

The three domes of the French Panthéon

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Abstract: The French Panthéon was built in the late XVIII century with stone masonry reinforced with iron elements (*pierre armée*). The use of this innovative technique allowed the designers to adopt slender, unprecedented shapes, which were criticized by many at that time. The early appearance of cracks during its construction ignited a debate which is still a milestone in building history, as it marks the passage from the *Art* of Building to the *Science* of Building. More specifically, the debate focused on the thrust of the domes and on the consequent load eccentricity on the pillars.

Lately, due to the fall of stone pieces from the ceilings, the historical documents have been read and surveys, tests and numerical models have been carried out in order to identify the structural behaviour of this majestic building and its defects and thus to find the most compatible and respectful interventions to stop the damages.

Keywords: Reinforced stone masonry (*pierre armée*), historical documents, damage survey, structural analysis, thermal effects, conservation.