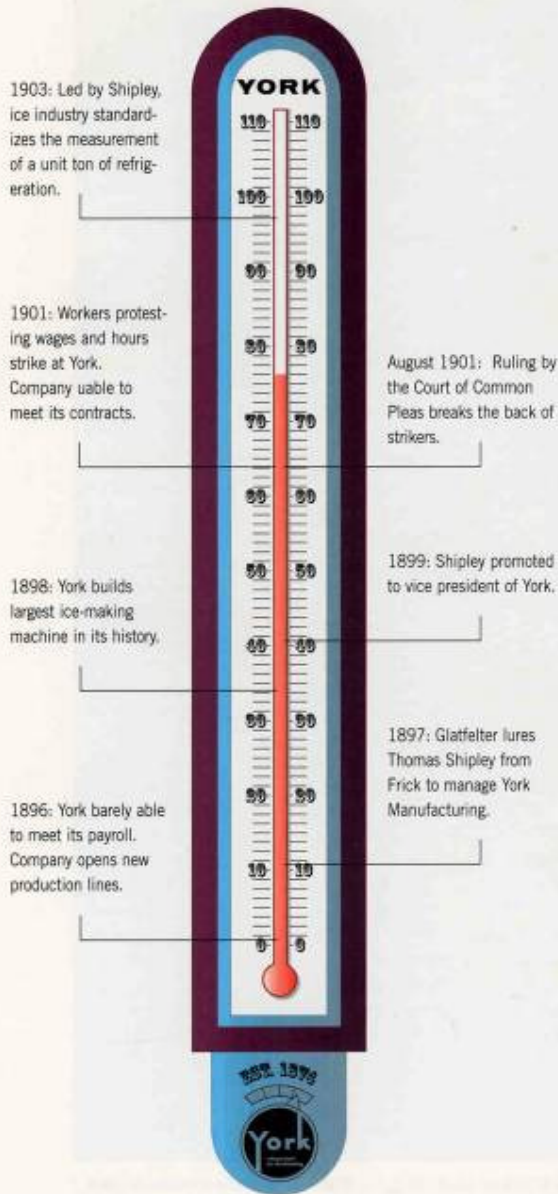
THE LEGEND OF
YORK
INTERNATIONAL



J E F F R E Y L . R O D E N G E N

(A History, 1996, CIBSE Heritage Group Collection)

Thomas Shipley



In 1897, Glatfelter located the ideal person at the Frick Company. In brazen fashion, Glatfelter captured Frick's manager, Thomas Shipley, by doubling his salary and offering him a four percent interest in York. He also promised the 38-year-old Shipley a free hand to make the York Manufacturing Company profitable.⁴ Shipley's ideas and enthusiasm would change the ice and refrigeration industry, while proving worthy of Glatfelter's confidence many times over.

Shipley had already established a fine reputation for himself in the industry. In 1886, Shipley had joined the Frick Company, where he helped adapt the Corliss steam engine to the ice machine.⁵ Prior to that, Shipley had been partner of a small but successful engineering firm. Shipley combined intelligence and commercial insight with an incredible capacity for work. Growing up in Jersey City, New Jersey, he supported his family and himself while going to school, graduating from the Cooper Institute of New York in 1881. A born innovator, Shipley had chafed under Frick Company's conservative business practices. He jumped at Glatfelter's offer, even though most in the ice industry believed Shipley was making a fatal career mistake. The York Manufacturing Company, with its 50 employees and old-fashioned designs, appeared to have no future.⁶

Upon his arrival, Shipley immediately began modernizing both the organization and equipment of the York Manufacturing Company. His first task was to redesign the factory buildings and modernize the production line. Shipley set up the West York plant on the corner of Hartley and Roosevelt streets to include his office, a malleable-iron foundry, a gray-iron foundry for small castings, annealing ovens and a gray-iron foundry for large castings. It also contained machine shops for tooling and erecting, a pipe and fitting shop, plus a loading crane in the yard. The old facility on Penn Street housed a pattern shop, woodworking department, blacksmith shop, sheet metal department and boiler shop. With the new factory configurations, Shipley achieved a harmonious organization that improved the quality of the machines, noted the 1901 catalog.

"Good results can only be obtained when the different parts of the [machines] are manufactured under the one management, so that every part can be tested and proved, not only in respect to its individual qualities, but also in relation to the other parts of the system in connection with which it is to be operated."

Along with Shipley, Glatfelter recruited several more of Frick's top engineers. Shipley put this cadre of Frick expatriates to work on a new ice-making machine. The unit featured twin vertical cylinders containing single action pistons that compressed ammonia, driven by a steam engine. Shipley had worked on this design at Frick Company, but corporate leaders there had deemed it too expensive for commercial success. The design, though, was unusually simple for a customer to maintain and repair, while at the same time offering greater productivity.

The machine that Shipley eventually manufactured for York needed only two bearings for the crank shaft, with the flywheel located between. Parts were readily accessible for adjustment, as discharge and suction valves could be inspected by simply removing the compressor head. The machine was offered in various sizes and shapes. Smaller capacity designs featured engines with balanced piston valves, while larger ones employed a Corliss-type engine.⁸

Shipley knew he had to repair York's damaged image, so he sought to offer premier quality machines only, even if higher prices meant lost sales. In the 1901 product catalog, he criticized competitors who offered less-expensive machines. "We claim that the only reason a manufacturer builds double-

acting machines is to meet competition by cheapening his product."⁹

Cracking the Ice Market

Shipley eliminated the company's other product lines, concentrating solely on the production of ice and refrigeration machinery with its accessory equipment. "I believe in being an expert in one line, and not a general practitioner," he said. "You can succeed in any line if you are an expert, but if you are only a dabbler, you'll be brushed aside."¹⁰ Shipley recruited a corps of good salesmen to promote the single-action ice-making compressor and defend the company's reputation. Shipley knew that destroying the competitor's reputation was a common sales tactic. His old employer, Frick, had been trying to discredit York's good name for years.

Shipley opened up sales offices in New York City and Cincinnati in December 1897 and hired his younger brother, Samuel, as sales representative.¹¹ The company targeted customers with great need of ice or refrigeration machines. In 1898, York opened offices in Houston and Pittsburgh, adding Atlanta the following year. Shipley hired salesmen with engineering backgrounds, so they would have the expertise to alter the machine's design to fit the specific requirements of customers.

In 1898, the York Manufacturing Company built the largest ice-making machine



An older Thomas Shipley. Shipley joined York at the age of 38, and transformed the struggling company into an industry leader.

to date. The machine featured 30-inch-by-48-inch ammonia compressors, driven by a 30-inch-by-58-inch-by-49-inch cross-compound Corliss engine. This behemoth was sold to the Packing House of Armour & Company in Kansas City, Missouri, where it remained in operation for more than 20 years.¹²

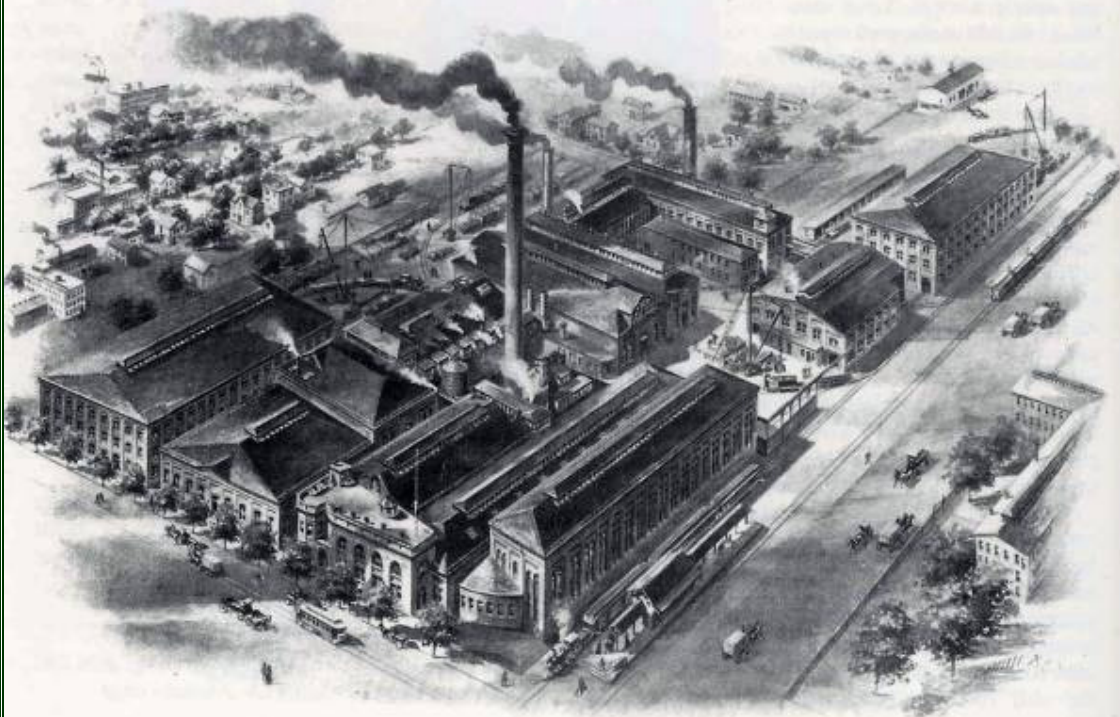
In the first three years of Shipley's employment, York sold 210 ice-making and refrigeration machines, more than the company had sold during the previous 13 years.¹³ The York Manufacturing Company had grown to become one of the area's largest businesses, no small feat since the area could boast more than 800 different manufacturing concerns. Glatfelter was ecstatic with the York Manufacturing Company's new success. In 1899, he promoted Shipley to vice president of the company. Unfortunately, a growing labor unrest would put a temporary freeze on the company's growth.

The Strike of 1901

Shipley had hired aggressively in 1897 as part of his reorganization efforts, and the payroll of the York Manufacturing Company quickly mushroomed from 50 workers to more than 200.¹⁴ Even with the additional workforce, workers struggled to keep up with a production schedule that seemed to grow more demanding each day. The men laboring in the factory were expected to do whatever was necessary to meet these schedules, even if it meant working 12 hours a day, six days a week. Even apprentices as young as 14 years old adhered to this difficult schedule.

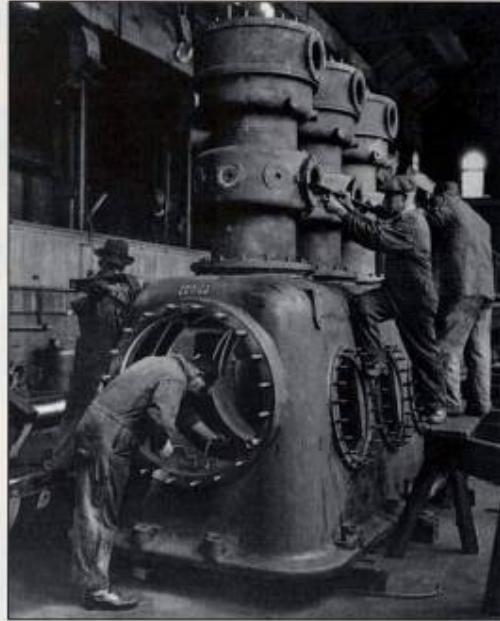
Most of the machinists, mechanics, molders and other laborers at the York Manufacturing

The headquarters and factory of the York Manufacturing Company, depicted in the 1901 catalog.



Company belonged to either the International Association of Machinists or the Iron Molders' Union of North America. On May 1, 1901, 11 men representing both unions entered the superintendent's office and demanded higher wages for mechanics, apprentices and working men, and threatened to keep other workers away from the factories. The union leaders hoped the combination of adverse publicity and business loss would force Glatfelter and Shipley to meet their terms. Machinist Charles Oberdick, a local union officer, vowed to strike until the union demands were acknowledged. If not, he said, the unions would "prevent the smoke from coming out of the York Manufacturing Company smokestack."¹⁵

Glatfelter and Shipley decided to ignore the demands and hire replacement workers.¹⁶ When the decision was announced on May 20, about 150 apprentices and workers — three-quarters of the workforce — abruptly walked out of the factory. They gathered in front of the factory's entrances to discourage others from working at the company and to publicize their struggle. The strikers, led by state and local union leaders, including ones from other cities, picketed the streets near the factory day and night.¹⁷ They surrounded the homes of workers who chose to continue working for the company, harassing and threatening their families. Strikers intercepted prospective employees at the railway station and



told them if they took a job at York, it would be the last place they worked.

On May 24, several striking members of the molders' union assembled on the sidewalk to block Tom Shipley as he walked to work. They menaced Shipley to such an extent that, "although a man of courage, he walked off the sidewalk and around them to avoid a collision," said an account in a local paper.¹⁸ That was the last straw. After arriving at his office, Shipley immediately fired all employees who were members of the molders' union and subcontracted work to other manufacturing shops in the area, preferring to take a loss than to submit to the workers.

He contacted S. Morgan Smith & Sons; Hench & Dromgold; York Safe and Lock Company; Baugher, Kurtz & Company; and



Above: York workers constructing the base of an ice machine.

Left: Brewers' thermometers, offered in the 1903 catalog, are valuable for making and storing beer.

George F. Motter & Sons. Some of the businesses refused because they didn't want to get mixed up in York's labor battles. Union members in other companies refused to work on any York Manufacturing Company contract, defying their bosses and often losing well-paying jobs. By July, many manufacturers in the city were refusing to take on the company's contracts because of the trouble it caused within their ranks.¹⁹

By August, the company could not deliver the orders as promised. The York Manufacturing Company was losing sales, but Glatfelter and Shipley continued to hold out against the strikers and fought back through the courts. They claimed union members had joined forces to ruin their business, in violation of the Sherman



Antitrust Act. The act, passed in 1890, was meant to encourage competition by making it illegal to form a trust that restrained trade. Glatfelter's brother, William, acting as the company's secretary, wrote a deposition requesting relief from the Court of Common Pleas of York County.

*"By threats of personal harm and injury, and by loud, insulting and angry words and tones and violent and abusive conduct and gestures, [union members] attempted to prevent, intimidate and deter, and have succeeded in preventing, intimidating and deterring certain employees from remaining in the employment of the [company]."*²⁰

The courts ruled in favor of the York Manufacturing Company. Union members were prohibited from gathering at or near the York Manufacturing Company or interfering in its business in any way. Union members appealed, but they were denied a hearing. Strikers who violated the court order were fined \$25 per violation.²¹ The court ruling ended resistance to the York Manufacturing Company.

Working Together

Although the strike disrupted the company's production schedule, its sales force continued to branch out across the nation. By 1904, the company staffed offices in Chicago, Memphis,



Above: An ammonia gauge from the 1903 catalog.

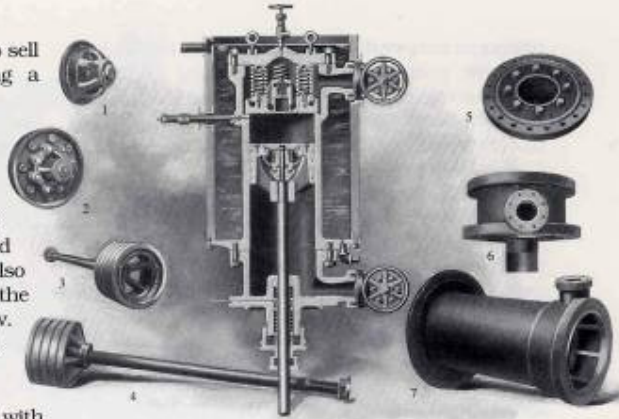
Left: The Engineering Department, photographed in 1902. First row, left to right: [?] Hantz, George B. Wantz, Harold Morgan, Alfred Hueter, Arnold Roth, Ralph J. Hilliker, W.W. Conner and Harry Kain. Second row, left to right: Otis B. Morse, E.R. Corridon, Harry Hamberger, George B. Eichelberger, Louis S. Morse, Gustave R. Brostrom and Robert A. Spangler.

Boston and San Francisco. York even began to sell its ice-making machines overseas, gaining a foothold in Japan.

The York Manufacturing Company needed to sell a more comprehensive line of equipment if it hoped to sustain growth. Shipley elected to manufacture more peripheral components such as valves and fittings that would allow customers to upgrade, expand or repair their ice-making machines. Shipley also established an outline of basic principles for the refrigeration and ice-making industry to follow. By standardizing the definition of a machine's capacity, customers could compare specifications more easily, and manufacturers could develop pricing strategies consistent with competitive initiatives. Shipley also argued for the formation of a professional organization to provide a forum for refrigeration experts to exchange ideas and defend their common interests.

Not surprisingly, Shipley's vision caught on slowly with other manufacturers. Fierce rivals were naturally reluctant to share ideas with their competition. Undaunted, Shipley brought his idea to a meeting of the American Society of Mechanical Engineers. The society rarely dealt with refrigeration topics, so the engineers had to huddle in corners during the meetings.²² Though other engineers mocked them, the informal discussions led to the publication of several trade magazines that dealt solely with ice-making and refrigeration.

Slowly, rivals in the industry began to come together. In February 1903, a private meeting was held at the Gibson House in Cincinnati. York's most important competitors attended: James Raby and Ezra Frick from Frick Company; J.C. Hobart



Above: A sectional view of York's single-acting compressor, surrounded by its components. Numbered from one to seven: suction valve, discharge valve, ammonia pistons, compressor cover, compressor base and compressor cylinder. The gas enters at the bottom of the compressor where it is compressed and driven through the discharge valve by the upstroke of the piston.

Below: Some of the compressor fittings offered by York in 1901.



from Triumph Company; Theo Vilter from Vilter Company; and W.P. Eagan from the Fred Wolf Company. After listening to Shipley's arguments in favor of standardization, they agreed to set standards for the size, riveting, soldering and material for a variety of ice cans.

The group also discussed the parameters by which a unit ton of refrigeration should be measured. Shipley, who had studied the matter in the company's test laboratory, suggested the conditions should include an evaporating pressure of 15.67 pounds of pressure, corresponding to an ammonia temperature of zero degrees Fahrenheit. He also said it should provide for a condensing pressure of 185 pounds of pressure, corresponding to an

ammonia temperature of 95.5 degrees Fahrenheit. However, competitors at the meeting could not reach an agreement on these important criteria.²³

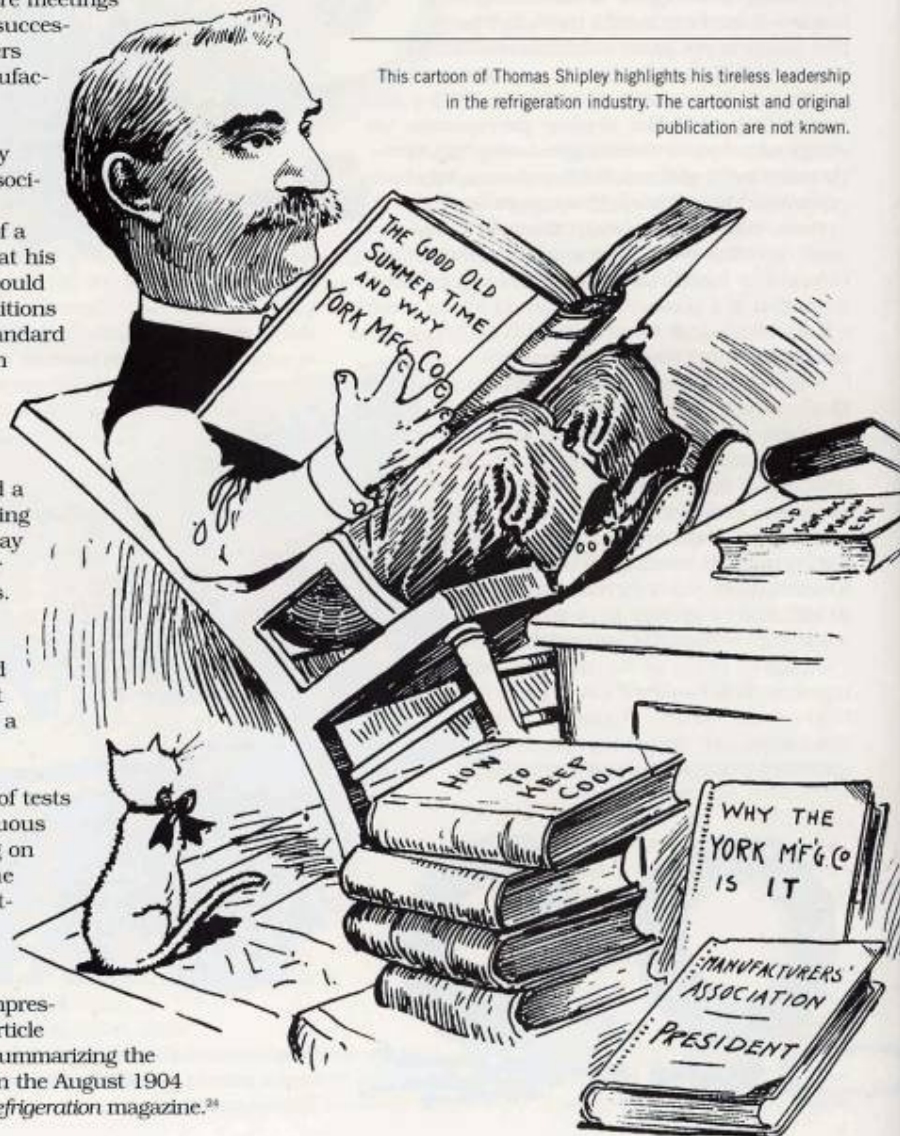
Later in the year, the same group formed the Ice Machine Builders Association of the United States. More meetings followed in rapid succession, with engineers from leading manufacturers joining the association.

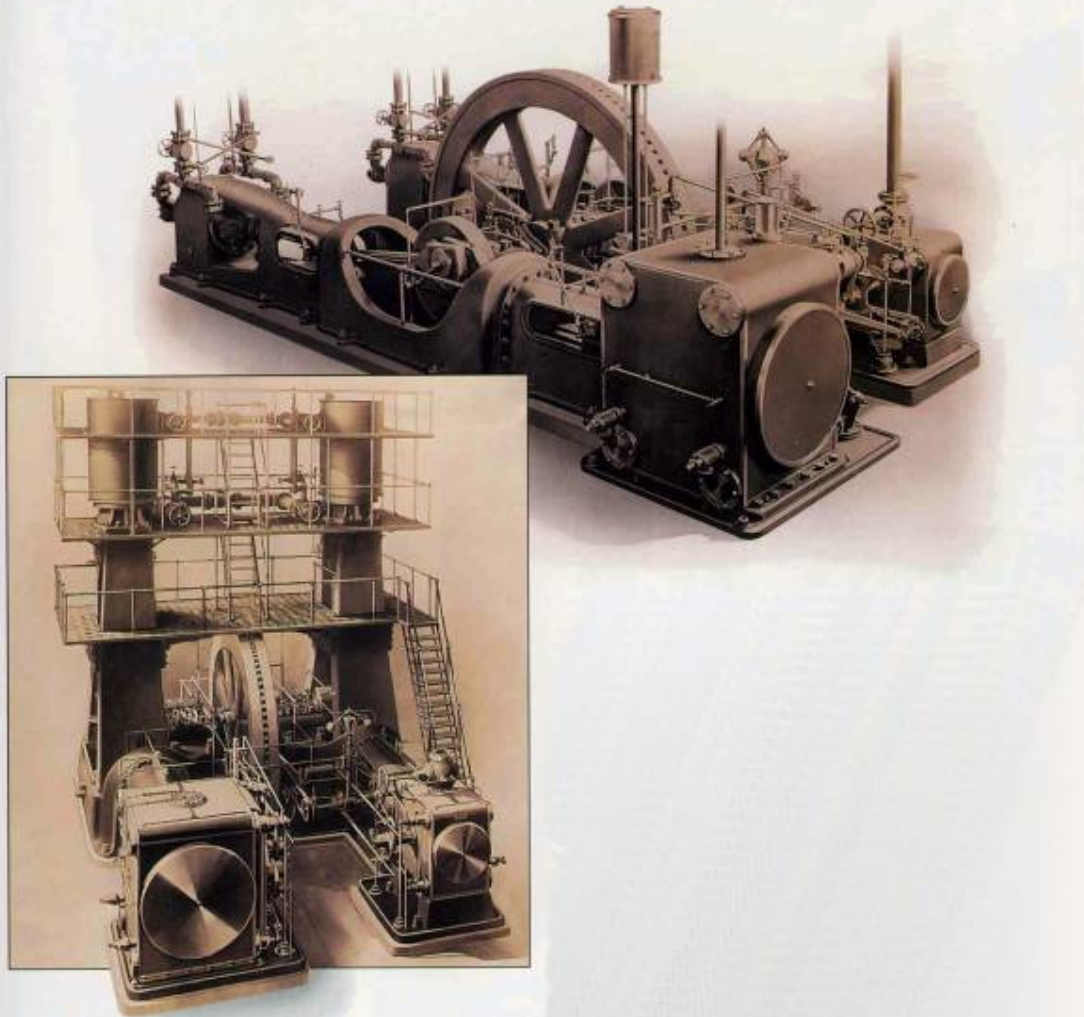
Ultimately, Shipley persuaded the association to conduct exhaustive tests of a refrigeration unit at his laboratory so all could agree on the conditions under which a standard ton of refrigeration could be calculated. The issue was so important to him that he offered to build a suitable refrigerating test system and pay hotel expenses for all representatives. His offer was accepted, and on September 16 and 17, 1903, the first tests were run on a 40-ton-capacity machine.

A second set of tests ran for six continuous days commencing on October 21. At the conclusion of testing, the manufacturers agreed to a standard rating system for compressor capacity. An article announcing and summarizing the results appeared in the August 1904 issue of *Ice and Refrigeration* magazine.²⁴

Further efforts to standardize ice and refrigeration machines were rejected by a majority of members who feared higher costs if too many restrictions were implemented at once. In 1904, Shipley helped to establish the American Society of

This cartoon of Thomas Shipley highlights his tireless leadership in the refrigeration industry. The cartoonist and original publication are not known.





Refrigerating Engineers, an organization devoted to the science of sub-atmospheric temperatures.²⁰

(Pages 30-37 on Thomas Shipley from "The Legend of York," Jeffrey L Rodengen)