

POLITECNICO DI TORINO  
SECOND SCHOOL OF ARCHITECTURE  
Master of Science in Architecture  
*Honors theses*

---

**Alessandro Antonelli's constructive techniques. Comparison between the Saint Gaudenzio Dome of Novara and the Mole Antonelliana of Turin**

by Sabrina Fassi

Tutor: Annalisa Dameri



The Dome of the Saint Gaudenzio Basilica of Novara  
(Sabrina Fassi)

The present research work proposes as objective the surveying of the Saint Gaudenzio Basilica of Novara and the Mole Antonelliana of Turin, works by the architect Alessandro Antonelli of Novara. The thesis describes the building techniques devised and employed by the architect by comparing the two kinds of architecture in order to understand the typological progress and architectonic contribution brought into the Piedmontese constructive tradition of the 19<sup>th</sup> century – a century also marked by the development of iron technology.

The choice of the two study cases has been made based on affinities found in terms of project paternity, contemporaneity of realization, geographic proximity and destination of use. In fact, they are both religious buildings, the first being the completion of a Christian Church dedicated to the city's Patron Saint and the second a place of cult for Turin's Israelite Community.

Both were built in the Piedmont area during the second half of the 19<sup>th</sup> century and were object of heated arguments and frequent opposition since their structure was never entirely understood; however they are currently considered the symbol of the cities in which they reside.

The research work focused on specific issues that are dealt with in the chapters herein and are based on the fundamental and in depth study of the aspects determining the technological and structural choices.

The first part is aimed at comparing the structural organism of the two works by understanding the degree of knowledge, awareness and forecasting ability of the scientific theories developed up to the first half of the century, and if these in some measure, also contributed and supported the design, or if they were preceded by Antonelli's static conception.

Then follows a specific analysis of the recurrent and exclusive architectonic elements of the two buildings in an attempt to understand and explain the constructive system. This chapter is the result of information drawn from the reference texts listed in the bibliography and of personal surveys carried out from May 2004 to December 2005. Antonelli's position toward the constructive tradition as non passive acceptance or aprioristic refusal has been highlighted in this chapter: every building technique and architectonic element is re-evaluated by the architect until they find their own static and functional justification. Antonelli's work emphasises in particular the concept of functionality which is the leading criterion for the design reason for appraisal.



The impost arches of the dome of Novara, a complex, daring and brilliant solution to transfer loads to the below pylons (Sabrina Fassi)



Two examples of the most important architectonic and constructive techniques: the “funnel vault” or “fungus vault”, perfectly adaptable to the “Antonelli’s system”, and stone put into the brick wall (Sabrina Fassi)

Subsequently considered are the materials mainly used in construction, the relevant places of origin and the supply methods according to the technologies used in the 19<sup>th</sup> century.

A careful description has been carried out on the working methods of the materials, locating the places in which this happened, and the methods of transport to the storage locations.

Moreover emphasis on the attention paid and expected by Antonelli on the preparation, the working and the laying of the employed materials, rigorously selected in terms of quality.

The second part is relative to the building yard organisation, to its management, and to the main players of that coordination, inquiring on how much weight the figure of the architect had in the direction of the jobs and on the position of skilled workers and executors.

Finally there is a description of the machinery, the equipment and the instruments used in the construction of the temporary works, and the execution of the masonries. The last section explains the representation methods of the projects, according to Antonelli's graphical school, and the importance of the design associated to shapes, models and marquetry, as references and communication instruments of the project to executors and customers.

For further information, e-mail:

Sabrina Fassi: [sabrina.fassi@yahoo.it](mailto:sabrina.fassi@yahoo.it)