

POLYTECHNIC OF TORINO
FACULTY OF ARCHITECTURE
Degree in Architecture
Honors theses

A study of tipycal structure of salento's fortified "masserie"

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The purpose of this thesis is to deal with the complex problem of the structural salvaging of the particular rural buildings, large farm houses known as the "MASSERIE". Two typical examples were analysed, from which similar ruins were then compared.

The period of maximum expansion of Byzantine-Hellenism and its political and civil organization, can be taken as a starting point for considering the rural habitat of the Otranto region. The appearance of the rural landscape was marked by defensive towers and fortified villages in which nuclei of peasant families would settle, their position in relation to each other determined by the particular geomorphology of the land.

The Norman's policy of centralization instigated the decline of fortified "Masserie", and fortification became symbolic of patronal strength. It was the Aragon Dynasty which adopted a true fortification policy to protect the farms' families and food supplies. Only later did these fortified centres transform themselves into agricultural associations with a socio-economic appearance relevant to the territory.

The "Salentine Masseria" did not develop only as a business group, but as a social group dependent on a body of command or a dominion with its own administration. From 700 to 900 A.D., the people of the "Masserie" embarked on a part of silence and complete isolation.



Masseria Manieri D'Arneo

On examination of geometric surveys, photographs and analyses of the remains, the "Masserie" were found to consist of the "**Masseria Manieri d'Arneo**" and the "**Masseria Filippi**".



Masseria Filippi

The former was analysed as a base for the study and the second as a means of comparison. The analysis illustrates their main characteristics and examines a particular and recurring type of vault: the "leccese vault". This singular typology of Gothic derivation, little known as it is limited exclusively to the regions of Lecce and Brindisi, takes the shape of a "*volta a spigoli*" or arris-shaped vault (more diffuse), a "*volta a squadra*" or square-shaped vault, and a "*volta mista*" or mixed-shaped vault (more complex).

The leccese vault is made up of four cross-nails which form the shape of the star, covered by part of the "*volta a vela*" or sail-shaped vault.



Interior: Masseria Manieri D'Arneo. "Leccese" vaults

The stability inspection, conducted on an "arris" and "mixed" shaped vault at "Masseria Manieri d'Arneo", was carried out using the *Mery Method*. This is useful for identifying the static canals defined by the effect of weight on these arced structures. Before dealing with such analyses, the general characteristics of the decay of the calcareous stone, the principal material used in the construction of the Salentine "masserie", have been presented.

The final part of the thesis deals with hypotheses of strengthening intervention. Establishing the safety conditions of the buildings and studies, various parts of the ruins were examined and catalogued according to their genre and relative importance. In the majority of cases, the verified tensions fall within permissible limits, which may lead one to hypothesise that the level of the structure's decay, at times very advanced, does not depend on the relationship between load-dimension, but rather on a reduction of primary resistance in the crumbling materials.

The two farm complexes have structures which, although distributed differently, are still structurally similar, and hence a comparison can be drawn between the ruins and the problems that they face.

In general, the strengthening hypotheses that have been chosen, whilst looking to keep the original structural logic of the building intact, are: decreasing the humidity; injection of malt; insertion of electrically-welded trellis and connecting rods; reinforcement of architraves and regeneration of the walling in some of the more decayed sections.