



Land coral: Mediterranean stone architecture - Implications for Sustainability

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Most ordinary buildings in the world use wooden beams to sustain the roof. Domed roofs, which use only stone, are more expensive and so are usually reserved for large buildings, cathedrals and the like. But wood may be so rare and expensive in some areas that stone domes are the only possible kind of roof. One such area is Apulia, in Southern Italy, where we can still find the kind of ancient Mediterranean building called the "trullo" (pl. "trulli"). The picture (made by the author) shows the central area of Alberobello, the only town in the world showing such a concentration of trulli. It looks like an accretion of limestone, a man-made land coral.

A *trullo* is something that you can't ignore. The first time you see one, from a distance, it looks slender, elegant, even cute. With its conical roof, its round shape, it reminds you of Tolkien's Middle Earth, it looks like a place where hobbits could live. But, as you get close, you see that the trullo was never meant to be cute - it was never made for hobbits to live in. It is a huge mass of stone: thick walls, heavy roof. A trullo is a functional - even brutal - kind of architecture for an arid place where trees are rare. It uses only stone; no wood whatsoever. And if you have no beams to hold the roof, there are big limits to what you can do on a small budget. A trullo was meant as a place where peasants would live and they couldn't afford the domed architecture of cathedrals. A trullo must be small, otherwise the stone walls holding the dome would have to be truly gigantic. That is also the reason why it is round; to save material.

You can make larger inner spaces by connecting several domes together, but the inside remains cramped. And also dark; the trullo has a door because there must be one, but windows would weaken the structure and so there aren't any or, at best, very small ones. That surely created problems of ventilation. Living in a trullo can't have been exactly the top in terms of comfort, at

least the way we intend it today. But the thermal inertia of the thick walls offered to dwellers a degree of thermal comfort, winter and summer, that was impossible to obtain without air-conditioned and central heating. The limited space was not such a terrible limitation since, in a Mediterranean climate, you are supposed to live outside for most of the time and you'll go inside only at night and - in summer - to escape the heat of the day. A trullo is sturdy, cheap, practical and very well suited to hot climates.

So, even with all these limits, the trullo is a fascinating kind of architecture. In Apulia, it blends with the landscape in a way that no modern building can; it is a sort of land coral; an accretion of limestone that seem to have been there from the beginning of time. Those *trulli* still existing in Southern Italy are very popular. Few people remain who can make new ones, but the old ones are carefully maintained and are prized property; owned by proud residents and often rented to tourists. Today, some trulli are heated by natural gas, but the fascination of living in one remains.



Thick stone walls are a characteristic of traditional Mediterranean architecture and in ancient times there existed many kinds of stone buildings; the Sardinian "nuraghi" are an example. Sometimes, this kind of building goes under the Greek name of "tholos" (pl. "tholoi"). But the peculiarity of the Apulian trulli is that they are still inhabited - whereas all the others are ruins. So, one of the reasons of the fascination with the trullo comes from imagining a kind of life that today we have completely forgotten. It comes with the idea of an intelligent adaptation to what the territory can offer: limited resources, limited energy, limited everything. Sustainability, in short. But the fact that the ancient Apulians were able to adapt in such an intelligent way to their environment doesn't mean that their way of life was sustainable. Trees had not been lacking in the area; it was human activity that had destroyed them. The very name of the main city in the region, "Alberobello," comes from the Latin words "*silva arboris belli*" which stand for "the forest of the battle". There were forests, there, long ago. Now, they are mostly gone.

Agriculture is far from being a sustainable activity. It involves deforestation and it slowly destroys the fertile soil. With time, people run out of trees and have to think of how to remove the stones that erosion has uncovered. The result are those stone structures that are so common in areas where the soil has been eroded: stone building and stone walls criss-crossing the land. These structures are typical of arid Mediterranean countries, but you can see them also in South-Western Ireland, where there exists the same problem with erosion. In Apulia, indeed, you have not just stone buildings and stone walls, but also piles of stone, so common that they have a specific name (*specchia*). All ways of getting rid of too many stones.

Today, cheap artificial fertilizers (made from fossil fuels) have given new life to the badly overexploited Apulian land. Cheap fossil fuels have made possible to build concrete buildings, to

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heat them with central heating and to cool them with air conditioning. But the fact that today grain is cultivated in the Trulli valley doesn't mean that erosion is gone. And the fact that you can turn on the air conditioning when it is too hot, doesn't mean that the problem of sustainability is gone.

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