

The Architecture of Antoni Gaudí

Summer Session 2020 (Online Zoom)
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Lecture 4: Equilibrated Structure (2020.07.20)

leitmotif:

Equilibrated Structure: construct in a state of balance, architectural form in harmony with weighted structure, where building forces coincide within the structural form and the whole structure is balanced with the ground to which it is tied. Distinction between supporting and supported elements dissolves, a continuous line in pursuit of an architectural synthesis of form and structure.

“Gothic building becomes expressive only in a state of ruin,
half-covered with weeds and ivy, and contemplated in moonlight or at dusk.”

parti pris:

Stereostàtic model: stereostàtic, solid and stationary weight force, mechanical calculating machine, for developing architectural form whose structure works with Nature’s gravitation, as the catenary curve of a parabolic arch, but further into asymmetric, three-dimensional, dynamic space, with a living structure as of a human skeleton with inclined, moving bones as props and levers, each adjustment of weight amount in a bag or repositioning a knot location, resulted in trembling through entire assembly, the whole affected by each point, while each point was affected by the whole, automatically and instantaneously calculated, the model a hyperconnected world, all materiality absent to focus on structural mechanics. Defining a catenary curve, profile of a free-hanging chain shaped by the natural pull of gravity, where compressive forces, lines of thrust, vital energy, are balance within the parabolic arch, in contrast to Roman or Gothic arches formed by the arc of a compass, defining the perfect circle that result in unbalanced lateral thrusts. In contrast to graphic-statics calculations of only a two-dimensional sectional plane drawn on paper.

“Being very intellectually lazy, I have rejected the procedures outlined in books.
You have asked me about certain details. I can’t tell you anything more at the moment,
as I don’t know any more myself.”

manifesto:

Park Güell Colonnade Viaduct (1900-03): Inclined trees, trunk and branches not upright perpendicular to the ground, rather oblique supports, in line with the natural forces in situ, the architectural form and structure responding and reflecting the condition. Architectural, structural and spiritual coherence.

“The tree is my master.”

architecture:

Cotton Bleaching Facility (Mataró Workers Cooperative), Antoni Gaudí (1883) Carrer Cooperativa, 47, 08302 Mataró, Barcelona, Spain.

Bodegas Güell, Antoni Gaudí (1895-99) Ctra. Barcelona a Calafell, 105-101, 08860 Sitges, Barcelona, Spain.

Casa Calvet chair & stair, Antoni Gaudí (1898-1900) Carrer de Casp, 48, 08010 Barcelona, Spain.

Stereostàtic model, Antoni Gaudí (1898-1908) Carrer de Mallorca, 401, 08013 Barcelona, Spain.

Colònia Güell Crypt, Antoni Gaudí (1908-14) Carrer Claudi Güell, 08690 La Colònia Güell, Barcelona, Spain.

Park Güell Colonnade Viaduct, Antoni Gaudí (1900-03) Carrer d'Olot, 08024 Barcelona, Spain.

Sagrada Família Bell Towers & Columns, Antoni Gaudí (1904-14 & 1922) Carrer de Mallorca, 401, 08013 Barcelona, Spain.

bibliography:

Antoni Gaudí, James Johnson Sweeney and Josep Lluís Sert (Frederick A. Praeger Publishers, New York, 1960)

Cripta de la Colonia Güell de A. Gaudí, Josep Lluís Sert (Ediciones Poligrafa, Barcelona, 1972)

Gaudi, Ignasi de Sola-Morales (Rizzoli, New York, 1984)

Antonio Gaudí: Master Architect, Juan Bassegoda Nonell (Abbeville Press Publishers, New York, 2000)

materials:

<http://www.finalmove.com/the-architecture-of-antoni-gaudi-equilibrated-structure/>

<http://www.schluiebarchitecture.com/lectures/2020/cmu/gaudi/equilibrated>



Esterestàtic model by Antoni Gaudí (1898-1908), a system of strings knotted together with weighted bags representing the structural frame of skeletal props and levers, simultaneously and automatically calculating empirically the natural catenary curve of parabolic arches and inclined supports, formed into asymmetric, three-dimensional, dynamic space.