

A scientific approach to the Dome of St. Peter in Rome. The expertise of three mathematicians of the Dotti's Roman Republic (1742)

1

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Abstract In 1741 the Pope Benedict XIV commissioned to three mathematicians of the Dotti's Roman Republic, Roger Joseph Boscovich, François Jacquier and Thomas Le Seur, an expert to determine the static nature of the St. Peter Dome. In the scientific literature there are only few references on this report. It represents an important transfer from an empirical concept to a scientific approach of the structural analysis.

The report is based on an innovative principle of the New Science: the Principle of Virtual Work, published by John Bernoulli in 1725. The controversy provoked in that time among researchers by this innovative approach, still makes the analysis of this report a document of great interest for the history of engineering sciences. Starting from this basis, the present contribution aims to illustrate the cognitive process of the three mathematicians: «diagnosis-prognosis-therapy». The contribution analyzes the cultural context of that time and also describes the discussions provoked by the innovative proposal of the three mathematicians.

Keywords engineering of the structures, architectural restoration, scientific evolution.