

The city shape and its natural context

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INTRODUCTION

The subject of the present work is the study of the relationship between the city's shape and its natural context. The 'design' of cities over a territory doesn't happen independently of its natural context. The surface of the land has already its own form which determines the pattern of many cities. The climate characteristics also suggest different sites and forms of occupation.

As a result of these constraints, man has made beautiful and sustainable urban landscapes over the time, especially those non-planned cities, called organic, generated, vernacular, spontaneous or geomorphic. Many of them, like the Mediterranean cities, have so strongly accepted the natural features, that it is possible to identify urban patterns according to its natural environment.

The study of the urban form is associated to the idea of rational planning and the production of a model. The territory, as the base for our activities, has been seen many times as an element which generates irregularity to the urban form.

The objective of the proposed paper is to show the relationship between the structural quality of the Portuguese traditional cities and its natural context. Starting from this point we try to explain the genesis and growth of urban forms, especially those called organic or geomorphic.

THE NATURAL CONTEXT AND THE URBAN FORM

The territory and its natural features (topography, climate, etc.) are determinant for the configuration of the city. For example, in the middle of slope, or at the ridge of a mountain occurs a natural concentration of settlements.

For understanding the genesis and form of these spaces is necessary to know the elements of urbanization of the territory. The paths, or the division of the land, which generates the urban matrix are examples of

structures produced by man that are closely related with the natural environment.

In this way the natural pre-existences participate in the shape of the urban form by producing a relationship between territorial typology and urban typology.

THE PATHS AND THE URBANIZATION OF THE TERRITORY

The paths are the most important elements in the urbanization of the territory. The roads which cross a continent or the link between two settlements are the first structure created by man. Each building or groups of buildings are linked by paths, and the paths are always the antecedents of any urban structure.

The relationship between paths and the topography seems to be obvious: crossing the less distance with minimum effort. In this way, itineraries should be traced along the ridge lines, valley lines or parallels to the contour lines. This typology is more efficient in regions where the topography is extremely accentuated.

The path works as a guide line for the structure of the settlement. They are the first step for the construction of the city. The accessibility it's vital for its growing or death. Being paths a collective space they function as the most stable structure over a territory.

PORTUGUESE URBAN SITES: A TYPOLOGY FOR THE ISLAND OF AÇORES

At Island of Açores the settlements are frequently conditioned by the topography and climate. The majority of the urban settlements are on the coast, next to the sea, where they can achieve the bioclimatic comfort.

The follow classification gives us an overview of the existent urban sites and their morphology. Despite the location of the islands at the Atlantic sea they present many Mediterranean characteristics.

Coast promontory settlement:

Generally the ridge lines and promontories are the first places to be settled in a territory. This happened by motives of defence, bioclimatic comfort or accessibility.

Figure 1 shows the settlement of Vila do Porto located on a promontory site at the island of Santa Maria. The urban form is linear and shaped by the land available on the top between two profound valleys. The main street is the spine of the urban structure and is developed through the ridge line, perpendicular to the sea coast. This street was constructed over an old ridge path which guarantees the accessibility to the interior of the island. Parallel and perpendicular streets are developed to the main street. The centre of the promontory tends to be the centre of the system through the location of the plaza and the church.

Mouth of the river settlement:

Valley lines are so important for the establishment of paths over the territory as the ridge lines. But the bottom of the valleys is less stable and defensible. The settlements are not permanent and only appear in periods of peace.

Figure 2 shows the settlement of Faial da Terra located at a bottom of a valley next to the mouth of the river at the island of São Miguel. The urban form has the same geometry as figure 1, but this time shaped by the valley line and by the land available at the river-side. Here the buildings were placed along the valley path which follows the river until the sea.

Usually the settlement and waterfront are more developed at the right side of river because of the solar exposure.

Coast upland settlement:

This topographic form is typical of volcanic islands and it is generated by the lava of the volcano in contact to the sea.

Figure 3 shows the settlement of Maia located at the North side of the island of São Miguel. The urban form is adapted to the surface of the upland and the geometry tends to be more orthogonal than any other types here mentioned. This fact happens because of the absence of territorial constrains.

Coast bay settlement:

The bay is a site which has always been very attractive to the human settlements. Usually they are important ports and centres of exchange.

Figure 4 shows the settlement of Baía de São Lourenço located at the island of Santa Maria. Bays are normally formed by two promontories at the extremes. Each promontory is associated with a small river where the settlement starts. With time, the settlements at the extremes are unified by a path parallel to the contour lines which became the main street of the urban system. According to the degree of the slope several parallel and perpendicular streets to the waterfront are settled.

THE URBAN SITE AS A CLIMATE RESPONSE

This elementary typology of urban sites set out for the islands of Açores can be divided in two main groups: elevations or salencies and depressions or recesses. Each topographic site is settled according to its microclimate conditions.

On the South side of the islands the implementation of the settlement at recesses prevails. This situation allows combining a good solar exposure in valleys and bays opened to the rotation of the sun, with a good protection of the winds from West, more frequent in the winter. For the same reason, on the North side of the islands the implementation of settlements at salencies prevails.

In both situations the orientation of the streets is North – South which allows a good orientation for the buildings (East – West) protected from the North and with good ventilation. The churches are systematically oriented East – West using the sun rise light at the sacred conception of the space.

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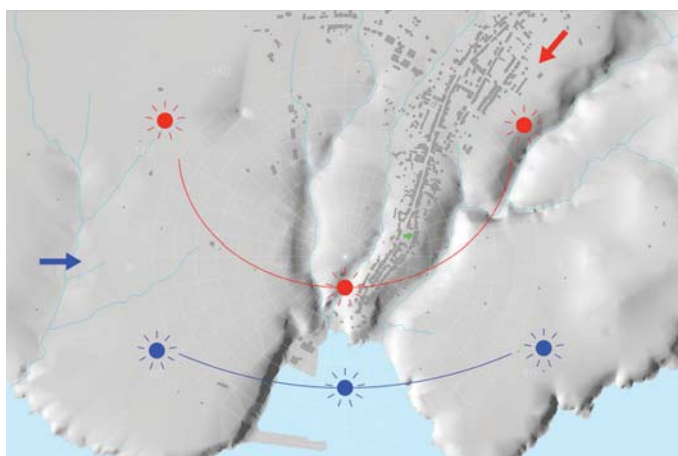


Figure 1 - Coast promontory settlement (Vila do Porto, Ilha de Santa Maria – Açores, Portugal)

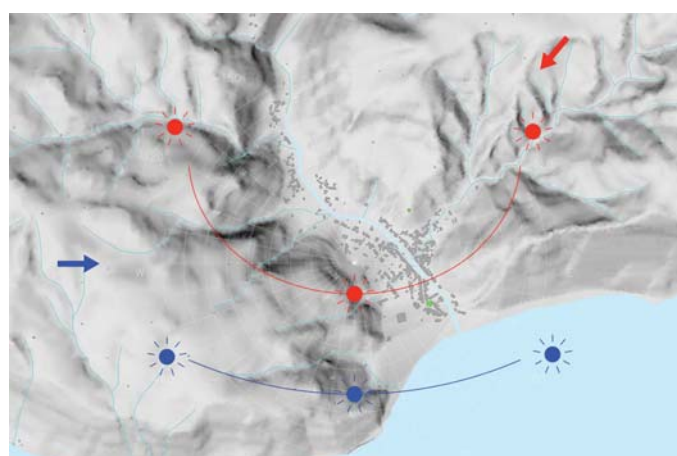


Figure 2 - Mouth of the river settlement (Faial da Terra, Ilha de São Miguel – Açores, Portugal)

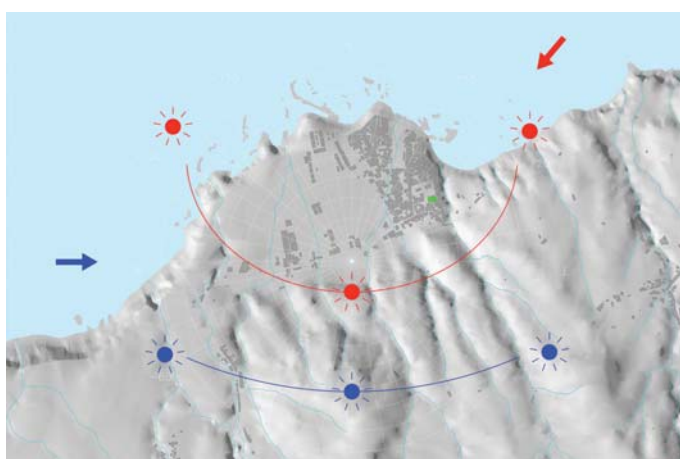


Figure 3 - Coast upland settlement (Maia, Ilha de São Miguel – Açores, Portugal)

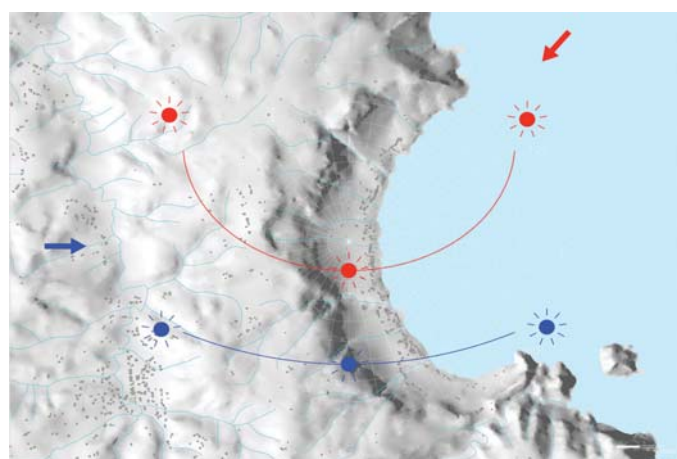


Figure 4 - Coast bay settlement (Baía de São Lourenço, Ilha de Santa Maria – Açores, Portugal)