Water related heritage. The use of water for production of final or semi-final products in the parish of Cernache do Bonjardim, Central Portugal

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Abstract. The use of water as a driving force for the production of goods is very old. Over time, techniques and constructions were developed to make the most of water energy. There are elements that use water energy to obtain final or semi-final products, such as horticultural, touristic and thermal products. In the parish of Cernache do Bonjardim, Central Portugal, there are several types of this kind of elements, such as dams and hotels related to agricultural production and tourism. The main objectives of this article are to characterize and analyze the current situation of this heritage and its dissemination, enhancement and subsequent protection. The methods used were based on bibliographic, photographic, cartographic and in situ surveys. The approach comprises the survey of the elements mentioned above, subsequent cataloguing and analysis regarding their objectives and their geographic distribution. With this analysis it is possible to group the elements into categories that facilitate their characterization. Up to the preparation of this article, no document or record was found about the described elements in the studied area, which is a major limitation of the investigation. The originality of this work is that this type of heritage has not yet been approached in the territory under study. The article contributes to another study about this parish. Being a vernacular heritage and already with few existing elements, it is intended to give to it the value it deserves and that it is appreciated as a collective memory of the territory where it is inserted.

1 Introduction

The interrelationship between water and landscape appears as a first order indicator of an advanced society, which does not shirk, a commitment to its heritage taking the presence of water as a differentiator factor of urban and territorial identity [1].

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Throughout history the relationship between architecture and water has been symbiotic. More than confrontation, the architecture has coexisted with the forms that the water has generated, adapting to them, and even crossing them [1].

Cities have been generating hydraulic infrastructures throughout their history that have become part of themselves. The coastal cities have created a maritime façade on which are located numerous beaches, ports, docks, pontoons and bridges, docks, jetties, shipyards, rafts and salt pans. Inland cities are committed to river use generating mills, bridges, towers, dams or locks [1].

Since ancient times the control of water has been an inherent fact that has marked the evolution of some territories. The advancement of hydraulic technology has allowed the territorialisation of water management systems. Agricultural practices have also evolved to determine settlement patterns that form territorial models, where the landscape dimension of characteristic areas of rivers and their environment are of particular importance [1].

As is known, water has always represented the chance of survival for man. Whether in order to quench his thirst or as a means for agriculture to be possible, its importance is fundamental. The need to use the available water, whatever the way it exists in a given place, made man use several processes to manage it, from the most rudimentary to the most elaborate. Indeed, one of the greatest concerns of societies is to develop techniques that reduce their effort in the struggle for survival. This need, depending on the degree of technological or economic development of these societies, causes man to engineer and create new methods, some more rudimentary and others more complex [2].

Given the importance that water plays in the life of man, it is natural that the worship of water appeared long ago in the history of mankind. Some traces of this cult still exist today in certain customs, such as the Holy Baths that are taken in rivers and at sea on certain days of the year and also the various Holy Springs and the Holy Waters. This cult began in times long before agriculture [2].

It is then easy to understand how water has ceased to be just a commodity that allows life, and has become even more important, allowing also agriculture: thus, water serves not only to quench thirst, but also to kill hunger.

This work arose following a doctoral thesis [3] about the parish of Cernache do Bonjardim (CAOP2011; CAOP means Official Administrative Charter of Portugal), municipality of Sertã, in central Portugal, which contains an inventory on the theme “water” where the survey of equipment and buildings that somehow use water, was started. These elements provide a characterization of the *modus vivendi* and the landscape of this territory.

Given the extensive list of elements included in this theme and presented in [3], several categories were considered, of which the “use of water energy for the production of final or semi-final products” is one of them. This category also comprises the following subcategories:

- Weirs of the Cerdeira stream;
- Foz da Sertã’s Water House;
- Foz da Sertã’s Hotel.

As can be seen, other heritage elements that are also somehow linked to water as a driving force and that can be part of the so-called “water heritage” in the opinion of many authors are excluded from this group, such as mills and water mills. However, in this work, in relation to cultural heritage, an organizational methodology was adopted based on the thematic classification proposed by the Council of Europe (2003) [4] and, therefore, the other types of heritage found were included in another category [3].

The purposes of this article are to register and present the current situation of this kind of heritage, characterizing them and locating them in the territory where they are inserted, for their dissemination, enhancement and subsequent protection. In addition to bibliographic,
iconographic, photographic, cartographic and webgraphic research surveys were carried out in situ and interaction with local residents was valued. The amount and the seniority of bibliography presented is testimony to the innovation and originality of this work, as there are not many works about this territory with a similar approach. There are several severe limitations to this investigation, including the 1917 fire in the City Hall, which destroyed all the documents there, the disappearance of some constructions, as well as the scarcity of documents about this type of constructions. All of this makes it very difficult to recognize these constructions, specially the weirs, their geographical location and the determination of their period of construction. Thus, this work contributes to the dissemination of rural territories, isolated and without apparent interest, also opening up a new way of looking at this vernacular heritage. The survey of the water related heritage using for production of final or semi-final products, its subsequent cataloguing and its geographic distribution, constitute the approach adopted. In this parish, the existing heritage is essentially vernacular, rural and ethnographic. Despite the fact that, in 1999, ICOMOS [5] published the Charter on Vernacular Built Heritage, it is still considered an emerging heritage, in contrast to consolidated heritage, such as chapels and churches. Fortunately, attitudes towards heritage have changed and are still changing, which makes it possible to include the humblest heritage in this concept.

2 The use of water for production of final or semi-final products related heritage

Being an essentially agricultural and rural territory, the issue of milling cereals, but especially olives, is of high importance. To be able to produce flour or olive oil the water was used as a driving force to move the grinding wheels. Cernache olive oil is known for its quality and sharp taste, but without acidity. Weirs thus play a key role as a “tool” of a system that allows water to play its driving role in the mill industry. In order to be able to study the elements found, that is, the constructions related to water for production of final or semi-final products, an inventory was elaborated based on field surveys. We present the elements that were found, given the difficulties encountered in the fields because many of the grinding systems are in ruins and the correspondent dams could not be identified, for example. Therefore, the elements listed above were chosen, such as horticultural, hotel and thermal products.

2.1 Weirs of the Cerdeira stream

The weirs considered in this chapter refer to the existing weirs in the Cerdeira stream, the third largest watercourse that crosses the parish of Cernache do Bonjardim, after the Ribeira da Sertã and the Zêzere river, which is an important river in Portugal (Fig. 1). This Cerdeira stream, although being small, is very important for the agriculture of this territory, which is essentially rural, with many floodplains along the course of its bed.
Fig. 1. The territory under study with the main watercourses marked: Zêzere river, Sertã stream and Cerdeira stream (Marta Marçal Gonçalves).

A weir is a kind of dam, or wall, which is sometimes very high and which is erected in watercourses or rivers. This structure is launched from margin to margin, so that the water flow can be dammed and consequently raise the water level at the place where they are built [6]. The weirs serve to raise the water level at the site, being the water diverted by a channel (“levada”) to the mill and serving as a driving force to make the grinding system work.

Weirs can be of different types, depending on their location and watercourse conditions. They are located at the most convenient points to be easily built and to achieve the water level to have a convenient flow to trigger the industry to that they serve [6], which can be mills, olive oil mills, sawmills, among others.

On the weirs, [6] it states: “The weirs are generally of powerful and coarse construction, of stones and earth, taking advantage of any nook or accident of the terrain, and using the natural sieve of the riverbed as a foundation or support element, which is incorporated therein; and sometimes take the feature of walls or long sidewalks with small slope”. Often the weirs also serve as a footbridge between banks [6].

The weirs considered in this article are or were used almost exclusively for water retention for the production of grinding products and are located at Poço Redondo (Fig. 2-a), Ponte da Pedra (Fig. 2-b) and Borrelos (Fig. 2- c). In general, they had a vertical rail where a board or a metal plate was fitted, making it difficult for the waters to pass (see detail in Fig. 2-b). When the water reached the desired level, this board was lifted slightly and the water was flowing slowly.
Fig. 2. Weirs at Cerdeira stream: a) at Poço Redondo; b) at Ponte da Pedra, where you can see the vertical rail carved into the stone to fit the gate; c) at Borrelos (Marta Marçal Gonçalves)

2.2 Foz da Sertã’s Water House

The Foz da Sertã’s Water House and the Foz da Sertã’s Hotel, although located in different places of the Zêzere reservoir in the Ursa Valley, are closely linked, since the Water House was built to serve as the Hotel’s reception, for those who came from the South by the national road and wanted to enter the Hotel by boat. It is located in the parish of Cernache do Bonjardim, on the edge of the main road, immediately after the concrete bridge of the Ursa Valley. It has a very interesting chimney that should be preserved as a heritage element.

In this House was installed a cafe that served drinks and some food to hotel customers who so desired. It is currently in very poor condition, with a high risk of total building loss. Fig. 3 shows the House in 2010 and 2023, noting that, at the moment, it has already lost most of the roof and that the chimney is at risk of collapsing. Its rehabilitation becomes urgent, even if with other functions, since the land where it is implanted allows car parking and offers a very beautiful view of the reservoir.

Fig. 3. Foz da Sertã’s Water House, where is shown the chimney and the tiles announcing the name. In 2010 – a, b and in 2013 – c, d (Marta Marçal Gonçalves).
2.3 Foz da Sertã’s Hotel

Located near the mouth of the Sertã stream and next to the village of the same name, there is the Foz da Sertã’s Hotel and the only spring of thermal water in the parish, which was previously explored, even having existed a bottled water factory, being, nowadays, completely voted to abandon Fig. 4-a.

For the thermal water was granted exploration authorization (bottling and thermal baths) in 1894 and the Hotel was built in 1959, both of which were abandoned in 1974. This water was very famous and people came from many sides to enjoy its properties, which, according to C. da S. Teixeira [7] and Farinha [8] would be suitable for diabetes. The water was even bottled and sold, as mentioned earlier.

Despite the current bad state, this place is still a very pleasant space due to its privileged location near the Zêzere river (Fig. 4-b).

3 Results and discussion

In order to group the information and better visualize the geographic location of each of this water related heritage elements found, Fig. 5 was elaborated, where all this information is gathered.

All weirs are close to grinding systems such as cereal mills or olive oil mills. However, this cannot be stated in the case of the Poço Redondo dam because no grinding system was found nearby. It may have existed - the most probable theory - but there is no longer memory.

As it was said before, the Cerdeira stream, despite being a small stream, is very important in this territory because it crosses it from northeast to southwest and, along its course, forms floodplains that are almost plain agricultural land. In the past, to be able to water these lands, it was agreed between the neighbours the time to do so, so that the water would reach everyone. Socially, this issue was also very important and sometimes aroused very heated discussions and quarrels arose, because it meant starving or survive.

Even today this stream is used for watering small agricultural fields, which usually form small patches with various owners, representing a help for the family economy, in a place where subsistence farming has a key role.

Fig. 4. The building of the Foz da Sertã’s Hotel (a) and its integration into the local landscape (b) (Marta Marçal Gonçalves).
Fig. 5. Summary of the spatial location of the patrimonial elements found that use water energy to produce final or semi-final products in the parish of Cernache do Bonjardim (Marta Marçal Gonçalves).

The Foz da Sertã’s Water House, together with the Foz da Sertã’s Hotel, started out as a very original, interesting and pleasant project, but ended up failing completely. The bottled water factory eventually closed, the hotel pool, designed to be filled with river water did not work because the river water level in summer, when the pool would be used, is very low, and therefore the pool was without water, for example.

However, the idea of the hotel reception being done at Foz da Sertã’s Water House and, hence, the hotel guests being taken to the hotel by river transport was very good, as the trip is very pleasant and one can enjoy a very beautiful landscape (Fig. 6).

Fig. 6. Landscape of the Zêzere river in the parish of Cernache do Bonjardim (authors)

4 Conclusions

As you can see in Fig. 5, the weirs of the Cerdeira stream are located in the northeast of the territory of the parish of Cernache do Bonjardim and the Foz da Sertã’s Hotel and Water House in the southwest. The Foz da Sertã’s Hotel is located at the mouth of the Sertã stream,
which flows into the Zêzere river, and the Water House near the bridge that crosses the Zêzere river. Thus, it is natural that these two last heritage elements are located next to this watercourse. The weirs of the Cerdeira stream, probably in greater number than those found, are located along that stream.

With the rural exodus and the consequent decrease of the population, there are more and more abandoned agricultural fields and, consequently, less cereals to grind. The upcoming of pine and eucalyptus plantations over a large area made disappear most of the olive cultivation; thus, with the disappearance of the milling systems, also the weirs are no longer useful, which leads to its abandonment and consequent deterioration and disappearance.

This type of heritage - vernacular, rural and ethnographic - is at serious risk of disappearance in the parish under study, and some of the reasons are the decrease in population, the loss of use or the use of new production techniques, falling the old in total disuse.

The tourist complex of Foz da Sertã, which seemed a good investment at the beginning, proved to be a failed project for several reasons. In any case, these elements also deserve to be preserved, reused and/or assigned to new functions. The surrounding landscape of these elements could be explored because it reveals great potential (Fig. 6). As future developments, it would be interesting to study not only the weirs, but also the cereal mills, the olive oil mills and all the social and legal part regarding the use of water from the streams of Sertã and Cerdeira, both now and in the past.

References

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