

The Garden as a Lab

Where Cultural and Ecological systems meet
in the Mediterranean context



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Coordination

CHAIA

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MEDITERRANEAN LANDSCAPES: ON THE ECOLOGICAL AND CULTURAL FOUNDATIONS ESSENTIAL TO THE PROCESS OF LANDSCAPE TRANSFORMATION

Maria Freire³²

Introduction

Landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors (EC, 2000) – thus, it is the result of the fusion between Nature and Culture. Landscape is "(...) *a biological and organic whole in which each element that composes it, influences and is influenced by others in a cyclical movement, determined by the 'environment' and recreated by 'Man'.*" (Telles, 2002: 73). Landscape - which provides the answer to issues of utility (space for food production, resource and recreational source), symbolic (space for exaltation of the human spirit) and moral responsibility (towards Nature and Culture) – is, for this, understood as a holistic concept. It involves the interrelation of cultural (historical, social and economic), aesthetic (sensitive), ecological and ethical (moral) domains. Those which drive the landscape architect point of view are emphasized in this paper.

Our focus is on the Mediterranean landscapes. Landscapes that are a living testimony of the past and that have significant biodiversity - inspiring basis of reinvention of present landscapes and with influence to build the landscapes of the future³³. Moreover, the structure and content associated with the Mediterranean landscapes are particularly significant for Portugal, given the similarities recognized among us - declared in some particular attributes or natural influences, such as climate, geomorphology, the rareness of good soils or the covering plants, and also in other cultural attributes, such as ways of living, traditional agricultural systems, vernacular architecture or the art of gardens.

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³³ It can be confirmed, namely, in the heritage classified by UNESCO and in classified reserves and natural areas, including Natura 2000 (Europe-wide network of sites). Cf <http://whc.unesco.org/fr/carte-interactive/>
<http://maps.eea.europa.eu/EEABasicViewer/v3/index.html?appid=07661dc8a5bc446fafcfe918c91a1b1b&displaylegend=true&embed=true>

The aim of the paper is to make an approach to the characteristics and values of Mediterranean landscapes, highlighting the ecological and cultural foundations linked with the concept of landscape, in order to express guiding strategies for landscape transformation. In this sense, we begin to understand the specificities that support the identity of Mediterranean landscapes, identifying its characteristics and challenges, and to conclude it with the basis that should rule the process of landscape transformation. These are intrinsically linked with the concept of landscape - related with the values associated with natural and cultural components and with the people's perception and the values they attribute to them - expressed through unity, diversity and complexity.

Specific features of Mediterranean landscapes

The Mediterranean region is characterized by "*(...) an elongated east-west fossa between two continental masses: south Africa, with its mountain ranges and arid plateaus, with simple and heavy contours; north Europe, projecting into the sea a series of peninsulas and islands, with a fine and intricate design.*" (Ribeiro 1987: 1). Indeed, such geographical position corresponds to a region that includes hinterlands, inland seas and coastal zones, of contact between them, which receives influences and generates reciprocal relations (Fig.1).



Fig. 1. Mediterranean region (Source: Google earth; image date 10/04/2013)

In a brief reading, we can say that the Mediterranean basin is a diverse region in the landscaping point of view, with multiple landscapes, an expression of millennial coexistence between nature and human civilizations.

Among the components more significant in the Mediterranean basin are the natural characteristics relating with the presence of sea and with the combination of some natural factors (Ribeiro 1987; Drain 1998):

- A vast sea and a long coastline (winding and jagged), with peninsulas and archipelagos, gulfs and coves; and clear and warm water;
- A varied relief and also varied soils (reflecting the geological and topographic irregularities); and a long summer, hot and dry and mild winter, with low rainfall; a set of conditions that determine the existence of a rich vegetation.

Among the cultural components are the specificities linked with the different societies and ways of living. They have transformed the physical and biological support, that is, the landscape as an expression of the Men living. It includes several spatial forms, distinctively organized by human communities, and structural and morphological elements which are the result, among other things, of the different functional spaces (living space, work and meeting space, production and redistribution areas, protection and recreation), of routes (paths, roads and itineraries), division and ownership of property (public and private) and of the administrative boundaries. In this context, the historical, social and economic domains are evidenced, founded in the interaction between land use and functions, expressing the organization of society and the knowledge and values associated with landscape.

At once, the above-mentioned natural basis (physical and biological) created conditions for the development of agro-pastoral societies. These societies began the transformation of a natural space in a cultural landscape, linking the nature of the soil, the climate and the demands of production and consumption, with agricultural crops and techniques, and with other sensible needs. The transformation occurred gradually - opening glades, introducing agricultural activities, using resources, and by the construction of dwelling spaces (Fig. 2). These landscapes are distinct from others, not only in its design but also in the traditional agricultural systems, in the rhythm of agricultural work, and in the more expressive presence of some cultures and trade dynamics - landscapes with physical traces of the past and with natural structures and elements - a whole with significant biodiversity and ecological balance.

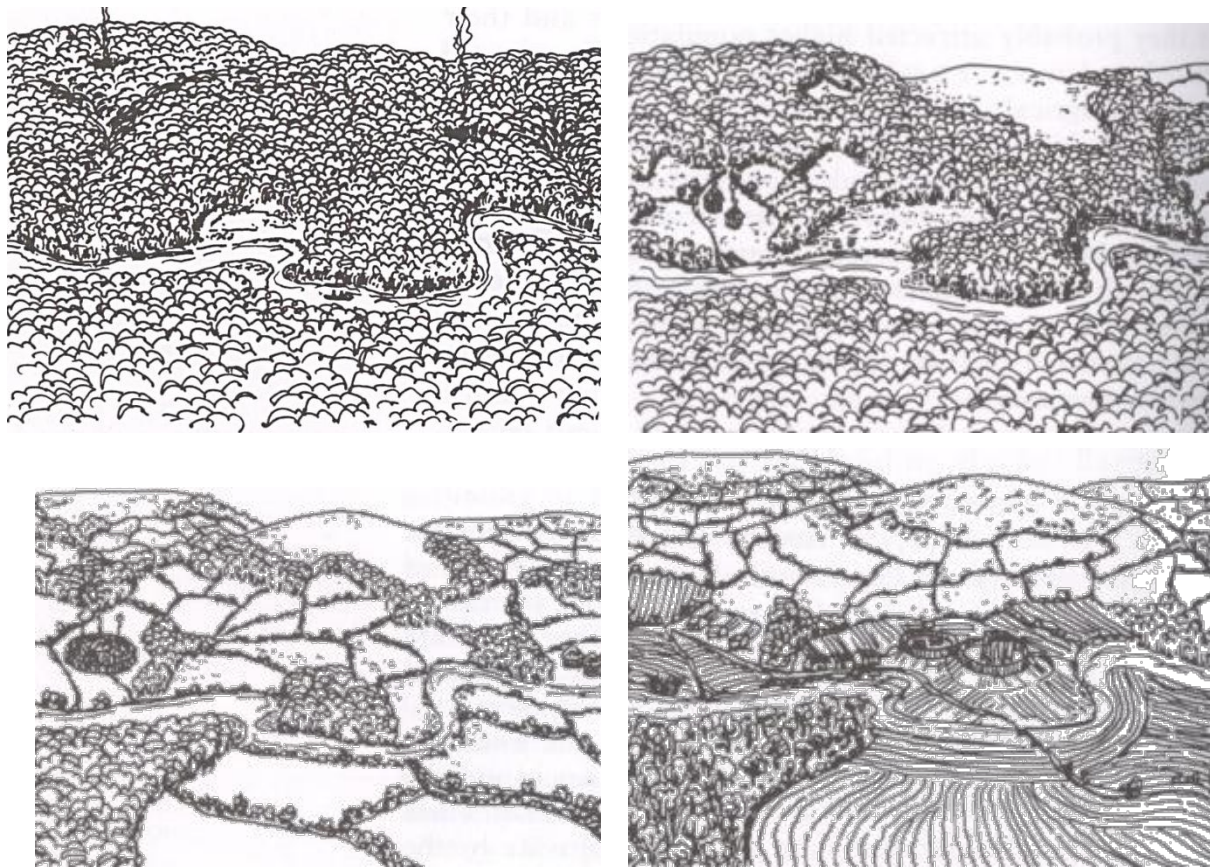


Figure 2. Drawings of landscape patterns - evolution over time (Font: Bell, 1999: 250)

The traditional landscape pattern represents a diverse and irregular grid - a puzzle of fragments with different cultures, uses and functions - drawing a structure and an organization of spaces, species and economic activities highly intricate. Gardens, orchards, uncultivated spaces, fields of grain, woodlands, cork oak woodlands³⁴, grasslands, urban areas, commercial ports, among other spaces, are mainly designed to support subsistence needs (production system), but also to social benefits (recreation) and protection functions (safeguarding the natural systems) (Fig. 3). These are accompanied with an intense and differentiated compartmentalisation (that ensures the biological balance and physical stability, performed with fencerows, hedgerows, shelterbelts, terraces, drainage channels and the water courses and roadsides) and with a land ownership that includes small and large property, and with rainfed and irrigated crops.

³⁴ 'Montados', the tradicional agro-silvo-pastoral system in the Iberian Peninsula, called 'montado' in Portugal.



Fig. 3. Photographs of mosaics of Mediterranean landscapes;from left to right, Spain (2), Cyprus (1), Italy (1), France (1) and the last three pictures, Portugal. Photos by Maria Freire and AA *et al.*, 2004.

Those more specific requirements of agricultural work result from the combination of relief conditions and limitations of soil and climate, given the varied and ancient selection of crops. In the Mediterranean context, arable lands are more limited, scattered and very demanding in maintaining its fertility, against a background of poor, thin and sloping soils, which is aggravated by the lack of water in the soil (in the great part of the year) and by torrential streams in the rainy season (conditions that promote erosion and soil degradation). The climate irregularities cause many problems and few benefits, particularly associated with floods and drought, declared in the removal and reuse of sludge and sediments and oblige an original use of water. These situations led to the development of cropping strategies and techniques of infiltration, conduction and storage of water for irrigation. Thus, the traditional cultural practices are related with the continued presence of polyculture, associated with the utilization of water for irrigation and cultural care marked by the seasons' rhythm. Vineyards and olive groves are the most common crops, those that ensure higher productivity and usefulness (Fig. 4). These cultures have a very significant performance in the Mediterranean region's economy since ancient times.



Fig. 4. Photographs of vineyard and olive grove. Photos by Maria Freire and AA *et al.*, 2004

Thus, human needs dictated a rural agricultural economy and an insignificant maritime economy; nevertheless, the coast and the great sea had an important role in the relationship between people and the unity of the Mediterranean (Ribeiro 1987; Braudel 1995; Horden & Purcell 2000). The dominant agricultural economy is revealed in the inland territories, which exhibit a wise construction of equilibrium - where human activities are harmonized with the natural zoning and regeneration of life. Different organized spaces and structures are associated with different activities

and functions in a process that inevitably involves some destruction of flora and exploitation of natural resources³⁵.

The settlements are expressed predominantly as an agglomeration, justified by defence needs and on the cultural matrix. Reasons why the site is linked with high position places, near the most fertile areas, and the settlements are a spatial, social and economic whole, with strong interdependencies between the city and the countryside.

In short, the landscapes are based on a complex structure, where natural and cultural contrasts are very significant, the human pressure is old and fertility is basically the result of a constant construction of Man. It is expressed, in space and time, in the mentioned landscape pattern – fragmented, diverse and intricate, determined by the combination of exceptional natural and cultural conditions:

- Rough relief (mountains, hills or plateaus), articulated with small basins and lowlands (coastal or plains, more fertile, early occupied); a morphology that determines different ecological situations (dry and wet systems) characterized by irregular distributions of soil, water and vegetation; as a result there are distinct land uses and diverse visual change of perspectives;
- High average temperature, irregularity of temperature and precipitation (short and violent periods of rain), constant brightness (expressed in the clear and bright sky and in the purity and transparency of the atmosphere); this climatic characteristics are determinant to the occurrence of specific species (of plants and animals) and to lifestyles marked by the rhythms of the seasons;
- Water is the most crucial natural factor in the construction of landscapes; the drainage and the infiltration are strongly conditioned by the topography and by the irregular distribution of rain; as a result, we can see a compelling care in storing, driving and water use, especially critical due to the morphology of the terrain, slopes and soil types;
- Varied and rich spontaneous vegetation, dominated by trees and shrubs, evergreen species and adapted to dryness³⁶; also a wide variety of agricultural plants, spontaneous and gradually

³⁵ Expressed in the opening of glades (linked with pastoralism and agriculture) and in the extraction of firewood, pastures, woods, fruits, berries, oils, gums, perfumes, dyes, fibres and minerals, among other components or materials (Ribeiro 1987).

³⁶ Such as hard, small, bright and fragrant leaves.

introduced³⁷, which give expression to a mixed cropping extending through time;

- A set of natural conditions - relief, soil, water, climate and vegetation - which favoured agriculture as the dominant way of living;
- Concentrated settlements, spread, related with safety reasons, land fertility and the cultural system (extensive and intensive); and also a vernacular architecture, which is adapted to climatic conditions, consistently materialized in space and time;
- An old human activity (of hard and incessant work) responsible to shaped sites and built places, which enriched the vegetation and transformed the landscapes, sensible to the preservation of the ecological equilibrium dynamics (more fragile);
- Scenic values, strongly influenced by the variety of natural factors, which are expressed through the relief, vegetation, water and climate, but also through the architectural and archaeological heritage. A combination that expresses a particular aesthetic splendour - the beauty linked with the order and light - exceptionally expressed in the scale and landscape design, in the contrasts (of matter, shape and colours), in the diversity of ambiances and emotions, in memory and animation of the people, among other things.

In general, these are specificities based on biological and physical richness, on the sedimentation of history and culture in space, on the ecological fragility and on the originality of lifestyles (Demangeot 1970; Ribeiro 1987; Braudel 1995; Drain 1998). It is expressed in the Nature, simultaneously fragile and very difficult to be worked, in the variety of relief, in the oscillation of climate, in the presence of the variety of soils and in the accommodation of the biological complexity. And, simultaneously, it is expressed in the encounter of cultures and times, manifested in the subjects, shapes and functions that govern the construction of landscape - an ancient history, declared in prosperity and intensity of human presence over time, and in the confrontation between cultures and societies.

As a result of the combined interpretation of these elements, some authors (Ribeiro 1987; Braudel 1995; Jabouille 1996; Drain 1998; Horden & Purcell

³⁷ Elucidated in wild species of olive, fig, carob, flax, legumes and some pasture grasses and in the introduced, well adapted, wheat, barley, rice, orange tree, lemon tree, apricot tree, cane sugar, potatoes, corn, between others (Ribeiro 1987).

2000; Telles 2002) identified unity and diversity as key figures in the construction of the structural and compositional properties of the Mediterranean landscapes. Given this understanding, in conjunction and coordination of factors associated to Mediterranean landscapes, it becomes inevitable to add the value that expresses the complexity. So, unity, diversity and complexity - natural and cultural - are identified among the most significant values in the Mediterranean landscapes identity, clearly those that have demonstrated more consistency, in space and time. Following Gonçalo Ribeiro Telles, these values are expressed in interconnected natural and cultural systems concerning the concept of landscape - an area that "*(...) was being built and developed by the persistent action of successive generations, who were recreating landscape in slow and gradual adaptation to the environment and to the circumstances of life.*" (Telles 2002: 75).

Recent dynamics: simplification of the countryside, increasing of urban sprawl and changing of lifestyles

As we have seen, landscape is an expression of economic and social organization based on natural support. During great part of human history, the human presence was marked by a relative balance between Man and Nature (based on a limited and balanced occupation of the territory and use of resources). However, in the last century (and particularly in the last decades) the evolution of societies, the economy and the changing of values, led to significant changes in lifestyles, with significant consequences in the simplification of the countryside and in the growth of urban sprawl.

In this process, we can see the continuity of some ancient human activities and the introduction of many others, often compromising the sustainability of the landscape, breaking the architectural and landscape heritage and the natural and cultural authenticity - destroying, or simply decreasing drastically, the diversity and the biological and physical complexity, the consistency of uses and functions and the identity. Among these changes are evident: the destruction of vegetation³⁸; the

³⁸ Because of incorrect practices (in agricultural and forestry) and due to the frequency and extent of fires.

degradation and/or loss of soils³⁹; the massive urbanization; the tourism and recreational pressure; the density of big structures and infrastructures construction⁴⁰; the intense exploitation of resources; the abandonment of fields and, in particular, of the traditional agricultural systems; the pollution; the strong presence of exotic species; the increase of monoculture and forced crops; the desertification; the depopulation of the interior areas and the high concentration of population and activities in coastal and metropolitan areas; the cultural uniformity; the property speculation; the disqualification of urban areas and the general degradation of the quality of life, among other changes and evolutions (Fig. 5). In general, these transformations are particularly linked with the improvement of mobility/accessibility, the increased urbanization, the rapid globalization and also as consequences of some calamities/natural occurrences (Antrop 2005).



Fig. 5. Photographs of landscapes showing the simplification and homogenisation of the countryside and the urban sprawl; from left to right Spain, Portugal, Italy and Greece. Photos by Maria Freire and AA et al., 2004.

This dynamic, although common to the most of the landscapes in contemporaneity, has a great meaning in the Mediterranean context -

³⁹ Resulting from incorrect agricultural practices, urbanization and waterproofing.

⁴⁰ For example: roads, railways, dams, ports, and airports, among others.

where, as we have seen, the history is old and the biodiversity is high, the ecosystems are fragile and the balances are delicate, and where there is a consensus about the idea of a certain originality in the way of building landscapes. A whole set of reasons that can be seen as the generators factors of some fascination associated with the Mediterranean region, as it is confirmed by the attraction and continuous human pressure (multiple human settlements and, more recently, the strong tourist vocation and massive urbanization) with more significant consequences when we compare with the values identified.

Mediterranean landscapes: an archive of the past and inspiring basis for future

Our approach to the Mediterranean landscapes - with the aim to best know and valorise them - is thus inevitably grounded in the values and challenges they express and in the meaning they have in the Portuguese context. On one hand, we have the values represented in the unity, diversity and complexity, combining ecological, cultural, aesthetic and ethical domains. On the other hand, we have the conflict that the recent socio-economic dynamic put in evidence. This set of circumstances lead us to the main conceptual foundations, which should inform the sustainable development and landscape design in the context of the Mediterranean landscapes.

This means attitudes and actions of landscape transformation based on the understanding of the functioning of the natural system, translated in the cooperation with Nature (simultaneously rich and fragile); procedures that necessarily integrates the principles of ecology in the organization of space, in the maintenance of a dynamic balance and temporal stability, in the increasing of biological diversity and genetic potential, and of life (Telles 1993; Cabral 1993). These natural foundations should be still harmonized with the understanding of cultural foundations, including the social, historical and spiritual domains (as we saw, exceptionally sedimented in the intelligent, sensitive and very old construction of landscapes), as a response to current needs of Man.

Thus, it is essential the simultaneous inclusion of functional (utilitarian and ecological), formal and sensitive aspects, related with the enrichment of the unit, the diversity and the complexity - the values of excellence, associated with the structure, content, composition and significance of the Mediterranean landscapes. A multifaceted approach, linked with the

multi-functionality, which is central to the landscape concept (Freire 2011).

So, we need to develop landscape planning and design practices that are aware and consider the dynamic and contrasts of Mediterranean landscapes, improving the continuity and articulation within and between systems (natural and artificial), both at large and small scale. Moreover, those practices should provide the creation of diversified, flexible and intricate patterns as well as hierarchical networks, which promote the variety of life experiences and the diversity and intensity of biological life. In such landscapes 'habitats' should be associated with more opportunities for exchanges, more biodiversity and fertility and also more cultural diversity - which are illustrative of the different landscape mosaics, based on the natural and traditional zoning. Such richness corresponds to the development of ecological structures, combined with cultural structures, which avoid the monotony and uniformity and where the formal, structural and content qualities are valued, and expressed in unity, diversity and complexity. A whole that is offered to the exploration of the senses and to the opportunities of a free participation, increasing the cooperation between landscape human communities and Nature, a landscape more open to fantasy and imagination.

Consequently, a landscape design and management strategies where occurs production, protection and recreation spaces - answering to utilitarian, ecological, biological, historical and social functions; a concept that is related with the idea of sustainability and authenticity as regulating factors of transformation. In conclusion, a landscape construction emphasising an intrinsic feature of the landscape is denied in the contemporaneity (Freire 2011).

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