

# THE RECOVERY OF DISUSED WATERWAYS AS BLUE CORRIDORS:

The Battaglia Canal between Padua and the Venetian Lagoon

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Lisa Zecchin

University of Padova & Ca' Foscari University of Venice <lisa.zecchin@phd.unipd.it>

**ABSTRACT:** The management of surface freshwater bodies can be considered one of the most important issues affecting the quality of living spaces in the industrialised world. Today's awareness of the importance of sustainable water management includes the artificial canals built over centuries to meet multiple and different needs. The development of railways in the 19th century and the extraordinary spread of road transport after World War II led to the steady abandonment of historic canals all over Europe and the consequent deterioration of their water quality and corridor spaces. This deterioration, in turn, led to socio-cultural conflicts over the spaces and the necessity/desirability of maintaining them in the late 20th century. In recent years the benefits provided by blue-green infrastructure in terms of biodiversity, new socio-economical opportunities and the improvement of the well-being and mental health of their users has been acknowledged by scholars and policy makers in the European Union and elsewhere. The article analyses the territorialisation of the Battaglia Canal in Italy's northwestern Veneto region, between Padua (Padova) and the Venetian Lagoon and its broader *canalscape* that has resulted from different administrative and planning processes and the manner in which changes in socio-environmental perceptions has influenced approaches to managing the canal. Building on this, the article raises issues concerning the management of the canal and proposes some perspectives for a multifunctional recovery and a sustainable valorisation of it as a social and environmental asset.

**KEYWORDS:** Historical canals, multifunctional management, waterways recovery, Battaglia Canal

## Introduction

The growing impact of human activities and the intensification of extreme natural hazards as a result of the ongoing climate crisis are contributing to a constant and progressive deterioration of the environmental conditions of our planet. Evidence of this phenomenon can be seen in surface hydrography, which is experiencing significant alterations in its cycles. Due to global climate change, water bodies in northern Italy, and more generally throughout the Mediterranean area, have been facing the alternation of abundant and often violent episodes of rainfall and long periods of drought (Cacciamani, 2018). The disruption of balance between these has had a significant impact on biodiversity (Mekonnen & Hoekstra,

2016), human health (Muta'a Hellandendu, 2012, Zakar *et al.*, 2020), food security (Chartres & Varma, 2010) and socio-economic development and psycho-physical wellbeing (Hoekstra, 2015; Liu *et al.*, 2017; Distefano & Kelly, 2017), emphasising the urgency of achieving the United Nations' Sustainable Development Goals (World Economic Forum, 2015). In particular, quality freshwater availability is becoming increasingly critical due to multiple factors, such as widespread pollution, increasing water withdrawal for domestic use, irrigation and industrial purposes. As water is central to multiple economic sectors, any change in water supply or sectoral demand can propagate across sectors and across scales (OECD, 2012).

The worrying ecological conditions of European surface hydrography have also drawn attention to artificial canals, which are waterways, built since the Middle Ages, to fulfill multiple needs, such as agriculture, navigation, defence and energy production (Ciriacono, 2006; Mauch & Zeller, 2008). These watercourses have been abandoned since the decline of river navigation in favour of rail and road transport, considered much faster and less subject to environmental constraints. The dismissal of historical canals as transport infrastructure and the uncritical implementation of development models in Europe after the Second World War have caused significant morphological and functional transformations to these entities, such as the reduction of alluvial areas, the cementing of embankments, and the removal or decommissioning of the oldest and (apparently) most obsolete hydraulic structures to give space to modernisation projects and renewed operational needs (e.g hydraulic security and flood prevention, development of the sewage system and urban development projects). This process has largely affected not only the water bodies themselves as physical entities but also the millennial relationship between the riverine populations and the watercourses.

Between the 1960s and 1970s, a movement for the recovery of historic waterways began in the United Kingdom (Squires, 2008) and spread throughout Europe. Local groups and associations worked on numerous initiatives to recover and rehabilitate the cultural and environmental heritage of regional *canalscapes*. The gradual rediscovery of the recreational opportunities offered by this hydrographic heritage (Prideaux, 2009, Prideaux, 2018) was part of a trend that characterised post-industrial society, expressing an increasingly manifest need for spaces for psycho-physical regeneration and recreational activities, particularly after the CoVID-19 pandemic (Pouso *et al.*, 2021).

In recent years, it has become clear that the shared interest in river landscapes goes far beyond the mere preservation or restoration of cultural features and ecological settings. In fact, there is a growing awareness of the value of water landscapes matching an equally broad emotional involvement in all that can be defined as *blue space*. Specifically, since water represents an element of unconscious attraction inherent in human beings since primordial times (Appleton, 1975; Orians, 1980, Kaplan, 1989), the presence of bodies of water within a landscape has a greater calming power than terrestrial environments without the water element (White *et al.*, 2010).

All in all, the specific appreciation for water landscapes has been summed up in the concept of *hydrophilia* elaborated by Vallerani (2019). Vallerani has asserted that due to unconscious ancestral attitudes activated by water flows and individuals' cultural backgrounds and representations, it is easier to develop a true empathy for the waterscapes than general landscapes (Vallerani, 2019). Moreover, it is acknowledged that the presence of *blue spaces* with good-quality water performs essential functions and provides innumerable benefits, especially in urban and peri-urban contexts, ranging from climate-cooling and climate

regulation<sup>1</sup>, to economic and social prosperity, to improved psychophysical conditions and population health (Völker & Kistemann, 2011; Pitt, 2018; Georgiou *et al.*, 2021; Smith *et al.*, 2022). During the COVID-19 pandemic, restrictions on mobility and the limited access to outdoor spaces contributed to increase the awareness of the importance of *blue-green spaces* (which comprise areas of water and adjacent vegetation) for population well-being and health (Dobson, 2021; Foley & Garrido-Cumbrera, 2021). Water also increases the satisfaction and well-being of residents through outdoor recreational and sporting activities that improve the quality of everyday life (Eigenschenk, *et al.*, 2019). Understanding these aspects is fundamental to achieving effective territorial resilience strategies that can no longer disregard the role of *blue spaces* and their multifunctional recovery to meet the growing social demand for environmental quality. Starting from these new needs and perceptions, several horizons open up for the regeneration of riverine territories.

The change of paradigm in the management of hydrography is often hindered by a lack of understanding of the benefits that river corridors can offer (Sukhdev, 2010), neglecting not only an environmental, but also a cultural and social recovery of these important territorial elements, which have been subjected for too long to numerous and heavy anthropic stresses, such as heavy hydraulic engineering interventions, ecosystem decline, pollution, excessive water withdrawals, lack of maintenance of riverbanks, etc. The objective of this is to identify strategies and potentials to upgrade the role of inland waters, re-evaluating the prospects of the material and immaterial water heritage for the development of slow and sustainable forms of tourism and promoting a multifunctional management of historical canals. Through archival and bibliographic research, I analyse the evolution of socio-environmental relations over time and inherited heritage concerning different stages in the territorialisation of the canal. Observation carried out during fieldwork, supported by the reading of local news, helps discuss current issues concerning the management of the canal.

The canal represents and encompasses a significant cultural heritage, focusing, in particular, on its history, on ancient navigation, on the Battaglia Terme Riviera, on the villas, ports and mills present there, and on the memories of the boatmen, which in recent years have generated the Battaglia Terme Civic Museum of River Navigation. We then move on to identify the tourism practices centred in the subject of the article. After discussing these aspects, I turn to river tourism in the Euganean network and the new perceptions deriving from this.

## Building the canalscape

Built in the 12th century by Paduans, the Battaglia canal is a 14-km-long artificial waterway that flows from Padua to the village of Battaglia Terme, from which it takes its name. Located in a hydrographical context of rare complexity, it flows through a low plain area characterised by gentle slopes and it is bordered to the west by the Euganean hills and to the east by the Venetian Lagoon (Figure 1). The geomorphic characteristics of the plains of the upper Adriatic Sea present prevalently thick accumulations of fine sediments, silts and sands, which reduce the permeability of the soils. This favours a prolonged stagnation of water in

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<sup>1</sup> The University of Manchester, in collaboration with the Canal and River Trust (CRT), has established an innovative approach to assessing the level of cooling offered by urban canals in different cities of UK. The results demonstrated that canals contributed to urban cooling from 0.3 to 1.6°C. Further results are available on the final report of the research.

the event of overflow of the numerous pre-Alpine feeder streams, such as the Brenta and Bacchiglione (Fontana, Mozzi & Bondesan, 2004).

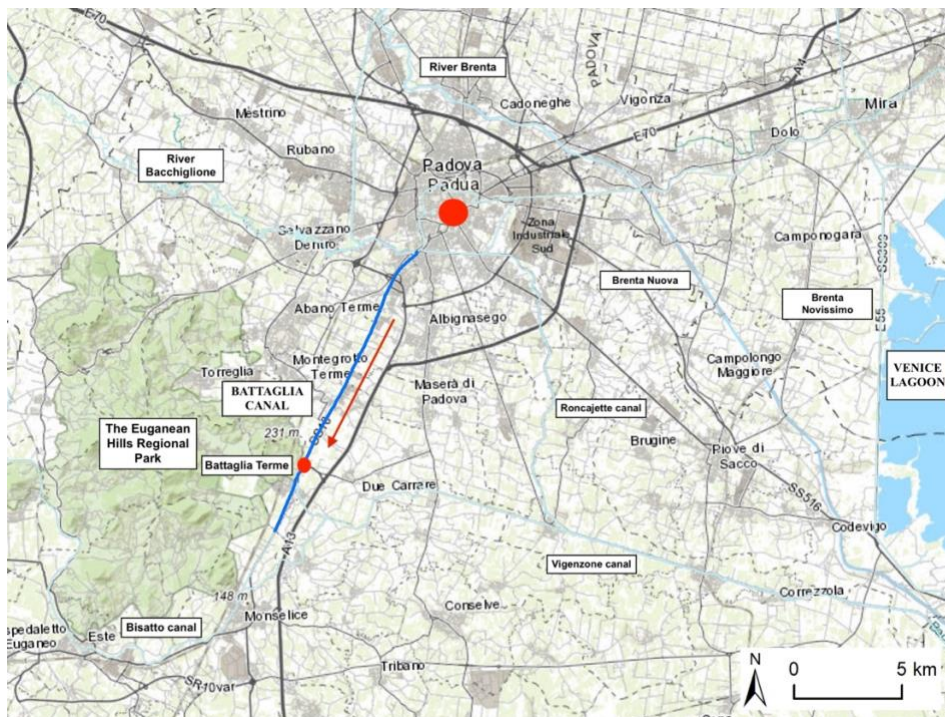


Figure 1 - the hydrographic system and the Battaglia canal between the Venice Lagoon and the southern province of Padova. (Map elaborated by the author.)

The realisation of the canal is related to the conflictual relations between the riparian populations of Vicenza and Padova over the use of the outflow of the Bacchiglione river. Around the middle of the 12th century the former decided to channel its waters into a previously dug canal, the Bisatto, which flows southwards along the eastern edge of the Berici Hills and then into the Vigenzone canal, the main downstream link between Battaglia and the sea-port of Chioggia. The new route allowed navigation between Vicenza and the lagoon, bypassing the Paduans' control over river traffic. Moreover, in the event of hostilities between the two cities, the Vicentini could control and manage the water supply of the Bacchiglione towards Padova (Zanetti, 1989; Vallerani, 2013).

In order to deal with this threat, the Paduans built a series of artificial canals between the 12th and 14th centuries in order to secure their independence from the Vicentines for water supply and navigation (Lotti, 1989). The construction of the Battaglia canal was part of this project. Being hanging canals, the realisation was quite complicated due to the retention of water and excess sediments flowing from the Euganean Hills to the banks of the new canal. At the junction of the outflows from Padua with those from Monselice, it was necessary to construct an infrastructure to allow water to continue its course downstream, in the direction of the main branch of the Bacchiglione river. The difference in height between the hanging canal from Padua and Monselice and the underlying, and pre-existing,

hydrographic network is approximately seven metres. The presence of such a significant water jump provides a significant source of hydraulic energy that favoured the consolidation of the maritime and proto-industrial centre of Battaglia (Valandro, 1989). In fact, after the digging of the canal in the 12th century, the village of Battaglia Terme experienced a progressive economic and proto-industrial development thanks to the establishment of an efficient water transport system between the urban centres of Padova and the port of Chioggia in the Southern Lagoon of Venice. In addition, agricultural products from the Padova lowlands flowed towards the numerous water wheels installed right next to the Battaglia canal to be processed and then resold in the urban centres along the banks.

The choice to locate the majority of the production activities next to the canal was not only due to the need to harness the force of water but also to use the waterway as a transport route. The close relationship between Battaglia Terme and its waters is also reflected in the urban structure. The village of Battaglia Terme presents similar characteristics to coastal settlements such as those of Chioggia and Venice, rather than the typical rural and hillside villages of the province of Padova. The houses along the waterway, the Venetian-style bridge, the statue of San Giovanni Nepomuceno (protector of sailors) and the parish church, recalled the urbanistic typology of river or maritime localities. (Grandis, 2005).

In the 15th century, the aforementioned territories were annexed to the Venetian Republic, whose inland water management was aimed to protect and safeguard the delicate environmental context of Venice and its lagoon (Cosgrove, 1993). From the 16th century, when Venice began to invest in hydraulic reorganisation for land improvement in the mainland, the riverine landscaper of Battaglia assumed the connotations of an orderly and calming landscape. Where there were previously marshes and swamps, extensive cultivated fields and villas appeared (Cosgrove, 1993). The Euganean Riviera, as the strip of land facing the Battaglia canal with its sumptuous villas (Villa Molin in Mandriola di Padova, Villa Emo in Rivella, the Catajo castle and Villa Selvatico in Battaglia) and the unusual hilly profile of the Euganean Hills in the background, is now called has fascinated many travellers. The Veneto region, thanks above all to the attraction of Venice, was one of the main stops on the 'Grand Tour', a journey that engaged the young aristocrats of northern Europe in discovering and getting to know the most important European art cities. In Veneto, the canonical itinerary of the Grand Tour, which started around the second half of the 16th century, was along an axis between Verona-Venice, passing through Vicenza and Padova. For those who instead wished to head towards Rome, via Ferrara and Bologna, there was a second itinerary from Padua to Rovigo that followed the line of the Battaglia canal (Selmin, 2000).

What emerges from the writings of early travellers is a description of the georgic landscape of the Euganean Riviera in which the anthropic imprint blends harmoniously with the natural component. One of the first to celebrate the aesthetic value of this riverscape is Thomas Coryat who, in his travel journal *Crudezze*, collects his impressions of his tour of Italy in 1608: "On both sides of this river I saw many delightful palaces and banqueting houses, which serve as holiday homes for the lords of Venice and Padua, and in which they amuse themselves during the summer". Villas are the element of landscape that most impressed and fascinated foreign travellers, so much so that the French Charles De Brosse even came to prefer them to the Riviera del Brenta. In one of his *Familiar Letters*, where he describes his journey in 1739-1740, he says:

*The countryside is beautiful and fertile. We skirt the banks of the Battaglia, along which there are even more beautiful houses than on the Brenta, but fewer in number.*

However, the serenity of this landscape was actually cyclically threatened by the frequent flooding caused by the Bacchiglione river. The water that leaked from the numerous breaches of the banks of the Battaglia canal poured copiously into the surrounding fields, causing extensive damage to agricultural activities (Vallerani, 1991). The hydraulic instability in which the low plain between Padova and the Venice Lagoon found itself, therefore, urgently required a defence system against flooding, especially to support the anthropic organisation of the territory, developed thanks to the exploitation and use of the canal's waters.

### The nautical civilisation and the last stages of river navigation

As previously mentioned, the Battaglia canal played a primary role in the connections and transport between the Venetian Lagoon and the mainland, and, as a consequence, Battaglia Terme, along with the city of Padova, became one of the most important fluvial hubs of the hydrographic network between the Euganean Hills and the Venetian Lagoon. The development of river navigation therefore proved to be a fundamental element in the redefinition of economic relations between Venice and the hinterland. It benefited not only the merchants and landowners of the Venetian nobility, but also the shipping companies that transported foodstuffs or trachyte stones<sup>2</sup> from the Euganean Hills to the nearby urban centres and Venice. In fact, the river navigation was a highly distinctive practice of the people and territory of Veneto until World War II. The waters of the Battaglia canal were ploughed for centuries by *burci*, flat-bottomed cargo boats of about 35 metres that frequently appear in the iconography of the Euganean Riviera (Figure 2).

The construction of the *burci* was a highly skilled enterprise and took place according to centuries-old techniques within the *squeri*, shipyards typical of the Veneto region. The best-known figure in the world of inland waterway navigation is undoubtedly the *barcaro*, the conductor of the *burcio*, who was responsible for the transport of goods. During the first half of the 19th century, the system of river connections was in a general state of decay due to the political uncertainty of the Napoleonic period. The river infrastructure was in state of neglect as a result of the lack of regular maintenance and restoration of embankments after flood events (Miliani, 1939). Thus, a shared perception of the inefficiency of the waterways emerged at the time that regarded watercourses as incapable of allowing both regular navigation and guaranteeing the outflow of water from the surrounding countryside (Coppin, 1818; Erizzo, 1807). Despite this, river transport continued to play a significant role in a large part of the Veneto territory thanks to the poor state of the land routes, which were impassable and dangerous, especially during the winter season.<sup>3</sup>

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<sup>2</sup> An igneous rock that was used extensively as a dimension stone in Venetian constructions.

<sup>3</sup> As reported by the anonymous of an early 19th century entitled *Piano e regolamento stradale per la provincia di Padova* (seganto B.P. 824, fasc. XXV).



Figure 2 - A typical *burcio* (cargo boat) in Battaglia Terme at the beginning of the 20th century. (Archivio del Museo della Navigazione Fluviale di Battaglia Terme)

During the period of Austrian domination which followed the Napoleonic period, significant hydraulic reorganisation work took place, boosting the revival of river navigation. However, the Austrians also encouraged the development of the railway throughout the Lombardy-Veneto region, greatly improving the overland road system and consequently initiating the beginning of the decline of river transport. While the construction of the Milan-Venice railway in 1842 may have precipitated the unstoppable decline of the Riviera del Brenta<sup>4</sup> waterway, the realisation of the Padova-Bologna line in 1866 and the Monselice-Montagnana line in 1885 led to the definitive decline of some river ports in Padova but not in Battaglia, whose traffic was concentrated around the southern lagoon of Venice, the Po river and the southern part of the province of Padova, where the overland road network was still inadequate. Evidence of the liveliness of the river port of Battaglia in the mid-19th century is evident in the proposal by the inhabitants of the Ortazzo district<sup>5</sup> in 1857 to improve the safety of the access road to the river ports in the Canale di Sotto<sup>6</sup> from the centre of the town, which was caught up in great deal of traffic and the hustle and bustle of wagons transporting stones from the Euganean hills and other factory materials.<sup>7</sup>

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<sup>4</sup> The Riviera del Brenta is an artificial canal that flows from Venice to Padova that was used by the Venetian landowners to reach their villas in the inland countryside.

<sup>5</sup> A hamlet of the village of Battaglia with the typical riviera settlement and maritime connotations where goods were sorted and loaded and unloaded from the burci.

<sup>6</sup> The Canale di Sotto is the canal collecting the water from Monselice and Padova and it has a difference in height of seven metres from the Battaglia canal.

<sup>7</sup> A.C.B., envelope year 1876, file *Landings Ortazzo road*, unnumbered paper dated 12 October 1857.

When Veneto became part of the Kingdom of Italy in 1866, inland navigation suffered a new slowdown: the empty coffers of the newborn Italian state threw the river infrastructures into a new state of neglect that made river transport less and less attractive and competitive. At the same time, the unstoppable expansion of the railway continued, perceived as a faster and more efficient means of transport than boats, often hindered and conditioned by adverse environmental conditions, such as droughts or floods, and equipped with slow and obsolete propulsion systems (Vallerani, 2004). Therefore, amidst this inexorable crisis of navigation, the fluvial port of Battaglia still retained its vitality at the beginning of the 20th century, probably thanks to the two emerging industrial poles of Marghera and Padova, the extension of cereal and beet crops that fed mills in Battaglia, and the constant traffic of *burci* loaded with trachyte.

The needs arising from the increase in the volume of commercial traffic and the expansion of the industrial and agricultural sectors led the newly formed Fascist regime to support the construction of the Battaglia basin, completed in 1923. The new infrastructure, a monument of state-of-the-art hydraulic engineering, made it possible to overcome the sharp difference in height of seven metres between the Battaglia and Sottobattaglia canals, eliminating the age-old rigmarole of loading and unloading between one canal and the other to continue navigation. The intervention was part of the regime's vast modernisation programme, in which the realisation of public works was a fundamental element for Italy's entry into the new era of progress. The basin, equipped with a particularly innovative technology, assumed a significant symbolic value in terms of support for the recently risen Benito Mussolini, promoter of a generalised modernist restructuring of Italy (Vallerani, 2004). The realisation of the basin contributed to the formation of a new waterscape. The ancient physiognomy celebrated in amphibian iconographies, dominated by the Catajo castle, villa Molin and villa Selvatico, the riverside villages and the characteristic terracotta bridges, acquired a new element of territorial identity with the new hydraulic infrastructure, populated until the 1960s by numerous cargo vessels waiting to cross it. The enthusiastic illusion of a new era of navigation infused by the pre-war euphoria vanished with the outbreak of Second World War (Santin, 1989), since postwar political choices favoured the development and strengthening of road transport, effectively marking the last act of river navigation. Economic difficulties, insufficient earnings and ruthless competition from new forms of transport pushed the boatmen to abandon their activity for new, more remunerative jobs. The last *burci* passed through Battaglia in 1965 (AA.VV., 1980). Two years later, navigation in the entire Veneto region definitively ceased. The *burci* were put up for sale and used for different purposes for which they had been created: some were turned into platforms for sports fishing, others into restaurants, and others were abandoned along the canals. In Battaglia, the wreck of a *burcio* still lies in the canal, preserved as a testimony to the ancient fluvial past of this river town.

### Approaches to water and landscape management

The abundant water heritage created by different stages of territorialisation represents a significant legacy that demonstrates the ancient relationship of the inland populations of Veneto with its watercourses. Embankments, bridges, drainage canals, basins and riparian villas represent a valuable territorial endowment that is at the same time a connotative and identifying landscape label of this peculiar sector of the lowlands. However, the contemporary canalscape of the Euganean Riviera has been largely transformed since the decline of the fluvial transport. The widespread and uncontrolled process of cementing that characterised the post-World War II period has altered the aesthetic value of the centuries-



old Veneto landscape. The countryside was progressively swallowed up by the urban sprawl, and the dense hydrographic network was subjected to the country's development and modernisation ambitions. The results of the cultural and political approach to landscape management are also evident in the current structure of Battaglia Terme which underwent significant changes. Due to demographic growth in the post-WW2 period, Battaglia Terme's local administration considered the expansion of the urban area as a key priority. Engineer De Thierry's highly critical 1954 report on the Zabai Urban Plan for Battaglia is emblematic in this regard, expressing his opposition to the inclusion of Battaglia in the ministerial list of municipalities obliged to adopt the P.R.G.<sup>8</sup> and to a territorial plan that imposed obligations and limitations on constructions with a negative impact on private building activity (Verdi, 1989).

The short-sighted decision taken at the time still affects the current experience and perceptions of those who travel along the canal. In particular, the enlargement of the state Road 16 along the canal and, therefore, through the centre of Battaglia Terme (Figure 3), to facilitate the road traffic from Padova to Monselice, has created a spatial caesura between the inhabitants and the canal. The heavy traffic on state Road 16 and the compression of pedestrian spaces have triggered a progressive abandonment and devaluation of canalside buildings, as well as the closure of many of the commercial activities formerly enacted there, thereby suppressing the liveliness and liveability of the historical waterfront. As a result, the centre of the town, originally located along the Battaglia canal, shifted to the area between the railway and the canal, where the new town hall and the majority of commercial and administrative activities have been moved to.



Figure 3 – The traffic situation on the state Road 16 along the historical waterfront of Battaglia Terme. (Photo by Vereshchagin Dmitry, 2017.)

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<sup>8</sup> The P.R.G. (Piano di Regolatore Generale) is an urban planning document that determines urban expansion within a municipal area. According to law, every Italian municipality must have one.

Even the 14 km length of the canal has not been spared from development. The pleasant riverside landscape enriched by the elegant villas overlooking the canal is now populated by an extensive number of industrial warehouses. The aesthetic value of the centuries-old canalscape has been compromised by politicians who endorsed unruly transformations of the landscape that altered the fluvial identity of the territory. The case of Padova is even more emblematic, as the municipal administration led by Cesare Crescenti buried many of the urban canals in the 1950s as they were considered a risk for public health and a barrier to the modernisation of the city. As a result of this fostering of negative perceptions, public opinion was apparently in favour of burying the canals so as to make room for new roads. Therefore, the uncritical adoption of the Developmentalist model since the late 1950s has produced dramatic side effects, not only hastening the end of inland navigation but also eroding the distinct intangible and material elements of centuries-old amphibious territoriality. In fact, it was precisely during the years of the economic boom that the heritage of traditional Italian boating, knowledge, practices and fluvial culture was dispersed.

The approach with which many of the interventions were carried out is an expression of the rupture of the age-old balance between hydrography and anthropic dynamics. Developmentalist attitudes, fuelled by the socio-economic model adopted over the last sixty years, have led to a profound cultural detachment between society and local watercourses. This has created what might be termed a 'hydraulic illiteracy', with the local population unaware and often also insensitive to the vital dynamics of rivers and canals, as well as to the rich material and immaterial heritage generated by the fruitful relationship between humans and water. Paolo Giardullo introduces the concept of the 'invisibility' of local watercourses as the result of the new socio-environmental relation: most of the canals do not always stand out to the eye due to a functionality that is no longer present. Much less, people do not understand their functionalities and how these have settled historically. In other words, there is no perception of them since they were created to perform a task on which other practices overlapped. They thus become visible only when they break down or malfunction (Star, Star & Ruhleder, 1996).

The disappearance of knowledge concerning river dynamics, along with historical memory about the role and the services provided by the canals over the time can be expressed via the concept of *hydroamnesia*. This is a general amnesia affecting local riparian populations that makes them indifferent to and unaware of the effects of many of the interventions on the watercourses and the waterscapes. For instance, the recent construction of an embankment blocking the historic Squero Cobelli shipyard's access to the waterway was undertaken by the Genio Civile<sup>9</sup> to secure Battaglia Terme from floodings. As reported in the official document containing the project approved by the Region Veneto (Regional Council) in 2015, the work on of the embankment has been considered as the best solution from a merely economic point of view, erasing an important element of local water heritage and part of the historical identity of the canalscape (Figure 4).

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<sup>9</sup> The Genio Civile is the regional entity in charge of the management of the main watercourses for flooding prevention and hydraulic safety.



Figure 4 - Embankment blocking access to the historical Cobelli shipyard (author's photo, 2023).

Another impactful intervention for the navigation of the canal was realised in 2009, when the water leaks occurring in the stretch running through the centre of Battaglia Terme led to the cementing of the Battaglia canal by the Genio Civile, thus narrowing the space for the passage of tourism boats (Mattino di Padova, 2009). The cultural approach does not seem destined to change since future projects proposed by the local administration include new bridges to ease the traffic (PadovaOggi, 2021) or new roads that are planned for the banks (*Il Gazzettino*, 2023).

### The rediscovery of the nautical past

While territorial government bodies retain a preference for 'grey' choices and infrastructures, damaging both the territorial identity and the natural ecosystem of the canal, there is a local group supporting the environmental and cultural recovery of the Battaglia canal. This movement originated back in 1977, when Professor Elio Franzin held a course for the workers of the Magrini Galileo Factory and the employees of the thermal centre in Battaglia about researching local history. During the course, the professor, who is famous for his battles to recover the monumental staircase of the Piovego river port in Padova, invited his students to study the problems (past and present) of the hydrography in the area of Battaglia. Since Franzin perceived Battaglia as the boatmen's village, the work focused mainly on the problem of river navigation and the way of life of people engaged in river activities. The intense oral history and research work conducted by the students laid the foundation for a new awareness of the liquid origins and the nautical past of the Battaglia canal.

The story of the boatmen from Battaglia also gained interest among the local press and the initiative was carried forward by both the students and cultural animators in Battaglia. A photographic exhibition on the boatmen was organised at the C. Marchesi cultural centre

(Franzin, 1980), which is currently the town's municipal library. In the essay *L'ultimo dei barcari* ("The Last of the boatmen"), Francesco Jori described the extraordinary research work carried out by Riccardo Cappelozza, one of the last boatmen of Battaglia, in the following terms:

*Thus began, from the bottom, one of the most extraordinary recoveries of memory, rowing against the tide with respect to the levelling force of modernisation. (Author's translation)*

Indeed, Cappelozza, who was a student on Franzin's course, is the great protagonist of the recovery of collective local memory, collecting materials and stories from former boatmen with great enthusiasm and perseverance. Franzin's 150-hour course has been the driving force behind the rediscovery of the boatmen past of Battaglia and the Veneto region, bringing back images, emotions and feelings of a life that ended only a short time ago but which were consigned to prehistory and seemed destined for oblivion. Here, the rediscovery of the nautical past has led contemporary river rhapsodians to bring to light the dynamic and varied world that revolved around river navigation through literary production. Amongst these, Marina Bovolenta, an author from Polesine, collected the nostalgic monologues of former boatmen in her 2019 book *I barcari raccontano i cavallanti*, evoking a composite panorama of ancient river trades comprising lesser-known professional figures such as *cariolanti* (transporters), *portinari* (guardians of navigation locks), *sabionari* (transporters of sand and gravel) and *osti* and *squeraroi* (boat builders). The melancholy of the lost relationship between humans and river, obliterated by the furious process of modernisation and the rapid socio-economic changes that followed World War II, emerges preponderantly in Francesco Jori's 2009 book *L'ultimo dei barcari* (the last of the boatmen), in which the author traces the epic of the boatmen through the life of Riccardo Cappelozza, the last of the boatmen of Battaglia Terme. From Cappelozza's memoirs, there is an intense feeling of regret for the disappearance of the boatmen's way of living perpetually on the move that led them to be labelled as "water gypsies" (Mainardi, 2012). The figure of the boatmen is undoubtedly the best known thanks to the numerous iconographic and literary records that outline and testify to the centuries-old presence of the *burci* in the Battaglia canal, highlighting the area's close connection with the intense activity of river transport.

The legacy of the of the fluvial past discovered by Franzin has been capitalised and valourised with the establishment of the River Navigation Museum of Battaglia Terme. The museum hosts numerous items and vessels related to the boatmen, and an archive collecting historical photographs and oral histories from them. The Museum of Navigation represents a point of reference for the citizens of Battaglia, the enthusiastic rowers of the local rowing clubs, scholars, environmentalists and tourism operators who aim to valourise the water heritage through river tourism along the Battaglia canal. The commitment of the Museum of the River Navigation spans several fronts, e.g. the organisation of initiatives in collaboration with local associations and rowing clubs to keep alive the memory of the nautical past among new generations,<sup>10</sup> the boatmen's *pallio*, a historical re-enactment of human towing of a traditional boat performed by boatmen from the embankment (Figure 5), and the *Remada a seconda*, a boat competition that aims to raise attention to waterways and their preservation, is most famous and remains popular with locals. The Museum also supports the development of river tourism experiences on the Battaglia canal, cooperating with local riverboat operators, with the aim of promoting the revival of the navigability of waterways in the area between the

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<sup>10</sup> See <https://museonavigazione.eu/>

Euganean Hills and the Venice Lagoon. Finally, the members of the Museum seek to raise awareness among the political actors on the importance of the environmental quality of the canalscape and the valorisation of water heritage for the development of river tourism along the Battaglia canal.



Figure 5 - The last boatmen's palio on August 2023. (Museum of River Navigation of Battaglia Terme.)

The recent restoration of the highly deteriorated historical Battaglia basin carried out by the regional administration of Veneto is the result of the active commitment of the Museum. The modern rehabilitation of the basin now enables boats from Padova to reach and dock at the Museum of River Navigation, enhancing the development of river tourism (Telenuovo Padua, 2022). The River Navigation Museum brings together and gives voice to the local community in defence and preservation of the liquid territorial identity. It carries out valuable work of saving and protection of the material and immaterial elements of Veneto's river culture, making Battaglia a unique territorial testimony capable of meeting the new needs of today's society. The consolidation of new behaviours and sensitivities should be seen in relation to the increase in the availability of free time and the awareness of the importance of environmental and aesthetic quality of the waterscapes, historical and cultural identity.

#### Between potential and challenges: Prospects for the renaissance of the Battaglia canal

The emergence of widespread environmental awareness and a reappraisal of geo-historical specificities within post-industrial society has contributed to the development of critical tools to deal with the continuing threats to heritage assets and landscapes (Vallerani, 2013). The Battaglia canal can be considered a hydrographic segment of high environmental and historical value, where there is a harmonious coexistence of semi-natural elements and

historical-artistic heritage. The medieval construction of the Battaglia canal represents a significant peculiarity within the European landscape, as most of the artificial stretches date back to the 18th century. For this reason, it could be part of a broader strategy of recovery of historical European waterways, following the examples of France and the UK, which started an important process of revaluation and regeneration of their waterways in the 1970s, building a dense network of river routes that today can be widely enjoyed for recreational and leisure activities. The Italian context still appears to be at an early stage in terms of planning and management of watercourses, which today are used almost exclusively for irrigation purposes, collection of domestic sewage or are withdrawn for industrial activities.

With regard to the Battaglia canal, the recovery for multifunctional purposes is still in its inception. The commitment of local actors of the cultural, recreational and tourism sectors to promote and valorise the water heritage and river tourism to meet the increasing social demand of recreational experiences is often damaged by a sectorial approach to the management of the canal. As many and different institutions and entities have responsibilities over the watercourse, the management is extremely fragmented and sometimes overlaps. Above all, the Genio Civile has priority intervention as it is in charge of hydraulic security. Most of the times Genio Civile acts with top-down and invasive interventions on the watercourse, choosing the most cost-effective solution instead of the most sustainable one. As a consequence, a new paradigm in the water management is needed, first shifting from a sectorial to more integrated approach, second involving local actors to share decisions.

It is necessary to take note of postmodern society's growing interest in lesser-known landscapes and the assiduous search for places for psycho-physical regeneration. The development of the navigation and leisure experiences along the Battaglia canal could serve to meet this demand. Currently, the regional entity in charge of the navigation of the waterways, *Infrastrutture Venete*, has a plan to improve the river navigation with the aim of developing a network of waterways for river tourism. The rehabilitation of the river route that links Venice to Padova, Battaglia Terme and Chioggia, recalling the old navigation route of the boatmen, would represent a competitive presence in the European river tourism system. Moreover, the valorisation of the canal should aim at the development of an intermodal mobility, integrating the water infrastructures with terrestrial infrastructures in order to expand the recreational opportunities and attract proximity visitors from nearby destinations and the city of Padova.

It should be pointed out that tourism must not turn into a 'landscape devourer'. Ideally, it should tend towards strategies of rigorous environmental protection and restoration of attractions, creating not only opportunities for environmental rebalancing, but also opportunities to satisfy the growing demand for pleasant spaces for leisure time. The prospects identified so far to promote the tourist vocation of this territory should not only aim at increasing the number of foreigners arriving but should be aimed at growing demand among residents to improve the quality of everyday life. Humanising living spaces means not only taking care of the physiognomy of places but also rediscovering satisfaction in one's own territoriality, recovering the ancient pleasure of village social relations so as to foster a sense of community. The concept of humanising everyday life is also closely linked to the growth of interest in one's own places and one's own landscapes with their unique historical-environmental characteristics. Giving importance to landscape heritage, to water quality, to the endowment of green areas, to local agriculture, to traditional gastronomy, to less distressing rhythms of life, and to revaluing the knowledge of the elderly can all represent real innovation capable of raising the competitiveness and appeal of an area, which can then

be read in residential satisfaction, in a healthy environment, in the protection of property values, in an attractive and sustainable tourism destination. In conclusion, this region could become something of a laboratory area where well-known participatory approaches could be encouraged so as to demonstrate the advantages that can be derived from consciously restoring the age-old relationship between community and territory.

Finally, the implementation of a river ecomuseum, also involving the prestigious heritage of Veneto villas and rural buildings, could create the background of high landscape quality necessary to make the entire tourist destination more attractive. The establishment of a 'diffuse museum' should start from the historic centre of Battaglia and the Museum of River Navigation, as the latter represents and collects the identity of both the Battaglia site and the entire Veneto plain, and should assume the primary role in passing on this heritage to future generations and stimulating the sensitivity and responsibility of the technicians and politicians who govern the territory in making responsible choices.

## REFERENCES

- AA.VV. (1980). Canali e Burci. *La Galiverna*.
- A.C.B. (1857, October 12). *Landings Ortazzo road* (Envelope year 1876), unpaginated document.
- Anonymous (undated, c. early 19th century). *Piano e regolamento stradale per la provincia di Padova*. B.C.P., B.P. 824, fasc. XXV.
- Appleton, J. (1975). *The Experience of Landscape*. Wiley.
- Bovolenta, M (2019) *I Barcari Raccontano I Cavallanti: Uomini E mestieri del '900 alle radici della Nostra Memoria Collettiva un passato dimenticato di cui siamo eredi*. Apogeo.
- Cacciamani C. (2018). Climate change in the Mediterranean area: The state of art. *L'Acqua, Rivista bimestrale dell'associazione idrotecnica italiana*, 2, 7-12.
- Chartres, C. & Varma, S. (2010). *Out of water: from abundance to scarcity and how to solve the world's water problems*. Financial Times/Prentice Hall.
- Ciriacono, S. (2006). *Building on water: Venice, Holland and the construction of the European landscape in early modern times*. Berghahn Books.
- Coppin, P. (1818). *Breve saggio intorno ai canali irrigatorij e navigabili*. Padova.
- Coryat, T. (F. Marenco & A. Meo [Eds.]). (1975). *Crudezze: Viaggio in Francia e in Italia, 1608*. Longanesi.
- Cosgrove D. E. (1993). *The Palladian landscape: geographical change and its cultural representation in sixteenth-century Italy*. Leicester University Press.
- De Brosses, C. (1992). *Viaggio in Italia. Lettere familiari*, 170.
- Distefano, T. and Kelly, S. (2017) 'Are we in deep water?' Water scarcity and its limits to economic growth. *Ecological Economics* 142, 130-147
- Dobson, J. (2021). Wellbeing and blue-green space in post-pandemic cities: Drivers, debates and departures. *Geography compass*, 15.10
- Eigenschenk, B., Thomann, A., McClure, M. et al. (2019). Benefits of outdoor sports for society: A systematic literature review and reflections on evidence. *International Journal of Environmental Research and Public Health*, 16(6), 937.
- Erizzo, G. (1807) *Memoria sui Veneti Fiumi*. Reale stamperia.
- Foley, R. & Garrido-Cumbrera, M. (2021). Why green and blue spaces matter more than ever. In G.J Andrews, V.A. Crooks, J.R. Pearce & J.P. Messina (Eds.) *COVID-19 and similar futures: Global perspectives on health geography* (pp 281-289). Springer.

- Fontana, A., Mozzi, P. & Bondesan A. (2004). L'evoluzione geomorfologica della pianura veneto-friulana. In Bondesan, A. & Menegol, M (Eds.) *Geomorfologia della provincia di Venezia, Provincia di Venezia* (pp. 113-136). Esedra Editrice.
- Franzin, E. (1980). Il corso delle 150 ore e la scoperta dei barcari. In AA.VV. (Eds.) *Canali e Burci* (pp. 17-19). La Galiverna.
- Georgiou, M., Morison, G., Smith N. *et al.* (2021). Mechanisms of impact of blue spaces on human health: A systematic literature review and meta-analysis. *International Journal of Environmental Research and Public Health* 18 (5), 2486.
- Giardullo P. (2021). Padova e le infrastrutture d'acqua. In G. Osti (Ed.) *Fiumi e città: un amore a distanza Vol.1* (pp. 66-78). Padova University Press.
- Grandis, E. (2005). Battaglia Terme tra le due guerre: territorio, economia, chiesa e società. *La Galiverna*, 7-26.
- Hoekstra, A. (2015). The water footprint of industry. *Assessing and Measuring Environmental Impact and Sustainability*, 221-254.
- Il Gazzettino di Padova*. (2023, February 14). Castello del Catajo, nuova strada sull'argine: il no degli ambientalisti.  
[https://www.ilgazzettino.it/nordest/padova/castello\\_catajo\\_proteste\\_ambientalisti\\_viabilita\\_strada\\_argine\\_rotatoria\\_battaglia\\_terme-7229060.html](https://www.ilgazzettino.it/nordest/padova/castello_catajo_proteste_ambientalisti_viabilita_strada_argine_rotatoria_battaglia_terme-7229060.html)
- Il Mattino di Padova*. (2009, July 29). Cementificato il letto del canale Battaglia.  
[https://ricerca.gelocal.it/mattinopadova/archivio/mattinopadova/2009/07/29/MP1P\\_O\\_MP107.html](https://ricerca.gelocal.it/mattinopadova/archivio/mattinopadova/2009/07/29/MP1P_O_MP107.html)
- Jori, F. (2009) *L'ultimo dei barcari*. Biblioteca dell'Immagine.
- Kaplan, R. & Kaplan, S. (1989). *The experience of nature: a psychological perspective*. Cambridge University Press.
- Liu, J., Yang, H. Gosling, S. *et al.* (2017) Water scarcity assessments in the past, present and future. *Earth's Future*, 5, 10.1002/2016EF000518.
- Lotti, P. (1989). Dalle origini al XV secolo. In P.G. Zanetti (Ed.) *Battaglia Terme, Originalità e passato di un paese del Padovano* (pp. 19-31). La Galiverna.
- McDonald, H., Chambers, J., Taylor, S. *et al.* (2019). *The urban cooling effect of canals in cities shown to exceed 1 degree centigrade in summer: Canals, cooling and replicable models - summary report to the Canal and River Trust*.  
<https://documents.manchester.ac.uk/display.aspx?DocID=57300>
- Mainardi, M. (2012). *Zingari d'acqua: L'epopea dei barcari della bassa pianura Padana nella vicenda di un vecchio navigante*. Filippi.
- Mauch, R. & Zeller, T. (2008). *Rivers in history: Perspectives on waterways in Europe and North America*. University of Pittsburgh Press.
- Mekonnen, M.M & Hoekstra, A.Y. (2016). Four billion people facing severe water scarcity. *Science Advances*, 2 (2). <https://www.science.org/doi/10.1126/sciadv.1500323>
- Muta'a Hellandendu, J. (2012). Health implications of water scarcity in Nigeria. *European Scientific Journal*, 8(18).
- Miliani, L. (1939). *Le piene dei fiumi veneti e i provvedimenti di difesa: L'Agno-Guà-Frassine-Gorzon: il Bacchiglione e il Brent*. Le Monnier.
- Orians G.H. (1980). Habitat selection: general theory and application to human behaviour. In J. Lockard (Ed.) *Evolution of human social behaviour* (pp. 49-66). Elsevier.
- OECD. (2012). OECD Environmental outlook to 2050: The consequences of inaction.  
<https://www.oecd.org/env/indicators-modelling-outlooks/oecdenvironmentaloutlookto2050theconsequencesofinaction-keyfactsandfigures.htm>



- PadovaOggi. (2021, March 12). "Ponte della fabbrica" sul canale Battaglia: al via il progetto di fattibilità. <https://www.padovaoggi.it/attualita/ponte-fabbrica-canale-battaglia-albignasego-padova-12-maggio-2021.html>
- Pitt, A. (2018). Muddying the waters: what urban waterways reveal about bluespaces and wellbeing. *Geoforum*, 92, 161-170.
- Pouso, S., Borja, Á, Fleming, L. E *et al.* (2021). Contact with blue-green spaces during the COVID-19 pandemic lockdown beneficial for mental health. *Science of the Total Environment*, 756, 143984.
- Prideaux, B. (2018). Canals: An old form of transport transformed into a new form of heritage tourism experience. In F. Vallerani & F. Visentin (eds.) *Waterways and the cultural landscape* (pp. 143-157). Routledge.
- Prideaux, B. & Cooper, M. (2009). *River tourism*. CABI.
- Regional Council of the Regione Veneto (2015). *Progetto preliminare dei lavori di completamento dell'argine destro del canale Sottobattaglia in loc. Ortazzo del comune di Battaglia Terme*. <https://www.halleyveneto.it/>
- Santin, I. (1989). L'Arco di Mezzo, centro del sistema idraulico. In P.G. Zanetti (Ed.). *La riviera Euganea: acque e territorio del canale Battaglia* (pp. 233-243). Studio Editoriale Programma.
- Selmin, F (2000). I Colli Euganei nel 'Gran Tour. Terra d'Este IX (18)'. *Viaggiatori stranieri sui Colli Euganei e nel Veneto' (7 Ottobre 2000 in Villa Selvatico-Sartori di Battaglia Terme)* (proceedings), 7-26.
- Smith, N., Foley, R, Georgiou, M *et al.* (2022). Urban blue spaces as therapeutic landscapes: A slice of nature in the city. *International Journal of Environmental Research and Public Health* 19 (22), 15018.
- Star, S.L. & Ruhleder, K. (1996). Steps toward an ecology of infrastructure: Design and access for large information spaces. *Information systems research* 7(1), 111-134.
- Squires, R (2008) *Britain's restored canals*. Landmark Publishing.
- Sukhdev, P. (2010). Putting a price on nature: the economics of ecosystems and biodiversity. *Solutions*, 1(6), 34-43.
- Telenuovo Padua (2022, January 25). Canale Battaglia, via ai lavori di manutenzione. <https://tgpadova.telenuovo.it/attualita/2022/01/25/canale-battaglia-via-ai-lavori-di-di-manutenzione>
- Valandro, R. (1989). In Monselice nel XIII secolo tra pace e guerre. In P.G. Zanetti (Ed.) *La Riviera Euganea: Acque e territorio del canale Battaglia* (pp.65-79). Ed. Programma.
- Vallerani, F. (1991). I problemi idraulici e la navigazione, in Battaglia Term. In P.G. Zanetti (Ed.) *Originalità e passato di un paese del Padovano* (pp. 147-154). La Galiverna.
- Vallerani, F. (2004). *Acque a nord: da paesaggio moderno ai luoghi del tempo libero*. Cierre.
- Vallerani, F. (2013). Tra Colli Euganei e Laguna Veneta: Dal Museo Della Navigazione al turismo sostenibile: From the Museum of Navigation to sustainable tourism. *Grafiche Antiga*.
- Vallerani, F. (2019). Fiumi come corridoi di memorie culturali, saperi idraulici e rappresentazioni. *Semestrale di studi e ricerche di geografia*, 31(1), 105-118.
- Verdi, A. (1989). Lo sviluppo urbano. In P.G. Zanetti (Ed.) *Battaglia Terme, Originalità e passato di un paese del Padovano* (pp. 223-254). La Galiverna.
- Völker, Sd & Kistemann, T. (2014). The impact of blue space on human health and well-being: Salutogenic health effects of inland surface waters: a review. *International Journal of Hygiene and Environmental Health*, 214(6) 449-460.
- White, M., Smith, A., Humphries, K. *et al.* (2010) Blue space: the importance of water for preference, affect and restorativeness ratings of natural and built scenes. *Journal of Environmental Psychology*, 30, 482-493.

World Economic Forum (2019). *Global Risks 2015*.

<https://www.weforum.org/reports/global-risks-2015/>

Zakar, M. Zakar, Z. & Fischer, F. (2020). Climate change-induced water scarcity: a threat to human health. *South Asian Studies*, 27(2), 293-312.

Zanetti, P.G. (1989). Una difficile regolazione delle acque. In P.G. Zanetti (Ed.) *La riviera euganea: acque e territorio del canale Battaglia* (pp. 211-212). Studio Editoriale Programma.