Course 6: Rationalism and the utopian visionaries of the 18th Century

Introduction:

Rationalism in architecture has its origins in antiquity, notably in the work of Vitruvius. In the 18th century, this thinking was disseminated by utopian visionaries who profoundly influenced architecture by integrating new ideas, uniting reason and architecture to produce ideal conceptions of society, buildings, and the city. Among the leading figures of this period are the teachings of Blondel and the visionary theories of Boullée and Ledoux.

I. General overview:

a. Utopia:

-According to the Larousse dictionary:

from **Utopia***,* a term coined by Thomas More, from the **Greek:**

Ou*,* meaning not, and **topos***,* meaning place.

- An imaginary and rigorous construction of a society that represents, for its creator, either an ideal or a counter-ideal.

- The concept *Utopia* (1516) was developed by **Thomas More**[1], who described an ideal society marked by equality and justice while critiquing the inequalities of his time.

b. The utopian:

A utopian is an architect or urban planner who conceives ideal, often audacious visions in order to rethink living spaces and transform society. According to Michel Ragon, utopians were precursors of modern urban planning, as they proposed concrete projects aimed at transforming society, the city, and housing in order to improve the lives of inhabitants.

c. Rationalism:

-According to the Robert dictionary:

A doctrine according to which all certain knowledge derives from reason (as opposed to *empiricism*). The rationalism of Descartes.

II-Rationalism:

II.1-From a philosophical standpoint, rationalism refers to « **the reason** » in order to arrive at the **truth**. It rejects random, religious, mythical, and imaginary modes of thought. According to this movement, however, understanding our world comes down to a logic, a causality, and clearly defined rules. In this section, experience and chance are set aside from this thinking.

This doctrine has been put forward by philosophers since antiquity, such as Plato. René Descartes is regarded as the father of modern rationalism, and others may also be cited, for example Emmanuel Kant and G.W.F. Hegel.

II.2- In architecture, rationalism has been present as a mode of thought since antiquity, in the work of Vitruvius , De architectura. This doctrine returned in the 17th century, when it was developed in the

[1] Thomas More (1478-1535) : English humanist and statesman.

treatises of the Renaissance. By the middle of the eighteenth century, it took on a new form: « the architectural rationalist movement ». During the period of the Enlightenment[2], this movement became neoclassicism (the Louis XVI style).

II.3- René Descartes and the rationalism:

Rationalism could be applied to the design of cities by promoting a logical and orderly organization founded on principles of harmony and symmetry. Cities would then be structured around geometric layouts, with clearly defined axes and spaces arranged methodically, following an approach inspired by mathematical methods (the morphology of medieval cities obeys no scientific logic: their irregular, fragmented structure results from an empirical, gradual evolution over time.)

III- Origins and factors of rationalism in architecture, 17th–18th centuries:

Rationalism in architecture applies principles inherited from classical antiquity, such as clarity, simplicity, functionality, and order. In fact, building design follows an approach grounded in reason and logic. Several factors contributed to the emergence of this way of thinking in the 17th–18th centuries; the following may be cited:

III.1- The philosophical rationalism of René Descartes[3] :

For him, truth is attained through rigorous deduction and the application of clear and distinct principles. This thinking was adopted by theorists and architects in the urban and architectural domain, who applied it as a set of strict rules.

III.2- The scientific revolution:

Scientists such as Johannes Kepler and Isaac Newton demonstrated that a methodical approach, based on observation and experimentation, could produce precise and coherent results.

III.3- A return to the models of antiquity:

The rediscovery of Greco-Roman architecture, regarded as rational:

-The discovery of Greece: the ruins of Greek monuments (for example: the temple of Theseus in Athens). The Roman heritage: the temple of Jupiter Tonans (1748), the excavations at Herculaneum (1738) and Pompeii (1748).

III.4- The Dissemination of treatises and architectural knowledge: this enabled the spread of rationalist ideas, including:

-Palladio's treatises: the most famous is the **four books of architecture**, 1570.

- Jean-Louis de Cordemoy : new essays on architecture, 1706.

-Jacques-François Blondel : course of Architecture, treatise on decoration.

-Jacques-Raymond Lucotte: the art of masonry, 1783.

-Giovanni Battista Piranesi: Roman antiquities, 1756, on the magnificence and architecture of the Romans, 1761)

[2] The age of enlightenment refers to an intellectual and cultural movement that emerged in Europe during the 17th and 18th centuries.

[3] He was a philosopher, mathematician, and French scientist (1596-1650), regarded as the father of modern rationalism.

III.5- The Age of Enlightenment :

The Age of Enlightenment marked a period of profound **transformations** in **Europe**, affecting various philosophical, intellectual, and cultural aspects. Philosophers such as Voltaire, Rousseau, Montesquieu, and Diderot criticized traditional institutions and championed **reason**, **liberty**, and **knowledge** as means of combating ignorance and obscurantism.

This movement exerted a notable influence on architecture, incorporating concepts of **rationalism** and **humanism**.

IV- Rationalism in France: the teaching of Blondel and Cordemoy:

IV.1- Jean-Louis de Cordemoy (1655–1714) :

Cordemoy was a historian and theorist of architecture. He is known for his treatise "***new essays on architecture***", published in 1706.

Indeed, Cordemoy played a key role in the evolution of french architecture toward a more rational, functional, and minimalist aesthetic—forward-looking ideas for his time. His work and writings emphasized values such as proportion, simplicity, and functionality, marking a break with the excessive ornamentation of the baroque.

IV.2- Jacques-François Blondel (1705–1774):

A French architect and theorist, Blondel is known more for his writings than for his built works (writings on architecture and projects for the restoration of historic monuments).

He is famous above all for his contribution to **the teaching of architecture in France**. In training numerous architects, he placed emphasis on principles of ordonnance, proportion, and functionality, seeking to combine aesthetics and utility in urban architecture. His major work, **courses of architecture**, became an essential reference work, bringing together his clear and rational ideas and underscoring the importance of adapting buildings to their functions and their environment.

His major works:

- A comprehensive manual on classical architecture, « courses of architecture » (1771–1776).
-The Hospital of Charité in Paris.
- Houses on the Île de la cité in Paris (renovation and reorganization of several houses on this historic island).
- The entrance of Saint-Denis in Paris (restoration).
- Design of public squares: the place d'Armes in Metz.

V-The Utopian visions of Étienne-Louis Boullée and Claude-Nicolas Ledoux :

V.1- Étienne-Louis Boullée (1728-1799) :

Boullée is also regarded as one of the great visionary architects of the 18th century. In 1762, he was appointed professor at the royal academy of architecture, where he flourished more as a theorist than as a builder. He designed, primarily, public-oriented projects of various kinds: religious, funerary, domestic, military. Although these projects were largely unbuildable, they nonetheless influenced future architects, including the neoclassical movement.

-Boullée's thought : he was interested in the relationship between architecture and human emotion, believing that light exerts a decisive influence on the sensations of a building's occupants.

-His projects were often unbuildable owing to their monumental scale or the technical limitations of the period.

- His ideas paved the way for neoclassical and minimalist architecture, as well as for utopian architecture.

- Visionary projects characterized by colossal proportions, geometric purity, cosmic symbolism, and the use of light to emphasize the monumentality and spirituality of the design.

-An architecture steeped in symbolism. For example, in his project for a municipal palace, Boullée uses four pedestal-shaped sentry boxes to symbolize the law as a pillar of society (see Fig.1).

- In his famous essay **theory of bodies**, Boullée explores geometric forms and their sensory impact, attributing specific symbolic qualities to each. He places particular importance on the cube, the pyramid, and the cylinder, and regards the sphere as the ideal form.

Boullée designed grandiose utopian projects, among the most emblematic of which are :

- Project for the church of the Madeleine, between 1777 and 1781.
- Project for an opera House for the Place du Carrousel, Paris, 1781.
- Project for a national palace 1792
- Project for a municipal palace, 1792
- Project for a mint.
- Project for a royal library at Richelieu, 1785.
- Project for the cenotaph of Newton, 1784.
- Project for an Egyptian-style cenotaph, 1786.
- Project for a triumphal arch.

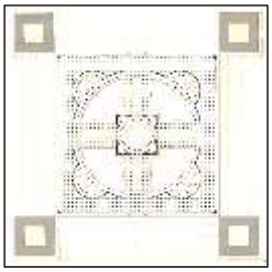


Fig.1 : Project for a municipal palace



Fig.2 : Project for the national palace



Fig.3 : Project for a triumphal arch



Fig.4 : Project for an opera house

- Project for the cenotaph of Newton, 1784:

This visionary project, dedicated to Isaac Newton, takes the form of a sphere; the interior of the cenotaph was to be a hollow globe representing the universe. To bring this simple geometric form to life, Boullée enriched it with a subtle interplay of light and shadow. He also concealed part of the building, often burying a section of the structure.

This “poetic” approach to architecture foreshadowed nineteenth-century Romanticism.

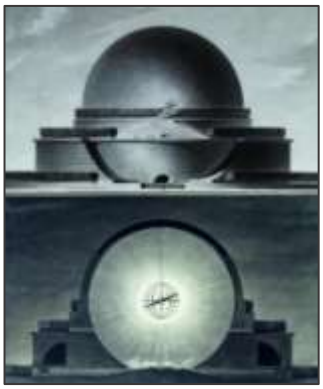


Fig.5 : Project for the Cenotaph of Newton

Project for a royal library :

Boullée designed a colossal library intended to house a vast collection of books. His plan consists of a vast vaulted hall. The immense scale of the project is dictated by the symbolism of the importance of knowledge in society. According to Boullée, grandeur can inspire a sense of reverence in those who behold it, an « *impression of intellectual grandeur* ».

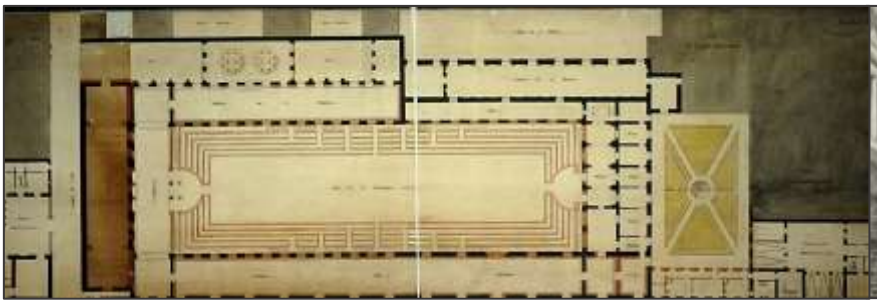


Fig.6 : Plan of the royal library project



Fig.7 : Interior view – library project

V.2- Claude-Nicolas Ledoux (1736-1806):

A visionary architect, urban planner, and utopian, he was a student of academician Jacques-François Blondel and became one of the leading figures of the neoclassical style. He is renowned for his forward-looking ideas and bold designs; his principles center on simplicity, the use of pure geometric forms, functional beauty, the absence of excessive ornamentation, and the adoption of freestanding buildings. After the revolution, the graphic structure of his final works accentuated his visionary character, embodying the theories and utopias of the period through what has come to be called the “architecture of the Revolution.”

His Works :

-The Royal saltworks of Arc-et-Senans (1775 and 1779).
- The Barriers of Paris
- The gardener's House.
- The pavillons des cercles.
- The House of Education, ideal city of Chaux (1773–1779).

The royal Saltworks of Arc-et-Senans (1775 and 1779) :

One of Ledoux's most emblematic achievements, it represents an ideal city, an « industrial utopia », commissioned by Louis XV. The project is located in Arc-et-Senans in the Doubs department; it comprises 11 buildings arranged in a semicircle around a vast central courtyard: a royal factory for salt production, workers' housing, the director's house, the guards' building, gardens, and stables.

Ledoux conceived a semicircular city based on the principle of centrality. Indeed, the director's house is built at the center, allowing surveillance of all the buildings (the idea of absolutism). This design expresses the atmosphere of the site according to the course of the sun, symmetrically arranged geometric forms,

social hierarchy, and the dialogue between man and nature. Even the decorative elements are determined by the function of the building.

The Saltworks is a vast and aesthetically ambitious project, breaking with medieval forms and drawing inspiration from Antiquity while remaining in harmony with nature. It is regarded as a precursor of modern industrial architecture, foreshadowing concepts that would be developed in the nineteenth century.



Fig.8 : Site plan of the Royal Saltworks of Arc-et-Senans

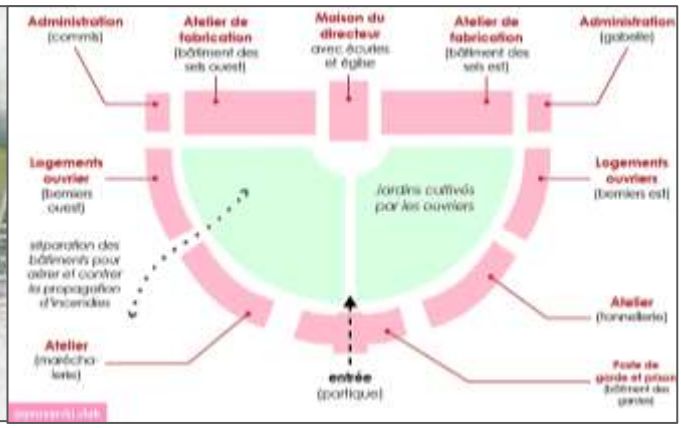


Fig.9: Composition plan of the Royal Saltworks of Arc-et-Senans

The Barriers of Paris, 1784 and 1791:

They were built to tax goods[4] entering Paris. Although built primarily for fiscal purposes, they provoked strong opposition due to their oppressive symbolism, making them an extremely unpopular measure in french history prior to the revolution. These tollgates[5], numbering 55 in total, were distributed along a wall 24 kilometers long.



Fig.10 : the rotonde of Villette



Fig.11 : the barrier of Trône



Fig.12 : the barrier of Enfer

Enlightenment century:

A **European intellectual** movement of the **17th and 18th centuries** in which ideas concerning **God**, **reason**, **nature**, and **humanity** were synthesized into a worldview that gained wide assent in the West and that instigated revolutionary developments in art, philosophy, and politics. Central to Enlightenment thought were the use and celebration of reason, the power by which humans understand the universe and improve their own condition. The goals of **rational humanity** were considered to be **knowledge**, **freedom**, and **happiness**.



Fig.13 : the barrier of Chartres

[4] King Louis XVI, together with the general fermers, who were responsible for collecting indirect taxes, decided to build these tollgates in order to optimize tax revenues.

[5] They were criticized by Parisians for their exorbitant cost. Only four of them have survived: the Barrière du Trône, the Barrière de Chartres, the Barrière d'Enfer, and the Barrière de la Villette.