

The Importance of Mechanical Engineering at The Fairmount Water Works

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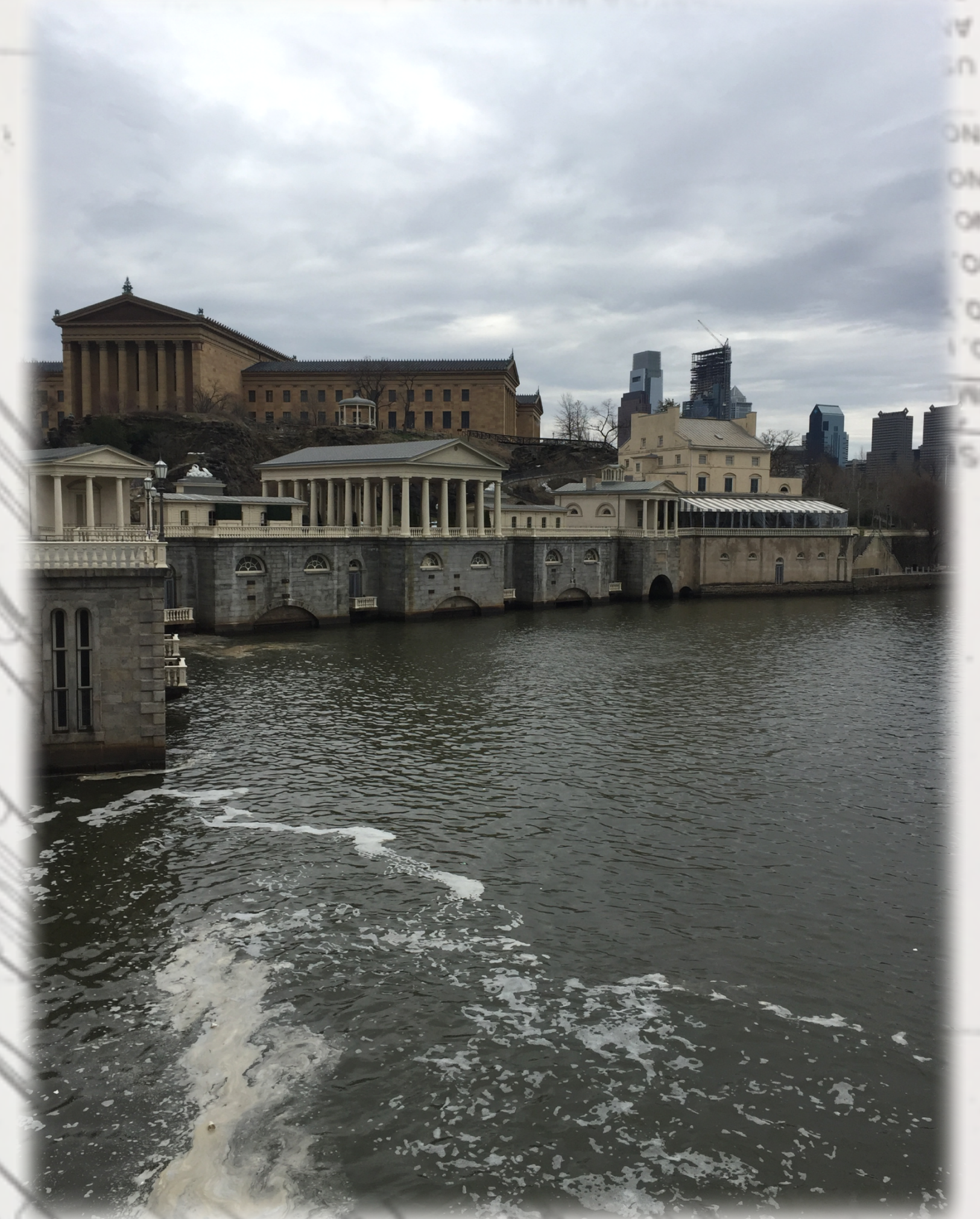


A Problem at Hand:

A yellow fever stricken Philadelphia in the late 1700's was in desperate need for a clean, stable water source. An engineer, Frederick Graff, who was part of the Philadelphia City Water Council, was hired to design an efficient way to supply the city with municipal water.

Innovation:

Graff was able to design and produce a water turbine system that was self sufficient enough to pump over two million gallons of water to a reservoir per day. The turbine system was designed to convert the free, natural energy of the Schuylkill River into mechanical energy, which pushed the water from the river up to the reservoir.



How It Worked:

As water flowed into the Water Works, it split into two channels. One channel supplied water directly to the pump, which pushed water to the reservoir in both forward and backward motions. The other channel led to the turbine itself. Here, a fanned turbine that stood perpendicular to the ground was spun by the water and a series of gears that were connected to the pump caused the pump to move. After going through the turbine, the water was returned to the river.

Importance:

Not only did Graff create a nationally recognized mechanical engineering and architectural landmark, he also created the first source of supplied municipal water to a city in the United States. Without the use of mechanical engineering, which deals with design and manipulating the movement of objects, his project would not have been as significant to both Philadelphia and the United States as it was.