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| Dieste, Eladio (1917-2000) |
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| The Uruguayan Engineer Eladio Dieste was trained at the School of Engineering of the University of the Republic at Montevideo, where he taught mathematics and mechanics. Approximating modernity to a vernacular register, altogether critical of internationalization, he worked with specific material, economic and social conditions, notably with the use of brick, developing innovative techniques in masonry construction that lead to the so-called ‘second revolution in masonry vaulting.’ With the firm Dieste & Montañez, that he founded in 1954, he designed sport-facilities, warehouses, horizontal silos and other industrial facilities, two churches and his own house, all examples of his most famous motto: ‘there is nothing more noble and elegant than resistance through form.’ Among other texts, he published the essays *Architecture and Construction*, *The Awareness of Form*, and *Art, People, Technocracy*, where he analyzed the intersections between architecture and engineering –on the same line used by D. P. Billington to define the idea of structural art, interpretive canon of his work– together with a rhetoric and aesthetic impulse very much molded upon a strong Jesuit tradition. |
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Billington to define the idea of structural art, interpretive canon of his work– together with a rhetoric and aesthetic impulse very much molded upon a strong Jesuit tradition.  By the early fifties Dieste embarked on a radical criticism of modernity, particularly as codified by the International Style: both against the theoretical predominance of the plane and the use of glass and steel. This twofold critique led him to experiment with non-Euclidian geometries and the use of reinforced masonry, arguing for the synchronicity of form, matter and structure as the programmatic basis of a socially engaged practice. Influences of the Catalan vault tradition and the work of Gaudí –that he knew through the avant-gardist painter Joaquín Torres García– are not hard to trace in his work. Dieste’s ‘second revolution’ brought reinforced masonry to a radically new territory by developing innovative construction techniques (e.g. pre-stressing of brickwork and the use of moveable formworks) and a novel set of structural types: self-supporting shells, double-curvature vaults –or Gaussian vaults–, ruled surfaces, folded planes, and perforated towers.  In *Architecture and Construction* and *The Awareness of Form*, Dieste discusses the relationship between form, matter and structure, stating that ‘the first principle is the consistency of what we build with the laws that govern matter in equilibrium.’ To illustrate this, it is useful to consider the complex structural solution used in the self-supporting shells, especially in the looped pre-stressing steel bars that absorbs the negative bending moments. Case in point is the Barbieri-Leggire gas station, the Sea Gull, Salto (1976), one of Dieste’s most remarkable structures: two counterbalanced wings acting as a cantilever beam. Here, the structural type is exposed at its most radical economy.  Structure and infill wall are inseparable in Dieste’s work: the wall is both structure and limit, again disarticulating one of the canonic syntaxes of modern architecture. All of Dieste’s structural types could be expressed as surfaces that through particular formal configurations adopt specific structural properties. There is no ‘form’ but folded surface, and a remarkably thin one. Both in the self-supporting shells and in the double-curvature vaults, the problem was to manage big spans without recurring to the heavy structures of traditional systems –most notably non-reinforced masonry. Economy (the use of the least possible amount of material) and structural efficiency (minimizing the impact of the intrinsic weight in the static equation) were the two central reasons to think of a solution as thin as possible. It is therefore also in that surface where Dieste’s aesthetic and expressive order emerges more clearly, being the Church of Christ the Worker, Atlántida (1952), and Saint Peter’s Church, Durazno (1967), the most significant examples. In this project, a continuous brick wall of 32 meters long (from the narthex to the presbytery) is folded backwards at the side aisles without any support. Above the access, a brick rose window ­–a truly structural and formal tour de force– invisible from the adjacent plaza, reinforces the scenographic quality of the building and confers it its ultimate singularity.  File: St.PeterInterior.jpg  Figure 1 St. Peter's Church, interior, Durazno, 1967  Source: http://www.tu-cottbus.de/projekte/uploads/pics/4\_28.jpg  Fire: St.PeterDetail.jpg  Figure 2 St. Peter's Church, detail, Durazno, 1967  Source: http://mythesisresource.tumblr.com/post/101497936812/st-peter-church-eladio-dieste  At the other end of his production, the industrial facilities of infrastructural scale, is, in addition to several projects in Uruguay, the Porto Alegre Central Market (CEASA-RS), Porto Alegre (1968-74), with architects C. M. Fayet and C. L. Araújo, and the Maintenance Hangar for the Metropolitana (today MetrôRio), Rio de Janeiro (1971-79). The Hangar comprises 310 self-carrying vaults with longitudinal spans of 20 and 23 meters and chords of 7 meters, totalizing a covered surface of nearly 50.000 square meters.  Dieste’s idea of the Universal was already at work at a theoretical level in what he termed ‘cosmic economy,’ defined in *Architecture and Construction*: ‘the things that we build must have something that we could call a cosmic economy, that is, to be in accord with the profound order of the world.’ Dieste distinguishes the ‘cosmic economy’ from the ‘financial economy,’ that he considers as merely monetary adequacy: while the latter is ‘apparently practical,’ the former is ‘profoundly practical.’ This cosmic order moves from the particular to the universal, and asserts Dieste’s search for an ontological ethics of the discipline. List of Works: 1952 Church of Christ the Worker, Atlántida, Uruguay  1961-63 Dieste House, Montevideo, Uruguay  1967 Saint Peter’s Church, Durazno, Uruguay  1968-74 Porto Alegre Central Market, Porto Alegre, Brazil (with C. M. Faget and C. L. Araújo)  1971-79 MetrôRio Maintenance Hangar, Río de Janeiro, Brazil  1976 Barbieri-Leggire Gass Station, Salto, Uruguay  1976-78 CADYL Horizontal Silo, Young, Río Negro |
| Further reading:  (A.A.V.V.)  (Anderson)  (Bonta)  (Carbonell)  (Cobas)  (Daguerre)  (Dieste)  (Pedreschi) |