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Traditional Dwellings and Settlements

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## REPRESENTING IDENTITY IN THE BUILT ENVIRONMENT

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**THE RECONSTRUCTION OF TRADITIONAL  
ARCHITECTURE ON SANTORINI ISLAND**

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## THE RECONSTRUCTION OF TRADITIONAL ARCHITECTURE ON SANTORINI ISLAND



*In the era of the network society and globalization, the development of vernacular architectural values for housing in rural areas appears as an aesthetic choice. Is it that the urban fluctuations need the rural's architectural model for regional development or is it just the consumption of tradition?*

*The existing architectural morphology of Santorini island was destroyed by an earthquake fifty years ago. Presently, it is clearly perceived as a neo-vernacular built environment developed simultaneously and as consequence of tourism.*

*The differentiating architectural element in of Santorini's architecture is the vaulted roof of dwellings that resulted from their subterranean typology. The historical analysis proved that the vaulted roof pattern in the extent and uses that dominates today prevailed after the 1956 earthquake. Is this case is a metaphor of the evolutionary theory theme where foundations persist but the upper structure is reconstructed in a new morphology.*

### INTRODUCTION

In the context of the growing movement based on the belief that a return to traditional patterns is essential for functional and sustainable design of the new global society,<sup>1</sup> the study of the evolution of an existing traditional architectural environment and especially of the dominant architectural element of roof pattern of settlements becomes once more current.

In the case of Santorini, the structural architectural pattern was regenerated<sup>2</sup> during the last 50 years, due to an earthquake. New dwelling programs have been introduced while tourism created new facilities, functions and uses.

The raised question deals with the topic of architectural heritage or manufacture of heritage in an environment where earthquakes create perceived intervals of history with different architectural elements.

The presentation of this theme follows a hermeneutic methodology where the end point is the rediscovery of the unity theme.<sup>3</sup> In the new architectural era, (re)structuring the spatial form, packaged with nostalgic references,<sup>4</sup> represents -as in the evolution of species- the historical constraints and directions that develop new forms<sup>5</sup>.

## CASE STUDY

Santorini is the southern island of the Cyclades, with a surface of 75sq. kilometers and it is part of a volcanic basin composed by three islands (Thera, Aspronisi and Therassia). They form a spectacular caldera which is the result of the submersion, after an explosion of the ancient island Strogili and it is composed by successive layers of fragments and lava. Its upper layer consists of pumice stone and a sub-white ash called "theraic earth" which in is fact a very good quality of cement.

Strong earthquakes struck the island in 1956 and marked the contemporary continuity of Santorini's architectural history, when half of the buildings were completely destroyed and a large number suffered repairable damage. The abandonment of houses was necessary, in most of the linear villages with underground dwellings along the ridge of the western precipices overlooking the crater, where the instability of the soil was responsible for the great extent of the damage.

## ROOF PATTERN EVOLUTION

The peculiarity of the easily excavated theraic earth in the caldera slopes and the bents of torrents (which protected inhabitants from strong winds) gave birth to an underground habitation pattern with vault-like spaces receiving light from small openings on a built facade (FIG.1). The vaulted spaces projecting 2-3 meters form a flat roof that serves as an outside terrace to the higher level inhabitants.

This particular excavation and the resulting underground vaulted dwelling form<sup>6</sup> was later used as a roof pattern for ground floor small cribs, storage rooms and boat husks, mostly in the ladder ports of the caldera and along the steep pathways (cald "scala") that give access to the villages.

At the beginning of the 20<sup>th</sup> century, Santorini's settlements had been photographed by the famous photographer Nelly<sup>7</sup> and the existing roof patterns were recorded (FIG.2):

- Plain
- Underground vault
- Outwardly perceptible vault
- Pitched with tiles

The appearance of settlement's "macrostructure" demonstrates the dominance of the plain roof pattern even in the underground housing areas of settlements, because the vaults in the facades are shaped on the exterior flat to form terraces and yards.

The historical analysis proved enlightening.

The oldest settlement in Santorini dates from the 2<sup>nd</sup> Millenium B.C, when a city and a port were in prosperity in the east gentle coast of the island. Today, the ruins are in a very good condition and demonstrate the existence of two floor houses with plain roof pattern used as terrace. The houses are built with volcanic and light pumice stone and are reinforced with wooden chainages proving a high level of construction technique. They are decorated with impressive frescos.<sup>8</sup>

Later, on the 9<sup>th</sup> century B.C., the small plain east of the Inner Mountain was settled and the houses were covered with plain roofs.

During the Byzantine era, until the 13<sup>th</sup> century, Santorini was inhabited on the foothill north of the Inner mountain. The initiation of vaults in order to extend the size of the one room house is present in the 19 houses that have been excavated there. The vault supports wooden frames above which plain roofs are formed.

The fortifications and the construction of six castles (castellia) and towers were the results of the Venetian duchy<sup>9</sup> occupation and were still in good shape until the beginning of the 20<sup>th</sup> century. The castles and towers had a formalized layout of ramparts and watchtowers<sup>10</sup> and were covered with plain roof (FIG.3).

During the Turk occupation 16<sup>th</sup>-19<sup>th</sup> century<sup>11</sup> the existing until 1956 pattern of settlements and architectural elements was established.

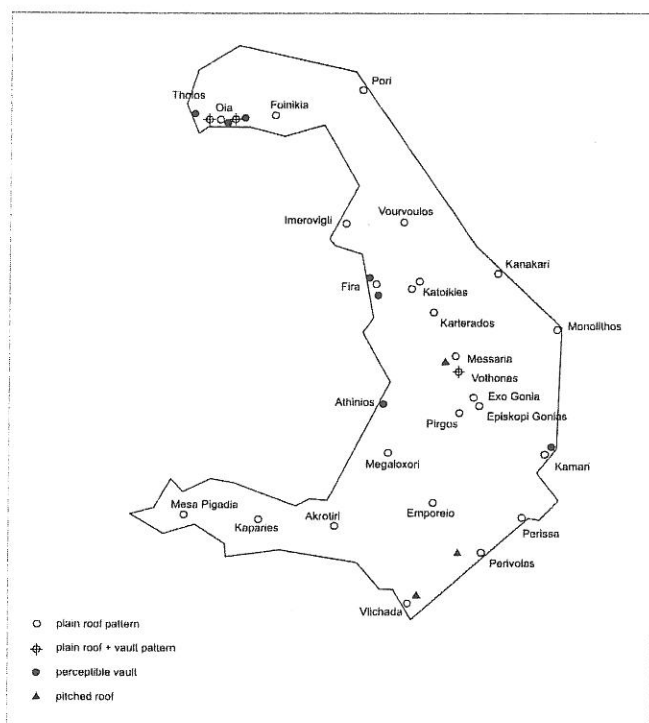
## **GEOGRAPHICAL DATA**

Today, Santorini is inhabited by 8.000 people (1991)<sup>12</sup> spread into 30 settlements. It is the second in order, concerning net density of the Cycladic islands, presenting 117 inh. per sq. kilometer. All

settlements have less than 2000 inhabitants, meaning that the population of Santorini is counted as rural. The 73% of these settlements (22 settlements) is recorded as small, meaning that the population is inferior to 500 inh., the 23,5% (7 settlements) is classified as medium, with a population between 55 and 1500 inhabitants and only 3,5% (1 settlement), is classified as big, with population between 1500 and 2000 inh.

### ROOF PATTERN DOMINANCE PER SETTLEMENT 2004 (map.1)

Source: Impression of the researcher



- Plain : Dominant in 21 settlements
- Plain /Terrace/ Underground vault: Dominant in 5 settlements
- Plain/ Perceptible vault: Dominant in new tourism buildings
- Pitched with tiles<sup>13</sup>: Dominant in the center of 3 settlement
- Perceptible vault: Dominant in 4 settlements/ports of the caldera

## CONCLUSION

The work of the reconstruction of Santorini is considerably extensive and covers various sectors of architectural activity. Besides repairs, restoration and construction of houses in the old settlements and ten cases of extension in new housing, there are renovations of churches, schools and public buildings such as museums and community centers. The attractiveness of the physical environment invites tourism. Summer houses and hotels are built all over the island (FIG.4), creating a new "traditional" environment, with neo-vernacular<sup>14</sup> architecture exaggerated in some cases as in the introduction of perceptible vaults in every hotel room.

Perceptible vaults prevailed after the earthquakes of 1956 (FIG.5), in new organized settlements with one room dwellings built for the earthquake-victims. They refused to settle and immigrated or used the dwellings as storage and later, when the tourist development occurred, as tourist shops.

In the mean time (last 50 years) every corner of the island, especially the unsafe caldera slopes, was reconstructed and continues to replenish with all kinds of sophisticated uses (swimming pools) and interpretations of the local architecture (FIG.6)

The border between architectural cultural heritage and manufactured architectural era becomes evident. The constraints of historical pathways<sup>15</sup> exist and the dynamic (external guidance) of tourism and globalisation developed a neo-vernacular environment. A future earthquake, though will destroy the upper strata of Santorini's architectural and eventually will give birth to a new architectural style translating the evolutionary theory<sup>16</sup> where foundations (FIG.7) persist but the (re)construction is unpredictable.

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<sup>1</sup> P. Virilio conceive the choice of aesthetics as the subject of nostalgic dynamics, due to the new idea of time, speed and place conceived as the centrality of real time (glocal) over the wastelands of the urban centers. 13

13. Virilio, P., *Open sky*, Verso, Paris, 1997, p.114.

<sup>2</sup> T. Mitchell verifies that in New Gurna (Egypt), local people refused to live in a manufactured environment of a new vernacular style, one that was to become internationally famous for announcing the rejection of western modernism and seeking to re-appropriate the styles and materials of a local heritage, in the Chapter 8 titled *Making the Nation: The politics of heritage in Egypt*, 1

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<sup>7</sup> The photographs of Nelly show the architectural heritage of Santorini. 7  
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6. Danezis, I. M.,(ed.), Santorini, Adam Press, Athens, 2002, p.287
- <sup>12</sup> N. S. O., (ed), Population census 1991.
- <sup>13</sup> Industrial buildings constructed at the beginning of 20<sup>th</sup> century.
- <sup>14</sup> Terminology used by the English Neo-vernacular School by the end of 19<sup>th</sup> century.
- <sup>15</sup> Environment (geological, organic, linguistic) creates the structures that history formulates, explain M. De Landa, 2
2. De Landa, M., A thousand years of non linear history, Swerde, London, 2000, p. 15
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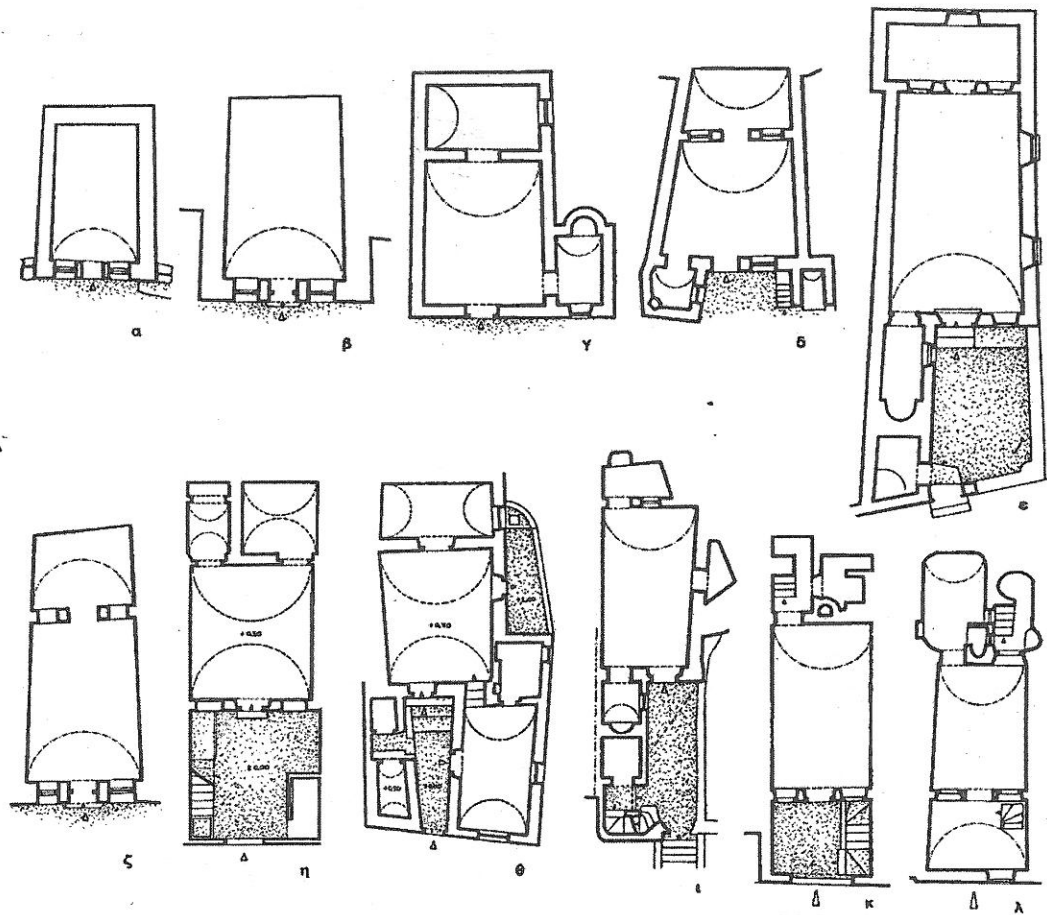


FIG. 1 UNDERGROUND HABITATION PATTERN WITH VAULT LIKE SPACES  
 Source: Papaioannou, K., The traditional house in Aegean Sea, p. 143.



FIG. 2 Ia and Amoudi at the beginning of 20<sup>th</sup> century.

*Source:* Nelly's, Santorini, Archive of Santorian studies, Athens, 1987, p.21.



FIG. 3 ACROTIRI, 1945.

*Source:* Photograph of S. Malicopoulos (Archive of the Benaki museum)



FIG. 4 New “traditional” environment.  
*Source:* Photographed by the researcher, 2004.





FIG. 5 Ruins after earthquake, 1956.

*Source:* Archive of the architect C. Theodorakis



FIG. 6 Manufacture of heritage?  
*Source:* Photographed by the researcher, 2004.

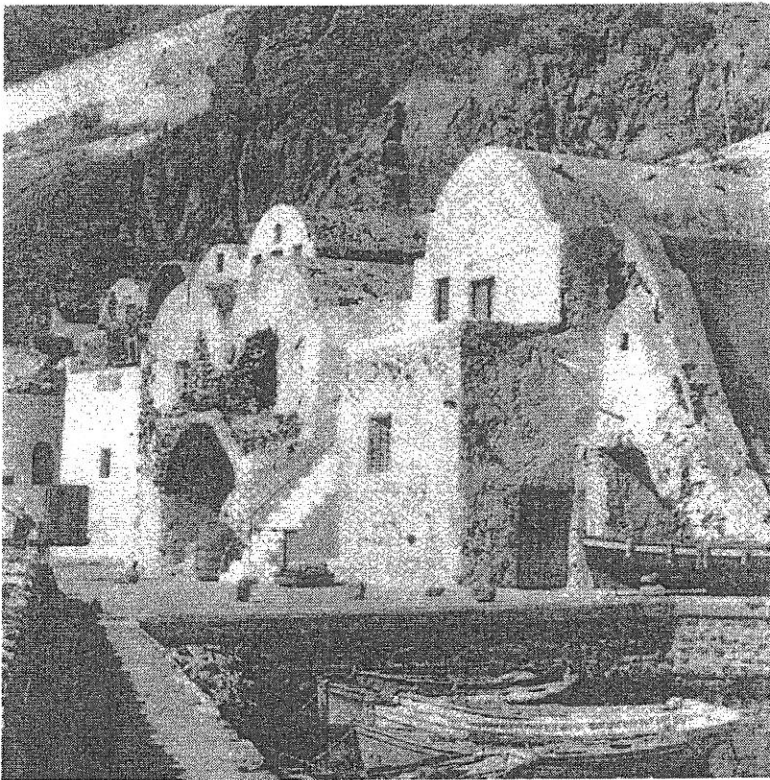


FIG. 7 Traditional vaulted houses in the ports of caldera.

Source: Kitsikis, A., (ed.), *Rebuilding of Santorini*, Architectoniki Review, no 46, Athens, 1964, p.27.