IN SEARCH OF WATER ENCHANTMENT

from disappearing water cultures to reviving water experiences on Mallorca



Aknowlegments

Thank you to Concepció Bauça de Mirabò Gralla and Antoni Colom-Colom who helped me for my reseaarch on site in Valldemossa.

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funded by

TUDelft University Fund

M.sc. Architecture Thesis 2024/2025 Explore Lab Studio 39 - Technical University Delft

Architecture Mentor: Mieke Vink Building Technology Mentor: Rufus van der Ban Research Mentor: Inge Bobbink

FAST STYLOS I FUND





Introduction:

Mallorca, a holiday paradise

"Malle ist nur einmal im Jahr"

"Malle is just once a year"

(Peter Wackel, 2013)

Mallorca, a small island surrounded by the Mediterranean Sea, has long enchanted visitors with its white sandy beaches, lively parties, and picturesque villages with cobblestone streets. An island, beneath the Spanish sun, that invites visitors to enjoy the beauty of its landscapes and to explore the scenic trails of the Tramuntana mountain range. For many tourists, Mallorca is a temporary escape from the everyday life, a place where routine dissolves into fulfilment, a holiday paradise to which visitors return year after year.

The transformation of Mallorca's image into a holiday destination has made it a place of dreams and enjoyment, seemingly free from worries and restrictions. Yet sustaining this image requires unlimited resources, often overlooking the environmental realities, particularly the island's fragile freshwater supplies. As the pursuit of pleasure intensified,

so did the increase of water-intensive amenities, such as golf courses, revealing a growing landscape of contradictions and controversial water usage, where symbols of luxury have become the standard.



Figure 1: a holiday paradise

Mallorca's water problem

Yet beneath this perfect illusion of holiday paradise lies a reality many prefer not to see. Since the tourism boom of the 1960s, Mallorca has faced an ever-increasing demand for water, exceeding the island's natural capacity and resulting in tensions over its allocation. While tourists, the primary source of economy, enjoy unrestricted access to water, residents endure recurring shortages, particularly during the summer months sometimes even leading to dry taps and public alarm, as headlines read "Panic over Mallorca water cuts" (Carter, 2024).

"es benefits son privats, es costos son comuns"

"benefits are private, costs are common"



Figure 2: spatial uneven water supply and demand puts the water supply under pressure

(Toni, 2024)

Speaking openly about water

restrictions risks disturbing the fragile illusion that sustains the island's image, a reality that the tourism industry is afraid to confront openly (Kent et al., 2002). Yet, the imbalance was already identified more than two decades ago in the study by Kent and colleagues, highlighting how the same problems persist today.

Without water, without its primary resource, the story of Mallorca could never have begun, and without addressing its scarcity, the island's future remains uncertain.



Mallorca before tourism, a cultural landscape

Figure 3: Views of the town and woman walking next to a canal 1957

Mallorca has a long history of selfsufficiency and cultural distinctiveness, shaped by its geographic isolation. Its Mediterranean climate is characterized by hot, dry summers and mild but humid winters punctuated by irregular and intense autumn and spring rains (Simulated Historical Climate & Weather Data for Majorca, n.d.). This seasonal imbalance in water availability and soil moisture characteristics has necessitated extensive water harvesting and storage systems throughout history, long before development of tourism. It has driven the island's inhabitants to adapt, developing sophisticated waterworks rooted in Arabic engineering, including agricultural terraces and interconnected water systems, to sustain life and agriculture. This rich tangible as well as intangible culture is a testament to the continuous symbiosis and harmony between humans and their arid environment—"a singular work of man and nature"—which led to the recognition of the Serra de Tramuntana as a UNESCO Cultural Landscape in 2011 (Centre, n.d.).

The water problem, how to look and understand water?

Water culture can be considered an innate aspect of human existence, having historically shaped not only the landscapes we inhabit but also the tools, practices, and knowledge systems we have developed to manage it. However, over time, major economic and social shifts have led to the loss of traditional knowledge about water (Cahner et al., n.d.). In the context of growing scarcity and our absolute dependence on water, the revival of these longstanding practices is no longer an act of remembrance; rather, it constitutes a fundamental basis for rethinking future water management and design.

Nevertheless, when it comes to represent water systems, we are often still facing the classic hydrological cycle which sees water as an independent natural element moving through landscape. However, water is more than a mere resource on Mallorca; water is intertwined with the island's history, landscape, and society. Addressing contemporary water challenges requires first recognizing water in its multiplicities.

Water today functions as a public good meaning no one can be excluded from. Yet individual overconsumption reduces its availability for others, often leading to conflict. As Anderson et al. ask: "If everyone has the legal right to use water, how do we decide who is allowed to use it and who is not?" (Anderson et al., n.d.).

As Veronica Strang argues in her book, The Meaning of Water', there is no doubt about whoever controls

the most vital resource, even within modern democracies, inevitably holds powerful political position over life and livelihood. At once, water can serve as a metaphor for social, economic, and political dynamics, acting as a barometer that reflects how identity, power, and resources are distributed and shared within a society (Strang, 2004). Questions of control, regulation, and priority become even more pressing under conditions of scarcity, as seen on Mallorca, particularly with the ongoing privatization of urban water management.

Jamie Linton and Jessica Budds further challenge the classic hydrologic cycle by embedding water into the social, political, and economic processes that shape its use, distribution, and meaning. They term this concept the hydrosocial cycle, defined as a "socio-natural process by which water and society make and remake each other over space and time" (Budds et al., 2014). In this sense, water cannot be understood separately from human relationships and power structures.

Exploring Mallorca's hydrosocial cycle reveals both its rich cultural water histories and the contemporary tensions intensified by tourism. Yet it is not only how we think about water that matters, but also how we represent it. Differentiating between various "waters" through new forms of mapping and drawing is crucial to reveal the often overlooked knowledge accumulated across generations.



Figure 4: The hydrologic cycle by Robert Horton (1931) inside together with the hydrosocial cycle by Jamie Linton and Jessica Budds outside

science technology infrastructure

H₂O



FLUID / LIQUID

amusement feeling cooling sound danger



Problematisation:

Today, water demands have exceeded the capacity of traditional water sytems. Rather than focusing on producing greater water supply through overexploitation and overengineering as done on Mallorca (Hof et al., 2014), this research seeks to explore more sustainable water management practices and to encourage a shift in water consumption behaviours. In search for sustainable water practices and more meaningful relationships with waters, I came to the research question:

How can an exploration of Mallorca's *hydrological* and *hydrosocial cycle* help to re-value the relationship between all people (majorcans and tourists) and their fresh water?

Figure 6: Water mill, Source: Arxiu Joan Payeras

The following subquestions arise:

Although water is everywhere, we often do not see it. How can this translucent material be represented and made more visible?

What relationship did Mallorcans once have with their freshwater? What oral histories and narratives exist around water? What is the current state of Mallorca's water systems?

How can this hydrosocial cycle be depicted, explained and visualized to reveal its complexity? How can meaning be created through visual representations?

To address these questions, the research focuses on uncovering the hydrosocial cycle of the area of Valldemossa and its surroundings, the place I grew up and a region with a particularly rich cultural heritage connected to water. Valldemossa hosts one of the island's oldest water systems, originating from Sa Font de Na Mas spring, dating back to 1254 (Trias Mercant et al., 1996).

Valldemossa



"C'est une de ces vues qui accablenet parcequ'elles ne laissent rien à désirer, rien à imaginer. Tout ce que le poète et le peintre peuvent rêver, la nature l'a crée en cet endroit. Ensemble immense, détails infinis, variété inépuisable, formes confuses, contours accusés, vagues profondeurs, tout est là, et l'art n'y peut rien ajouter. L'esprit ne suffit pas toujours à gouter et à comprendre l'oeuvre de Dieu ; et son impuissance à créer une expression quelconque de cette immensité de vie qui le subjugue et l'envie. Je conseillerias aux gens que la vanité de l'art dévore, de bien regarder de tels sites et de les regarder souvent. Il me semble qu'ils y prendraient pour cet art divin qui préside à l'eternelle création des choses un certain respect <u>qui leur</u> manque, à ce que je m'imagine d'après l'emphase de leur forme. Quand à moi, je n'ai jamais mieux senti le néant des mots que dans ces heures de contemplation passées à la Chartreuse." (Sand, 1841, p.128-129)

"This is one of those panoramas that calm the spirit, because there is nothing left for us to desire or imagine. Everything that the painter or the poet can dream of has been created by nature in this place: a tremendous general effect, infinite detail, inexhaustible variety, confused shapes, definite outlies, vague depths, they are all there, and art can add nothing more. A man's inner sense is not always sufficient to enable him to appreciate and understand God's work; and when he thinks things over deeply, he realises his incapacity to portray in any way at all that boundlessness of life which both enslaves him and enthralls him. I would advise all persons who are consumed by the vanity of art to go and look at these landscapes, and to look at them often. I believe they would acquire the respect they are lacking for that divine art that presides over the eternal creation of thigs, of at least so I imagine. In regard to myself, I have never felt more the uselessness of words those hours of observation I passed in the Cartuja." (Sand, 1841, p.131-132)

Theoretical framework:

Personal enchantment, an enchanted village

"Santa Catalina Thomas, pregau per nosaltres"

"Santa Catalina Thomas, pray for us"

This saying is found at every entrance of houses and water springs.

My research is rooted in a very personal and sensory connection I have to Mallorca, and in particular with the village of Valldemossa, where I grew up. Light, sounds, smells, and memories have shaped my experience of the place, but this fascination goes beyond the personal. For centuries, Valldemossa has attracted philosophers, artists, musicians, and writers such as George Sand and Archduke Ludwig Salvator, each attempting to capture its essence through their work.

In trying to understand why Valldemossa has consistently captivated its visitors, I turn to the concept of enchantment as developed by Jane Bennett. Enchantment, is "a state of wonder, an openness to the marvellous vitality of things" (Bennett, 2001, p. 5). It is an affective state, a feeling of awe that seizes both mind and senses, a feeling that cannot be controlled. In Valldemossa, enchantment manifests itself in several ways. First, it arises from sublimity: the picturesque architecture, the dramatic mountain landscapes, and the sensory richness of the environment create an aesthetic experience that transcends the rational.

Enchantment also emerges through the merging of the natural and the supernatural realms. Historically, enchantment has involved stories. folklore, and beliefs where nature was animated by higher powers (Bennett, 2001). In Valldemossa, this is reflected in figures such as Santa Catalina Thomàs, the patron saint of the village, whose life and miracles weave together Christian beliefs and deeper layers of local spirituality. Here, divinities are not distant but are felt to inhabit the immediate, everyday environment (Sahlins & Henry, 2023), a relationship that contributes to a strong sense of belonging and spiritual connection among the inhabitants.



Font de Na Buger, Valldemossa

Theoretical framework:

The power of Enchantment



PROCESS OF ENCHANTMENT CAPTIVATED **POSSIBLE WORLDS** entry gate to imagination

This everyday environment can also present another type of enchantment. As Bennett emphasizes, enchantment often arises through ordinary encounters with the small, everyday details: a glint of light on a wall, the sound of water trickling through stone channels, a sudden shift in the wind. These subtle moments, pierce through familiarity and reveal the world as dynamic and alive. As Bennett describes it, enchantment is a sense of openness to the unusual, the captivating, and the disturbing in everyday life. It is not about magic or fantasy, but about being struck, affected, or captivated by the vibrancy of everyday life, even within the modern, secular, and material world (Bennett, 2001). Enchantment is a form of distortion of the world we live in, it is the gate to imagination, to a possible world.

REALITY

DISTORTION



disorientation delusional

Jane Bennett does not only demontrate that it is still possible to experience genuine wonder, but how such experiences are crucial for motivating ethical behaviour. For Bennett, enchantment holds significant political and ethical importance. When we feel wonder or are "enchanted" by the world, we are more likely to care for it and act with greater sensitivity and responsibility. The experience of enchantment is

deeply personal, rooted in imagination, emotion, and perception. By fostering emotional connections, enchantment strengthens a sense of belonging and

ENCHANTMENT



Figure 8: Personal Enchantment

care to a place or resource. In this sense, emotional investment and personal attachment to water can result in more thoughtful and responsible resource use, which is crusial for Mallorca.

Through these layers Valldemossa becomes more than a place; it becomes an enchanted landscape. This theoretical framing of enchantment informs my research by providing a lens through which to understand how water, landscape, and human relationships are interwoven with meaning, memory and wonder.

Theoretical framework:

The Technology of Enchantement The Enchantment of Technology

Building on Jane Bennett's notion of enchantment, this research does not only study enchantment, but also actively uses it as a method. The goal is to represent the outcomes and research using the enchantment as a methodology.

Alfred Gell describes how objects captivate people and influence their perceptions and emotions beyond the object's physical form in his theory ,The Technology of Enchantment'. This effect is rooted in The Enchantment of Technology meaning that the hidden labour and skill behind an object enhances its aura of mystery and fascination, especially when the processes remain hidden to the viewer. This fascination by complexity becomes a tool of power to captivate and influence people in profound ways (Gell, 1992).

Applied to water, these ideas unfold for reimagining how water can be represented and valued. By using objects that evoke enchantment, the research seeks to revive the almost mystical presence of water, presenting it not just as a resource but as an agent of meaning, memory, and emotional value. In doing so, it aims to enhance the perceived value of water, encouraging greater care and awareness among both locals and visitors.

Through combining traditional cartographic techniques with artistic abstraction, and blending qualitative mapping with personal storytelling, the project embraces the subjectivity of the researcher. A variety of illustrative outcomes, including two-dimensional hand-draw maps and three-dimensional objects, where the deep entanglements between water, humans, and landscape can be felt, not just understood. seek to bridge language barriers, making the research accessible to a broader audience, including tourists.





Exploration, a visual diary

As Goerge Sand mentioned before:

"Je conseillerias aux gens que la vanité de l'art dévore, de bien refgarder de tels sites et de les regarder souvent." (Sand, 1841, p.128-129) "I would advise all persons who are consumed by the vanity of art to go and look at these landscapes, and to look at them often." (Sand, 1841, p.131-132)

My approach is based on observing those landscapes through the act of exploration, "the activity of traveling to and around a place, especially one where you have never been or few people have been before, in order to find out more about it" (Cambridge Dictionary). In this case my exploration means looking at those landscapes while habing water in mind: listening to its sounds, reading the landscape it shapes, and tracing its presence across different scales, from the island's natural water flows and historic harvesting systems to domestic uses. Looking at water is looking at

everything that water touches, meaning studying the tangible and intangible networks it creates.

The first phase of my research involved an immersive observation of the cultural water landscapes in the Valldemossa area during my two field trips. Following the path of water leads through both landscape and time. Abandoned systems reveal a past shaped by generations of knowledge, inviting reflection on earlier ways of life. These ruins are traces of a living landscape, built around water as its origin. This exploration was captured through a personal journal, inspired by ,Die Balearen; geschildert in Wort und Bild', in which Austrian Archduke Ludwig Salvator recorded the region with both scientific precision and artistic beauty. The journal is a personal approach that served for both objective measurements and subjective reflections, capturing direct observations through sketching and local narratives around water, offering a phenomenological non-linear way of storytelling, mixing the past and present. Sketching foces me to look at the surrounding often, look at every detail, to be able to represent them on paper.

Rather than striving for objective truth, the research acknowledges, following Braun and Clarke (2019) "situatednes", that qualitative data is about interpretation and meaning-making, constructing situated stories rather than uncovering a singular reality.

Collected photos and objects further helped to uncover the complex entanglements between water, landscape, and humans.



Figure 10: See Annexe 2: Travel journal

An exploration path

Nestled at an elevation of approximately 400 meters in the Tramuntana mountain range, the village of Valldemossa is home to around 1,000 inhabitants. Known for its rich cultural heritage and dramatic landscapes, Valldemossa offers a unique lens through which to explore the intersection of natural systems and human adaptation.

The map presented traces several hiking routes undertaken during two field trips, each path chosen for its relationship to water. These routes not only follow the natural flow of water but also lead to the often-overlooked ruins of historical infrastructures embedded in the landscape. The structures encountered along the way were carefully documented through photography, forming the foundation for the mapped reconstructions and spatial analysis.



Figure 11: Mallorca's yearly water calendar 27

An exploration path

























Figure 12: Annexe 3: collection of water infrastructures and practices encountered during the field trip











The visual encyclopedia

Figure 13: The Catalan Atlas of Europe and the Mediterranean of 1375 possibly made by Abraham Cresques



1. Exploring Mallorca's Water: watching, reading and listening to water

Mallorca's Visual Water Encyclopedia

The second phase focuses on representing the collected knowledge. Cartography has long been considered a classic method for visualising spatial discoveries. In the early days, maps were filled by visual stories like The Catalan Atlas of Europe and the Mediterranean of 1375 consisting of a compilation of trade routes and sites of raw materials and resources (Couling et al., 2019). Produces by the Majorcan cartography school, under

the supervision of Abraham Cresques, a Majorcan cartographer fluent in Catalan, Hebrew, and Arabic, the Atlas reflects a pluralistic worldview. The images are oriented in multiple directions, suggesting that the map was intended to be read from various perspectives. The first part of the Atlas constitutes an encyclopedia which showed their perception and understanding of the world at that time. It includes a calendar-wheel showing

the cycles of the sun, moon, planets, seasons, and zodiac, bringing together scientific observation with cultural understanding.

The result of my work is a collection of cartography based on the field trip and readings (from different perspectives in different languages: Catalan, Spanish, German, French, English) using the Catalan Atlas from the time of

2. Exploring Valldemossa's Water: Case study of Valldemossa Set of Maps

those water systems as a reference to represent the collected water paths and stories. The findings are represented visually to understand space and time, as well as to overcome the language barrier- a visual water encyclopedia (hydrosocial cycle). At the same time, it seeks to use visualisation of perceptions and intangible information to overcome dominant narratives.

Research outcomes

past

present

An exploration of Mallorca's hydrological and hydrosocial cycles reveals the deep, multifaceted relationship that historically existed between people and water. Water is difficult to grasp, yet the water's captivating properties, not only in sustaining life but in evoking awe and wonder. Its hidden nature, often stored underground and revealing itself only in specific moments or places, adds to its mystique and has long inspired myths and oral stories. In places like Valldemossa, water arrived in varying qualities and quantities, each destined for a specific use, carrying distinct value, and accompanied by particular knowledge. It was not only managed with remarkable precision but also deeply felt, embedded in language, tradition, and seasonal rhythms. A close reading of Valldemossa's history reveals how water shaped political and social structures, fostering communal behaviour, mutual care, and a shared responsibility toward both one another and the environment.

In the present, this intimacy has largely been replaced by abstraction. Water infrastructure has become hidden, inaccessible, and homogenized, severing the visual and tactile connections that once grounded a shared understanding of its value. Consumption continues to rise, even as scarcity increases. Yet, there is a growing awareness that endless technological progress cannot replace the delicate equilibrium between nature and culture (Cahner et al., n.d.). The question is no longer only how to distribute or regulate water, but how to relate to it, how to restore a sense of responsibility rooted in care rather than control.



Research outcomes

Future





Looking to the future, this research suggests that enchantment may be essential to fostering a more responsive and responsible relationship with water. Emotional investment and personal attachment can lead to more thoughtful, sustainable use of this vital resource. Moving toward design, this calls for a re-enchantment of water, an approach that embraces not only the functional, but also the emotional, sensory, and symbolic dimensions of how water is experienced. As Jane Bennett suggests: "The mood of enchantment is composed of affective attachment and acute sensory activity." (Bennett, 2001, p. 5). When water becomes experienceable, it shifts from passive observation into active participation. To feel water, whether through touch, sound, or memory, is to enter into relationship

with it.

Importantly, water does not always need to be seen to be known. It lives powerfully in stories, myths, and moral fables that shape how people understand their place in the world. Water can enchant through its presence or absence, its rhythm or stillness. Architecture and design have the potential to reawaken these relationships, creating moments where water can be felt, remembered, or imagined. In doing so, we open space for new questions: Can enchantment be designed? Can architecture help us sense water differently, not only as a resource to be managed, but as a presence to be respected? And in doing so, might we recover a relationship with water that is not only functional, but deeply felt and collectively sustained?





It's not about magic or fantasy, but about being struck, affected, or captivated by the vibrancy of everyday life, even within the modern, secular, and material world (Bennett, 2001).



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