WATERSCAPES, MEMORY AND TOURISM:

Materiality and place-making around Madeira's *levadas*

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ABSTRACT: This article analyses the relationship between waterscapes, memory, and tourism, particularly to understand materiality, and place-making around irrigation canals. To examine this relationship, I use a case study about the *levadas* of Madeira Island, an extensive network of irrigation canals whose main function is to conduct and supply water for irrigation and human consumption. However, beyond this, the *levadas* are also a space of memory and social relations centred on water. They integrate cultural landscapes and are the product of specific cultural, social, spatial, economic, and political arrangements, knowledge, and cultural material. The article is based on ethnographic research on *levada*s in Madeira, featuring participant observation, semi-structured interviews with several social actors, visual data collection, and archival research.

KEYWORDS: heritage, tourism, place-making, water canals*, levadas*, Madeira Island.

Introduction

> *For these people, the problem with levadas is life itself. Without water, the land will remain in ruins. Through water, the Madeiran became a giant measuring strength with another giant: the mountain. Through water, he was able to extract superhuman energies from his average stature and supply what nature did not provide him with. Through water, he defied death and was often defeated*. (Lamas, 1956, p.110).

Madeira is the largest island of an eponymous archipelago located 520 kilometres to the west of Morocco (see Figure 1 for details) that includes Porto Santo, 55 km to its northeast and the unpopulated Desertas islands, located 30 kms to the southeast (see Figure 2). The islands constitute an autonomous region within Portugal whose administration also encompasses the uninhabited Ilhas Selvagens, 280 kms to the south of the main islands. The archipelago has a subtropical climate characterised by dry summers and wet winters, but the main island's elevated terrain also results in pronounced local microclimates. The islands were uninhabited when they were claimed for Portugal in 1419, and the main island of Madeira was settled soon after. The present-day population is around a quarter of a million, most living in and around Funchal and the region's main industries are tourism and agriculture.

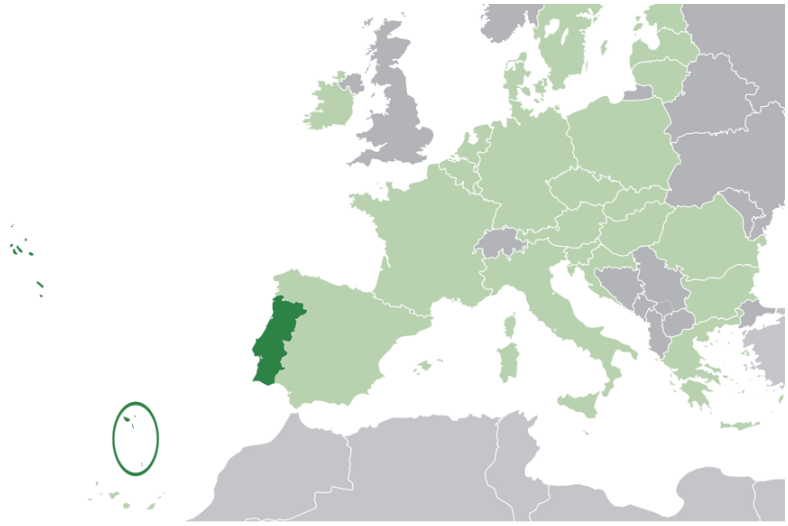

Figure 1 – Map of Madeira's position (indicated by oval) in relation to the West African coast, Portugal (rendered in dark green) and the European Union (in light green) (Wikimedia Commons, 2024).

Figure 2 – Madeira (centre left) and its adjacent islands (Google Maps, 2024).

On the island of Madeira, *levadas* (from the Portuguese verb *levar* – to carry) constitute a system of channels/aqueducts of many kilometres in length, mostly bordering mountains or going through them with narrow footpaths running alongside them. They are narrow canals built to carry water for irrigation, domestic supply, or energy that exist throughout the island of Madeira. (See Figure 3, which shows one *levada*, built in the 19th century). They are inseparable from the way the land has been used since the time of settlement. Together with terraces (*poios*), they represent a key aspect of Madeira's cultural heritage, a material testimony to Madeiran history and the development of regional agriculture throughout the

centuries. The *levadas'* construction combines local knowledge about water and orographic resources and scientific knowledge concerning recent hydraulic engineering methods. Their primary function is to convey and supply water for human consumption and irrigation. Assuming the archetype of the living heritage of Madeiran culture, the *levadas* are multifunctional. In addition to their primary function, the *levadas* generate capital as one of the main tourism products existing in the Portuguese Autonomous Region of Madeira. They also represent a symbolic capital receptive to political instrumentalization. Beyond these aspects, discussing *levadas* involves considering communities, places, and rural landscapes, because the primary function of these channels is water supply. "The *levadas* contributed to the change of the agrarian landscape and also the change in the development of populations themselves" (Raimundo Quintal, p.c. 2008). There is no way to separate them; they are inserted in a broader context, transcending the locality, definitively assuming a regional character. They cross from the north coast towards the south, passing through parishes and places, being sites of remembrance and (re)interpretation of local cultural practices and social dynamics (Fernandes, 2009).

Figure 3 - *Levada* do Caldeirão Verde (author's photo, 2011).

The *levadas*, understood as "sites of memory" (Nora, 1989) encompassing local water repertoires, are also a space of memory and social relations centered on water, as will be analysed later in this article. They integrate cultural landscapes and are the product of specific cultural, social, spatial, economic and political arrangements, knowledge, and cultural material (Strang, 2004).

Irrigation systems are not unique to Madeira Island; they arise from the need to transport irrigation water to agricultural fields. Analogous traditional irrigation systems can be found in Europe, particularly in the Canary Islands (Batista Medina, 2001; Reys Aguilar, 1989). Recently, as in Madeira, hiking trails along irrigation canals have become popular in other regions. An example of this is the Waalwege irrigation channel trails in Merano, located in the Southern Tyrolian (Alto Adige) Alps, which are narrow paths along historic canals that date back to the 13th century and were once used for irrigation (see Dolmiti.it n.d.). Another case can be found in the Canary Islands, specifically in La Palma. Among the various trails on the island, one is situated near irrigation channels, offering a chance to explore the landscape while following the paths once used for water transportation (see La Palma, Island, n.d.). Just like in Madeira, 'liquid itineraries' in these areas take on other functions while materialising cultural practices present in material and cultural systems.

This text draws on data produced within the scope of my Master's work in anthropology, which focused on the *levadas* as spaces of memory and social relations centred on water (Fernandes, 2009), and, later, in my doctoral research, whose theme was the study of *levadas'* cultural heritage as a tourist resource (Fernandes, 2013). Both endeavours were based on in-depth ethnography, combining participant observation, informal conversations, and semi-structured interviews with residents, researchers, and government authorities. All quotations from these sources in the text are translations by the author. In addition to the research, I have used visual data collection and archival research. This article uses a nexus of cultural, social, political, and material dimensions to explore regional irrigation systems as cultural constructs, focusing on place-making, heritage, and tourism. It explores the liquid itineraries, knowledge, meanings, and practices associated with the *levadas*, shedding light on how they are governed, accessed, and consumed.

I. A brief contextualisation of *levadas* on the island of Madeira

> *The layout of the levadas in Madeira astonishes those who see the boldness and difficulty of their construction – technicians or simple tourists, whatever their nationality.* (Lamas, 1956, p. 106).

On Madeira Island, the history of the *levadas* is deeply intertwined with that of its population. Their origins date back to the time of the first settlers who, driven by the need for cultivation, decided to use the abundant water for crops and sugar mills. With the growing need to irrigate the sugarcane fields and vineyards, the network of *levadas* multiplied and its construction was carried out using safer techniques. The King's charter of 1493[1] granted the name *levadas* to Madeira's irrigation canals. The oldest *levadas* were built using rudimentary instruments. By contrast, the most recent *levadas* were built using modern machinery, which in addition to reducing human effort, sped up the work. The new *levadas*, unlike the original ones, built on wooden gutters, were constructed in solid masonry, not exceeding 1 m in width and a depth of 30 to 80 cm. The *levadas* were built by the private sector and only in the 19th century, faced with economic difficulties in agriculture, did the Portuguese government begin to invest in them, with the emergence of the so-called state *levadas*. Until the middle of the 19th century, state action was limited and involved exploration and the creation of laws on the administration of private *levadas* (Quintal, 2001).

[1] Carta Régia de maio de 1493.

Until the 1940s, irrigation works were under the responsibility of the Public Works Division (DOP) of the General Council of the Autonomous District of Funchal. At that time, the General Board had a hydraulics subdivision, addressing irrigation problems on the island. In the 1940s, national initiatives aiming to exploit natural/national and regional resources resulted in major hydraulic works. The Comissão Administrativa dos Aproveitamentos Hidráulicos da Madeira (CAAHM) emerged as part of the national plan for restructuring agricultural hydraulics and carried out unprecedented work in capturing water and using it for energy production, electricity, and agriculture (Quintal, 1995). The basic ideas of this new plan for the hydraulic use of Madeira were based on:

> *directing, to the dry lands in the south, the water lost or poorly used in the north of the island, without prejudice to the expansion of irrigation in that area; and taking advantage of the possibility of perfectly combining energy production with the imperative need to irrigate the land, boosting the water before releasing it into irrigation.* (CAAHM, 1969, p.43).

Given that the island is around 737 km² in size, of which only 300 km² are capable of being made arable, in 1947:

> *The irrigated area did not exceed 110 km², which was small. Thanks to the work... of a small group of technicians... in 1967 almost the entire arable area was irrigated and the Levada network had grown from 1000 to 1400 km. In twenty years, almost 400 km of canals were built and 209 km² of land went from rainfed agriculture to irrigation. Four hydroelectric plants were also built, which produce around 20% of the energy consumed in the region. This work was... notable for the difficulties it entailed. At altitudes close to 1000m ... almost 100 km of levadas were opened. Of these 100km of canals located upstream of the plants, around 20 are in tunnels. At lower levels, levadas were opened that transport water for irrigation and urban supply, after turbines in plants located 600m above sea level. (*Quintal, 2001, p. 28).

The CAAHM Plan involved the construction of new public *levadas*, the construction of some *levadas* under the responsibility of private individuals, and the creation of groups of owners for the construction of canals, with rights to water for themselves and their heirs. Given these new uses, the irrigated area expanded, making full use of regional water resources, ending indiscipline and continuous fights over water. The State intervened in this issue in an organised manner, considering water resources as a regional asset. In parallel with this new plan, a revised legal framework was established, reaffirming the fundamental principle of linking water to land.

Over several centuries, both the State and owners of private *levadas* (known as *heréus*) maintained the tradition of building *levadas* but in recent decades, this task has fallen exclusively to the State. Initially, it was the owners who managed the waters of their *levadas*, selling the leftovers to tenants and settlers, but from the 16th century onwards other private *levadas* also emerged, built by associations of *heréus*.

According to Susana Fontinha, executive coordinator of the Levadas Candidacy to UNESCO, there are 141 main *levadas*. Of these, 82 are administered by Águas e Resíduos da Madeira (ARM), 21 by Empresa de Electricidade da Madeira (EEM) and 31 by irrigation commissions/associations (pers. com, 2022) The main *levadas*, located at 1000m or higher, capture and convey water to the hydroelectric plants, with their management under the

responsibility of EEM. In turn, the main *levadas* that receive turbine water at plants or that capture water from springs or streams, at the upper limit of the agricultural area, have the primary function of distributing water. These are mostly managed by ARM, with others still under private management.

The following image (Figure 4) shows the island's network of *levadas* with the main public canals illustrated in green, while the main private ones are shown in orange. In an island territory with a small area (737 km²) and a high population density (334.5 inhabitants per km²), home to 253,000 resident inhabitants and a significant number of visitors, the monumental work of the *levadas* is visibly engraved in the landscape.

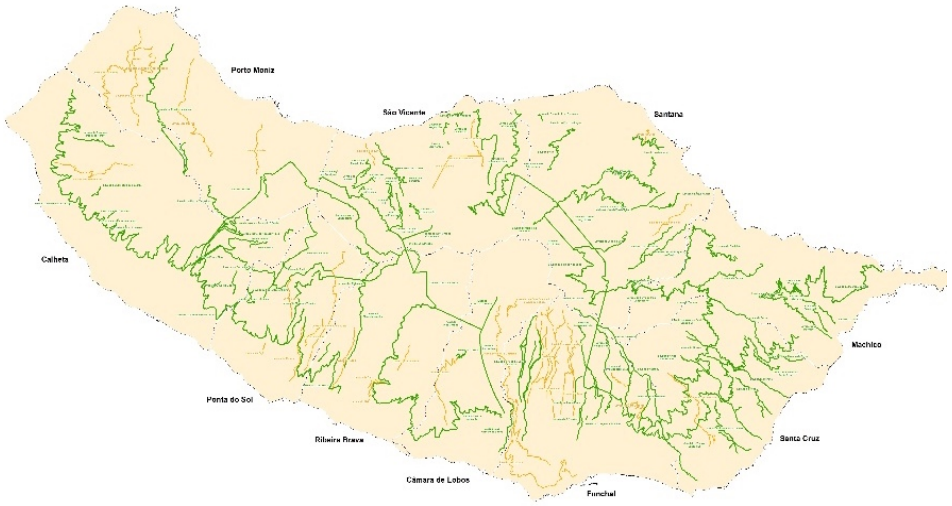

Figure 4 – Network of *levadas* in the Autonomous Region of Madeira. (Source: ARM – Águas e Resíduos da Madeira, S.A., 2024)

II. The living water heritage and its context

Irrigation systems may be considered as texts to be read. Given this, some questions arise. What is the relationship between water and place-making? What narratives persist about its meaning? How are water narratives contested, and reconstituted, and how do they change significantly to reveal the meanings of place and community over time? To address these aspects, I will investigate several narratives showing specificities of heritage in use, local repertoires of water rights, and secular forms of water organisation.

Past and present: heritage(s) in use and place-making

> *The levada carries associations gold and mourning. It is a good and a curse. The harrowing problem of water, a problem of life and death…. At the same time, in the arena of work, the levada is built with a sum of lives. The workers are suspended by ropes barely secured… with a smile on their lips, playing with*

> *their death, at heights of more than a thousand metres, excavating the basalt rock.* (Oliveira, 1969, p.30).

As Veronica Strang (2004) once detailed, "engagement with water is the perfect example of a recursive relationship in which nature and culture literally flow into each other (2004, p. 05). The relationship between water, hydraulic heritages, and communities highlights the construction of place. For Madeirans, water is an important aspect of place-making. Its examination reveals two aspects: 1) sociocultural irrigation practices and their distributive logic; 2) social dynamics and relations centred on water, memories, and conflicts. To address them, several narratives will be explained.

Water management – the infrastructural narrative

The first narrative relates to water management and the tangible and intangible hydrographic heritage. Water-building structures are part of Madeira's cultural heritage: *casas de água* (water houses)[2] (as illustrated in Figure 5), water house shelters [3] , wells, water dividers, water sawmills, water mills, hydroelectric plants, and finally, irrigation structures. On the other hand, intangible heritage, mostly linguistics, legends, and traditions are fundamental to understanding how these cultural heritages are present in communities daily. For almost five centuries, communities have been creating intangible heritage associated with *levadas*, irrigation water, their irrigation practices, conflicts, etc. Agricultural practices are linked with sociocultural irrigation practices, showing, in their multidimensionality, the politics of space in irrigation communities, in particular, knowledge, discursive meanings and practices (Bryant & George, 2016).

Linguistic culture proves to be quite revealing. There is a diversity of words that reflect specific aspects of the *levadas'* multiple functions. Associated with the *levadas*, there are words and expressions, ways of saying that have acquired specific meanings, used in certain contexts, given the social and cultural contexts of the island. While the term *levada* exists elsewhere in Portugal, its derivatives, such as *o* (the person who takes care of the *levadas*) and the distribution of irrigation water) and *levadagem* (payment made by the irrigators to the association that covers the salary of the *levada* operators and the expenses for repairing and maintaining the levadas) are specific to Madeira. There are also terms and expressions present in oral discourse, such as: *abrir a água* (opening the water), *boca de saída* (exit points), *mandar a água* (sending the water), and *água adiantada* (advance water). Some terms are recorded in lexicographic documentation such as *água cansou* (tired water), *água de distribuição* (distribution water) and *água perdida* (lost water), among many others. Even though rural populations use these terms daily, particularly those who work with the *levadas*, they remain unfamiliar to most of Funchal's inhabitants and visitors/tourists. Altogether, they encapsulate the identity and multi-functionality of the *levadas*, highlighting their connection to the island's agricultural practices, cultural traditions, and historical development.

[2] Water houses are small structures located along the *levadas*, whose function is to distribute the water subsequently directed to the secondary channels.

[3] They are small shelters built along the *levadas* to house water management equipment and serve as protection for the *levadeiros* who maintain the irrigation system.

Figure 5 – An example of a waterhouse, located at PR 10 - Levada do Furado, which was built in 1906. (author's photo, 2003).

The *levadas* built in recent decades have a greater capacity than their predecessors with their depth varying between 1m and 1.20m, and their width being around 1m. However, despite their capacity having increased significantly, they have retained their narrowness to limit evaporation depletion. The length of each *levada* is variable. For maintenance purposes, each *levada* has a parallel path, termed an *esplanade.*[4] Over the centuries, the construction of *levadas* created important access routes for the population, bringing together the necessary conditions for housing. This new factor, materialised in the *esplanada*, increased access to areas that were previously exclusive to water. In this way, the *levadas* introduce circulation routes in rugged environments, where goods and people, could travel simultaneously.

The distribution of water is undertaken by rotation (*giro*)[5], which is:

> *the interval that elapses between watering any land and its subsequent watering, a period of days that, as a rule, never changes and that is maintained with the most rigorous supervision*. (Silva and Menezes, 1978, p. 229).

[4] The narrow path usually runs alongside and parallel to the *levada* practically throughout its entire stretch. Usually, it is used as an easement and path for residents and walkers on nature discovery trails. Figure 3 displays the *esplanada* on the left side of the canal.

[5] Locally, rotation is undertaken in the summer irrigation period.

The regular functioning of the *levadas* is dependent on the *giros* (water rotations) which regulate the distribution of water along the *levadas*. These rotations vary depending on whether the levadas are privately owned or managed by the state. In the case of private *levadas*, the most common rule for water rotation is typically around 15 to 20 days (Fernandes, 2009). In state-managed levadas, water rotations can range from 15 to 30 or even 40 days, depending on the specific circumstances. *Giros* are practiced by *heréus*, or by salaried workers hired for this purpose. Water distribution to irrigators is carried out through secondary networks derived from the main canals. These are manoeuvred by the *levadeiro*, who operates the *tornadoiros*, allowing the corresponding water to flow to each user during their allocated time. Along the main canals, there are a series of distribution boxes or dividers, known as *marcas de água* (watermarks), as illustrated in Figures 6 and 7, in which the flows that feed the waterers are carefully controlled. This control is achieved through holes calibrated to regulate the flow, ensuring that the water distribution aligns with local customs and customary law.

Figure 6 - *Marcas de água* at Levada Nova da Lombada da Ponta do Sol (author's photo, 2003).

The distribution of water to irrigators occurs from top to bottom. Each irrigator knows the day, time, and watering duration, following local uses and customs. The land is irrigated carefully, always starting in the highest areas and ending in the lowest, taking advantage of uneven terrain, or gravity, in this case applying gravity irrigation (Portela, 1996).

Currently, several entities are involved in the management of *levadas*. As mentioned, 82 levadas are administered by ARM, 21 by EEM (Empresa de Electricidade da Madeira), and 31 by irrigation commissions/associations. This management follows the following rule: each entity intervenes in the canals affected by ownership/use/management, resulting in what Tilt (2015, p.15) characterises as water being "a medium through which social and political relations are negotiated."

Figure 7 - *Marcas de água*, Levada do Moinho (author's photo, 2003).

In the public water sector, the ARM is responsible for the management and maintenance of the irrigation system in high (intake and large intake) and low (storage and distribution) irrigation systems on the island of Madeira. The public irrigation system, managed by the ARM, as shown in Figure 8, comprises a network of around 2800 km of water supply and distribution canals, benefiting around 5400 hectares and approximately 40,000 irrigators, across 8 irrigation subsystems (ARM, 2024). Some of the main public irrigation systems have common origins with public drinking water supply systems, that is, they compete for the same water (ARM, 2024).

Figure 8 - Madeira Public Irrigation System - distribution across 8 irrigation subsystems, main canals. (ARM, 2024).

Data provided on the ARM website indicates that in 2021, there were 39,958 irrigators in Madeira. The number of agricultural parcels amounted to 41,817, and the total irrigation area covered 5,324 hectares. The *levadas*, which play a crucial role in water distribution, had a combined length of 2,790 km. Additionally, around 200 individuals were involved in

irrigation work, and the total number of hours spent by the *heréus* (those responsible for watering the land) was 413,330 hours.

The infrastructural narrative highlights the political dimensions of water management, where conflicts over this scarce and valuable resource are common. These conflicts involve both coercive and cooperative social relations. (Batista Medina, 1998). As Strang identified;

> *The control of water is essential to political power. In essence, whoever owns or controls the water – the life stream – is at a very fundamental level in control of events.* (2015, p. 53.)

In Madeira, the history of irrigation encompasses not only water-centered social dynamics/relations but also underscores irrigated water as a common good (Fernandes, 2009), which ties in the following narrative.

Water memories in Levada do Moínho – a selected sociocultural narrative and sense of place

The *levadas* on Madeira Island are spaces of memory and social relations focused on water, with memories embedded within the communities that are visible in the daily irrigation practices.

> *Interactions with water take place within a cultural landscape, which is the product of specific social, spatial, economic and political arrangements, cosmological and religious beliefs, knowledges and material culture as well as ecological constraints and opportunities.* (Strang, 2004, p. 05).

The landscape produced through local practices (Hirsch, 1995) is visualised through the social organisational practices of water appropriation and management, along with the water repertoires.

The landscapes created by social actors through their experience and connection with the space that surrounds them are associated with the creation of identities and processes of individual and collective remembrance. The landscape is not inert, individuals adjust, appropriating and contesting it (Bender, 1995). Waterscapes in Madeira follow this line of thinking, carrying both symbolic and mnemonic dimensions. *Levadas*, viewed as spaces of memory, can be understood as places where the community - specifically the irrigators - construct representations through ancestral social practices shaped by diverse experiences. The case of the Levada do Moinho and its irrigation system exemplifies these elements.

The Levada do Moínho is located on the south coast of Madeira, and it is part of a private irrigation system belonging to *heréus* (See Figure 9, which shows a section of this private *levada*). It materialises the knowledge of the community that surrounds it. The waterscape reproduces the history of this space, and its multi-locations, and is an essential fragment of memory still evident today in the community. Its construction dates to the 15th-16th centuries, when the lands of Lombada da Ponta do Sol (dos Esmeraldos), constituted an extensive agricultural property that, because of property rights, were divided into numerous exploration units. The richness of this heritage asset lies in the particularities of its irrigation system, in the humanised landscape that surrounds the location, and in the local cultural practices and social dynamics that attest to the rhythms of the area's agricultural dimension. Locally there are contested, relational, processual water narratives that have changed to

communicate watery placemaking (Visentin & Kaaristo, 2024) and local community over time. But what kind of human relationships with water exist locally?

In 1962, a significant event took place in Lombada da Ponta do Sol (located on the southwest coast of Madeira Island) which shaped the relationships and construction of the place and embodied the constructions of memory around water and waterscapes. The *luta da água* ('water fight') is a significant event for local people, holding strong social and cultural relevance. It is intensely tied to memories of past daily life, irrigation practices, and conflicts over water use along the *levada*. These memories shape the community's cultural identity and are revived whenever the sound of water flowing through the canal is heard, linking past and present experiences.

Figure 9 – A section of the Levada do Moinho located at Lombada da Ponta do Sol (author's photo, 2003).

The construction of a new state *levada* known as Levada Nova da Ponta do Sol, stands as a significant precedent. Located at a higher level than previous *levadas*, this project resulted from a hydro-agricultural development spanning the municipalities of Ponta do Sol and Ribeira Brava. Some of its objectives were to:

> *take irrigation water to regions that needed it, namely, to the lands between Ribeira da Caixa and Ribeira Brava... strengthen the flow of the Salazar Power Plant and release more water to irrigate the lands of Ribeira Brava and Câmara de Lobos.* (CAAHM, 1969, p.61).

Alongside this new plan, a new water legal regime was established that confirmed the basic principle of linking water to land. While no legal issues were reported regarding the use of abandoned waters, the same could not be said for waters acquired through titles.
For CAAHM, Levada Nova da Ponta do Sol, was intended to "distribute to the lands located between Ribeiras da Ponta do Sol and Ribeira Brava, below the elevation of 410 metres, the other part of the surplus flows from the use of Calheta, those coming from Levada dos Moinhos" (1957, p. 12). But the local population did not view the construction of this state

levada in the same way, and some expressed concerns that the water would be diverted from Levada do Moinho to the new state *levada*, as shown in the following statements: "can't you see that they wanted to remove the water and take it from there" (Mariana, 70 years old, Lombada).

> *It was all because of the water!... and then, they came to take it away, and that's when they created the Levada Nova. They wanted to take the water!... then the people understood that it shouldn't go!*" (Luísa, 80 years old, Lombada).

The new irrigation plans resulted in different forms of water management and appropriation. In public water appropriation, irrigation is carried out according to state rules, in which irrigators rent or buy water, watering the land by the hour. In private appropriation, the heréus owns the water, and irrigation practices are subject to local uses and customs (Fernandes, 2009). There is some dispute as to whether the local population was adequately warned when the CAAHM plan progressed (Freitas, 1994, p.12), leaving them unprepared for the construction of the new *levada*. However, according to CAAHM documentation, the project was already planned, and technicians had been sent to the area to prepare for and carry out the necessary work.

The following statement illustrates that the information provided to the population was that the new *levada* would serve to carry away excess water. However, despite this explanation, people remained convinced that the construction of a new state *levada* was a means to divert water from one *levada* to another:

> *They built a new levada to take the water from here and sell it... the water here was legal because the people paid with the right to land and water. They could only take what was left over but they wanted to take it all. (Joana, 84 years old, Lombada).*

Upon completion, the order was given that the water would no longer be channelled to Levada do Moínho but would instead be transported to the new *levada*. At this point:

> *the people intervened and ran en masse towards the point of the levada, aiming to disrupt the order. The only water on the island of Madeira that is its own is this, ours! Because it was ours... So, that water doesn't belong to the state, it's ours! They wanted to take control of the water. The people revolted at that time... that water was ours! And the revolution began, we went inside, where the water began, to prevent them from coming and taking our water*! (Ana, 52 years old, Lombada).

In the early hours of August 21, 1962, watchmen alerted the local population of the arrival of several pickup trucks carrying dozens of police officers who accessed the contested location through the neighbouring parish and reached the point of the *levada* where people were and attempted to exercise their authority. Upon their arrival, the police surrounded the people who were there, while others, who had remained in their homes, quickly rushed to the location *en masse*, to help them and to protect what was theirs. But "after some disrespect", a shot was fired and many people were arrested (Joaquim, Jangão, 52 years old). One of the people who came to the aid of family and friends ended up being killed during the event and became a martyr in the local fight for the water. After the young woman's death, the water fight subsided as the state took short-term control of the *levada*. This landmark event also influenced local water management itself, more specifically, the movement of water from

Levada do Moinho, which for approximately two years was managed by state *levadeiros*. Several years later, an agreement was reached at the judicial level that allowed the *heréus* of Levada do Moinho to continue to manage and administer the waters.

The following quote, found on the martyred young woman's tombstone in the local cemetery, recalls that although the people suffered, they ultimately won the case in court in the name of what belonged to everyone, namely water. "The blood you spilled, let it run freely in the waters, Oh! Saõzinha, you fell, but your people won."

Olick and Robbins (2004) have identified that to preserve their past, communities engage in the retelling of the constitutive narrative of their histories. We can therefore speak of communities of memory, which do not forget their past. During my research, I heard constant allusions to the *luta da água* that continues to live on in the social imagination through the ongoing reproduction of this memory—both the memory of the tragic day and the memory of the days spent defending their water. In the case under analysis, water is a powerful resource, shaping particular social forms and social values (Hastrup, 2013). Water not only influences the daily life of the local community but also acts as a force that shapes their collective identity. It underscores not only the memories tied to water but also the liquid construction of the place. The following image (Figure 10) illustrates this narrative to some extent. The widest canal belongs to the state, while the smaller canal was built by an association of *heréus* (irrigators) to transport their water.

Figure 10 - This photo represents a tiny part of a long narrative associated with the water fight that took place in Madeira in the 1960s. (Author's photo, 2004).

III. Liquid itineraries and tourism: practices and experiences

Drawing on Pereiro's (2003) analysis of the productivist/mercantilist approach to cultural heritage as a consumable product for export (Kirshenblatt-Gimblett, 1998, p.153), this article explores Madeira's waterscapes as valuable assets for tourism and recreation. While heritage discourses around Madeira's landscape and rural heritage, including agriculture and irrigation, are well-established (e.g., UNESCO's recognition of the Laurissilva Forest in 2009),

the author offers new perspectives on how to understand, conceptualise and engage with the *levadas* in the context of tourism.

Place commodification is paramount for tourist development. Britton suggests that "certain places and sites (with their landscapes, social practices, buildings, residents, symbols and meaning) achieve the status of tourist sights because of their physical, social, cultural – and commercial attributes" (Britton, 1991 p. 462). In Madeira, the relationship between tourism and place commodification became noticeable with the (re)production and consumption of tourist places. The analysis of some cultural texts dated between 1957 and 1974 suggests that *levadas* were not promoted as a specific product in this period but were part of a regional strategy that promoted landscape, nature, lush vegetation, excursions to the mountains, etc.

In a letter dated December 31, 1957, a text intended for publication in the *Annual International Travel News* announced the embryonic creation of walking tours by the Madeira Tourism Delegation (DTM):

> *to know Madeira it is necessary to look for its enchantments, walking on the roads and foot-paths, walking down to the depths of the valleys or walking up to the mountains and peaks, looking at the shades of the bright moon-light in August or January or the marvellous sunsets in September… But to know Madeira, one must look for it and experience it, one must go and find it*.[6]

This fact is confirmed in various publications, where *levadas* and walking tours are highlighted as key activities offered in Madeira. An example of this is a news article published on December 28, 1969, in the (British) *Sunday Times* entitled 'Paradise for rugged walkers, which discusses hiking on Madeira Island as follows:

> *The island is a walker´s paradise. Roads and pathways twist along the coast linking the fishing villages and rise to dizzy heights in the mountains. The scenery is magnificent*. (Unattributed, 1966.)

The Sunday Telegraph of October 30, 1966, includes an article by Douglas Brown about Madeira that refers to *levadas* and walking tours as options available to visitors:

> *The level pathway, lined with agapanthus and hydrangeas of misty blue, winds alongside the watercourse. I might be in a Surrey water-garden, taking a stroll after a tea, were it not that I am halfway up a 2,000-foot precipice… This is Madeira, where the ordinary course of nature is reversed. The mountainsides are fruitful, once they are irrigated, but the narrow valleys, thus deprived of water, are barren and impassable… Imagine, then, for the lazy lover of mountain views, the enchantment of the levadas, those conduits high in the mountains that distribute water to the terraced strips below… From Ribeiro frio there are levadas winding in all directions, sometimes through haunted woods, sometimes along dizzy precipices…*

In the winter of 1978/1979, a Suntours tourist brochure was released, which, among other details, showcased *levadas* and walking tours as attractive options for active travellers.

[6] Document held in Madeira Regional Archive.

> *Apart from simple relaxation and the good life there are many other sports and pastimes available including fascinating mountain walks alongside the 'Levadas', the 4000km of small irrigation channels carrying water from the mountain-top springs throughout the island, each one of which has a maintenance path alongside. There is as illustrated guide available showing suggested walks of various degrees of difficulty from 'easy' to 'only to be attempted by experienced walkers with equipment'*".[7]

In the 1990s, *levadas* began to be recognised as an emerging tourism product, even though they had been used for leisure purposes since the late 19th century. These irrigation channels, which traverse Madeira's landscape, were seen as niche attractions with significant potential to enhance tourism in the island's rural areas. Soon, the *levadas* came to be viewed as a "new type of heritage activation whose motivation is not of an identity nature, but openly tourist and commercial" (Prats, 1997, p.42). By the late 1990s, heritage activation agents emerged in response to the designation of the Laurel Forest as a UNESCO World Heritage site. These agents included the regional government, several municipalities, and the tourism industry, with new processes and dynamics inevitably developing around this subject.

In some municipalities, some *levadas and poios* became part of tourist circuits, even those outside the jurisdiction of the regional government. This strategy was based in the idea that local heritage could be commodified for tourist purposes:

> *Another aspect that I think is fundamental, which is very important for the Madeira destination brand, is the landscape, humanised by agriculture. Levadas are heritage*. (Interview, the Mayor of Porto Moniz).

Tourist representations provide a "sense of place" (Hughes, 1995, p.791), and transform landscapes, townscapes, ethnic groups, lifestyles, and artifacts into bases of recreation, as Hunter (2008) expresses it. The *levadas* existing on Madeira Island are multi-local, contested places of inscription and ethnoscapes linked to regional history. These spaces are filled with representations, experiences, and cultural practices. The following excerpt is an example:

> *Although irrigation channels are not unique to Madeira, the island undoubtedly boasts some of the world's finest examples. There are over 200 levadas, covering 1500 kilometers, and new channels are still being constructed. As soon as the early settlers began clearing terraced pockets of land on which to raise crops, they needed to guide the rainwaters to these areas, and so levadas began… Most slope gently – almost imperceptibly in some cases – as they follow the natural contours of the terrain, providing ideal walking where accompanying paths allow. Where the shape of the land gets in the way, tunnels have been pushed through to take the channels*. (Whitehead and Whitehead, 2009, pp. 9-10).

In some tourism guides *levadas* are seen as one of the main tourist attractions on the island of Madeira. The following excerpt exemplifies this:

> *Madeira is a wonderful destination for walkers offering a diversity of landscape that is truly breathtaking; its lushly vegetated slopes, towering volcanic peaks,*

[7] Tourist prospectus from the Suntours agency promoting Madeira for Winter 1978/79.

> *dramatic gorges and valleys and soaring cliffs, all take visitors by surprise. Add to this its comprehensive levada system, the primeval forests and the subtropical flora – little wonder then that the island is often referred to as 'The floating garden of the Atlantic'.* (Whitehead and Whitehead, 2009, p.09).

Commodification plays a central role in the (re)production of tourist destinations, as tourism development has become a key component of the local economy. There is a clear connection between consumption and the promotional efforts of tourist places that is reflected in the representations and experiences of tourists. The growing popularity of walking tours along the levadas as a tourist activity is closely linked to the transformation of places and recreational activities into commodities, boosted by various social, cultural, and economic transformations over the last decades.

The Program of the XIII Government of the Autonomous Region of Madeira – 2019-2023,[8] highlights a strategy for the tourism sector to preserve and enhance natural, historical, and cultural heritage. It also mentions the cultural sector as a strategic orientation that promotes appreciation and contributes to the requalification of material and intangible cultural heritage. The result is that *levadas* remain essential for the tourism sector, as the following statement expresses:

> *And the levadas nowadays, it's very authentic, very Madeiran, it's unique, and tourists identify it, and people are already talking about levadas, and the term itself in Portuguese, levadas... It is a product that is unique*. (Interview Regional Director of Tourism).

The significance of the *levadas* for tourism has been reflected in the application process for UNESCO World Heritage Status. The Levadas da Madeira has been part of Portugal's World Heritage Tentative List[9] since 2017 (an essential prerequisite for the nomination of properties as UNESCO World Heritage Sites).

The *levadas,* along with traditional paths (*veredas*) now represent one of the island's key tourism products, with 28 official routes in existence[10]. The diversification of the product is evident across the Island, as local tourism companies offer related services, and there is a growing amount of information on social media highlighting the trails' use. Figure 11 shows one of the current regional official routes. While there are numerous walking routes on the island of Madeira those that are promoted have been carefully selected:

> *it was imperative to make a careful selection of the walking routes to be selected for intervention, specifically based on the following criteria: Regional representation, considering: demand; quality of the routes; ensuring thematic diversity; safety of walkers, excluding routes where the danger involved cannot be overcome by improvement actions; cooperation with other entities. In this way, we guarantee a set of very interesting and surprising natural scenarios, where it is possible to choose between mountain, forest, seaside, or mixed landscapes, thus boosting the development of the exploration of hiking tourism and consequently the emergence and decentralization of tourist facilities in all*

[8] For detailed information see Programa do XIII Governo Regional da Madeira 2019-2023.

[9] See UNESCO (2017).

[10] Detailed information in Regional Government of Madeira (2010).

municipalities in the Region. (Interview, Director Regional Directorate for Forests, 2010).

Figure 11 - Tourists at PR 11 - Vereda dos Balcões, one of the official routes. On this trail tourists walk along Levada da Serra do Faial. (author's photo, 2022).

Given the interest in Madeira's natural spaces as tourist destinations, and their economic, social, and environmental importance:

> *the enjoyment of walking routes, whether through levadas or paths, becomes evident, specific values of the region's historical and natural heritage, built over centuries for the enjoyment of the population and, therefore, with characteristics suited to their own needs and objectives of uses and customs*. (Regional Legislative Decree no. 7-B/2000/M).

Consequently, the Regional Assembly approved the Regional Legislative Decree No. 7-B/2000/M on October 29, 2000, which established a set of recommended pedestrian routes in Madeira and defined:

> *a clear signage system regarding guidance and information of visitors and users, identifying aspects regarding pedestrian safety, together with elements of collective interest relating to the maintenance of ecological balance, to maintain a balanced, promoting, and dynamic use of this tourist destination without compromising its enjoyment by future generations*.

In 2010, a Joint dispatch of the Regional Secretariats of Tourism and Transport and Natural Resources[11] approved the list of recommended walking routes in the Region.

More recently, Regional Legislative Decree No. 24/2022/M[12] was enacted, providing the legal regime for walking routes in the Autonomous Region of Madeira. This establishes a new regime that encourages the development of human activities compatible with safeguarding environmental interests, with the involvement of several entities. In both legal instruments, some *levadas* are included on the list revealing the continuity of practices and experiences around this secular heritage element.

Conclusion

In this article, I have examined an infrastructural network of canals, rich with sociocultural values and with different roles in everyday practices, experiences and local memories. I have presented some narratives on how the *levadas* are still governed, accessed and consumed. There is a relationship between water and place-making due to the maintenance of contested and reconstituted narratives, which showcases local heritages in use, local repertoires of water rights and secular forms of water organisation. I have addressed temporal water flows and some political aspects around access and use of irrigation water, which changes as water is from state levadas or owned by the *heréus*. This illustrates the sociocultural dimension of liquid itineraries.

If cultural landscapes are linked to a wide variety of relationships between populations and their territory and natural elements, then, in some places, certain examples characterise cultural/local irrigation practices and the establishment and development of relationships of belonging, as previously mentioned. Daily, the watery heritages are visibly in their use, intertwining agriculture, irrigation, and local 'uses and customs' in a relational dynamic that distinguishes the various spaces. Beyond these considerations, the *levadas* transcend local and regional dimensions, becoming integrated into a global dimension linked with nature-based tourism. Along with the dissemination of local narratives associated with *levadas* to promote regional heritage, these canals were also objectified through their UNESCO candidacy, which contributed to greater awareness of them and increased the tourism flows in the island.

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[11] See Região Autónoma da Madeira (2010).
[12] See Região Autónoma da Madeira (2022).

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