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Authenticity and Sustainability

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Abstract

To think authenticity, the cultural identity and social economic and environmental sustainability is to reflect on the values and actions that must be developed to strengthen the identity of the regions. They are inseparable components with an impact on the organization of the territory and architecture that affect everyday life and the means and modes of production. To avoid the destruction of secular structures of territorial organization, it is necessary to have a critical awareness of the heritage, to question the cultural values and the symbolic contents that define the ways of being of the populations. Action strategies have been creating tourism networks, rebuilding constructions. We only see effects of a formal contaminated recovery process. Intervention methodologies have to create dynamics that make regions attractive to live, providing quality of life and meaning to the collective future. As case study on rehabilitation in vernacular architecture, we present Outeiro da Vinha, Portugal.

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Introduction

After the process of dissociation that dominated the scientific thought of the twentieth century; after the pragmatism, and the subsystem thinking that has pulverized key concepts and destroyed the unity of things and of architecture; after the process of disassembling and reassembling that the structuralists used to make the meaning emerge, we are confronted again with the need to synthesize following an inverse process: to integrate systems, to create communities, to articulate theory with practice, and to foresee the thought of complexity.

> "Newton´s triumph was not an explanation of anything, but a new way of defining and analysing changes in motion. He gave definitive form to the concepts of force, mass and acceleration, and he asserted with vaulting confidence that the same principle governed the falling apple and the heavenly bodies." (Woodcock, Davis, 1982, p. 10)

Having surpassed the ideological stage of the Reason-Nature quarrel, the next phase focused on the Knowledge (which involves ignorance) – Nature relation, which allowed us to recover ancestral principles of good practices that can be combined with new technologies.

The architecture issues have to be placed beyond the formal manifestations focusing on the relations' systems. These, in turn, should not only structurally combine space, time, places, programs, ideas and tectonics. In addition to these essential cultural references, the current stage of questioning in architecture requires a deep reflection on the inextricable connection among the concepts of authenticity, sustainability and energy.

This conjugation calls for an investigation into energy responses involving traditional materials and the investigation of solutions that counteract the persistent crisis of environmental values that we are debating today involving the problem of water, fire, air and occupation/exploitation of the soil.

Thus, innovation in environmental protection stems from the combination of models with different implications for natural systems. Like Newton's physics, Einstein's relativity or quantum mechanics of Neils Bohr, although they are different principles, they express the unity of Nature.

Along with logical thinking, analogies (thought by images) must refer to ancestral good practices coupled with principles to be explored conceptually in a process of synthesis that integrates architecture, place and landscape.

The various presented examples of reference must be read beyond the formal aspects, referring to their time and place, explaining principles that take into account the protection, the environment and the life of the populations.

In order not to lose the identity of local people and regions, we must articulate today the messages of the Charters of Heritage and Sustainability with an effective and adequate energy response.

Taking into account these assumptions, the case study articulates knowledge and principles of intervention referenced in several International Charters as well as current vernacular construction practices, while focusing on maintaining the places' identity. It also takes into account the importance of passive energy in a traditional environment.

In addition, the exploitation of vineyards cultivated on terraces is an integral part of the region's economy and it manifests man's action in the construction of the humanized landscape. Here the reflection equates the impact of tourism and globalization on places. In an era of profound economic, social and environmental changes, it is necessary to consider intervention models that fit each case to maintain its identity.

Towards authenticity

The organization of the territory corresponds to traditional structures that are manifested in the change of the soil sedimented over time. However, the profound changes introduced in the economic system require adequate policies and action, a structure of regional polarities and the dynamization of kernel to attract new inhabitants.

The paradigm changes throughout History correspond to the changing of the means and modes of production, of soil occupation and to different ways of thinking that alter the sense of value, justice, norm, ethics and authenticity. (Duarte and Pinheiro, 2017, p. 15)

The authenticity has to have in mind historical, aesthetical and materials aspects, along with the relations with the surrounding space.

The insertion of architecture in a site defining a place reflects the adequate response to the environmental conditions and derives from the *Genius Loci*, an anthropological and cultural dimension. This aspect also involves as well the *zeitgeist* (spirit of the time) and the use of protection techniques and instruments against different types of adversity: atmospheric agents, cataclysms and defense from enemy attacks.

We face the construction of symbolic territories where the protection/security binomial has always been equated as dimensions of architecture, urbanism, in the relations with the place and with the territory.

We refer the human stabilizing systems that throughout history have always taken into account qualitative determinants: adequate location, soil stability, flood zone prevention, land slope, solar orientation, wind regime and relation with the place. In this field, its various valences are equated: limits, paths, center, sacralization and spatial and environmental qualities.

This type of relation is an ancestral concern present in all types of cultures and has been legislated since the Charter of Venice, 1964. In order to preserve cultural values in contemporary times, a set of increasingly specific charters and international documents on the cultural conditions of the territory, sites and historical and cultural heritage have been produced.

> "The Nara Document on Authenticity is conceived in the spirit of the Charter of Venice, 1964, and builds on it and extends it in response to the expanding scope of cultural heritage concerns and interests in our contemporary world." (The Nara Document on Authenticity, 1994)

The negative impact that the Industrial Revolution has had on the environment, on air quality, on water and soil contamination results from, among other aspects, the use of fossil energy, the mechanization of industrial production and the use of chemical products in large quantities in the agriculture. The massive production of waste and plastics breaks down ancestral balances and profoundly affects the health and quality of the environment: in the air, on land and at sea around the world.

Globalization, characterized by the dominance of the three FFFs (finance, fuel, food), introduces profound changes in the social system resulting in economic crises, the race to energy sources and food mass production. New demands on profitability involve the means

and modes of production and the impact of this macro context of production rupture has direct or indirect repercussions on the regions and on all scales of intervention in the territory.

It is essential to oppose territorial strategies, to create models of cultural intervention economically attractive capable of promoting the regions and managing their natural resources and environmental impacts, given the new dynamics and adversity contexts, the polarity of large cities in the attraction of population in a chaotic way.

This requires research, appropriate action policies, and the organization of territorial structures that energize regional polarities, which create grounded anchored centers in forms of identity capable of fixing inhabitants.

The question that arises relatively to the cultural, economic, formal and functional regions is that they are not coincidental among each other. In geographic terms, the characterization comes from the limits given by the orography, the climate, the rivers and the vegetation cover. Thus, it is necessary to equate the structure and the attractiveness of the regions and the relations between them, contrasting environmental values and quality of life, reinforcing the cultural systems of production. The sense of belonging is essential, being in some way contrary to the fragmented system of life of the great urban centers.

Territorial matrices must translate a natural balance and should correspond to a genuine mode of cultural intervention that guarantees the attractiveness and sustainability of the regions. However, the management of goods and flows, accessibility and policies must be taken into account, as they can alter the relation systems and even cause serious problems for the environment and human health.

By taking advantage of the environmental and economic resources of the regions, it is essential to reconcile the global with the local, to defend the diversity, to adapt the place, to insert in the landscape, to consider the fabric in order to guarantee the quality of the environment, the products and of the populations' life. (The Burra Charter, 1999)

International Charters and Recommendations on authenticity - Machu Picchu (1977), Nara (1994), Burra (1999) - reinforce the importance of cultural places, heritage sites and locations. International environmental and patrimonial protection standards have progressively diversified their scope and increasingly specify their objectives. In the case of

popular architecture, the incidence is expressed in *The Charter on the Built Vernacular Heritage* (1999), ratified by ICOMOS 12th General Assembly, in Mexico, October 1999.

> "Vernacular building is the traditional and natural way by which communities house themselves. It is a continuing process including necessary changes and continuous adaptation as a response to social and environmental constraints. The survival of this tradition is threatened worldwide by the forces of economic, cultural and architectural homogenization. How these forces can be met is a fundamental problem that must be addressed by communities and also by governments, planners, architects, conservationists and by a multidisciplinary group of specialists." (The Burra Charter, 1999)

This set of concerns on quality should be framed by the different impacts of sustainability - social, economic and environmental - that should also involve the cultural and political aspects.

However, these five essential aspects of characterizing the issue require leadership in order to implement the process. This is the case of the Paris Agreement on Climate Change, 2015.

We move in complex systems that need to maintain the balance that, although unstable, is essential to produce with quality, taking into consideration that we should not desacralize Nature.

When reflecting on intervention models from the local qualities (landscape, economic, cultural), the greatest of luxuries should be preserved, whenever possible: time, silence and place.

Today, in the information era, many of the cutting-edge activities do not involve an affectation of the soil so one has to be aware of the impact of this strand on the meaning and development of the places.

The qualities of the place

> "The place is the most unstable of the spatial portions, for lived intensely by each person in constant processes of re-signification; Thus, it is necessary to take into account the complexity of contemporary culture to discuss it, without nostalgia for a lost place, resisting as far as possible from

> neologisms that serve only to label a crisis, and not tools for reflection. This is a problem seen in Mark Augé's no-place concept." (Duarte, 2002, p. 99)

The quality of the narrative is essential to intervene conceptually in all places and scales. Think of the Zen side of the Japanese landscape, the reconciliation between tradition and modernity. Memories are an immaterial heritage, which exist beyond stones, they preside over the ruins and records of time in the territory, in places, they cross the collective symbolic that stems from cultural identity.

The secular importance of stones in the construction of houses, walls that delimit properties, or terraces all over the world bear witness to the passing of the centuries. There are regions impregnated with History with palimpsests of times and civilizations, are testimonies of imaginary wars.

The materials, the technics of building and the organization of human settlements are part of the cultural identity of people everywhere, which is always unique and unrepeatable. Therefore, it is necessary to reconcile contemporary economic dynamics with the higher significance of places that should not be held hostage to the false sense of progress arising from Industrial Civilization.

The Charter of Machu Picchu, 1977, is an update of the 1933 Athens Charter and emphasizes the cultural contribution of other civilizations. Involving the meaning of places and sites "*represents all that is not encompassed by universal illuministic mentality and cannot be classified by logic alone*." (The Charter of Machu Picchu, 1977)

The desacralization of Nature - a result of the prevalence of Ratio against Nature - has led to pollution, to the destruction of environmental values. Thus, it is essential to equate its profound impact that corresponds to predatory businesses of the environment.

The harmful aspects of the productive system resulting from the Industrial Civilization can be characterized by the impact of the effects of the produced actions:

> *"Design a system of production that*
> *. Puts billions of pounds of toxic material into the air, water, and soil every year*
> *. Produces some materials so dangerous they will require constant vigilance by future generations*

> *. Results in gigantic amounts of waste*
> *. Puts valuable materials in holes all over the planet, where they can never be retrieved*
> *. Requires thousands of complex regulations – not to keep people and natural systems safe, but rather to keep them from being poisoned too quickly*
> *. Measures productivity by how few people is working*
> *. Creates prosperity by digging up or cutting down natural resources and then burying or burning them.*
> *. Erodes the diversity of species and cultural practices*." (Braungart and McDonoug, 2009, p. 18)

Relation to the place in adverse contexts

However, we can identify humanized landscapes that express a deep symbiosis with agriculture, having this productive system remained with the same characteristics for centuries.

This is the case of the Porto wine terraces, the Alto Douro Wine Region in the schist zone in northern Portugal. The characteristics of schist, the organization of the territory terraces for 2000 years, its mesological characteristics (the influence of the environment on the individual) and the climatic peculiarities of the region unique in the world have created unique conditions for the planting of vines, being a successful economy.

This was the first demarcated wine region in the world (1756), considered World Heritage since 2001 (Figures 1 and 2).

> "Terraces, which separate the slopes and retain arable land, constitute a defined mark of all the relieve landscapes from the Northwest and Beira. These admirable constructions, that boldly climb like mountains up to 700 or 800 meters high, require a painful and vigilant effort: (...) The diffusion of the corn crop was undoubtedly the reason for the dissemination of the terraces, after being applied to rainfed crops that expanded in more recent times: Douro vineyards, the olive groves of the Beira mountains." (Ribeiro, 1967, p. 76)

Figure 1 and **Figure 2** Douro vineyards terraces. Photography: Maria Rebelo

The human action in the creation of the humanized terraced landscape is a cross-cultural principle. For example, in China, terraced rice cultivation is done in *Yuanyang* County, in *Yunnan* Province (Figure 3).

The ancient Inca civilization in South America used the same principles in agriculture in *Machu Picchu*, before a landscape reached to high altitude (Figure 4).

Figure 3 Terraced rice cultivation in *Yuanyang*, *Yunnan* County. Author's drawing.

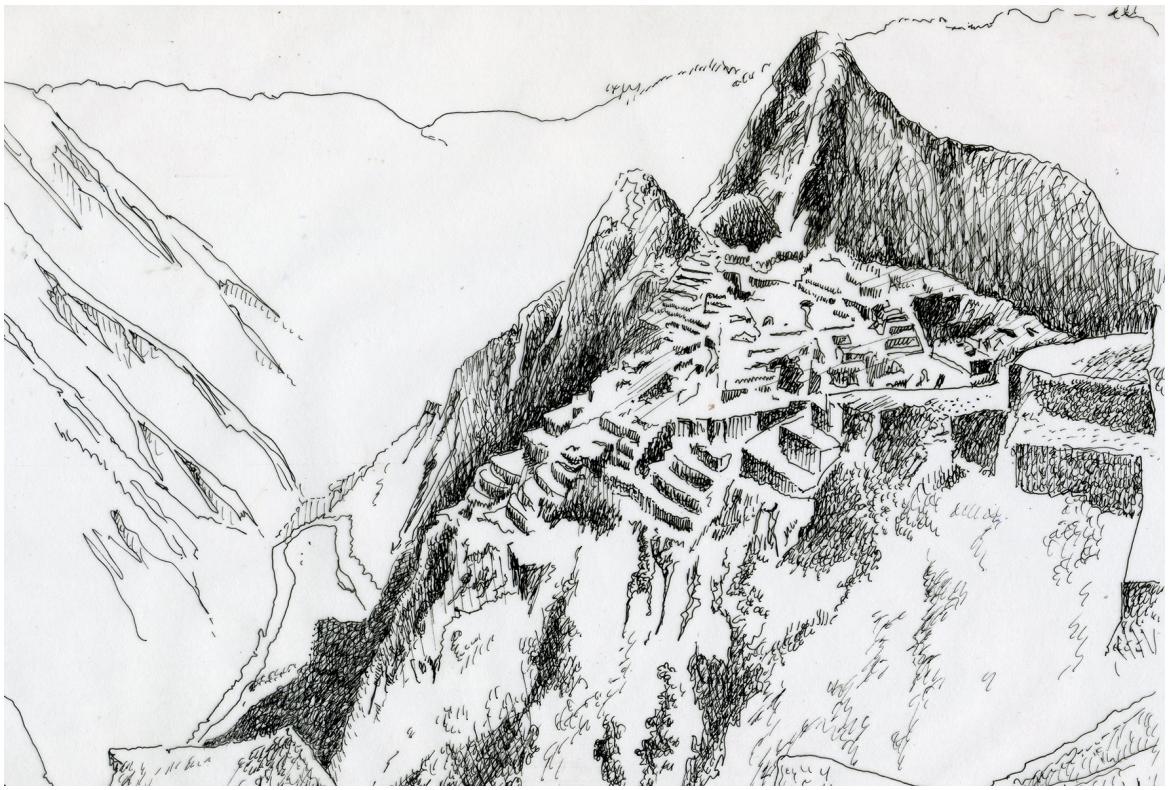

Figure 4 Agricultural terraces in *Machu Picchu*. Author's drawing.

Figure 5 Protection of the vine foot with volcanic stone in Lanzarote, Canaries Islands. Author's drawing.

These are adverse conditions of a difficult work that must be done in order to extract food from the land or to stimulate the economy. Difficulties create a stronger collective spirit that energizes the actions of societies. The collective transcends the individual and this differs within the collective.

In Lanzarote, in the Canaries, a volcanic island where three days a year rain is considered a good agricultural year, the creation of semicircular walls of volcanic stone to protect each foot of *Malvasia* vine from the winds that blow from the Sahara Desert, is a cultural landmark emblematic of the landscape. The deposition of volcanic ash, about 0.15 m high, captures the humidity of the night to water the plants (Figure 5).

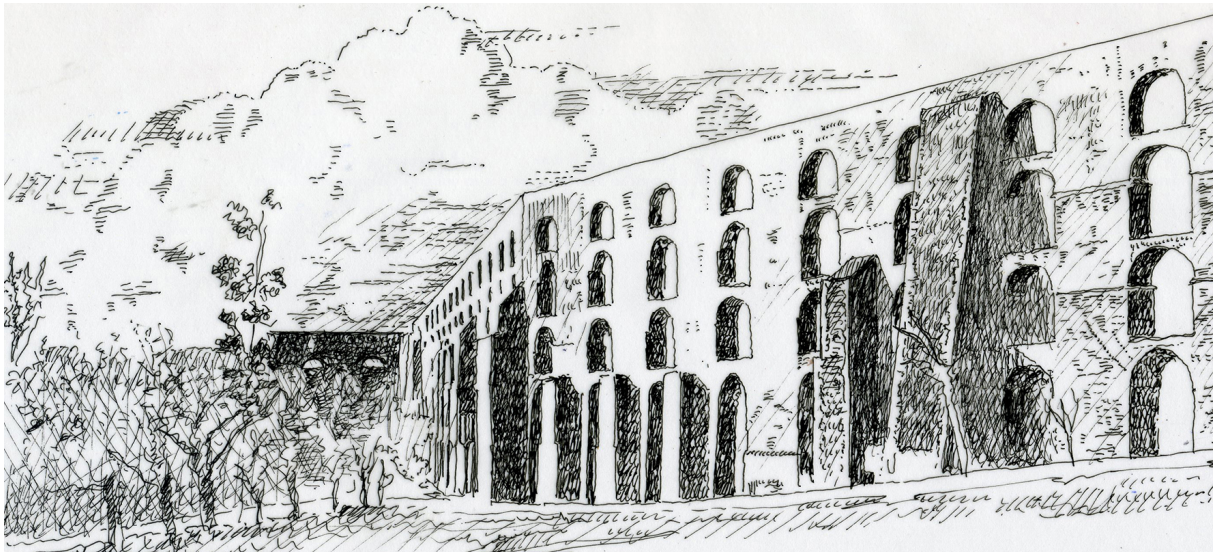

Figure 6 *Elvas*' Aqueduct, Portugal. Author's drawing.

There are also infrastructures that are macrostructures with great impact on the landscape as the case of aqueducts. The Romans were masters of making aqueducts to carry water to distant regions. These aspects reflect an adequate architecture of the landscape (Figure 6).

The great civilizations of antiquity had already taken care of the basic needs of the people, of the territory organization, and their solutions' effectiveness still works today.

The approximately 40,000 *Qanat* in Iran, underground tunnels to irrigate desertified areas, were considered, in 2017, World Heritage Site by UNESCO.

The great civilizations never gave up using art and technique and, when in the face of adversity, they innovated with strategy and vision. Their performance served to solve the problems.

From the earliest times, there have been adequate irrigation solutions to the inhospitable regions of the Middle East. Claude Cahen discovered a manuscript of an anonymous author of the XI century, entitled *Kitâb al-Hâwî li-l'a'mâl al-sultâniyya wa-rusûm al-bisâb al-dîwâniyya* (Compendium of State Works and Rules of Public Calculation). (El Faïz, 2018)

This work allowed us to know how these societies were organized to carry out works for the transportation and distribution of water. He referred to the complexity of the process involving a specialized administration and hundreds or thousands of technicians. The anonymous author of this treaty would probably belong to the generation of Arab empirical hydraulic engineers. They were strongly aware of the need for a link between theory and practice to develop hydrological knowledge.

The fieldwork, allied to science, involved wise men and mathematicians and was developed for several years guaranteeing experience to the learner. By associating theoretical and practical knowledge, it gave the hydraulic engineer the leading role in the personnel who

> "performs the tasks without understanding the origin of the phenomena, nor their causes, nor how to behave or be able to distinguish truth from error. A man like this ... acts like an animal that has no consciousness of the nature of the tasks it performs and in any case fails to create, from its activity, new branches of knowledge useful to the community." (El Faïz, 2018, p. 97)

The creation of infrastructures (road network, water, sewage, electricity) and effective security systems, especially related to the forest, articulate the traditional occupation and the current affectation of the soil. In emergency cases, systems of access to water must be guaranteed with effectiveness and quantity.

The use of cisterns and wells, water towels, dams, rivers and streams are complementary factors to be included in a territorial matrix as a form of protection and defense in case of fire or development of the ludic aspect.

Adversity is the enemy against which we must protect ourselves, avoiding risks arising from the casuistry of interventions; today there is a radicalization of the atmospheric conditions that have repercussions all over the world.

This new "normality" has to be assumed from the beginning as a given, being possible as an analogy to redefine the concept of wall. Its functional stages were essential in terms of defense strategically taking advantage of the enemy's location and attack potential. At that time, it was known who the enemy was and the strategies had this in mind. Now it is necessary to include the climatic radicalizations in the system.

Enemy against which we must protect ourselves are typhoons and strong winds, floods, landslides, avalanches, fires and earthquakes among others.

Fire: a new development deterrent paradigm

The fires are the great spectrum that hangs in the air as a deterrent factor to inhabit, with no alternatives available. Although the great civilizations of antiquity have already taken care of the basic needs of the population, of the organization of the territory, the effectiveness of the solutions created still works today.

Operationally, we can question the concept of *polis* of the ancient Greeks. *Polis* represented a city model that did not grow. In *polis*, when it reached a certain number of inhabitants, the citizens went to another territory to establish a new colony that rebuilt the initial model. This closed model was translated in the spatial organization of communities that resisted to the enemy through type structures of defense *Vauban* as it is the case of the city of *Elvas* in *Alentejo* (Figure 7) or of *Almeida* in *Beira Alta* (Figure 8), both in Portugal.

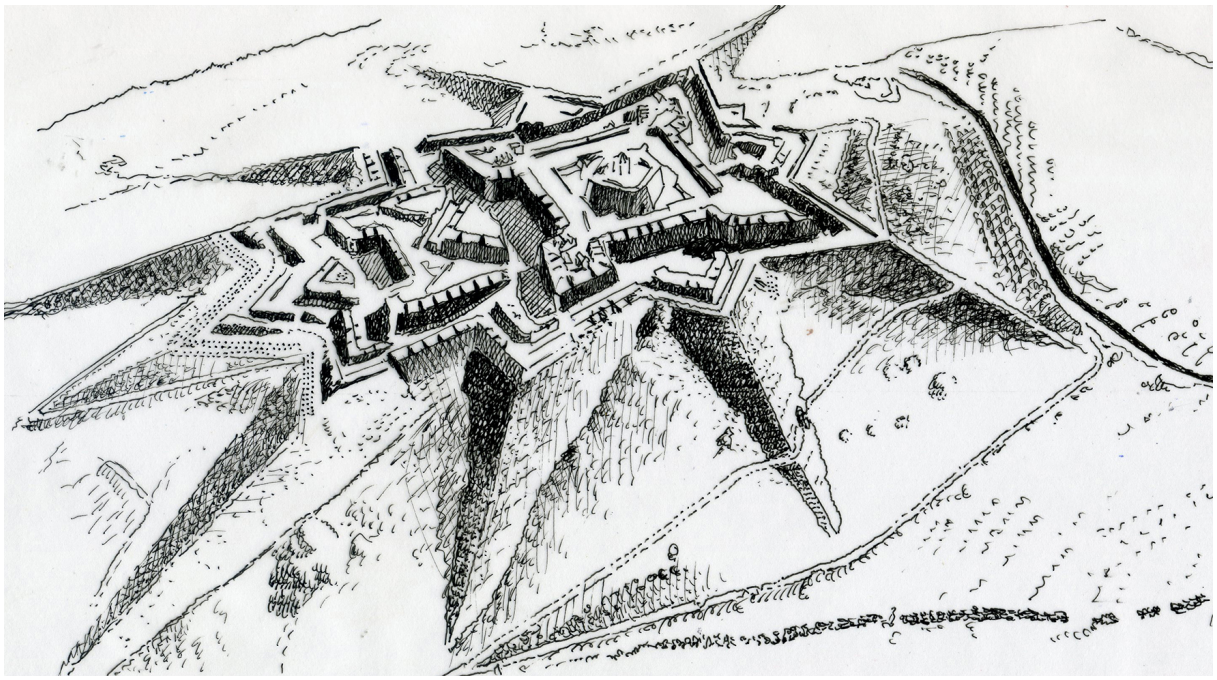

Figure 7 Fort of *Nossa Senhora da Graça* near *Elvas*, a city that grows inside *Vauban* walls. Author's drawing.

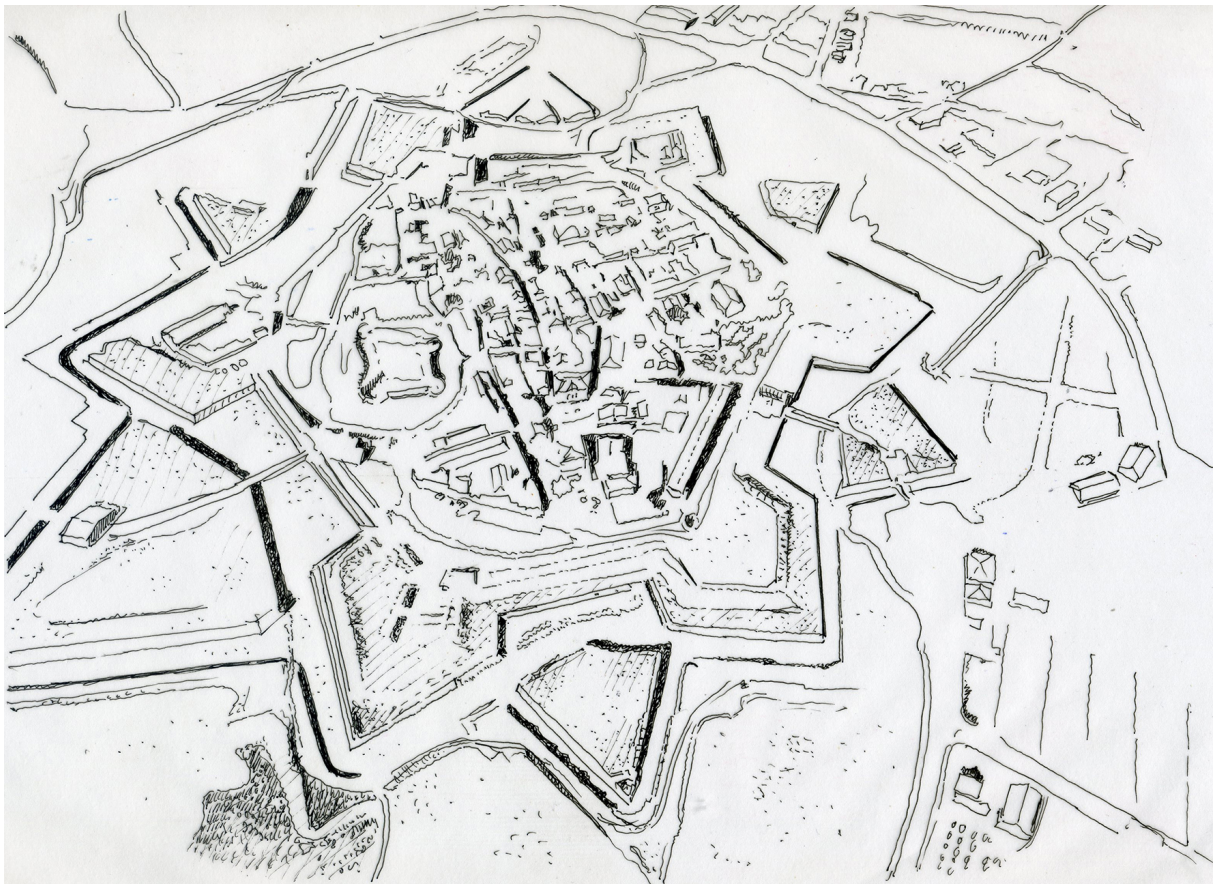

Figure 8 *Almeida* inside *Vauban* walls, *Beira Alta*, Portugal. Author's drawing.

For defense reasons, the old villages of the interior were located in higher areas because they were easier to defend, to visually control the landscape and the accesses. The narrow and steep streets, well shaded, respond to the light intensity of the places and allow an adequate response to the climate whilst, at the same time, greater social interaction in the streets and in the patios.

Taking a conceptual analogy from this model, taking advantage of the star-shaped geometry (open/fragmented or closed) we can create sequential zones with rings of protection to the villages with adequate green treatment, avoiding being destroyed by the fires. After identifying the enemy, one must know how to fight with intelligence, strategy, opportunity and culture using appropriate systems of physical and immaterial protection, models of prediction and dissuasion, clarification and organization of populations. But do we actually identify the real enemy? Water is essential to life, but who is familiar with the *Al-Karaji* Treaty of Exploration of Groundwater (*Kitâb istinbât al-miyyâh al-khafiyya*) (1017)? (El Faïz, 2018, p. 117)

Concerns on this matter of ancient civilizations have lost their breath and the work of Ibn al-Haytam - the most illustrious Muslim physicist and the first man to conceive the Aswan dam nine centuries before it was actually built - was burned in 1193 by *Ibn al-Mâristânyyya* with insults to the philosophers. (El Faïz, 2018, p.114)

Today we are also confronted with obscurantism, with businesses that overlap the collective good, which leads to the destruction of memories and of cultural identity.

In Portugal there is still a lack of solutions and the casuistry manages the process that involves the use of airplanes and helicopters to combat flames, complementing the actions of firefighters, although there are organizational structures in network that allow access to all kinds of information. Economic development funds have action programs, create incentives that must respond to cultural values and make regions attractive to work at. They should not only focus on tourism, in the epidermal sense of the question.

Quality of life and safety, the access to goods and services, to health and education, the possibility of working and inhabit, are determinants that have to be guaranteed as they reflect an option for where to live, encourage or nullify the creation of social life. There is still a lot of work to be done, as there is a lack of basic safety points, of mapping, of knowledge regarding the property structure and affectation of the soil. The territory organization requires data that can be worked with, to cross information on the evolution of

soil affectation over time to identify protected areas, forests (what type of forest), agricultural areas, *non-aedificandi* zones, urban and intended industry areas. This aspect crosses both the inefficacy of response actions to the fires with the regions' de-characterization and the abandonment of places due to lack of incentives. Reflecting on intervention models that take advantage of environmental qualities should be part of trans-disciplinary scientific research that optimizes local development actions. Anticipation strategies are essential to avoid the perverse effects of lack of momentum and knowledge.

Territory Organization

In order to organize the territory, on a first level, it is necessary to exist cultural, technical and environmental information that allows to cross data to obtain readings of the various reality layers, its transformation over time, to identify the invariants and their meaning. These tools are essential for being able to act, define accessibility and control flows.

The collective knowledge grounded throughout generations was essential for popular architecture and for the organization of the territory. Today it is necessary to equate problems at all scales because they are interdependent. Trans-disciplinary dialogue is a cultural issue. The information network has been replacing the individual knowledge, but the system of relations that is equated in architecture, urbanism and territory is incompatible with the coldness of the data. Man is not a dimensional being, but rather a rational, metaphorical and symbolic one.

Moreover, the physical characteristics of the territory (on the surface and in depth), immaterial qualities such as points of view which, in addition to being important in terms of military defense, had already been foreseen in the Zenonian laws of the Romans concerning the overall quality of cities.

> "Promulgated during the reign of Emperor Cezar Zeno (474-491), in the context of the Roman Empire of the East, the constitution of Zeno or Zenonian Constitution, resulted from a set of regulations established for the reconstruction of Constantinople after a great fire.
>
> Written in Greek, these laws are later included in the Great Legislative Compilation during the reign of the Emperor Justinian (527-565), which constitute the so-called Corpus Juris Civilis." [1]

1 Colloquium "The Lisbon Image: The Tagus and the Zenonian Laws of the Sea", October 13 and 14, 2016. Organization of the Lisbon City Council and Institute of Art History of the Faculty of Social and Human Sciences of the NOVA University of Lisbon.

The climate and microclimate, the wind regime and sun exposure are all conceptual determinants. It is also essential to consider the smells that exist in the sites (resulting from the places' poetic seasonality, but also from the dumpsters or the paper pulp with the smell of hydrogen sulphide) corresponding to the air contamination and the pollution.

Similarly, we can't ignore the radioactive conditions that may exist in the territory other than Chernobyl. This is the case of radon, a radioactive gas that granite releases and which is the second cause of cancer in Portugal (after tobacco). This important aspect only began to be legislated in 2006 but being little publicized, is unknown to the majority of people and architects.

One equates a set of factors that have profound implications for public health and safety, which should be considered at from the beginning. This issue also involves new materials, as their chemical components are always problematic for health. As a result of air pollution, many allergies are on the rise today. Complex treatment systems for asthmatics are used, but a week over 2000 m is enough for all the mites to die and the problem is solved. Altimetry is an additional condition of natural treatment, which is why the sanatoria were located in the high areas or in areas with special therapeutic qualities.

Also the thermal qualities of the regions constituted one of the intervention strands privileged by the Romans like *Hierapolis* in Turkey. As well *Pamukkale*, Unesco World Heritage since 1988, is a special Turkish geological place with strong identity. Miles and miles of calcium cliffs (travertine terraces) are shaping multi-level pools of thermal water.

Methods

In modern societies, employability constitutes a dependency system of the worker that today suffers the contingencies vicissitudes of the economic crises with frequent bankruptcies and consequent unemployment. As a counterpoint, the constitution of small production cells can create economic sustainability for families or for small communities. They combine rural practice with a performance of sophisticated types of specialized work for which it is difficult to find new skills, types of remote work made possible by the internet, the computer, e-learning and teleconferences. The existing deterritorialization in this domain can take advantage of time zones and create global connections. Thus, continuous training actions still are one of the power factors nowadays, along with the credit card and the TV, according to *Deleuze*. There are two structures: one creates responsibility and training commitment; the other offers only subsidized facilitation.

Continuing training in terms of regional employability, meets the needs of the qualification and diffusion of regional products. There are niche markets in the global structure that value the quality of what is different. This is what differentiates agricultural products from regional production, which are a counterpoint to mass production as it is the wines' case. However, the cultural question that arises is the media coverage of life, by the effects of the easiness considered as a value that offers itself as an illusion.

Figure 9 Vernacular architecture in schist, *Lousã*. Author's drawing.

Some business and cultural dynamics can become attractive for the regions' development. As an example, *Lousã* - a municipality in the center of Portugal in the schist zone - is part of the "*schist villages route*" (Figure 9). Its dynamics, supported by the appreciation of architectural complexes and sites, the attraction of entrepreneurs and the creation of jobs in diverse areas, meet the concerns of International Charters in this field.

> "Architectural ensembles are groupings of urban or rural buildings, isolated or assembled, which by virtue of their architecture, unity or integration in the landscape, have Exceptional Universal Value from the point of view of history, art or science." (Miranda, 2015, p. 16)

Schist Villages

There are several types of dynamics that have been sedimentary over time, such as the schist villages. They correspond to an action program in network that sets up a homogeneous region with 27 villages distributed in 16 municipalities in central Portugal. All of them have constructive features that involve schist. Mostly ruins, they are nowadays award-winning tourist destinations.

The European application actions were a way to raise development funds that allowed the recovery of homes that are generally intended for rural tourism. Despite their landscape qualities, various kinds of events, group visits and cultural dynamics of rural culture are not enough to create a social dynamic that encourages the permanent habitability of these areas. Schist, rivers, reservoirs, streams, cliffs and valleys, constitute diverse and harmonious sets that allow walking, cycling or swimming.

However, they are seasonal actions that do not have as counterpoint an attractive social aspect that fixes people. In addition, they are included in production systems linked directly or indirectly to tourism.

Although it is a level of intervention that takes advantage of the exceptional landscape features that provide identity to the region, the organization of the territory must take into account the broad set of environmental, social and economic characteristics.

The most rudimentary forms of the economy of the mountain are found in the schist mountain range, having been for this reason belatedly populated. Even today, this factor is a deterrent to the agricultural development of these regions. However, the vineyard introduces the desired quality for development and exploration. The characteristics of the schist lands vary according to the regions and should be studied in depth.

Case Study: *Outeiro da Vinha*

Housing is determinant when talking of people's attachment to a place. When it corresponds to a symbolic value of tradition, it activates memories that are even stronger from when they root cultural values with customs and beliefs, with the secular imaginary that is transversal to time and helps to build the place.

In the book "*Inquiry to the Vernacular Architecture in Portugal*", which started being made in 1955, despite being a reference of vernacular architecture, it was detected a reductive presentation that omits the schist architecture in the center zone, except for two photographs that focus on the space adjacent to the project place.

These photographs make it possible to identify a small lane with a tree still in existence, but the confining buildings have already been destroyed and replaced by illegal multi-storey buildings. Also the materials do not come from the region. The examples proliferate all over the hill, demarcating the place.

Figure 10 Outeiro da Vinha, Portugal. In color: architectural intervention.
Source: Author's Personal Achieve

The house referenced as case study is located in *Outeiro da Vinha*, *Serra da Estrela*, Portugal - a small housing nucleus that has been getting depopulated and deeply uncharacterized (Figure 10).


Figure 11 and **Figure 12** Outeiro da Vinha, Portugal.
Source: Author's Personal Achieve

The expansion of a schist rural house that did not have the minimum conditions of habitability according to current standards, affirms the patrimonial value of the rural housing that was referenced as a sign of poverty (Figures 11 and 12). The owner of the house, who had already immigrated to Lisbon, requested the intervention of the architects Rui Barreiros Duarte and Ana Paula Pinheiro and distanced herself from the local mentality. She intended to optimize the housing program that had small areas, which were very conditioned, whilst spending little money on the construction (Figure 13).

Figure 13 Expansion of the house: local materials and technological innovation. Source: Author's Personal Achieve

Figure 14 Expansion of the house: Mezzanine. Views on the mountain. Source: Author's Personal Achieve

The use of cheaper local materials, allows the house of schist and wood to require practically no maintenance. It is a sign of recovery of cultural identity in an area where acculturation decontextualizes interventions with signs of equivocal status. The intervention reacts against the adulterations that have been done and against a misleading opening of concepts on what is today the vernacular architecture.

In addition, actions of this kind for sustainability and authenticity add value. It is a matter of architecture to know how to take advantage of tradition, to update the constructive systems and to create solutions of balanced performance in face of the new challenges (Figure 14).

The program, which is compatible with the small size of the pre-existing building, responds to the needs of agricultural work and considers the principles of passive sustainability. This is another current stage - in addition to patrimonial incidence -, which must coexist with it, to add value and interest to the built set.

> "Passive techniques, such as thermal insulation or use of solar heat, or even metabolic heat, can reduce the building's energy consumption by 70% to 90%. Shading structures can also improve thermal behavior, reducing energy consumption when cooling the building." (Pinheiro, 2017, p. 39)

The Passive Sustainability Principles that were used in the intervention respond to a set of points that must always be equated in architectural interventions and that we hereby enunciate:

> *"LEAK-TIGHTNESS: The buildings are designed to avoid thermal losses and damages caused by humidity.*
>
> *INSULATION: The building façade must be properly insulated in order to avoid overheating during the hot season and excessive cooling during the cold season.*
>
> *INEXISTENCE OF THERMAL BRIDGES: improvement of energy efficiency through the elimination of thermal bridges. Thus pleasant temperatures are achieved and moisture damage is eliminated.*
>
> *HEAT RECOVERY: Heat recovery through the efficient use of solar energy and internal heat sources.*
>
> *WINDOWS: The windows should be strategically located and properly insulated in order to use solar energy efficiently and allow ventilation.*

> *VENTILATION: Natural ventilation should be favored in order to permanently provide fresh air in abundance and free of dust.*
>
> *SHADING: Various types of strategically located shading structures should be used to reduce energy consumption, such as sun visors, blinds, shutters, light breaks, vegetation."* (Pinheiro, 2017, p. 39)

The applicability of these sustainability principles in rehabilitation of vernacular architecture is innovative in terms of climate and energy control, since it is an issue that had never arisen in popular architecture in Portugal as it has such little detail.

Thus, cultural roots must be harmonized with the modern strategies, integrating the realm of authenticity and sustainability into the architecture that must respond to program, place, idea and construction (involving materiality).

Moreover, it is always necessary to consider the symbolic aspect that must guide interventions. This is where individual values, that have a strong impact on the quality of places, are ultimately played.

It is also necessary to equate the execution time, the price and the constructive techniques that are used. Many of the constructive techniques of schist buildings were lost over time, so it was necessary to know beforehand that there were performers capable of performing the work by replacing the traditional stereotomy, which in fact happened.

However, in order to respond to these situations, there are already some alternatives in the market today: modules of stone elements connected by a natural cement in order to overcome the lack of skilled labour. Also the coverings were executed in self-supporting solid wood structure with thermal insulation, properly acoustically insulated and waterproofed, and the final coating was done with flap and straw roofing.

It is an effective alternative to the old wood roofing technique. Besides the wood being dried in a greenhouse and running the risk of wiring, the workforce in the area is practically non-existent making construction almost unfeasible.

The intervention, in addition to taking advantage of the traditional materials of the place, aims to draw attention to vernacular architecture that has been devaluated in detriment of architectural acculturations that exhibit misleading symbols of success and desire. The

memories of old popular architecture belong dominantly to a past of poverty that one wants to forget. Hence the changes that emerge in the landscape reveal non-cultural solutions of bad taste and kitsch.

However, all the international recommendations are in order to avoid style subversions and the application of unrelated materials from the region that disfigure the sites. In addition to the example of individual interventions, the placement of the International Charters produced since the Charter of Venice is essential for preserving the built-in sets of authenticity. It means knowing how to add value to the existing by balancing the new meanings with the materiality and the spirit of the place, extensive to the sustainability domain.

Conclusion

The territory intervention must equate the society change and create sustainable and attractive alternatives to invigorate and fix populations in the abandoned regions of the interior.

The village of *Outeiro da Vinha* is part of the *Serra da Estrela* Natural Park, an area with great tourist potential throughout the year, including the winter when it snows.

Another strong reason to exercise institutional competences that guarantee the objectives - on a patrimonial, authenticity and sustainability level - expressed in the Charters and International Documents in relation to urban agglomerations and architecture.

Cultural identity cannot be replaced by the acculturated individualism expressed in the images of the houses of *Outeiro da Vinha*.

The public socialization space refers to the small square frontier to the chapel in which the tree was placed. The churchyard emptied of symbolism, of people and of the traditional architectural surroundings, was not characterized.

The social imagery has become residual against the prevailing individual imaginaries. However, the patrimonial matrix of the group must be recovered, creating a reality that manifests the balance between tradition and contemporaneity, responding to the new environmental and energy requirements.

In this sense, the establishment of intervention rules should guarantee a pallet of local materials and a set of constructive procedures, in addition to the necessary energy efficiency.Responsible technicians of the competent institutions should ensure the convergence of these matters, supervise the area and follow up on local architectural and urban intervention actions.

The research of the soil qualities and the varieties to be planted by qualified people in the area begins to exist in several wine-growing areas of Portugal, reinforcing the economy of the region.

The same must be guaranteed with the technical and environmental aspects involving architects who are trained in these areas. It is not permissible to have omissions and failures to comply with the rules that are already spread throughout the world.

The cultural and economic matters, coupled with the expectations of the current society, must create conditions so that there is no exclusion of opportunities by reversing the current desertification process of the interior.

The quality of the images must not be epidermal, but should correspond to a real fixation of the populations. This social aspect is articulated with the architectonic thought that specifies, recovers and enlarges the community network and architectural interventions that were omitted from the Inquiry, as opposition to the destruction of the regions' characteristics, the acculturation of personal taste and critical relativity.

It emphasizes the patrimonial place, the tectonics, the constructions' sustainability and quality, definitively distanced from the deficient conditions of livability that generated the symbolic repudiation by the past of poverty. It is necessary to reestablish the pride and values that people formerly had for their village, an identity that was ideologically deactivated. Today we find a revision of concepts, but there is a lack of theory essential to reinforce the cultural community sense and architecture in its time and place.

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