Johnson Controls 100th Anniversary Brochure, 1885-1985

JOHNSON CONTROLS

The major businesses of Johnson Controls, Inc. are the design, installation, and service of control systems for commercial buildings and the manufacture of automotive batteries. In addition, control systems and engineered piping systems are supplied to industrial markets.

FRONT COVER

1985 marks the 100th anniversary of Johnson Controls. Shown on the cover is an 1885 thermostat produced by Warren S. Johnson, the Company's founder and inventor of the first thermostat. Pictographs representative of the Company's history have been added where the thermometer was originally fastened.

JOHNSON CONTROLS

100 YEARS

RIGHT FOR THE TIMES

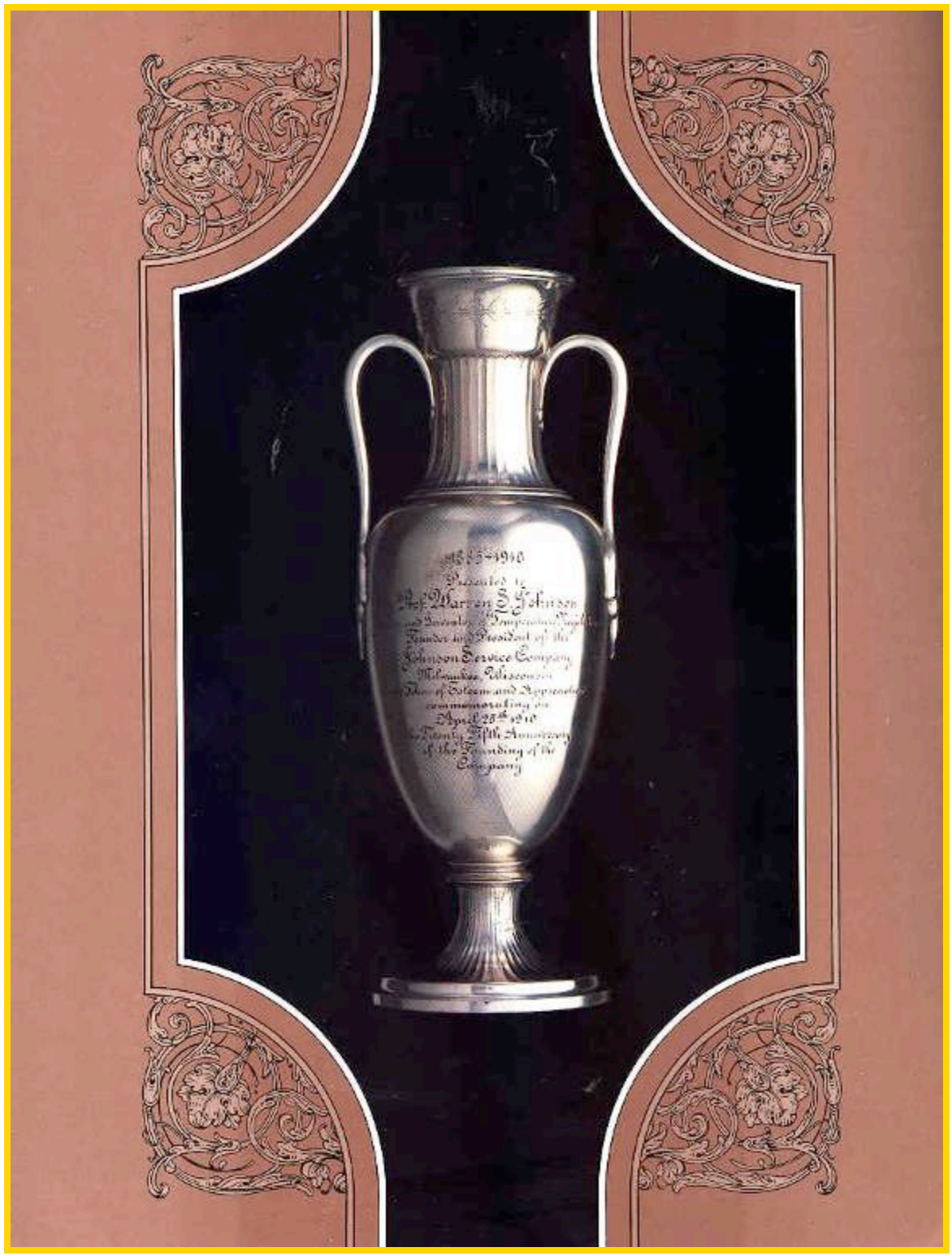
When we review the first one hundred years of our company, two basic themes become apparent. First, the growth and prosperity of Johnson Controls are strongly related to the willingness of our people to try new things; to change. With developments in management, technology, and communications coming at increasing rates of speed, it becomes more essential than ever that we be receptive to change, experimentation, and risk-taking.

Secondly, the success Johnson Controls has enjoyed rests on a solid foundation of fundamental business values. We value integrity in everything we do; we value our people, every individual . . . they are Johnson Controls; and we value customer satisfaction, which is attained through excellence in productivity, quality, and service. This foundation of values will serve us well in the years ahead.

Our commitments to improvement and our fundamental business values provide the people of Johnson Controls with direction . . . and a challenge . . . for each day of every week of every year. They help to assure that in the years ahead, Johnson Controls will always be "right for the times."

Fred L Brengel

President



1880

In his classroom at the State Normal School in Whitewater, Wisconsin, the Professor conceives an idea that launches an industry.

1883

Patent #281,884 for an "electric telo-thermoscope." Changes in room temperature move a thermal element into and out of a pool of mercury to open and close an electric circuit.

1883

1885

Although Johnson is the inventor, William Plankinton provides the capital. The Milwaukee financier is president until 1902.

Employees presented Warren Johnson with a silver loving cup commemorating the Company's 25th anniversary.

AT THE START. Warren Johnson fostered many of the principles that have guided the Company through its 100 years. Among them, unquestioned integrity and a single-minded dedication to deliver on its promises.

In July of 1911, Warren Johnson wrote to his sons, Paul and Carl, from Los Angeles regarding the disposal of the few personal belongings he had left behind in Milwaukee. Among the furniture and knick-knacks was a silver loving cup presented to him by his employees. Johnson expressed that he would like it to remain in the office because "except for the business which I have built up, it will be my only monument."

That Johnson foresaw the endurance of the business he created has proved to be one of his truest visions. Whether the Company that continues to bear his name is the monument of which he dreamed is impossible to tell.

THE INVENTOR

Warren Seymour Johnson, a member of the family's tenth generation, was born in Rutland County, Vermont in 1847. Two years later his family moved to Wisconsin, first to Waukesha, then Kilbourn City (Milwaukee) and then, nearly 300 miles northwest to Dunn County.

In western Wisconsin Warren Johnson was a printer for a Durand newspaper, taught in Menomonie and for a time was superintendent of schools and a surveyor of this part of Wisconsin's central plain. After moving southeast and fulfilling a two-year term as Juneau County's superintendent of schools, Johnson was appointed a professor at the State Normal School in Whitewater in 1876. It was recalled that Johnson was "one of the most strikingly original teachers," at times impressing his students with the merits of science, mathematics, drawing and penmanship, and even co-authoring a textbook, "Work with Words."

1885 1885 1887 1890

When the Johnson Electric Service Company is incorporated, Johnson and Plankinton each receive 1,499 shares. Captain Irving Bean, secretary, receives two.

An early factory is over Henry Wier's saloon along a dock on the Milwaukee River and the Grand Avenue bridge.

Schools are among the first buildings to benefit from automatic temperature regulation.

Despite his success in the classroom, the Professor's consuming interest was in his laboratory. One of his more ambitious experiments involved storage batteries. Electrochemistry was the glamour science of the day and many attempted to harness its potential to the needs of telegraphy and a variety of other uses which later proved unsuitable.

Johnson installed a one-horsepower Shipman steam engine with kerosene-fired boilers and a generator in the basement of his home. With his wife, Cora, and sons in attendance, he made repeated attempts to produce a successful "electric accumulator." His son, Paul, would recall that when the experiments were declared a failure, the eight-year-old was charged with hauling 550 pounds of lead back to the local hardware store where he redeemed the metal for two cents a pound.

In a 1939 letter, Paul described what is probably the most accurate scenario for the inventions which were to establish his father's name: "The Normal School was heated by enormous hot-air furnaces. On cold days when they were going full blast, from the large registers in the floor of the lower halls we could see the red glow of the cast-iron furnaces. The only control of room heat was by hand-operated dampers at the furnaces. Once an hour or so, the janitor would make the rounds of the rooms, inspect the thermometers and note which rooms were too warm or too cold. He would then go to the basement to open or close dampers accordingly. The janitor disturbed the classes considerably, so Professor Johnson installed electric thermostats in each room and connected them to annunciators, which he invented, so made that when the thermostat made contact on the warm side, the indicator for that room would show 'Warm' and ring a bell, and when the contact was on the cold side, the indicator showed 'Cold.' All the janitor had to do besides firing his furnaces and keeping the place clean, was to watch the annunciator every time it rang and shift the proper damper. That was the first Johnson System of Temperature Regulation."

Johnson was granted the first patent for a room thermostat on July 24, 1883. Called an "electric telethermoscope," it used a sealed bimetal and hard rubber element with one wire of an electrical circuit attached to the fixed end and the other wire connected to a small pool of mercury in a cup-like reservoir. Changes in air temperature moved the free end of the thermal element into and out of the mercury to close or open the electrical circuit.

THE ENTREPRENEUR

With patent in hand, Johnson traveled to Milwaukee in search of capital to fund manufacturing of the device. There he encountered William Gehrs, coachman and handyman to William Plankinton, Milwaukee's hotelier and scion of the Plankinton Packing Co.

Gehrs and Johnson convinced Plankinton that the device warranted his financial backing. The Milwaukee Electric Manufacturing Co., a partnership, was formed enabling Johnson to resign his professorship (although he would always be referred to as "the Professor") and devote all of his time to further develop his inventions.

Two years later, the venture still held promise. On May 1, 1885, the Johnson Electric Service Co. was organized as a Wisconsin corporation. Plankinton became president, Johnson, vice president and treasurer, and Captain Irving M. Bean, secretary. The Company's charter was "to manufacture, sell and deal in electric and pneumatic apparatus, and to construct and apply the same to public and private buildings in order to regulate temperature or control gasses." It also provided for purchasing inventions and patents for related devices and processes that would help further the corporation's interests. Plankinton contributed $150,000, half of which went to him and Johnson as joint owners of the Professor's patents.

Johnson and Gehrs set up shop in a basement off an alley bounded by Grand Avenue and Sycamore Street and Third and Fourth Streets. In the ensuing 17 years, the business moved around downtown Milwaukee street corners three times before it settled on the southeast side of Michigan and Jefferson Streets. This would be the Company's main office until 1980 and it continues as the headquarters for its major controls business.

1895

Johnson receives $1,000 for the tower clock he constructs for Milwaukee's new City Hall.

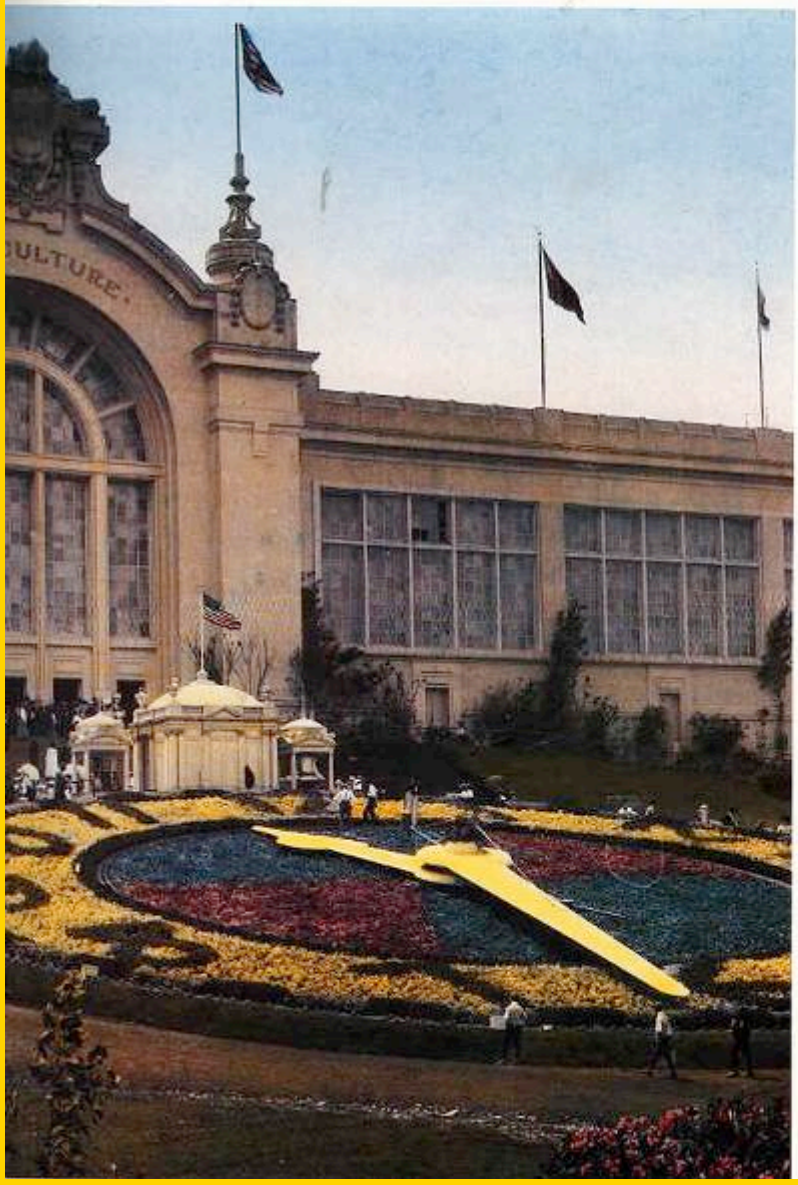
1895

Max Ullman spends 40 years in the woodworking shop crafting everything from switchboards to clock cabinets.

1899

1899

In less than a decade, many of the best and important public buildings are specifying the Johnson system for temperature regulation.



One of the reasons the plant had to keep moving was to keep up with Johnson's propensity to launch new projects once the last was in production. In the following years, he would invent additional control devices, but soon much of his enthusiasm turned elsewhere.

Johnson's laboratory began to spawn numerous devices: springless door locks, chandeliers, puncture-proof tires, thermometers, and gasoleum machines that converted kerosene into gas for home heating and lighting. There were side-by-side bicycles, an "impulsive" railway and a hose coupling for providing steam heat to passenger railcars.

HUGE TIMEPIECES

No other of Johnson's inventions, however, captured the public's admiration nor helped establish his reputation as did his great tower clocks. As the 20th century approached, these huge timepieces exemplified America's enthusiasm and desire to establish symbols on a scale with Europe. Always on the lookout for publicity opportunities, the Professor determined that a system powered by air pressure could vastly increase the reliability of these clocks, further proving the legitimacy of pneumatic operations which he was applying to his controls apparatus.

Johnson designed a great floral clock for the St. Louis World's Fair in 1904. Nephew of the Empress Dowager of China reported that he was most impressed by two things in his visit to America: Teddy Roosevelt and the floral clock, with the edge going to the clock.

1900

Johnson's telegraph captures a silver medal at the Paris World's Fair. Marconi places third.

1900

Early telegraphs use metal filings to detect sound waves. The particles cling more closely when an electric current is received.

1900

1900

Johnson erects what was probably the first radio tower west of the Atlantic seaboard on the shores of Lake Michigan.

1900

Johnson conducts many experiments with wet-cell batteries, but concludes that compressed air is more reliable.

Master clocks located in the lower portions of the towers were connected to air compressors driven by a city's water pressure, steam or electricity. The master clocks released compressed air impulses at one-minute intervals through tubes to pneumatic motors which advanced the clock hands.

The first big clock was for the Minneapolis Court House. It boasted a face whose diameter was larger than Big Ben's and was done in eight months compared with the 16 years it took to complete the London showpiece.

In the following year, 1896, a new City Hall for Milwaukee was being built. Citizens of the Company's hometown weren't so interested in the size of the clock's face. What they needed from Johnson was a mechanism to strike the world's largest "perfect bell" — 22,500 pounds. (The Big Ben bell weighed 27,000 pounds, but it was cracked.) The mechanism worked beautifully, but in 1925, the bell was silenced when it was feared that its vibrations were detrimental to the building's terra cotta work.

Philadelphia's City Hall was Johnson's next and largest tower clock project. The favorable publicity resulting from this success earned the Professor the invitation to produce a floral clock for the St. Louis World's Fair in 1904.