ABSTRACT

The pleasure of the eyes, the beauty of the things, hide betrayals of the geology and of the climate, which make people forget that the Mediterranean has never been a paradise offered for nothing to the delight of humanity. (Braudel, F., 2003, La Méditerranée)

The Mediterranean area, well-known for its mild climate, has actually three of its sides licking up areas where human beings have had to face dryness all along; islands and peninsulas are wanting in underground and superficial water; hostile sites where hardness of life leads to a rooted culture of specific topical subjects.

A concrete result of this culture is the huge terracing work, which has “built” the coastal landscape in the course of the years, defining it in orografic and functional terms.

This essay represents a personal attempt to stimulate a new look at the Mediterranean landscape; maybe an olistic attitude, but it could make it possible an “examination of conscience” on the new technologies and on the manners of facing the design today.
1 | On the Mediterranean area

"Il piacere degli occhi e della bellezza delle cose nascondono i tradimenti della geologia e del clima, e fanno dimenticare che il mediterraneo non è mai stato un paradiso offerto gratuitamente al diletto dell’umanità. Qui tutto ha dovuto essere costruito, spesso più faticosamente che altrove. L’antico aratro di legno riesce a malapena a graffiare il terreno friabile e privo di spessore. Basta che piova più della norma perché il suolo, instabile, scivoli giù per i pendii. La montagna tronca la circolazione, sottrae abusivamente spazio, limita le pianure ed i campi spesso ridotti a poche strisce, a miseri pugni di terra; al di là iniziano i sentieri in ripida salita, ardui per uomini e animali" (F. Braudel, Il Mediterraneo)

Braudel’s careful description, addresses people, who still want to work on Mediterranean area, to new “points of view”.

He speaks about a difficult landscape, very anthropized; a “built” landscape.

Realizing how and how much Mediterranean landscape has been built, the never-written rules that have characterized this process, can support new territory design processes.

So we can read this text as an attempt to look at the landscape, no more as a mere aesthetic perception, but rather as the product of a secular man’s work on nature to transform the environment and the territory, interpreting, using, learning its laws and movements.

Therefore environment as the synthesis of a historic process in which nature interweaves with man’s construction.

2 | A man-made landscape

Mediterranean peoples are in the habit to defining as “natural landscape” areas which are actually the result of an old collective work of men.

These data can explain the development of special techniques in the cultivation of the soil, carefully applied all over the Mediterranean area.

We can assert that the practice of terracing, has many functions, beyond the simple lands ordering.

1/First of all, this practice guarantees fertility to the soil. Turning the slope into a plain, the soil can keep more water reducing the evaporation phenomenon.

2/It contributes to the organic reconstruction of the ground.

A significant example of this connection can be found in the terraces built on the shores, defining the landscape, decomposing the elevations in geometric data, materializing the contour lines.

Apparently, it’s a very simple story. When nomadic populations became sedentary, they probably needed to turn slopes into plains, in order to make the cultivation of their lands easier. Many proper plains were actually in the Mediterranean area, but they were often flooded and epidemic lands. So, since from the beginning orographical observations were used as a source of sustenance and safeness: the plains had to be fertile and cultivable.

Another decisive factor, in the construction of this kind of landscape, was undoubtedly the climate, which draws the boundaries of this research. The Mediterranean macroclimate, determined by external influences, can be defined by a double respiratory system: from the west side, the Atlantic one, and from the south side, that of the Sahara. Each one of them comes out of its field to conquer the sea whose role is merely passive: every summer a hot, dry air from the Sahara desert carries aridity and high temperatures, while from October the humidity over the Ocean brings a quite rainy winter.
3/It protects the slopes from the erosive action of the rains. The alternation of heavy rains with arid seasons, is very damaging for the ground, as we can see in these two pictures, taken in 1940 and in 2000 in the Cinque terre Park.

4/This kind of landscape structure is useful to retain humidity in order to provide water to the soil. Modern Israeli researches have shown as, in the Negev region, old remains of olive trees and vineyards were irrigated thanks to the system of dry-stone walls. A large number of stone constructions were found together with the remains of roots buried in the sand and one can suppose that these plants could grow there in absolute absence of water. After this discovery Werner Keller wrote a new interpretation of Mosè’s words in the last hymn dedicated to Israel, an elevated land where one can sip honey from the cliffs and oil from the stones of the rocks, reading it as the transposition of the custom of pulling water out of the desert stones, based on a stone condensation systems. The dry-stone walls act as atmospheric vapor condensers: in the hot and dry season, air temperature increases, as well as the quantity of vapor. So, during the day, when the temperatures increase, the vapor penetrates the hot stones, until the saturation limit. At the end of the day, the air, the soil, the stones begin to get colder, and small drops start to condense, falling down on the ground, under the walls. The absence of mortar allows the permeability of the water. After the despondency of the old olive trees, it was evident how their roots were orientated towards the nearest stone walls.

5/It shelters just sowed lands from the wind, giving birth to new shapes in the scenery of stones and vegetation. An example is represented by the “Arabian gardens” on the Island of Pantelleria: dry-stone constructions, circular or rectangular, are used to shelter one or two lemon trees.

6/ The terraced landscape is designed for the water system management. Small pieces of ground are connected among themselves according to the flowing of the water and gravity, using the contour lines to gather the water on the plateau, to canalize it along the slopes, to reach, eventually, the fields.

7/Terraces are built with local stones, generally found in the same field. A construction of a dry-stone wall means less stones on the ground, a more compact granulometry that can absorb more water.

3 | The role of the stone

A volte percepivo che nelle fondamenta che penetravano in profondità della terra, nei volumi delle mura e delle volte, la mia anima era una pietra tra le tante, murata nella massa anonima delle altre pietre…Comprendere le regole di questo paesaggio, le ricorrenze che lo governano; i paesaggi attraverso i quali nella pietra lavorata dall’uomo si fissano le ombre e le luci del paesaggio è un modo per avvicinarsi e comunicare con esso. (D. Pikioni)

Mediterranean landscape is also a stone landscape. The intimacy between man and stone is due to the simplicity of the “productive cycle” and to its ecological data. In a dry-stone construction, the three different sites (quarry, factory, construction site) of the production coincide, so they become one and the raw material identifies itself with the architectural element. Quarrying, transport and trasformation are reduced to a gathering operation, in a proper 0 Km system.
4 | Dry-stone walls and technology

A new artificial world rises through the natural material. The dry-stone wall was born as the sum of usable materials available on a site. As well as the art of weaving, masonry art put into action a combinatorial and compositive syntax. Depending on the stones available on the site and on the architectural design, there are different steps. The second step is the construction of the under-fondation basis, done with big stones, just drafted on the exterior side by quick hammer blows, placed in two parallel lines, using a taut string as a guide. Constructive devices of the masonry.

The two main operations are: the “excavation” (the superficial excavation, including tracing, ploughing, engraving, detracting) and the “cumulation”.

...More sweat has been shed clearing slopes for vines than was shed building the pyramids. A stone wall is a monument to a strong will; the leaf of a vine is a symbol of virginity; a bunch of grapes is a sign of well being. Wherever there are vineyards and wine, there is civility and artistry, lunacy and poetry.” (Matvejevic)

The Art of the stonemasons is an old heritage. The dry-stone wall construction is executed at least by two people. It starts with the “fondation” (min. 50 cm), that has the role of resisting the capsizing of the wet ground horizontal force. Stonemasons excavate the superficial stratum of the ground, to reach the solid rock, or the compact and dry strata of clay. The second step is the construction of the under-fondation basis, done with big stones, just drafted on the exterior side by quick hammer blows, placed in two parallel lines, using a taut string as a guide. Third operation is the “elevation”. Stones are carved, now, to fit together the new line with the one below. To each pair of stones, a unique big stone answers in the other line, in horizontal and vertical direction, so that the horizontal joint between the two stones is always covered by a big unique stone in the vertical direction. Elevation is built following the two vertical lines, slightly merging into the inside of the wall. The empty space between the two lines and the interstices of the stone are filled with smaller stones.

If the soil contains more clay, it will absorb more water and the basis will have to be larger than on a sandy ground. Sometimes the operation is completed by a “cover”, big blocks of stones of about 50 x 40 cm. Each cover juts out the line below of about 10-15 cm each side and its function is to make the structure steadier. At last, the most evident holes in the walls are filled with stone splinters and chips, derived from the hammering.

An interesting structural detail is offered by the over 2 m high walls: they show a raised course (50-100 cm height) on the flattening support where big stones, thick and flat, are placed in a longitudinal position, jutting
out for about 30 cm from both the wall faces, on which a second wall is built. This device allows to exceed the wall in height without making the basis larger.

Among the heightened walls there are some with the upper side, overhanging, with narrow and long stones jointed in them, in order to be crossed by men but not by animals. The cross-section of a wall is generally a trapezium, with the larger side on the ground and the smaller side on the top. The top side is often not plain, but concave, so that stones with parallel surfaces pour the rain water inside and not outside the wall, into the ground below. The wall is so an obstacle because it directs the rain in the inside to the depth of the ground below it, avoiding the mechanic placer mining effect.

In a vademecum of the nineteenth century, the author Breymann writes: Riuscirà già di non poca fatica, il seguire solo la prima parte delle norme generali per la disposizione delle pietre, che cioè le commessure verticali, attigue, non vengano mai a sovrapporsi l’una all’altra. Si dovrà accontentarsi di porre agli angoli le pietre più grosse e regolari, e propriamente di porle in modo che posino sulla loro faccia più piana, e che compariscano negli strati sovrapposti come i mattoni, alternativamente in chiave ed in spessore, e cercare inoltre mediante una conveniente scelta del materiale che gli interstizi risultino piccoli il più possibile, otturando i buchi che derivano dalle irregolarità del materiale con piccoli ciottoli e scaglie; infine di porre nel muro a guisa di chiavi o di legamenti, ove sia possibile, attraverso lo spessore del muro stesso, tante pietre quanto si prestano all’uopo. Devesi cercare di spianare il muro ad altezze di 0,9-1,2 m secondo la grandezza e la qualità del materiale, con commessure orizzontali, e di disporre poi su questi letti le pietre più grosse colle loro facce più piane, questo atto di spianare la muratura, non lo si potrebbe ottenere se non riempendo con piccole pietre le cavità, che nascono inevitabilmente dalla forma irregolare del materiale impiegato...

The most difficult practice is to chose, with a certain speed and technical mastery, the right stones, to build the “corsi”. A solution provided by the construction site, consists in a previous selection of the stones, homogeneously arranged in advance in a series of heaps, according to their typology and dimension.

(...)una suddivisione in cinque mucchi, col materiale ripulito dalla terra e dalle incrostazioni, consente di destinare due alle pietre più regolari e piatte (rispettivamente il primo con pietre lunghe, il secondo con pietre corte), due a quelle più irregolari (ciottoli grossi e piccoli) ed il quinto alle schegge.

Most of the stability of a wall is definitely due to the mortar, whose function is to parcel out equally the pressure transmitted between two adjacent stones to all the surface exposed to the same pressure. Without the mortar, the stones, with their always imperfect surfaces, touch one another in isolate points, so that a strong pressure can easily cause the breaking of the pieces.

But Breymann continues: Allo scopo di riempire le commessure, basta che il mezzo medesimo, indipendentemente dalle sue proprietà chimiche, abbia la qualità che, facilmente adattabile alle commessure, una volta compresso ad un certo grado, resista poi ad una grande pressione, senza variare il suo volume.

Instead of mortar, other elements with the same qualities can be used to build dry-stone walls, among these: musk, some herbs, lead, and others...

5 | conclusions

Dry-stones agricultural landscape is not an instinctive product, derived from improvisation or extemporary invention. It is an expression of the fusion between construction and design, allowed by a great experience and awareness.

Dry-stone technology, spreading out from the borders of the city, across the cultivate countryside, the pasture, reaching the limits of the uncultivated land, reveals itself as a primary operation in the taking possession of the territory.

It marks out the borders, it supports the terraces, it structures buildings far from the transformation sites, to go over the natural status and advance towards culture.

There is a very significant fracture between this kind of landscape and the present aesthetic culture, that emphasizes on static beauty, a postcard beauty, being afraid of the continuous evolution of the former.

All elements in this kind af landscape, lie on a precarious support, fated in the course of the time to mingle with an aggressive nature. Brittle braces, well interpreted by Ermes, who represents them in Greek mitology.
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