Architect Biography

Gustave Eiffel

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Period 2
The Eiffel Tower and the Statue of Liberty are two of the most magnificent metal works of all time. These immense works of art are not only dignified symbols for their countries, but they represent the national pride that each citizen must feel. For these beautiful structures we owe our gratitude to Gustave Eiffel. Not much is known about Eiffel’s early life other than that he was born in Dijon in 1832, and that he began some advanced studies at the Ecole Polytechnique in Paris in 1850 but failed examinations during his first year but subsequently enrolled at the Ecole Centrale des Arts et Manufactures, where he earned a diploma in chemical engineering, the same year that Paris hosted the first world’s Fair. Gustave began his career working in the South West of France on the great railway bridge in Bordeaux and after working on various other projects, Gustave set himself up as a “constructor” in 1864, specializing in metal structural work. Soon he became known as the “Magician of Metal” and throughout his long career he completed hundreds of structures all around the world.

In 1856 Gustave Eiffel received his first major engineering commission, the iron railway bridge over the River Garonne at Bordeaux. At only age 26, Eiffel was given total control of the project; his use of compressed air to drive the pier foundations was an early application in France of this new technology. His lifelong concern for close site supervision was also already in evidence on this project. When the bridge was completed in 1860, the workers were so grateful for Eiffel’s personal involvement that they presented him with a medal. After he established his own company on the outskirts of Paris near the end of 1866, most of Eiffel’s income came from small bridges that were usually exported to Asia and Eastern Europe. Between 1867 and 1869, along with many bridges, Gustave completed four large-scale viaducts in southern France, one in particular being the viaduct over the River Sioule.

In the 1870s Eiffel’s firm took on increasingly ambitious and demanding projects, many of them outside France. “A rare example of monumental architecture in his career was the central station in Pest (now Budapest) commissioned by the Austrian State Railways” (Matthews). This station departed
significantly from general custom in leaving a considerable portion of the metal structural elements exposed on the façade. "For the commission of the Ponte Doña Maria I, a bridge over the River Douro in Oporto, Eiffel's company prevailed over several larger competitors because, with his design making much more efficient use of materials, he could greatly underbid them" (Robertson). Eiffel, who again supervised all work on the site created the Douro Bridge, which consequently was then the largest non-suspension bridge in the world. Its design was repeated in many of Eiffel's later structures; the most significant being the Garabit railway viaduct, completed 1884, over the River Truyère south of Clermont-Ferrand.

In 1885, Gustave Eiffel started on a project, a rather large lady called the Statue of Liberty, which was to be given as a gift to the United States by the French people as a sign of international friendship. Eiffel was one of the great minds behind Lady Liberty along with Auguste Bartholdi and Richard M. Hunt. Eiffel designed the wrought-iron skeleton for the inside of the Statue of Liberty. He also supervised the raising of Liberty. He calculated how much pressure would be put on each joint and how to distribute the weight and instructed how to assemble the various pieces of the great lady to maximize the safety and life of the standing statue. Eiffel did all this very economically and his methods have not been beaten to this day. Gustave Eiffel had a unique and unheard of understanding of math and science and used his abilities to the fullest. In his lifetime and through the Statue of Liberty, he prepared the world for modern skyscrapers and structures.

Probably one of the greatest known structures Eiffel created was the one that bears his name, the Eiffel Tower. The Eiffel Tower was built for the Paris World's Fair of 1889, which honored the 100th anniversary of the French Revolution. Of the 700 proposals submitted in a design competition, Gustave Eiffel's was unanimously chosen. Construction of the great tower started on July 1, 1887. Eiffel organized his workers' schedules to perfection and the extremely careful design and construction of the tower needed no corrections. Gustave
Eiffel showed his remarkable ability in mathematics and science in the Eiffel Tower. He calculated the distance between the 2,500,000 rivets in the tower to one-tenth of a millimeter, the wind pressures at all heights so that the tower could withstand them and the curve of the base pylons so that the pulling and pushing of the wind was transformed into forces of compression so the wind would not affect the base. These methods inspired the architects and engineers of contemporary super skyscrapers such as the World Trade Center.

Along with his many engineering triumphs, Eiffel also experienced some major disappointments. The Panama Canal Company, which commissioned Eiffel to construct ten locks, fell into financial ruin in 1889. His practical plans for a low-cost underground railway system for Paris, presented in 1890, were ignored, as was his somewhat more adventurous plan of the same year for an underwater tunnel across the English Channel. In his later years Eiffel devoted himself to theoretical studies of wind resistance, meteorology and aerodynamics, frequently using the Eiffel Tower as a site for his experiments. In 1912 he established an experimental laboratory at Auteuil, where he continued to work until 1920. Gustave Eiffel finally died on December 27, 1923 in his mansion on Rue Rabelais in Paris.

Gustave Eiffel was one of the most influential architects of his time. His work revolutionized the way structures were built and led the way into modern contracting. The structures that Eiffel designed had great social, economical, and political impacts on the world and his structures are seen as works of art with a functional and practical use. His work on the Statue of Liberty, Eiffel Tower, Panama Canal, caused the name Gustave Eiffel to be remembered forever. To say that Gustave Eiffel was not only a great architect, he was also a great designer and great researcher. Much of the early studies on aerodynamics were done by Eiffel himself. Even though, Gustave had some major disappointments at the end of his career, he made up for it in his early days by providing us with such great works of art. For all of this, we must always respect and honor the name Gustave Eiffel.
Works Cited


