

Eva Garibaldi

# **The Amphibious Landscape of Lake Cerknica**

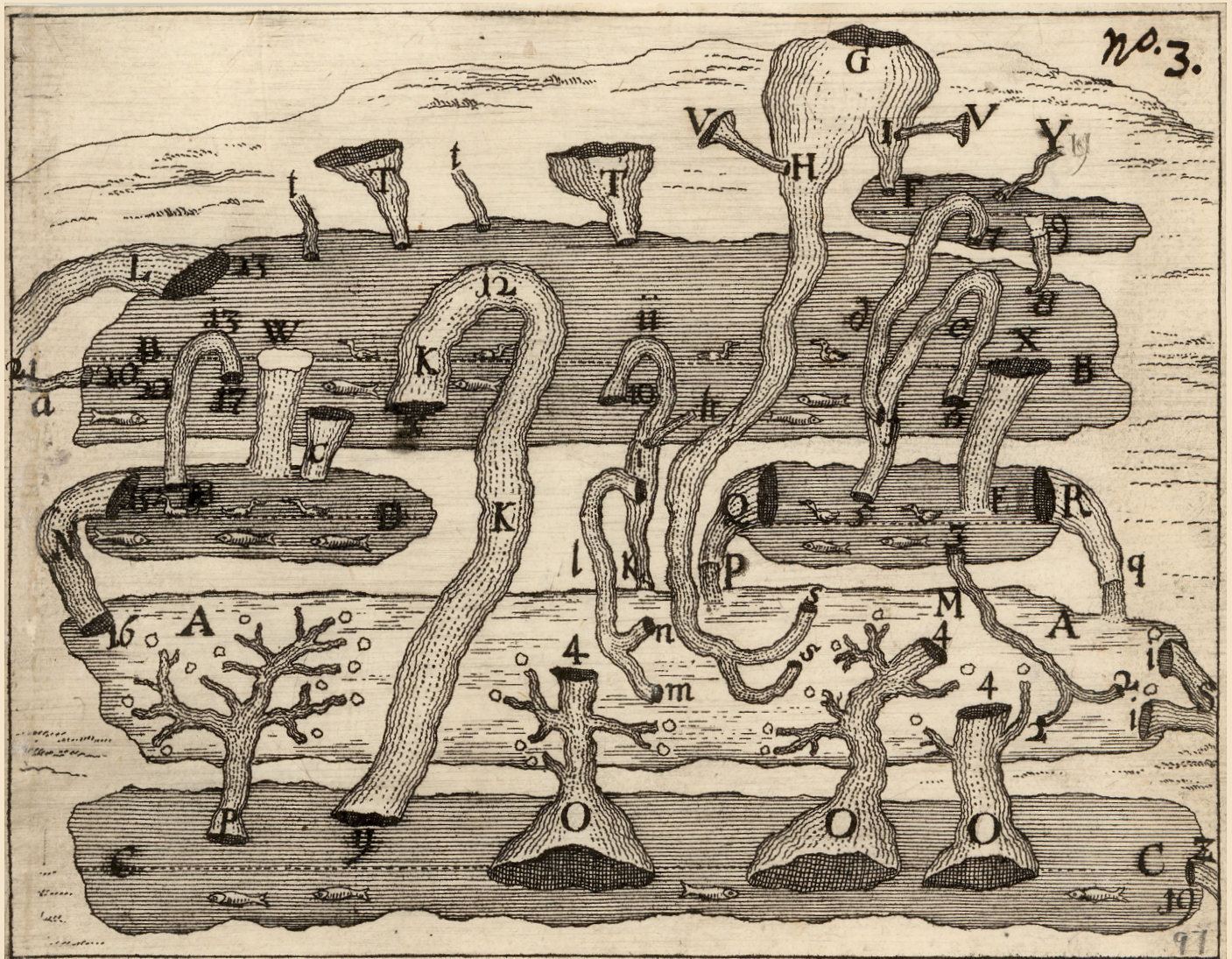


Illustration of the functioning of Lake Cerknica, Janez Vajkard Valvasor, Slava vojvodine Kranjske (The Glory of the Duchy of Carniola), book IV, originally published 1689. Reprinted 1978, Ljubljana, page 107

## The use of landscape representation in modernization attempts

The representation of landscapes has always been a political gesture, simplifying them in order to justify and stabilize ideas of progress and modernization. This effort aims to classify landscapes into categories according to profit, simplifying and adapting them to fit a specific narrative. However, some terrains such as amphibious landscapes<sup>1</sup>, existing between the terrestrial and aquatic ecosystems escape this classification. They are the messy in-between speaking to the dynamic nature of the Earth's landscapes.

Political agendas highly influence the representation of landscapes; therefore, it is no secret that, to some extent, a portion of the complexity of landscape is often ignored in its representations for pragmatic reasons (Ferrari et al., 2018). The production of landscape representation always needs to balance the tricky relationship between data, accuracy and politics (Gang et al., 2016). These practices are brought into question by looking to landscapes which lie between ecologies such as coasts, marshes, glaciers etc. Territorial norms have, for a long time, idealized the surface of the planet as a fixed, stable entity, a world of static landmasses (Elden, 2018, p. 59). The perceived stability suddenly becomes blurred; we arrive at the limit of stable terrain. These ecosystems become productive spaces to raise questions of representation (Peters et al., 2018). The construction and representation of territory is not merely a stable outcome of actions, but a complex process, continuously active and reactive (Elden, 2013, p. 17).

---

1 an expression I am borrowing from Amphibious Lab



# Lake Cerknica

A particularly striking example of this kind of landscape is the intermittent karstic Lake Cerknica. As such a landscape, it has escaped easy classification in order to control it. Throughout history, its amphibious nature has sparked many conflicting ideas to modernize the landscape to increase its profit. Lake Cerknica, located in southwestern Slovenia, lays on the Cerknica karstic field, which belongs to a complex system of karst fields<sup>2</sup> in the region influencing the hydrology of the Ljubljana river basin. It is a karst lake, intermittently flooding the karstic field it lays on, depending on the rainfall in the region. Its largest surface area is 29 km<sup>2</sup>, and water is retained for an average of 8-10 months per year (Obmo, 2008, p. 104). In the summer when rainfall is scarce, it completely disappears, its bed becoming covered in rich vegetation. In autumn with the return of heavy rainfall the water re-appears, sometimes flooding the areas around. The lake not only consists of the water visible above ground but is connected to a number of sub-terrain reservoirs, which further connect to surrounding regions. It lays in the geological landscape of the Dinaric Karst<sup>3</sup>, characterized by its underground threaded with holes, caverns, caves and ponors<sup>4</sup> forming the world above. This landscape is characterized by specific geological phenomena, establishing a complex hydrology and relationship to water. To this day, there are still many unexplored aspects of the complex nature of Lake Cerknica (Obmo, 2008, p. 103). This phenomenon is a particularly striking example of landscape complexity and interrelation between ecosystems.

The area around Lake Cerknica has been populated for a long time, accounted by first sources dating back to the 10th century. It has been appearing, in some form, on European maps since the 15th century. Because of its unique nature, the lake became of interest to the scientific community in Europe particularly in 17th and 18th century, not only because of the disappearing phenomenon but also because of the rich, fertile ecosystem surrounding the area (Carmichael, 1994, p. 307). The understanding of the complex terrain shifted comprehensively through history, with the development of karst studies. In 1689 Janez Vajkard Valvasor, a pioneer of karst studies, was the first to describe and draw the functioning of the lake, diagrammatically portraying the complex sub-terrain. Although the description was not entirely correct, it still drastically shifted the understanding of the phenomena.

---

2 A karst field is a large flat plain found in karstic geological regions of the world, with areas usually 5 to 400 km<sup>2</sup>. It's a large, flat-floored depression within karst limestone, whose long axis develops in parallel with major structural trends. A karstic field typically shows complex hydrogeological characteristics such as exurgences, estavelles, swallow holes, and lost rivers, ponors.

3 The Dinaric karst is geographically and geologically the carbonate part of the Dinaric Mountains on the Balkan Peninsula between the Adriatic Sea and the Pannonian Basin. The most characteristic relief forms are high karst plateaus and numerous karstic fields elongated in NW-SE direction, leveled surfaces, caves, sinking rivers and abundant springs. The Dinaric karst is known as a limestone desert, a bare rocky landscape that results from climate conditions and especially because of intense land use in past centuries

4 A ponor is a natural opening where surface water enters into underground passages; they may be found in karst landscapes where the geology and the geomorphology is typically dominated by porous limestone rock.

In addition to the study of the lake, Valvasor also published the first in-depth description of the unique fishing traditions<sup>5</sup> in Lake Cerknica. Only 70 years after this in his study Anton von Steinberg chronicled the various forms of hunting, fishing and foraging in different seasons and lake conditions around the area. These two descriptions speak to the fact that the locals living close to the lake adapted to its unstable nature and developed alternate forms of knowledge to thrive in such a landscape.

## Efforts to Stabilize the Landscape

From the 18th century forward, there have been many attempts to stabilize the intermittent nature of the lake for profit, depending on the historical situation and political intentions in which they emerged. The first attempts were directed towards drying out the land in order to increase agricultural areas. In contrast, in the post-war era, the attempts were directed into permanent damming of the lake with intentions of profiting from tourism. Furthermore, later projects of the damming include agendas of building an accumulation lake for a hydropower plant (Obmo, 2008, p. 4). All these attempts were accompanied by a lack of understanding and a simplification of the terrain in service of political agendas. The perception of the landscape was largely established on characterizing land and water as two binaries separate from each other. The water often conceptualized merely as a surface through which transport and trading routes flow, a means of connection between land masses in service of activities occurring in the terrestrial (Mack, 2011, p. 19).

With the attempts to control the landscape, the perception of the presence of water or the absence of it shifted accordingly. The continuity through all efforts of controlling the terrain was the productivity of the landscape in the form of profit. Due to the intermittent nature of the lake, it escaped easy classification, and it is precisely this dualistic nature of the landscape, being once land once water that allowed for such conflicting ideas of reclamation to emerge. Because of the nature of the lake, it could be fit into multiple opposing political narratives defending for either the absence or the presence of water. In his study of Lake Cerknica, Andrej Kranjc (1985, p. 75), notes that is not clear which state of the lake is considered to be negative.

---

<sup>5</sup> Some of these fishing techniques and practices such as the saving of the fish and fishing in the ponors with nets called »sak« are still in use today.

## Land Reclamation

In the 18th century, the first cadastral surveys under the authority of the Habsburg Monarchy were conducted in the area<sup>6</sup>. These were followed by tax reforms, primarily focusing on the profits of arable land. The monarchy prioritized land for cultivation of crops and livestock, over fishing and hunting as they were easier to control and tax. The area of Lake Cerknica was categorized as a wetland<sup>7</sup>, therefore unproductive for agriculture, despite the various forms of cultivation and foraging practiced by the local population. Due to this, the perception of the lake heavily shifted, the water beginning to be characterized as negative. Furthermore, due to the focus of the economy on agriculture, more and more arable land was needed (Kranjc, 1985, p. 104). The first written ideas of land reclamation by Tobias and Gabriel Gruber emerged at the initiative of local farmers, asking for help in mitigating the water level as it was hurting crop. In 1781 the Gruber brothers published a hydrological study of the area<sup>8</sup>, for the first time portraying the lakes sub-terrain drainage basins as a cross-section of terrain and connecting Lake Cerknica to the Ljubljana river basin. These remained merely plans due to unavailable state funding (Obmo, 2008, p. 22 - 30).

In the mid-19th century, the first interventions to the landscape were initiated by a local from the area. According to witness accounts, Gregor Kebe was first to raise awareness and called for self-initiated actions in the local community to arrange local cleanups of the ponors blocked by debris. Soon these attempts to increase drainage became much more permanent, as the community self-initiatedly blew up a part of the main ponor to improve drainage. The cleanups of estavelles<sup>9</sup> and other locally supported maintenance stopped as the community was not funded (Obmo, 2008, p. 31 - 32). The first intervention to the landscape was completed merely as a first-hand solution. At the time the area was a part of the Habsburg Monarchy, governing from Vienna, far removed from the reality of the people living in the area. This action speaks to the fact that the local community, despite the interest of the scientific community, was forgotten. Because the area was categorized as a wetland and was not significant in terms of transport or trade, state funds did not go towards them, but the inhabitants were still expected to turn a profit through crop.

In the second half of the 19th century, many more studies to dry out the lake were published. After lengthy negotiations with the Ministry of Agriculture in Vienna, a loan was approved to plan reclamation works of karstic fields, including Lake Cerknica. This was assigned to Rafael Vincenti who in 1875 for the first time raised hesitations in complete mitigation of flooding, stating that progressively faster drainage of the lake will inevitably cause floods in lower laying areas<sup>10</sup>. These plans were not approved, because they did not

---

6 The first cadaster survey conducted in the area was the Theresian Cadastre (1748 – 1756), followed by the Josephine Cadastre (1789 – 1790) and the Franciscan Cadastre (1818 – 1828). All were conducted under the authority of the Habsburg Monarchy.

7 In 1769, the Habsburg empress Maria Theresa ordered a decree to begin preparations to begin draining the wetlands in Carniola.

8 *Briefe hydrographischen und physikalischen inhalts aus Krain.*

9 Another expression for ponor.

10 Such as lower lying karstic fields and the Ljubljana Marshes.

coincide with the ideas of the governing bodies both in Ljubljana and Vienna (Kranjc, 1985, p. 105). Even though it was not approved, the plans to dry out the lake began to gain more and more opponents both in scientific circles and local population around Lake Cerknica and the Ljubljana Marshes (Obmo, 2008, p. 33 - 34).

Due to the unfavourable conclusions of the previous study, The Ministry of Agriculture in Vienna commissioned another study, hoping for better results. This was assigned to Willem Putick, who was known for campaigning for the mitigation of wetlands. Despite other experts' warnings against the plan before an in-depth examination of consequences for lower laying areas and objections by local inhabitants, a reduced scope of planned works was executed. The study was heavily based and supported by arguments of profit such as a permanent annual increase in crop, more productive economy, increase in the value of land and consequently a higher tax power of the inhabitants (Obmo, 2008, p. 34 - 35). These arguments clearly show that the interest was merely financial. This study exemplifies the political agendas behind it. Despite strong opposition of the local population, the governing body was striving to realize their idealized vision of a productive modernized landscape.

## **Permanent Damming**

In the period between the wars, most efforts were directed towards the maintenance of reclamation works. In the post-war era, following the attempts of drying out the lake, proposals entirely at odds with previous efforts emerged. The effort to stabilize the landscape turned towards a different extreme: the permanent damming of the lake in service of profit from tourism (Kranjc, 1985, p. 108). A new vision of the modern landscape emerged. Now the ideal of the productive landscape shifted from the agricultural productivity of land, towards the commodification of tourism. These ideas strongly relied on characterizing previous attempts of mitigation as unsuccessful, unproductive, and too expensive. According to the modernizers, these attempts failed, because, in the past, people did not truly understand the complex ecosystem of the lake, diminishing any historical knowledge. Furthermore, the narrative of the damming was supported by claims, that the damming will bring the lake back to its original natural state, improving the conditions that have been impoverished by previous drainage interventions (Jenko, 1968, p. 2).

In 1965 Franc Jenko was commissioned by the municipality of Cerknica, to prepare a conceptual project for the permanent damming of the lake. The project was to improve water conditions with minimal costs to accelerate the development of tourism and related activities such as fishing (Obmo, 2008, p. 47 - 48). Witness accounts from a voter assembly in 1966, where the plan was presented to the public for the first time, show that the local inhabitants strongly opposed this intervention, questioning what the consequences for the landowners and farmers will be. Jenko, present at the assembly, claimed that the drying of the lake is economically unproductive, even stating that

the opinion of the locals was outdated (Obmo, 2008, p. 49 - 50). The plan anticipated tourism as the most profitable activity; therefore, locals were expected to transition towards that as well. From these accounts, it is clear that the modernization of the landscape was of the highest priority, whereas the livelihoods of locals were not considered.

Despite the opposition from the local communities, the project continued. In 1968 the permanent Lake Cerknica was included in the state-supported project Upper Adriatic. In addition to the damming, a plan for the construction of a tourist zone with 1000 tourist beds was developed, while the essence of the project – a permanent lake – had no sufficient proof that it would succeed (Marinc, 1976, p. 2 - 3). The perception of the landscape suddenly changed from agriculturally productive land to a sublime ideal of nature in service of tourism. Later on, the Slovenian Water Management Institute, in charge of the damming, proposed to conduct a 1:1 experiment of the project, renaming the project to Experimental Damming of Lake Cerknica (Obmo, 2008, p. 54). This was approved under the condition that these experiments are not permanent. Several scientific institutions joined in the research; it was planned to be conducted for three years, 1969 - 1973. The plan was to study the conditions before any interventions, to be able to observe the changes to the hydrology (Obmo, 2008, p. 60).

A large part of the research was funded by Sklad Borisa Kidriča (SBK), the institution in charge of the damming, in addition to other sponsors. Problems with funding quickly arose as SBK significantly lowered funding which reduced the scope of the planned research. Despite the first stage of the research being delayed, the main sponsors were permanently closed shut with concrete, limiting the possibility of assessing the consequences of the interventions. Because SBK was continually reducing funding, a limited amount of studies was produced. It is no surprise that most of the successful studies conducted in their conclusions sympathize with the new ideas of the damming of the lake (Obmo, 2008, p. 61). Nevertheless, it was ironically concluded that permanent damming is not possible and would cost as much as previous efforts of drying. Therefore, interventions should focus on prolonging the presence of water as this was the condition under which the landscape could remain to be a part of the Upper Adriatic program. Some control was gained over the presence of water. However, ultimately the attempt of permanent damming failed (Marinc, 1976, p. 2 -3).

Only in 1992, the decision to annul the investment project of the permanent damming of Lake Cerknica was published in the Official Journal of the Republic of Slovenia, recognizing the unstable intermittent nature of the lake as a significant characteristic of the landscape. The lake was later pronounced as a protected area. All interventions were ordered to be removed if possible, with the aim to restore the lake to its original state (Uradni list Republike Slovenije, p. 2003). In 2008, the project of renaturation commenced, with the goal of restoring waterways.



## Conclusion

Even though the latest attempts were focused on the restoration of the landscape, this needs to be approached critically. Restoration of landscape begins with the assumption that restoration is possible and desirable, without first asking the questions of which representations of landscape are going to be used, to what time in history is the landscape going to be restored (del Tredici, 2008, p. 13)? Essentially, similarly to the previously mentioned projects of drying and damming, restoration too seeks a specific landscape and uses representations of landscape to justify it.

In conclusion, the study of the interventions of Lake Cerknica becomes a powerful example of a lack of understanding of the complexity of ecosystems. Due to its intermittent nature, being once land once water, it escapes easy classification. This ultimately brings the landscape to a point where its image can be adapted to fit the changing image of the modern landscape, be it dry or wet. The landscape itself did not change significantly; what changed was the perception of what a modern landscape looks like. The contradictory efforts to control the landscape of Lake Cerknica, show that with the same ingredients a multiplicity of ideas can be produced, with the same landscape opposite arguments can be made (Fernández Pascual, 2020).

## References

- Carmichael, C (1994) 'The Fertility of Lake Cerknica' in Social History Vol. 19, No. 3, (pp. 305–317)
- Elden, S (2013) The Birth of Territory Chicago, University of Chicago Press
- Elden, S (2018) 'The Instability of Terrain' in Ferrari, M et al (ed.) A Moving Border: Alpine Cartographies of Climate Change, Columbia Books on Architecture and the City
- Fernández Pascual, D (2020) Littoral Ambiguities, e-flux architecture  
Available at: <https://www.e-flux.com/architecture/at-the-border/325752/littoral-ambiguities/> (accessed 6.5.2020).
- Ferrari, M, Pasqual, E and Bagnato A. (2018) A Moving Border: Alpine Cartographies of Climate Change, Columbia Books on Architecture and the City
- Gang, J, Cahan, C and Kramer, S (2016) 'Deep Mapping' in Graham, J et al (ed.) Climates: Architecture and the Planetary Imaginary Zurich, Columbia Books on Architecture and the City
- Jenko, F (1968) Kratka obrazložitev ojezeritve Cerkniškega Jezera Ljubljana, Zavod za vodno gospodarstvo SR Slovenije
- Kranjc, A (1985) 'Cerkniško jezero in njegove poplave' in Acta geographica Vol. 25, (pp. 75–123)
- Mack, J (2011) The Sea: A Cultural History London, Reaktion Books
- Marinc, A (1976) Informacija o dosedanjih raziskavah in nadaljni usmeritvi posegov v Cerkniško jezero Ljubljana, Skupščina občine Cerknica
- Obmo, V. N. (2008) Akcijski plan renaturacije vodotokov na območju Cerkniškega jezera Cerknica, Notranjski regijski park
- Peters, K, Steinberg, P, Stratford, E (2018) Territory Beyond Terra London, Rowman & Littlefield International Ltd
- Republika Slovenija (1992) Uradni list Republike Slovenije Vol. 27, No. 2, (pp. 1993 - 2028) Available at: [https://www.uradni-list.si/\\_pdf/1992/Ur/u1992027.pdf](https://www.uradni-list.si/_pdf/1992/Ur/u1992027.pdf) (accessed 12.5.2020).
- del Tredici, P (2008) 'Disturbance ecology and symbiosis in mine-reclamation design' In Berger, A (ed.) Designing the Reclaimed Landscape (pp. 13–25), New York, Taylor and Francis. Available at: <https://www.arboretum.harvard.edu/wp-content/uploads/Reclaimed-Landscape-Disturbance-ecology-and-symbiosis.pdf> (accessed 12.5.2020).

