



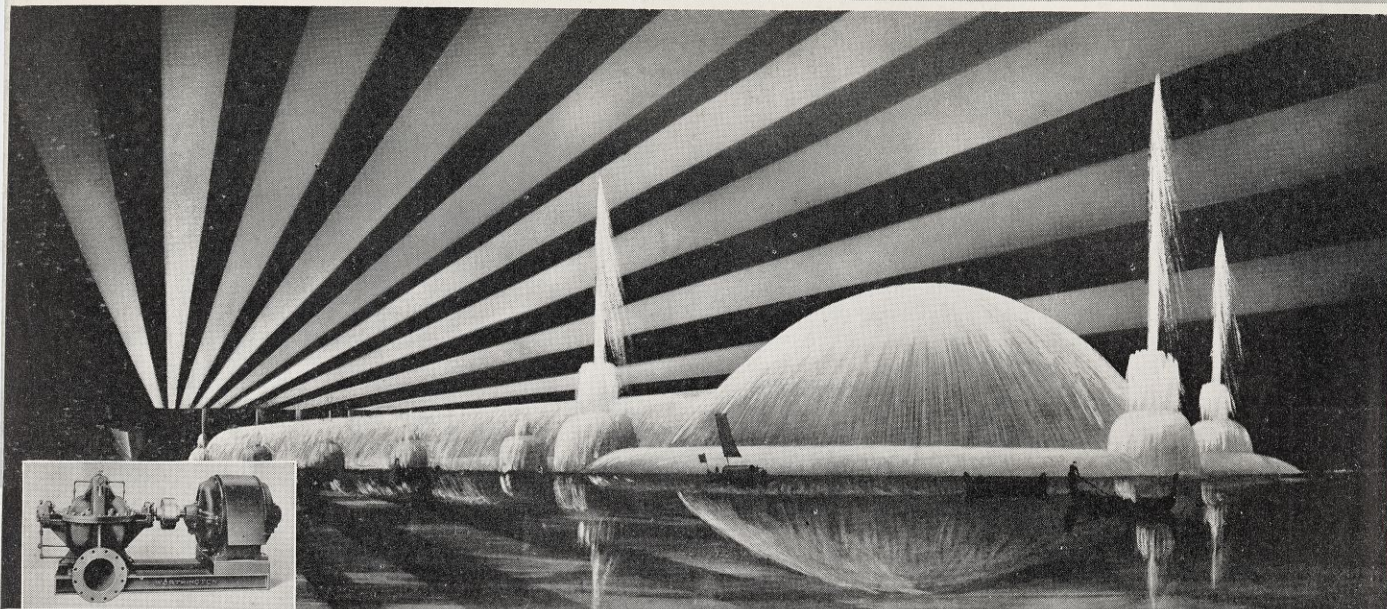
Worthington Service

at A CENTURY OF PROGRESS

and other World's Fairs



A CENTURY OF PROGRESS . . . CHICAGO EXPOSITION



One of the eleven Worthington Fountain Pumps . . . supplying 68,000 gallons per minute . . . 98,000,000 gallons every 24 hours

The Grand Fountain . . . with its magnificent lighting effects . . . the outstanding feature of the Exposition of 1934. It is 670 feet long, the dome being 200 feet in diameter and 40 feet high . . . five times the size of its nearest rival. The eleven Worthington Centrifugal Pumps which throw the fountain water require a total of 2500 motor horsepower . . . pumping a total of 68,000 gallons every minute . . . enough to service a city of 1,000,000 population

Photo by Kaufman-Fabry

If the thousands of visitors at the wonderful "A Century of Progress" Exposition, but few have any conception of the engineering skill and planning . . . and the extensive equipment . . . necessary to produce the many mechanical thrills and spectacular lighting and water displays.

Behind the scenes, its existence generally unsuspected, is the wonderful machinery . . . the source of light, power and motion . . . that makes all of these effects possible.

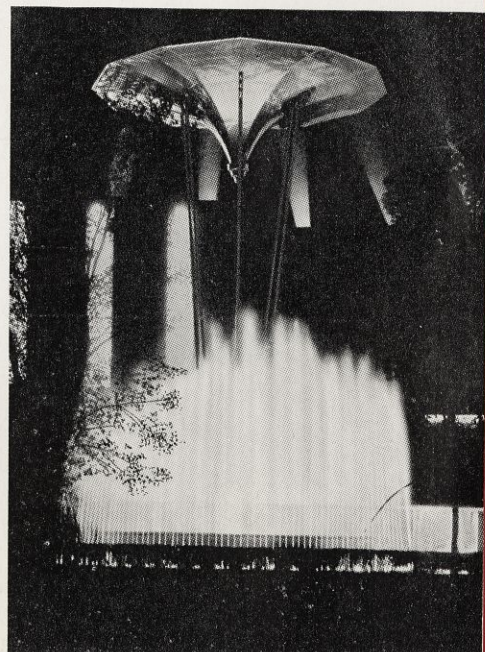
Not the least of the spectacles which have delighted thousands are the gorgeous colored fountains, cascades, and waterfalls. In providing these it has been Worthington's privilege to supplement, with its equipment and experience, the splendid skill of the engineers who planned the exposition.

For all of these aquatic displays, batteries of Worthington Centrifugal Pumps are arranged to deliver tremendous volumes of water in short periods of time . . . an aggregate of 98 million gallons every twenty-four hours.

There are also the pumps for the vital general water service of every kind throughout the Exposition grounds, including those for fire protection.

The Electrical Fountain (Electrical Building) . . . magnificent color and form effects, especially at night. Served by Worthington Motor-driven Centrifugal Pumps

Photo by Kaufman-Fabry



The Cascade. A miniature Niagara Falls . . . beautiful color effects, dazzling lighting. Served by Worthington Electric-motor-driven Centrifugal Pumps



Photo by Kaufman-Fabry

For these services also, several large electric-motor-driven Worthington Centrifugal Pumps constitute the Exposition's main pumping plant. Located in a chamber two stories underground, these pumps can supply 30 million gallons of water per day.

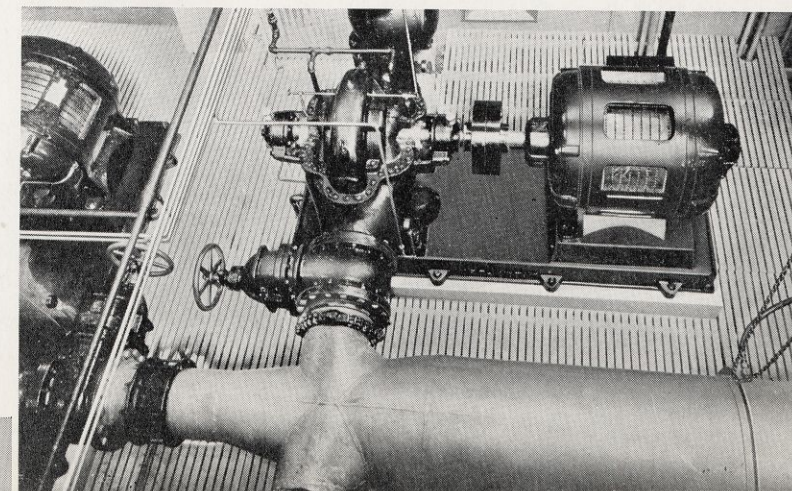
For all the great fairs of this kind . . . first at the Centennial Exposition in 1876, the first in modern times . . . Worthington has furnished the major part of the pumping equipment.

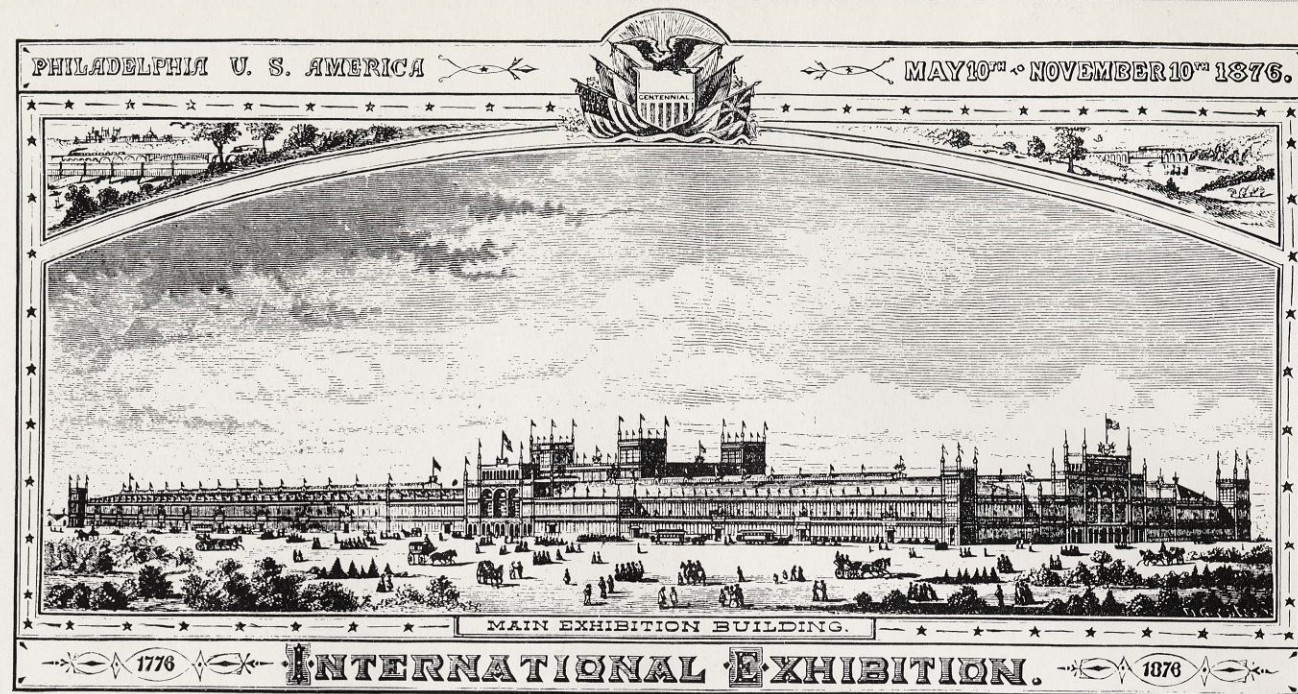
Extensive Worthington Exhibits were made at the Cotton Centennial at New Orleans in 1884; the Inventions Exhibition at London in 1885; the Paris Exhibition of 1889; the Columbian Exhibition at Chicago in 1893; the Paris Exhibition of 1900; the Pan-American Exposition at Buffalo of 1901, and the St. Louis Exposition of 1904.

Worthington Exhibits at the Columbian and the 1900 Paris Expositions occupied entire buildings, and included every type of pump up to large water works pumping engines, also many auxiliaries . . . vacuum pumps, condensers, cooling towers, etc.

At all of these expositions, Worthington was awarded highest honor gold medals in every case.

One of the three main water supply pumps . . . Worthington Electric-motor-driven Centrifugal Pumps . . . for general water supply and fire protection. Each pump can deliver 10,000,000 gallons every 24 hours

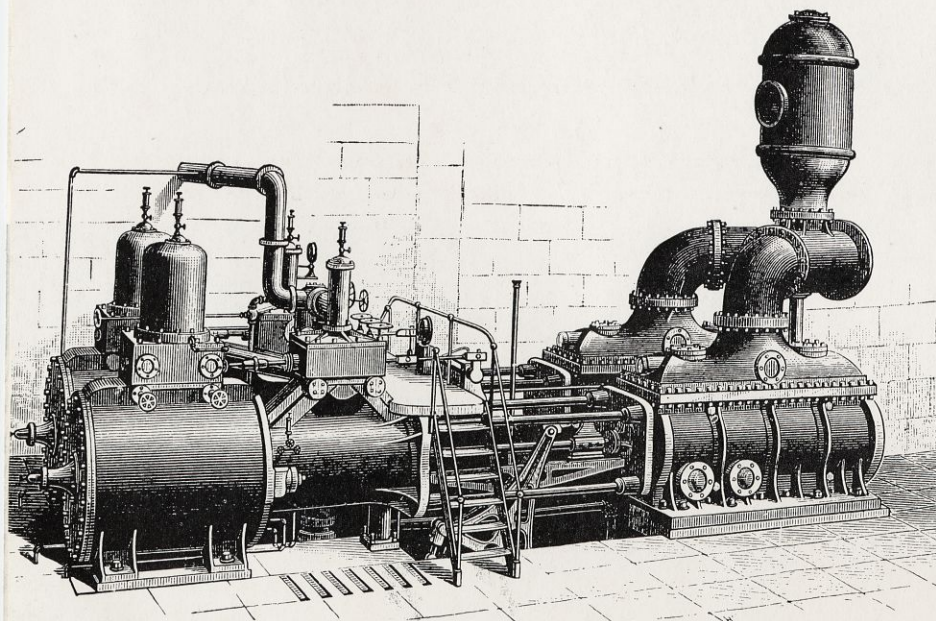




Main Building of the Centennial Exposition at Philadelphia in 1876

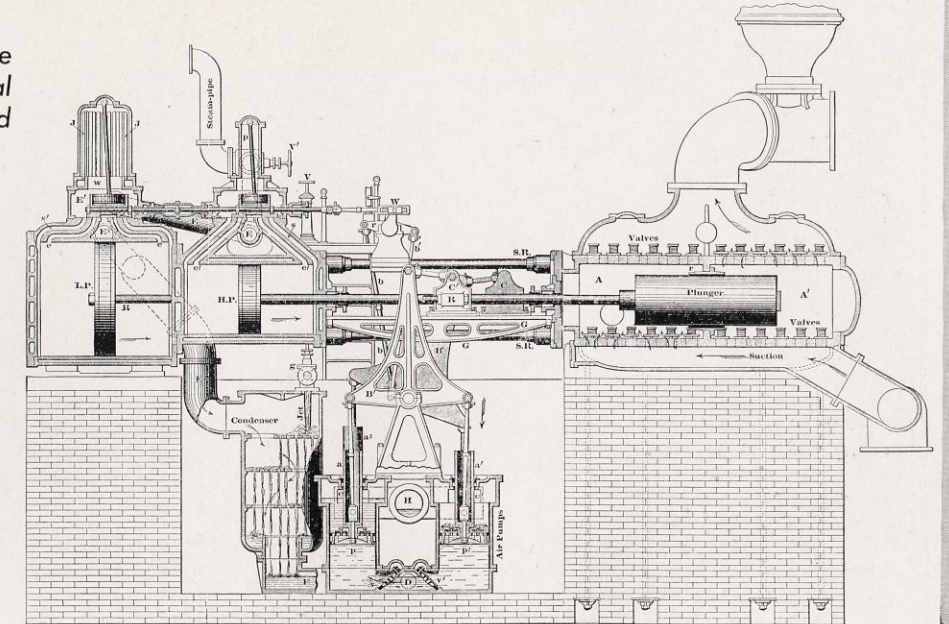
Worthington Engines were recognized at the Centennial for their higher average performance by gold medal award.

On the following page will be found an interesting extract from the report on Hydraulic Exhibits at this famous old exhibition, by Charles E. Emery, one of the judges awarding the gold medal to Worthington.



Worthington Horizontal Compound Duplex Pumping Engine, 6,000,000 gallons per day capacity . . . which provided the main water supply of the entire Centennial Exposition

Cross-sectional view of the Worthington Centennial Pumping Engine featured on the preceding page



"The largest and most expensive hydraulic exhibit was the pumping engine for supplying the entire exhibition ground with water, which was furnished by Henry R. Worthington of New York, and was located on the west side of the Schuylkill, just above the enclosure, and stand pipe 120 feet high and 208 feet above the river, being within the grounds near the Art Gallery. The engine was of the Worthington Duplex Type, with a capacity of six million gallons daily. There are two horizontal double-acting pumps with plungers $22\frac{1}{4}$ inches in diameter, arranged side by side on the same frame, each operated directly by a compound engine with steam-jacketed cylinders, 29 and $50\frac{1}{4}$ inches in diameter, the strokes of engines and pumps being four feet. The smaller steam cylinder is attached to the front head of the larger, and has a central piston rod connecting with pump rod through a cross-head, and two piston rods from larger cylinder pass outside the smaller and connect with the cross-head. There are two single-acting air pumps, each $29\frac{3}{4}$ inches in diameter, with 24 inches stroke, which are operated from the ends of a horizontal beam, with vertical lever attached, receiving motion from one main cross-head. The main valves are plain slides operating over double cylinder ports, as described hereafter. . . . The remarkable contrast between engines of this type and the well-known Cornish Engines, both in construction and operation, will be appreciated from the above, in connection with the engravings.

" . . . the evidence appears to be that the Worthington Engines (direct-acting) give higher average performance than any other class of pumping engines in use in the United States, except those specially designed for steam economy (flywheel, cut-off) and in comparison with those it is proper to consider differences in interest in first cost of engines and their foundations—ease of management and reliability on long period runs. . . . The Worthington Duplex Engine was perfected about the year 1859 and from 1860 to 1876 no less than eighty were erected in different parts of the United States and Canada with capacities varying from 500,000 to 15,000,000 gallons daily."

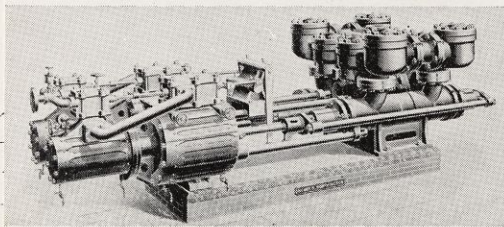
The direct-acting compound duplex pumping engine was the favorite type for municipal waterworks service from 1860 to 1900. Thousands of Worthington Pumps were installed during that period.



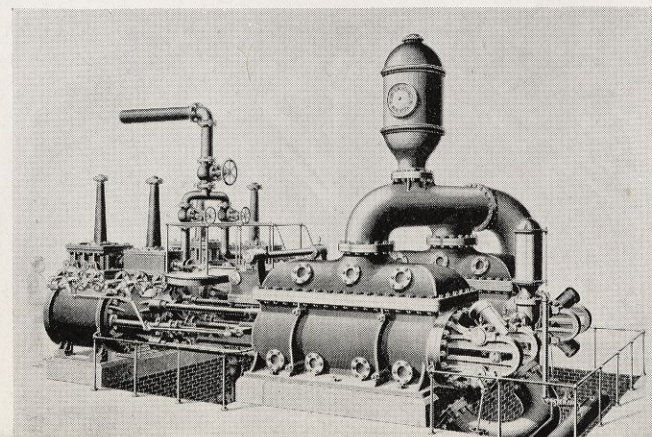
The Luminous Fountains

At Paris in 1889 Worthington Pumps were prominent features of interest. The entire water supply for the exposition grounds was furnished by various Worthington Pumping Equipment. The main pumping engine is shown below.

The World-famous Eiffel Tower . . . 980 feet high . . . the hydraulic elevators in which are operated by Worthington Pumps. These pumps are still in operation after 45 years of service



One of the two Worthington Elevator Pumps in the Eiffel Tower



The Worthington Compound High-duty Pumping Engine of 6,000,000 gallons daily capacity

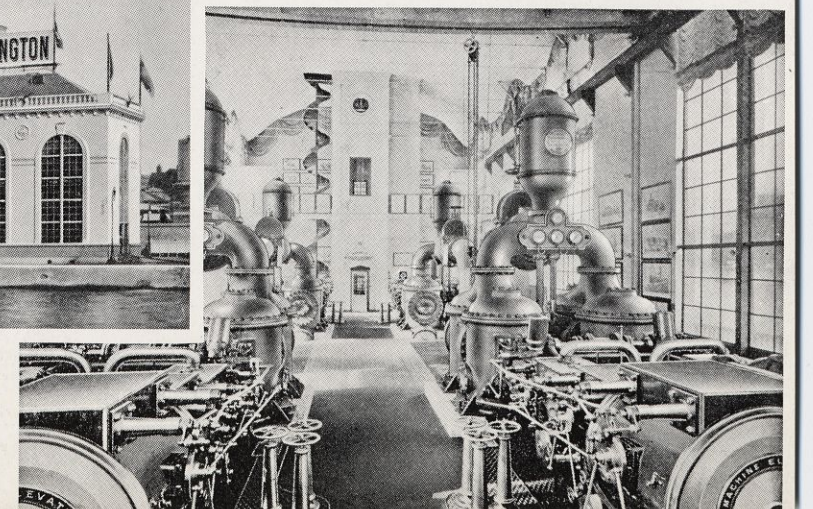


The Grand Court and Fountains . . . all water for which was supplied by Worthington Pumps

Again at Paris in 1900 . . . Worthington's Exhibit was an outstanding feature of the Exposition. In the Worthington Building were housed the four large pumping engines shown below, each of 10,000,000 gallons daily capacity. They furnished the entire main water supply for the Exposition grounds and were masterpieces of design for that period.



The Worthington Building containing the Worthington Exhibit. All kinds of pumps from boiler feeds to waterworks engines, condensers, vacuum pumps, were shown... many in actual operation

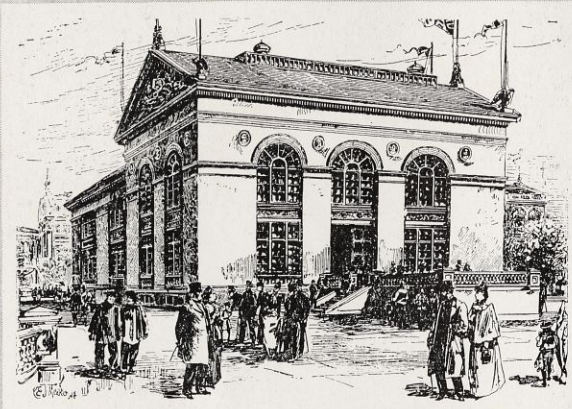


The four Worthington Compound Duplex High-duty Pumping Engines . . . combined daily capacity 40,000,000 gallons

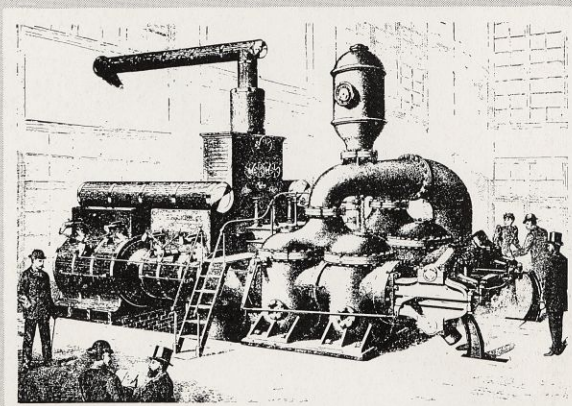
COLUMBIAN EXPOSITION



The Court of Honor . . . the Fountains were serviced by Worthington Pumps



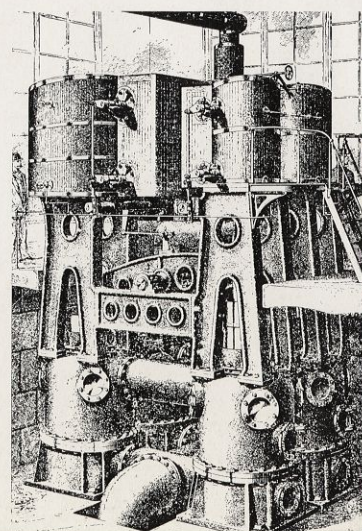
The Worthington Pumping Station at the Columbian Exposition



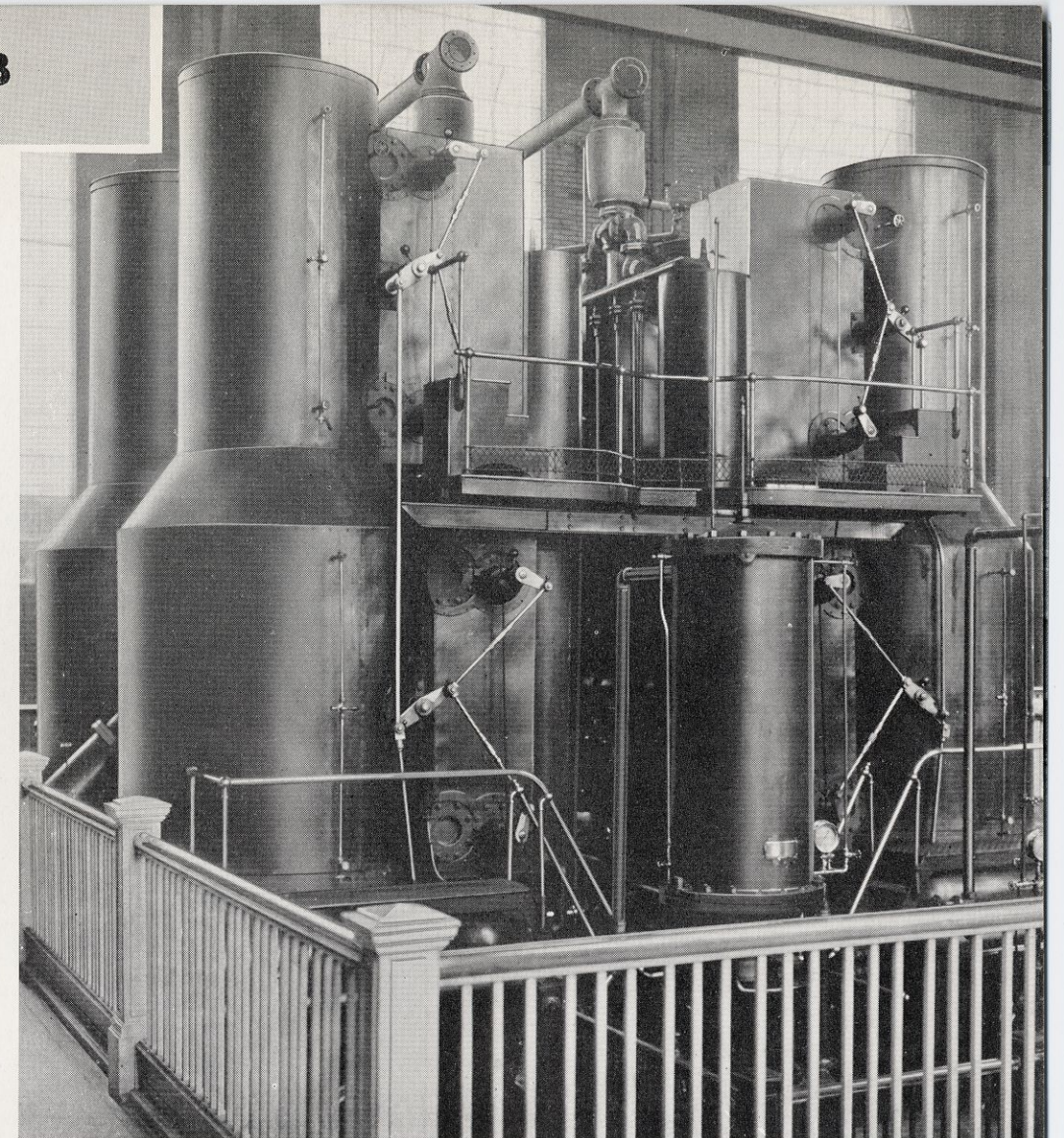
Worthington Compound Duplex High-duty Pumping Engine . . . 12,500,000 gallons per day capacity

The Worthington Exhibit at the World's Columbian Exposition, Chicago, 1893, was a huge affair. It occupied an entire building and included practically every type of Worthington Pump, from small boiler feeds to the largest water works pumping engines then built . . . many in actual service. There were thirty-six items of pumps in all, representing the last word in water handling apparatus. The cuts below show two of the larger size water works pumps.

Worthington Vertical Triple Expansion-beam Pumping Engine. An outstanding design for 1890-1900 period . . . 7,500,000 gallons per day capacity

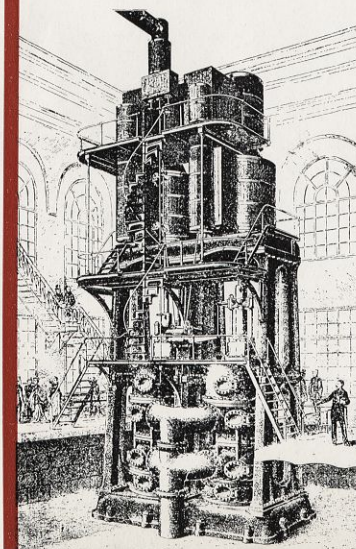


1893



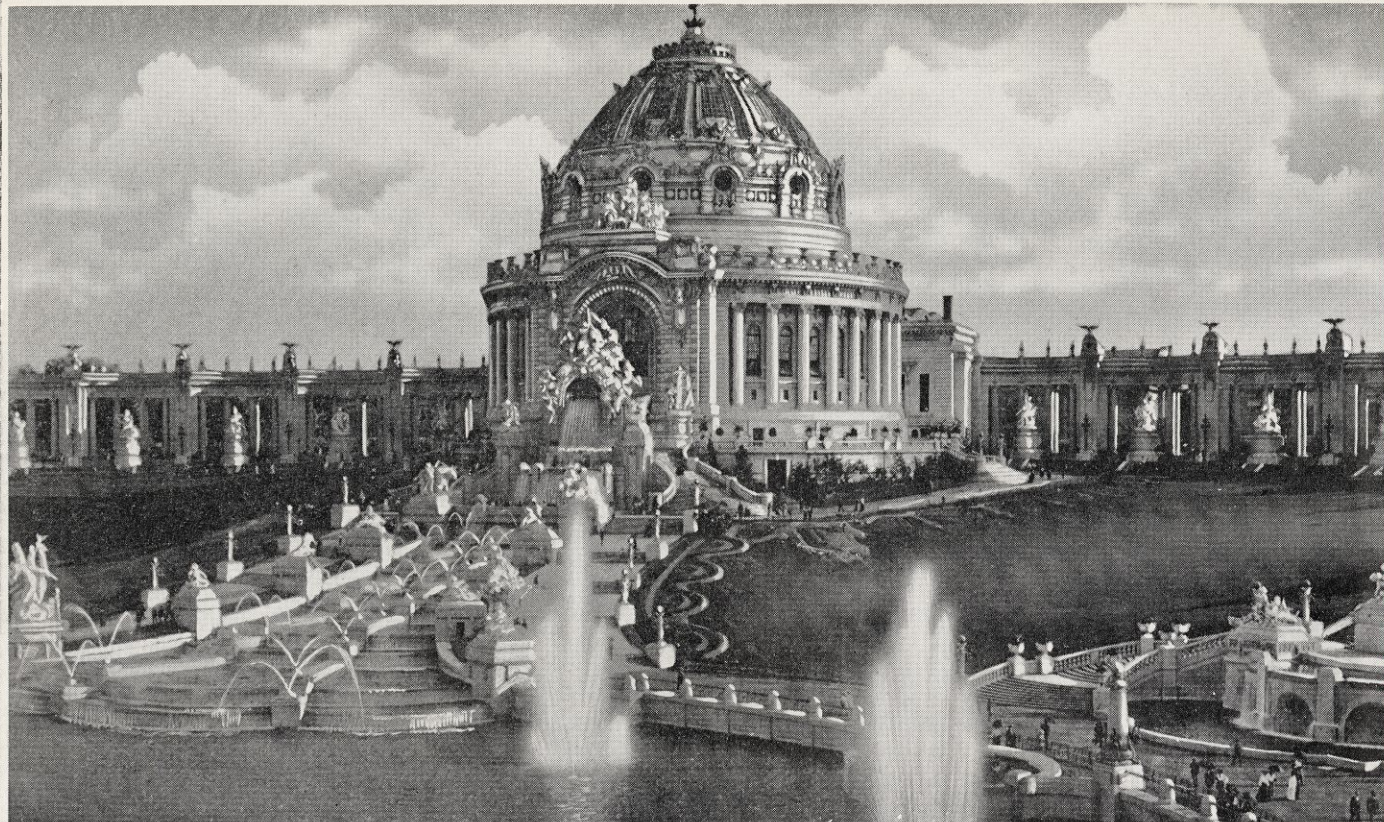
The Main Worthington Pumping Engine of the Columbian Exposition . . . as it appears today at the Toledo, Ohio, Waterworks Pumping Station, with its companion unit

One of the above pumping engines . . . size 30x60x32x60, capacity 15,000,000 gallons per 24 hours . . . now at Toledo, was built for, and installed at, the Columbian Exposition in 1893. An old cut of this unit is shown below. It furnished all the water used on the grounds, and after the close of the Exposition was purchased by the City of Toledo. On the strength of its performance record there the city soon afterwards ordered a duplicate pump. These pumps are still in active use, making a record of over forty years of public service . . . a showing of which Worthington is justly proud.



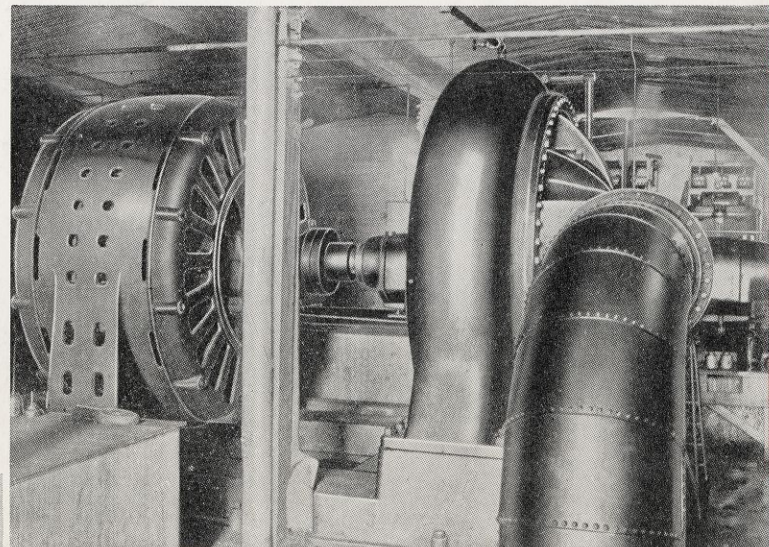
The Pump as it was installed at Chicago . . . 15,000,000 gallons per day capacity . . . furnished all water needs on the Exposition grounds

ST. LOUIS EXPOSITION



The Main Cascades used 165,000,000 gallons of water per day . . . three times the daily water consumption of the City of St. Louis. All the water was supplied by Worthington Pumps

Consistent with its leadership in the pumping equipment field, the Worthington Exhibit at St. Louis in 1904 was again one of remarkable interest to thousands. This Exhibit comprised a great variety of pumping machinery covering practically the entire range of its possible applications.

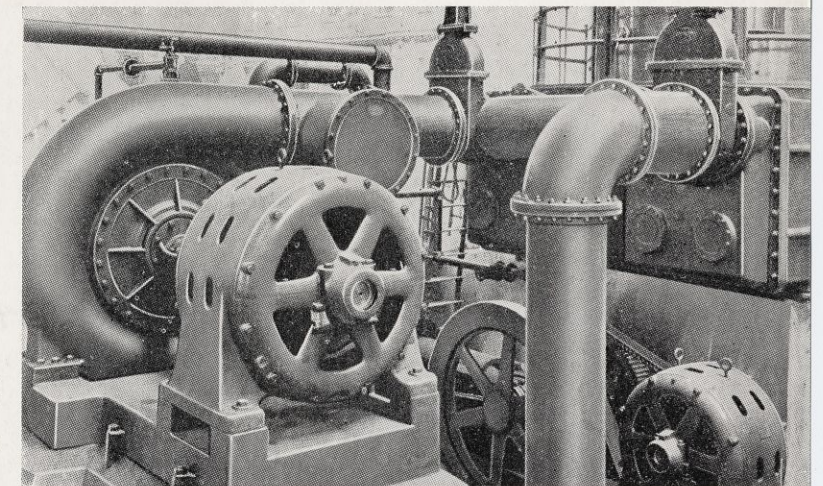


One of the three Worthington Turbine Pumps supplying water to the Cascades. Total capacity 165,000,000 gallons per day

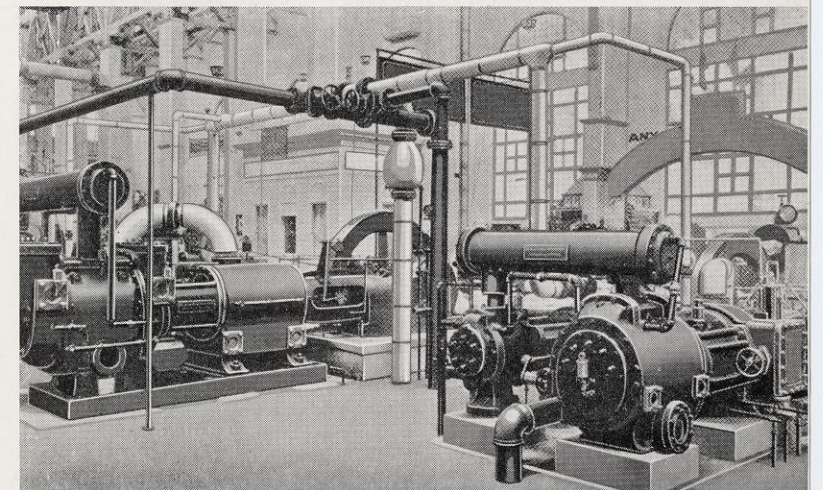
1904

In addition to the great variety of pumps which constituted the entire water and power plant and fire protection service, a battery of Worthington Air Compressors furnished compressed air for the many and varied exposition needs.

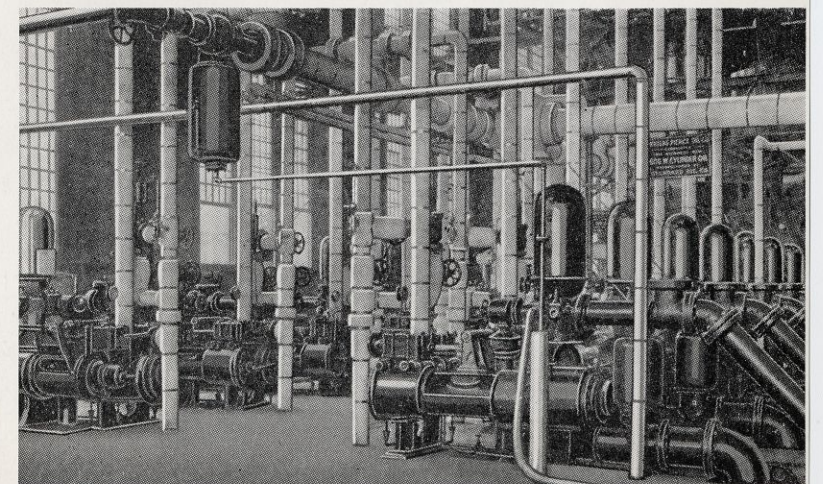
All of the Worthington Equipment was recognized, by competent judges, as outstanding examples of engineering accomplishment in their field at that time.



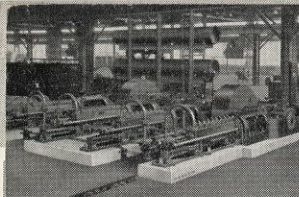
Worthington 8000 sq. ft. Surface Condenser, Centrifugal Circulating Pumps and Dry Vacuum Pumps, in the power plant



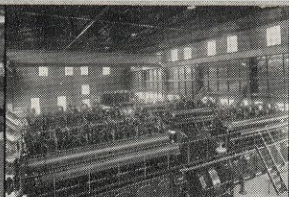
Worthington Air Compressor installation in the Machinery Building . . . for servicing all Exposition needs



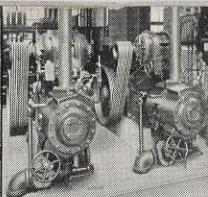
Fourteen Worthington Underwriter Fire Pumps. Capacity 14,000 gallons per minute . . . for Exposition fire protection



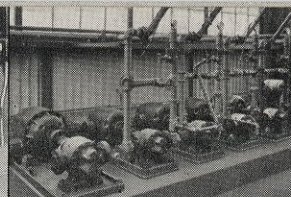
Motor-driven duplex reciprocating pumps



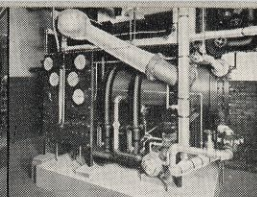
Vertical gas engines in central power station



Air compressors with Multi-V-Drives



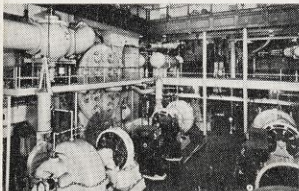
Motor-driven rotary pumps in chemical plant



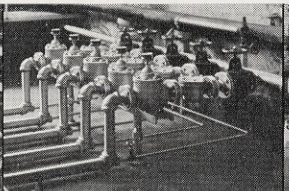
Vacuum cooling unit in air conditioning system

Since 1840, when Henry R. Worthington invented his first pump . . . one of the most important contributions to the science of water handling . . . the name Worthington has been associated, with increasing emphasis, with every major development and forward step in the pumping equipment field.

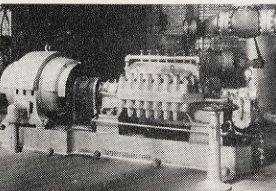
Worthington's prominent participation in the world famous expositions pictured



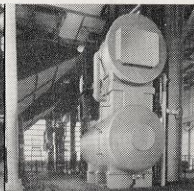
Steam condenser and circulating water pumps



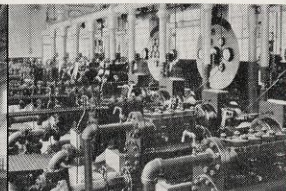
Hot water meters in textile mill power plant



Motor-driven 7-stage centrifugal boiler feed pump



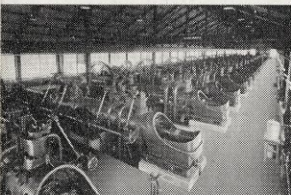
Feedwater heaters in power plant



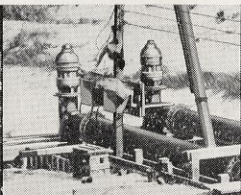
Simplex and duplex steam-driven pumps

in this booklet is indicative of its standing in every kind of enterprise in which the handling of large or small quantities of water is involved.

In large and small municipal water works systems, in huge irrigation developments, sewerage and storm water disposal plants, in state-wide water conservation and reconstruction undertakings, in fact in every kind of water handling, Worthington installations are writing history with their performance records.



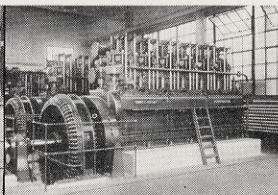
Gas-engine-driven compressors on gas pipe line



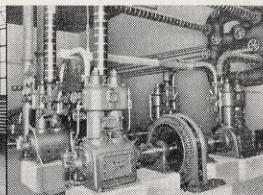
Motor-driven deep well turbine pumps



Contractors' air tools and portable air compressor



Diesel engine generator sets in municipal power station



Motor-driven vertical duplex refrigeration compressors

In addition to pumping machinery for every industry, Worthington service and comprehensive lines of products include auxiliaries for power plant operation, air compressors, refrigeration equipment, portable air compressors and rock drilling equipment, Diesel and gas engines.

Today . . . as for generations . . . the name Worthington is synonymous with

Performance and Service

in the power and pumping equipment field throughout the world.

WORTHINGTON PUMP AND MACHINERY CORPORATION

Works: Buffalo, N. Y. Harrison, N. J. Newark, N. J.

GENERAL OFFICES: HARRISON, NEW JERSEY

Branch Offices or Representatives in Principal Cities of the United States and Foreign Countries

WORTHINGTON



WORTHINGTON



With the closing of the wonderful "A Century of Progress" Exposition at Chicago, another interesting chapter is added to Worthington history.

It has been a privilege to which Worthington points with pride, that at every great World's Fair since the Centennial of 1876, all the water used . . . whether for general service, power, fire protection, or display . . . was furnished by Worthington Pumps.

We think you will find the accompanying booklet, "Worthington Service at A Century of Progress and other World's Fairs", of more than passing interest, showing as it does, by just this one field of service out of hundreds equally important, the vital importance of an *unfailing water supply*.

The building of pumping equipment is only one of the many engineering enterprises in which Worthington has pioneered and steadily built a reputation for leadership. Whether on an entire group of equipment, for the largest power plant or industrial installation, or on the smallest individual piece of equipment, the Worthington name is final assurance of complete dependability.

WORTHINGTON PUMP AND MACHINERY CORPORATION

