

**Antoni Gaudí's Influence on the Contemporary Architecture of Barcelona and Bilbao**

Summer Session 2020 (Online Zoom)

Instructor: Matthew Schlieb

**Lecture 5 (2020.06.18): Bóvedas Tabicadas**

leitmotif:

**Architectural Synthesis:** assembly of parts working together as one; Catalan vaults made of multiple layers of thin bricks acting as a single continuous piece; supporting and supported distinction dissolved; materials, methods, mechanics, metaphors synthesized into a unified architecture.

manifesto:

**Bóvedas Tabicadas:** vault partition; “made by bricks placed one against the other in a flat way following the curve, so that its curve is like a thin wall (tabique ‘partition’), made of double or single bricks, ...sometimes three, never more.”

Forces nearly reduced to loads carried by the lighter material weight of thin brick; **interlocked in herringbone pattern, woven in layers of staggered joints, wide flat surfaces maximizing bond area with cohesive fast setting Plaster of Paris;** building out from corners, successive arcs of bricks fitted in adhering two edges, vaults made without scaffold centering; shallow flat profile acting as a board/partition laid flat, without lateral thrusts or external buttressing; structures shaped by flow of forces, masonry placed to follow thrust lines, in pure compression of static equilibrium without reinforcing steel; supporting tremendous loads with remarkably small amount of material, an incredibly thin profile of two or three layers.

parti pris:

**Undulating Form:** Concave vaults of compression inverted to convex **vaults of adhesion, Catalan vaults acting as a cohesive board/partition whether arched or inverted;** when undulated in succession acting as a whole creates a balanced stability, pairing the convex in opposition to the concave with the inherent structure of a sea shell, sagging between supports accentuating the visual weight of gravity; when irregular, asymmetric, curvilinear oscillation becomes an organic geometry.

architecture:

**Duomo di Firenze,** Filippo Brunelleschi (1418-36) Piazza del Duomo, 50122 Firenze FI, Italy.

**St. Paul's Chapel (spiral stair),** Rafael Guastavino (1903-07) 1160 Amsterdam Ave, New York, NY 10027.

**Boston Public Library (Catalan vaults),** Rafael Guastavino (1895) 700 Boylston St, Boston, MA 02116.

**Baker Hall (spiral stair),** Rafael Guastavino (1914) 4909 Frew St, Pittsburgh, PA 15213.

**Beyond Bending (Venice Biennale installation),** Zaha Hadid (2016) Campo de la Tana, 2169/f, 30122 Venezia VE, Italy.

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

**El Peix (Barcelona Olympics installation),** Frank Gehry (1992) Carrer de Ramon Trias Fargas, 2, 08005 Barcelona, Spain.

**Guggenheim Museum Bilbao,** Frank Gehry (1997) Abandoibarra Etorb., 2, 48009 Bilbo, Bizkaia, Spain.

**Snake (Guggenheim Museum installation),** Richard Serra (1996) Abandoibarra Etorb., 2, 48009 Bilbo, Bizkaia, Spain.

**Sagrada Família Schools,** Antoni Gaudí (1909) Carrer de Sardenya, 316, 08013 Barcelona, Spain.

**Santa Caterina Market,** EMBT (1997-2005) Av. de Francesc Cambó, 16, 08003 Barcelona, Spain.

**Bodegas Ysios Winery,** Santiago Calatrava (1998-2001) Frente a Bodegas Ysios, La Hoya Bidea, S/N, 01300, Álava, Spain.

**Sagrada Família (bell tower pinnacles),** Antoni Gaudí (1923-25) Carrer de Mallorca, 401, 08013 Barcelona, Spain.

Lecture images/videos: <http://finalmove.com/gaudis-influence-on-contemporary-architecture-bovedas-tabicadas/>

Colònia Güell Crypt virtual tour: [http://www.viewat.org/?i=en&id\\_pn=2850&map=1&pag=2&sec=pn](http://www.viewat.org/?i=en&id_pn=2850&map=1&pag=2&sec=pn)

bibliography:

Essay on the Theory and History of Cohesive Construction, R. Guastavino (Ticknor & Co., Boston, 1893)

Gaudí, Henry-Russell Hitchcock (The Museum of Modern Art, New York, 1957)

Gaudí, Le Corbusier (Fotoscop, Barcelona, 1958)

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)

La Colònia Güell, Miquel Domènech and Antonio Funes (Triangle Postals, Barcelona, 2003)

Guastavino Vaulting: The Art of Structural Tile, John Ochsendorf (Princeton Architectural Press, New York, 2010)

Immigrant Architect: Rafael Guastavino and the American Dream, Berta de Miguel (Tilbury House Publishers, Maine, 2019)



Colonia Güell Crypt Holy Water Font (1908-14) sea shell with convex vaults sagging between inclined supports.



Sagrada Familia Schools (1909) sinusoidal vault with compressive concave inverting into adhesive convex as a balanced whole.

<http://www.schluebarchitecture.com/lectures/2020/pitt/GaudiInfluences/BovedasTabicadas/>