

Nineteenth-Century Architecture: From Technology and Industry to Gothic Revival

by Sophia



WHAT'S COVERED

This tutorial covers 19th-century architecture. By the end of this lesson, you'll be able to identify and define today's key terms, describe the historical context of 19th-century architectural design, and identify important examples of 19th-century architecture. This will be accomplished through the exploration of:

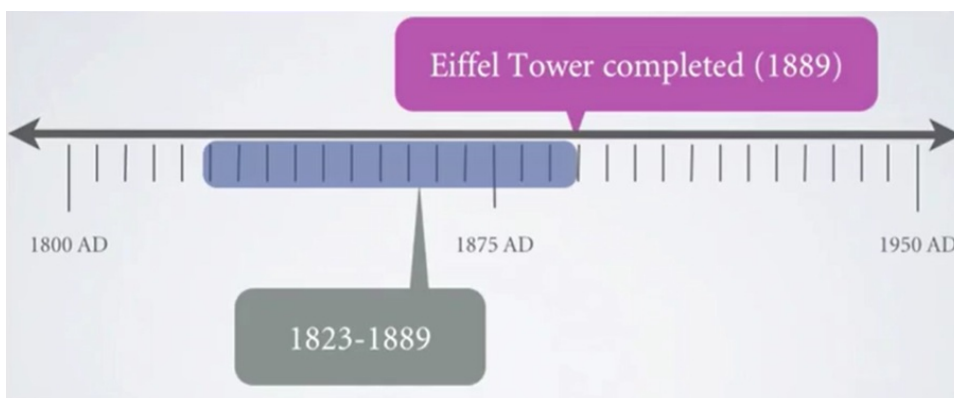


BIG IDEA

The Industrial Revolution of the 19th century correlated with important technological advances and the development of new construction methods and materials, including reinforced masonry, steel (through the Bessemer process), and prefabrication.

1. Period and Location: 19th-Century Architecture

The examples of architecture that you will be looking at today date from between 1823 and 1889, and focus geographically on four locations: London, England; Brighton, England; Paris, France; and Buffalo, New York.



2. Gothic Revival vs. Neoclassicism

The **Gothic Revival** was a response to Neoclassicism in the Industrial Revolution. It can be contrasted to

Neoclassical by its description as the antithesis of Neoclassicism. Comparing the two styles, simply put, Neoclassicism equals democracy and liberalism, while Gothic Revival equals monarchy and conservatism.

Neoclassical secularism and the influence in the Industrial Revolution was met with resistance by many people who felt the focus was being shifted away from Christian values. Gothic Revival in architecture is viewed as a response to this perceived shift, a reaction to the fear of Christian values being lost in the shuffle.



TERM TO KNOW

Gothic Revival

A style of architecture popular during the 19th century that incorporates aspects of Gothic architecture.

3. Examples of 19th-Century Architecture: Gothic Revival

3a. Houses of Parliament

One of the best examples of Gothic Revival is the Houses of Parliament, the more familiar name for the Palace of Westminster in London, England. The Houses of Parliament are analogous to America's own House of Congress. It's the governmental center of England, and the design ethic would have been an important statement on the part of the British government.



Houses of Parliament (also known as Palace of Westminster)

1840-1870

Gothic Revival

London, England

During this time, France had been experimenting—to put it lightly—with their Revolution. Britain's use of Gothic Revival implies strong ties to tradition. Here are two additional examples of Gothic Revival that you can see in London. Do you recognize either of them?



Big Ben

1859

London, England



Central lobby of House of Parliament

1840-1870

London, England

3b. Royal Pavilion

The British Royal Pavilion is an example of the design influence from British overseas territories, notably India, on the architecture and culture of 19th-century England. The Royal Pavilion was a royal residence, intended as a vacation home of sorts in the seaside city of Brighton.



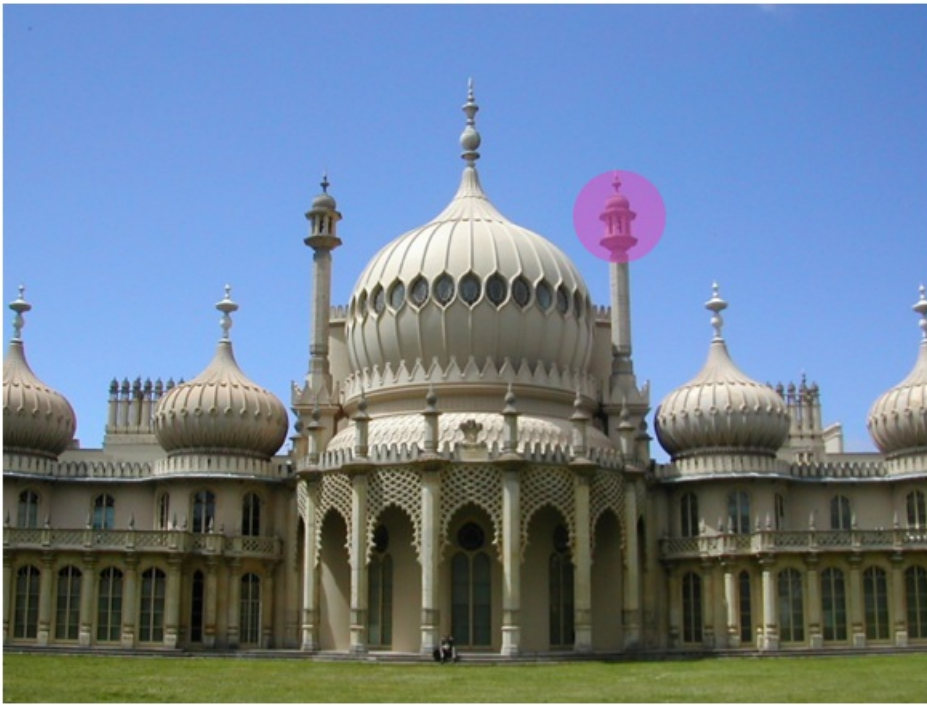
Royal Pavilion by John Nash

1787-1823

Indian Gothic

Brighton, England

The Indian influence, particularly the Mughal style of architecture, is unmistakable in its use of the onion dome, the elaborate finials, the spires, the keyhole-shaped arches, latticework, and even the inclusion of chhatra, which are the dome-shaped pavilions you can see on either side of the central dome, highlighted in the image below. Blended with aspects of the Gothic Revival, such as pointed arches and vaulted ceilings, this building represents a distinct style often referred to “Indian Gothic.”



Indian Gothic style at Royal Pavilion

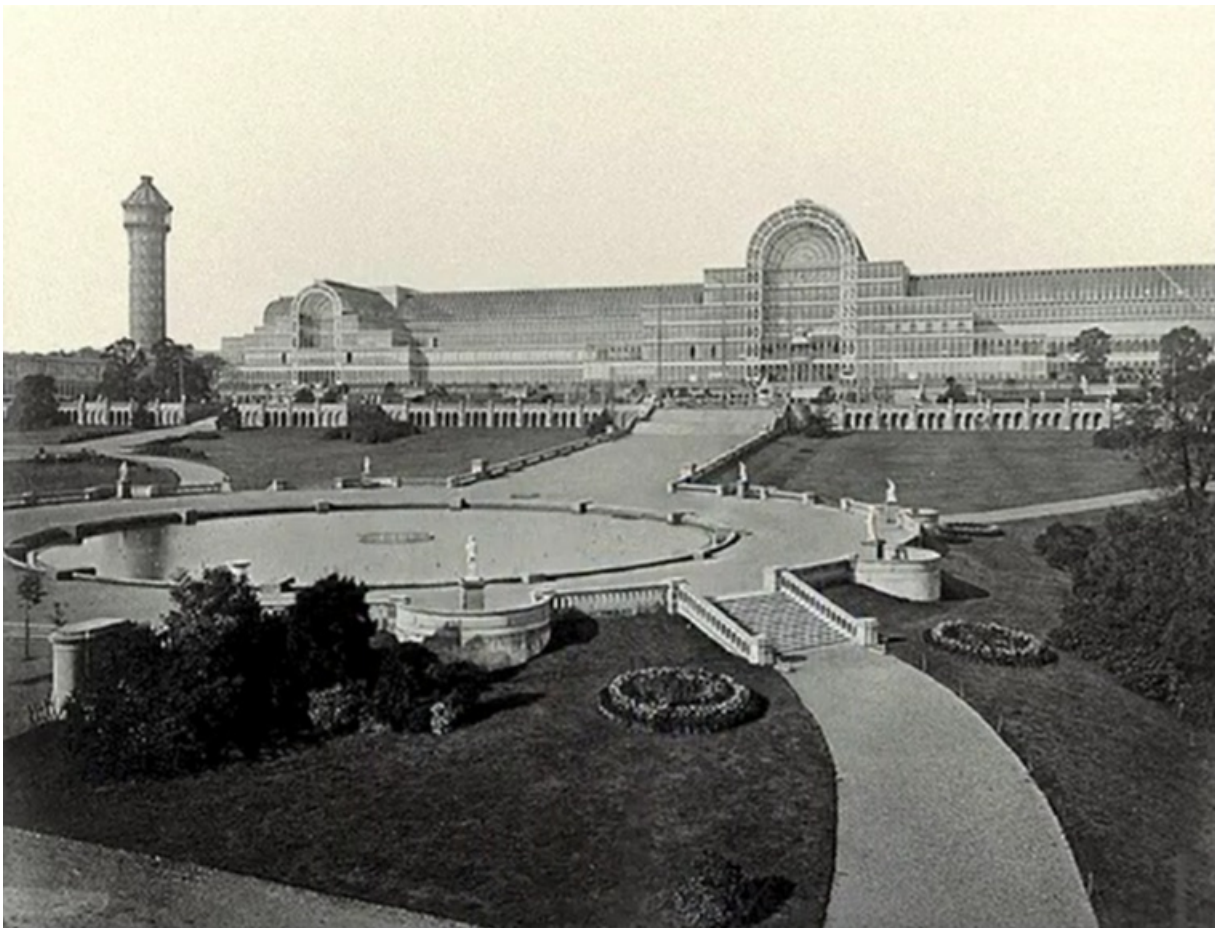
4. Examples of 19th-Century Architecture: Technological Advances

Technological innovations were rampant in the 19th century and were important catalysts of the First and Second Industrial Revolutions.

4a. Prefabrication: The Crystal Palace

One of these technological innovations was the concept of **prefabrication**, in which components of a building would be made in a factory and then assembled on-site, rather than constructed from scratch at the location.

The Crystal Palace in London, England, was one of the most impressive examples of this type of engineering. It was designed to house exhibits of the latest technology produced during the Industrial Revolution and was for a time the largest artificially enclosed space on Earth, with more than 1 million square feet of interior space.



The Crystal Palace

1851

Prefabricated construction

London, England

It made use of advances in cast glass production, and was essentially a metal and wooden skeleton that housed hundreds of panes of glass. The prefabrication allowed it to be assembled in as little as six months and disassembled on-site, which also allowed it to be moved from its original location in Hyde Park in London to the south of London, where it sadly burned down in 1936.



DID YOU KNOW

Because of the hundreds of panes of glass, the Crystal Palace required no interior lighting during the day.



TERM TO KNOW

Prefabrication

In architecture, when the elements of a building are mass-produced in a factory and then assembled at the building site.

4b. Steel Technology: Guaranty (Prudential) Building and Eiffel Tower

It's often been said that without the invention of the elevator, the skyscraper would never have existed, which is probably true. However, the same can also be said of advances in steel technology, as well as the invention of reinforced concrete, such as rebar, or metal rods, covered in concrete. These technologies allowed buildings to be relatively flexible, with a high strength-to-weight ratio, and allowed them to be built quickly

using a modular skeletal design.

One of the earliest examples is the Guaranty—now Prudential—Building in Buffalo, New York. Buffalo may seem like a strange place, at least today, for cutting edge architectural design. However, during this period, Buffalo benefited from its proximity to Niagara Falls and the steady supply of electricity generated by its hydroelectric power plants. The design of the Guaranty Building is a textbook example of form meeting function, and a precursor of the modern office building.



Guaranty (Prudential) Building by Louis Sullivan

1857

Buffalo, New York

The advances in metal fabrication production were fundamental to the Industrial Revolution. The Bessemer process, which is the process for producing cheaper steel, developed in the mid-1800s as a way to lower the production costs of making steel. Up until this time, wrought iron was the preferred metal for construction purposes, and its popularity continued for decades until it was almost completely replaced by the availability of cheap steel.

The Eiffel Tower is an example of puddled iron construction, which is a form of wrought iron.



Eiffel Tower by Stephen Sauvestre (architect) and Maurice Koechlin & Émile Nougier (structural engineers)

1887-1889

Paris, France



DID YOU KNOW

The Eiffel Tower is also a wonderful example of modular construction. It was constructed in very much the same way as a large-scale Tinkertoy or Erector set. Parts were prefabricated, brought on site, and bolted together.



Eiffel Tower structure

It was a process in which Gustave Eiffel was well versed. It was his engineering firm that conceived of and built the tower that bears his name—although prevailing wisdom states that he had very little, if anything, to do with its overall design. He had gained considerable renown for numerous large-scale projects, including his contributions to the armature design for the Statue of Liberty.



Statue of Liberty

1886

New York City, New York

Eiffel's firm was then granted permission to build the Eiffel Tower, which was used as a symbol of science and industry at the Universal Exposition of 1889. Originally met with outright contempt from numerous critics for supposed ugliness, it's ironic that it's now arguably the symbol most closely associated with Paris, France.



Paris at night



SUMMARY

Today you learned about **19th-century architecture**. You learned how to identify and define today's key terms, and learned the differences between the **Neoclassical** and **Gothic Revival** styles. You also learned how to describe the historical context of 19th-century architectural design, exploring **examples of Gothic Revival architecture**, as well as **examples of architecture impacted by technological advances**, such as **prefabrication** and **steel technology**.

Source: This work is adapted from Sophia author Ian McConnell.



TERMS TO KNOW

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Prefabrication

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