



International Council on
Monuments and Sites

Conseil International
des Monuments et des Sites

Deutsches Nationalkomitee e.V.

WATER HERITAGE – A SOURCE OF KNOWLEDGE FOR SUSTAINABLE DEVELOPMENT

Contribution to the Global Climate Goals and
to the *Conference on the Future of Europe*



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the European Academy Berlin

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ISC Water and Heritage

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Andrea Oldani

Waters and Landscapes of Invention: for a New Interpretation of Water Heritage

Heritage as teaching deposit

This paper focuses on specific aspects of a more comprehensive research study on one of the most relevant hydraulic monuments in the Milanese context, the Naviglio Grande Canal. It proposes a description and re-interpretation as to understand the object from the past in regards to its values concerning the present.¹ Achieving this result involves investigating the meaning of tools, methods, and theories to understand and interpret the complexity of the landscape and deepening the knowledge of how the past can communicate valuable content for the present and future.

The observation starts from the specific disciplinary point of view of landscape design and assumes, as an ultimate horizon, the modification of the environment as a response to understanding the landscape and guaranteeing its permanence through its evolution.

Looking at heritage in a way that is capable of illuminating the present and providing answers applicable to completely different physical, social and cultural contexts involves a considerable effort that implies a critical operation that makes comparisons and transliterations, starting from a strongly directed synthesis. To this end, the research starts from a transect crossed by the Canal and proposes a reinterpretation that focuses on water as a material of space essential to the future of the landscape. This cultural approach attempts to reinterpret and reapply the principle of „continuity“ developed in Milanese architectural culture. According to this theory, the reference to the past becomes „historical consciousness“ and leads to a „dynamic continuation“, not to „dogma“ but to “free research”.² History thus becomes operable material, like the territory³, and with its dense deposit lends itself to a wide range of autonomous re-elaborations in which the echo of history is present and can be perceived despite not being dominant or oppressive.

This concept, substantiated by numerous cross-cultural references, all Milanese, represents an emblematic example of understanding the relationship with history in architectural design, applied to the search for a specific language for contemporary architecture in relation to the problem of environmental pre-existences. Nevertheless, the concept did not find immediate application to the landscape phenomenon, unless one recalls specific aesthetic values (volumetric aspects, sculptural determinations, rhythmic sequences, chromatic vibrations) and refers to a form-oriented sensitivity, in which case it is crucial to focus on what continuity means for the contemporary landscape. For this reason, a theoretical realignment is indispensable, explaining why this research associated with continuity should be located in a different problematic and cultural context, directly related to the difficulties of the Anthropocene.

First, it is evident how this attention to formal values and language makes sense in an argument about architecture and the landscape of infrastructures, because it operates concerning the study and rethinking of forms constructed in space. Furthermore, the comparison is even more meaningful if examined in relation to the degree of invention that historical infrastructures such as the Naviglio Grande can express. This capacity of invention is necessary to answer the challenges imposed by environmental imbalances and ecosystem degradation and corresponds to functional, aesthetic, and spatial wisdom and creativity.

Consequently, continuity becomes not only understanding and treasuring a way of using architecture and its materials to construct space and compose skilful forms, but also recovering the creative and unconventional abilities to imagine places, address problems and find solutions that can also be understood in the study of history.

This process is an actual operation of invention that has stood the test of time, has survived, and has been handed down and can thus inspire the present. The interest lies in understanding the degree of complexity, invention, capacity for relationships and plurality present in the emblematic works of the past in order to then replicate their spirit according to the needs of the present, not by emulating but by reinterpreting. The process envisages a series of actions that analyse the complexity, dissect its characteristics, and re-propose them through a renewed formula.

1 The research is presented in OLDANI, Acque, 2020.

2 Ernesto Nathan ROGERS focused on the concept of “continuity” and critically discussed within the pages of the magazine *Casabella Continuità*. For an overall examination of Rogers’ theoretical approach, see ROGERS, *Esperienza*, 1997, p. 93; and ROGERS, *Elementi*, 2006, p. 59.

3 The extension of Rogers’ thought to the territory and its interpretation in relation to history is carried out by his alumnus Vittorio Gregotti. In his theory, the entire anthropo-geographical universe becomes operable material through architecture tools. See GREGOTTI, *Territorio*, 1966.

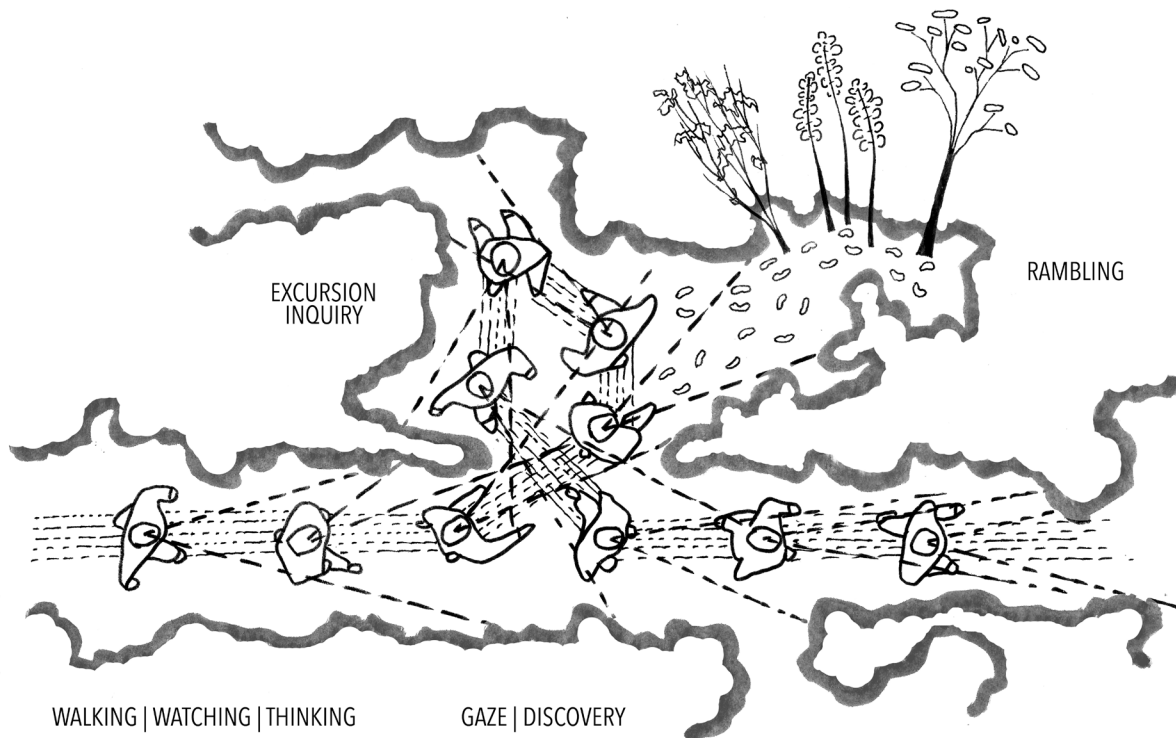


Fig. 1 Walking rituals, landscape discovery

As a first step: immersion

The hypothesis of discovering and acquiring various forms of knowledge and inspiration by studying infrastructural works from the past requires first understanding methods and tools for their comprehension. Therefore, immersing oneself in the landscape becomes an essential priority and necessity. It is evident how the value of the direct relationship with places and the meaning of seeing with one's own senses are vital. This is true since the landscape is a phenomenon that depends on complex factors where the act of living is essential,⁴ but also because it is necessary to contrast the contemporary excess of images affecting our way of perceiving the landscape.⁵ In fact, several studies have shown how excessive visual consumption leads to superficiality, a lack of deep observational stimuli and a reduction in attention to reality.⁶

For this reason, recovering a one-to-one personal experience with the site allows reflecting on the reality before its representation and training to improve how to look carefully and see. Moving through the landscape means walking according to a ritual that considers each

step a gesture. This act corresponds to the initial stage of discovery and understanding and, reiterated and improved, provides the necessary awareness to describe and interpret the landscape (Fig. 1).

The on-field research work conducted on Naviglio Grande started from the elementary experience of walking. This activity was carried out in different sessions, slowly, through repeated gestures, proceeding regularly and continuously, with the mind ready to evasions and excursions in search of the elements of exceptionality. Those components are fundamental to understand the landscape and to open to the design value inherent in any descriptive operation carried out by the architect.

Transects and cross-sections: unveiling inventive complexity

The value of direct knowledge of a landscape does not end with mere exploration but requires precise transcriptions. This operation is essential for at least three reasons. The first is to transmit the knowledge and make the landscape intelligible, thus increasing its value. The second is to focus on resources and criticalities, allowing the terms for improvement necessary in the design phase. Finally, the third reason, as in the case of the Naviglio Grande, is to assess landscape value as a source of knowledge for the present. The research that this paper attempts to illustrate from a methodological point of view has used multiple tools, including drawings, maps, and photographs.

4 JULIEN, Living, 2018.

5 The list of literature dealing with these issues is extensive, a rather broad but not generic review is offered by: MIRZOEFF, How to See, 2015.

6 The effects are mainly studied concerning taste preferences expressed in social media, see: THÖMMES, HÜBNER, Why People Press, 2020.

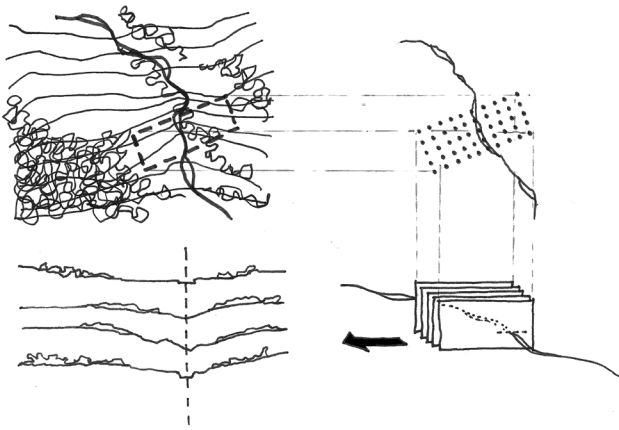


Fig. 2 Transects, cross-sections, tomography

However, since the contribution is limited, it is more relevant to focus on transects and cross-sections, which are considered the primary method for representing landscape complexity.

The transect concept has a relevant history in landscape studies, from Alexander von Humboldt to Patrick Geddes and Ian McHarg, as a tool directly related to ecology, used to describe transitions, successions of diversities up to becoming a design tool.⁷ In addition to this, archaeology also uses transects in a slightly different way. This discipline considers the transect a theoretical and operative device that directly links survey experience and field-walking through research sites. Here it is usually assumed that a limited exploration field chosen in a random area constitutes a sample capable of representing the peculiarities of the entire population and allowing a first, simplified and measurable, exploratory insight.⁸

For this reason, the concept of the transect can be easily transferred to the study of territorial infrastructure. The choice of one or more sample areas, defined according to the character of the territory, makes it possible to highlight, within a measured area, the specificities and differences that can first be assessed and then extended and generalised.

Furthermore, the transect consisting of a measurable area with a fixed geometric character, can be understood horizontally as a field of singular points and vertically as a series or sequence of parallel planes. This interpretation establishes a clear relationship between transects and cross-sections, offering a direct correspondence and relationship between two views. Consequently, the transect appears as an ideal theoretical tool capable of penetrating

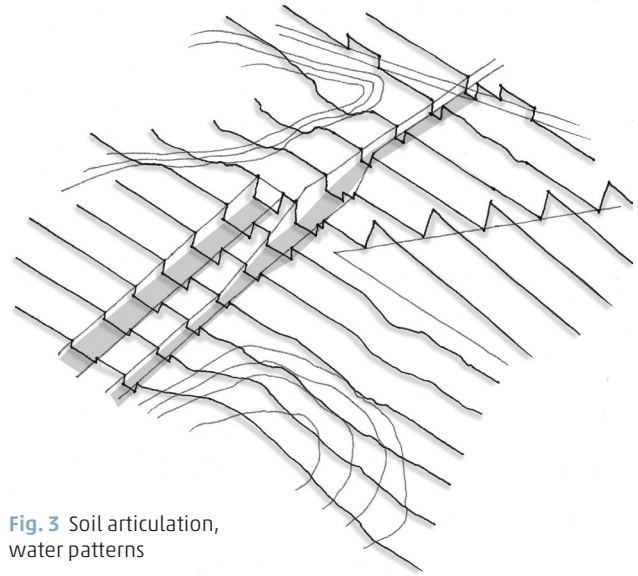


Fig. 3 Soil articulation, water patterns

the constituent essence of things, establishing a clear relationship with tomography (Fig. 2).

Transects, cross-sections and tomography thus become means to delimit, understand and describe the complexity of the landscape and its formal consistency. These topics or rather tools have been assumed, speculated about, and practised by researchers and finally applied to the knowledge of the landscape crossed and determined by the Naviglio Grande Milanese. Drawing, reading, and interpreting a sequence of sections reveal the complexity determined by the soil movements and the succession of cavities designed to receive and distribute the water and construct landscapes (Fig. 3).

Shapes of water

At this point, it is necessary to go back to the initial assumptions and clarify which inventive aspects found in the past can become resources for using water as a material to build the future landscapes.

The study highlights how constructing an artificial canal such as the Naviglio Grande has favoured the indispensable conditions for the settlement. Moreover, it has shown how its presence influenced the entire environment and is connected to every form of production and living. The water did not just flow and defined a line, but multiplied, reaching other destinations and providing support for an advanced form of multifunctionality that corresponds to a precise determination of space.

The ground has been excavated, adapted, and levelled. Differences in the plans have been skilfully exploited. Construction works guaranteed the perfect efficiency and plurality of the system by making the water flow, accessible and collectable, guaranteeing overpasses, boating facilities, accesses, controls, measurements, and

⁷ BRAAE, STEINER, *Research Companion*, 2018.

⁸ BANNING, *Archaeological Survey*, 2002.

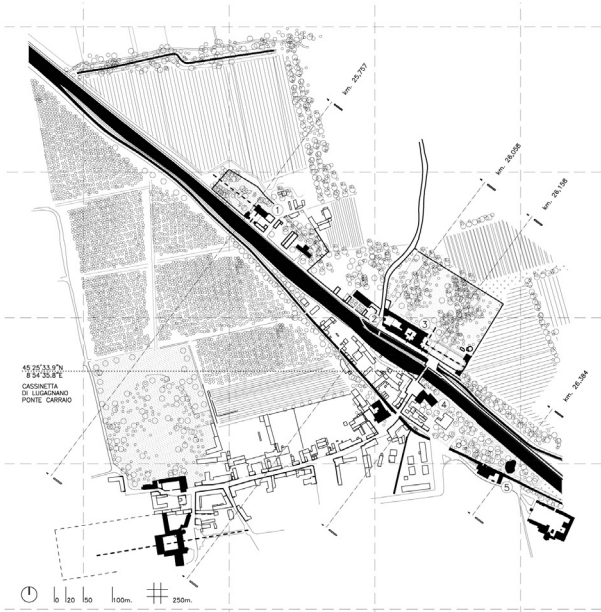


Fig. 4 Naviglio Grande, Cassinetta di Lugagnano, mapping, cross-section contextualisation

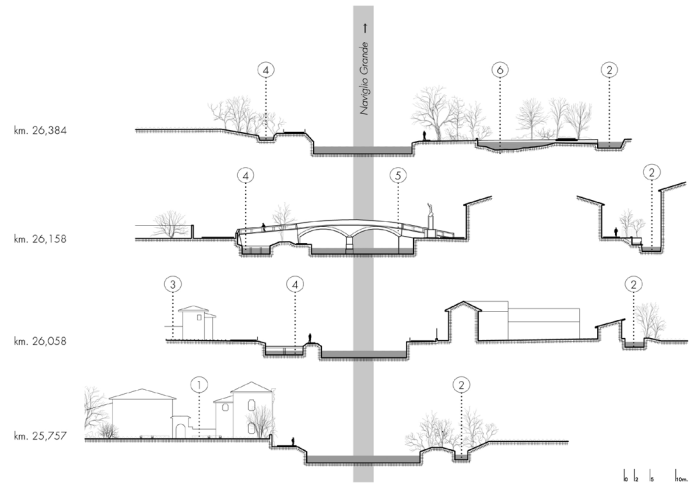


Fig. 5 Naviglio Grande, Cassinetta di Lugagnano, cross sections, tomography

ensuring quality. The liquid matter has been subjected to the most varied desires over time, in which its recycling has played a fundamental role and has made it a plural resource (Figs. 4 and 5).

A fundamental example is a secondary canal named Roggia Soncina, whose waters taken from the Naviglio Grande generate an alternative, varied landscape, responding to primary functional and secondary needs (Fig. 6). It is a romantic garden where the water passes through a tiny ditch, creating an extended variety of ponds designed for the pleasure of the middle class (Fig. 7). This richness created by water makes the Milanese Navigli extraordinary for their plurality of invention, producing a well connotated and resilient landscape that has evolved since the 13th century.

Water has no form; rather, it takes the form of its container. This is why we can speak of the forms of water, that is, how this material has been skilfully used to construct singularities, successions, spatial concatenations. This richness, plurality and diversity become the cue to understand the lesson of the Naviglio Grande. They allow us to reflect on how heritage becomes an opportunity for reflection that helps to redirect the efforts needed to emerge from the condition of crisis that characterises the present.



Fig. 6 Robecco Sul Naviglio, Roggia Soncina, washhouse

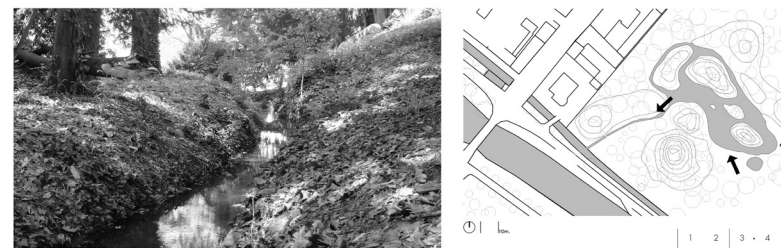


Fig. 7 Robecco Sul Naviglio, Sironi Marelli Garden, ponds and ground movements

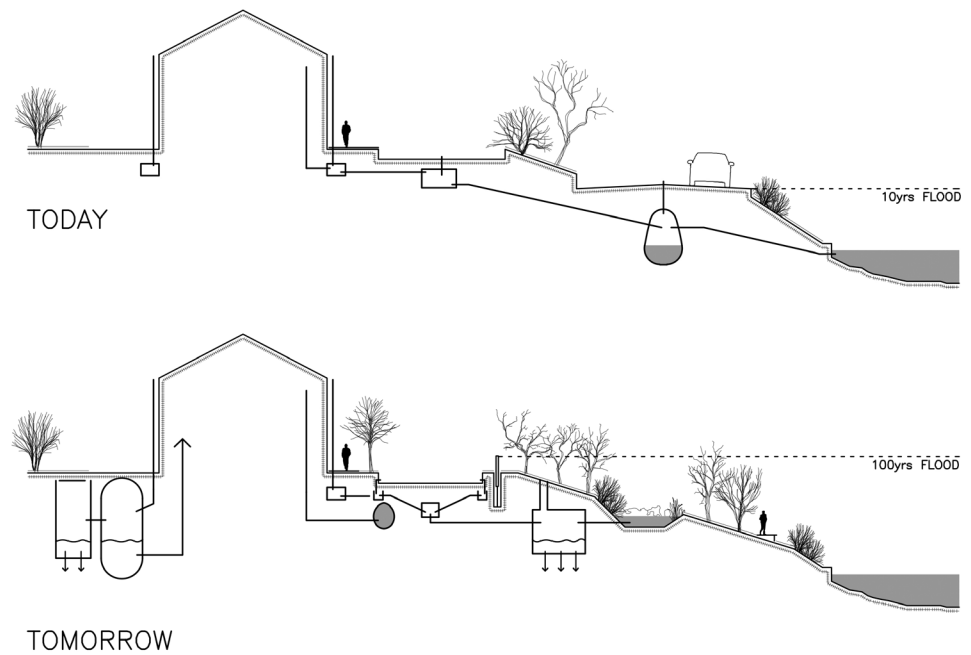


Fig. 8 Water-sensitive city concept

Water as a matter of space and form in times of climate change

Today, water plays a central role in addressing the critical conditions imposed by climate change. European and global policies have responded to changing and evolving criticalities for some years now. Mitigation and adaptation, together with resilience, have become indispensable concepts when dealing with excess, scarcity, or anomalies in our daily or extraordinary relationship with this element.⁹

The novelty of this paper and the research presented do not lie in enunciating a series of strategies to improve urban metabolism or the characteristics of the natural landscape to make our territory more resilient. In this respect, numerous contributions provide a very clear panorama of appropriate technical solutions.¹⁰ Instead, from another point of view, the intention is to shift the attention towards the value of water as a material capable of shaping a new identity of open and urban space. This stage represents a step forward as it focuses not only on technical terms but also on issues of spatial design, which are necessary for the creation of high-quality landscapes. Thus, some issues closely linked to architectural design, which can be grouped under the problem of form, are given a new priority and crucial role in the conception of the resilient city of the future.

Consequently, the need to give more space to water, collect it in a differentiated way and reuse and recycle it becomes

a theme of urban and landscape design. The reason lies in the potential visibility and perceptibility of water, and the operability of the liquid material constitutes the basis for a renewed grammar of spaces. This possibility is not new. The same thing happened in the past, when the construction of modern water infrastructures, like aqueducts and sewers, led to the birth of a specific and innovative landscape,¹¹ progressively deleting the pre-existing one.¹² It is possible to imagine the same for the future, with a transitional phase that will gradually lead to a new identity and grammar of spaces. In order to do this, it is necessary to focus on water and its preciousness; it can no longer be reduced to an impediment or waste product, and it is the task of architects to find new spaces to give a recognisable form to the flow of water.

It is difficult to describe this change, which shifts attention from the implementation of technical solutions, frequently invisible, to insert water into the space as a tangible material capable of influencing the degree of appreciation of places. A scenario can be imagined where a succession of complex figures replaces the invisible water linearity of the present. This new condition breaks up our predictable vision of water, starting from the tap in our sinks. Today we are used to always having water available and seeing it disappear, often denying the reality of when it reappears polluted in watercourses that we only care about when they cause disasters and floods.

⁹ For a comprehensive insight on Europe see KESKITALO, *Developing Adaptation*, 2014.

¹⁰ A vast series of technical solutions is offered by STROSSER, *Water Retention*, 2014.

¹¹ The contributions of GANDY, *The Fabric*, 2014 and SMITH, *City Water*, 2013, contribute significantly to highlighting the role of water in producing a new urban imaginary.

¹² A demonstration of how the availability of tap water through the aqueduct changed the landscape of a city like New York is offered by GREENBERG, *Springs and Wells*, 2021.

All this flowing must manifest itself in new urban and landscape figures. The speed of water must be reduced, allowing it to find a new rhythm, to stop and purify itself, to originate places and give room to plants and species. The water flows will again become visible as continuities, creating landscapes that change with the seasons and the weather. The asphalt will disappear and the soil will breathe again, revitalised by water and reconstituting essential environmental infrastructure. Sometimes wet and sometimes dry, new spaces will emerge in cities and landscapes (Fig. 8). Water will be stored and redistributed, creating a succession of milieus where water will be present to reduce heat islands and improve the comfort of increasingly hot places.

This variety can only be imagined if it is conceived as an extensive infrastructure that is superimposed on or inserted between the voids and folds of the existing city, restoring, replacing, and occupying the obsolete space we experience in the present.

The example of the Naviglio Grande thus returns as a testimony that can narrate the coexistence of forms, invented spaces, and places that all revolve around a blue line. It is a question of capturing this inspiration for the present to demonstrate the capacity for accumulation and stratification. The landscape of the Naviglio Grande returns the result of progressive transformations that have produced more complexity, starting from an extreme awareness of the use of resources. This condition occurred through the multiplication of flows and the

complex articulation of infrastructures designed for water use, movement, and control. The same operation should be carried out today, starting from a completely different concept of water infrastructure and profoundly alternative needs. Continuity means applying the inventive imagination of the past to the present project.

Some highly anticipatory projects constitute the germinal elements of this future. One can mention the Watersquare in Rotterdam, designed by De Urbanisten.¹³ It is a pioneering example of dry/wet integration and a new figure for public space in times of climate change. Another relevant case is offered by Tredje Natur's design for Enghavepark in Copenhagen. The scope is similar but more in line with the needs of cities with a relevant corpus of obsolete parks and public spaces which need to be progressively updated. The park, renewed in 2019, is an emblematic example of a resilient and flexible environment readily responsive to climatic conditions characterised by extreme rainfall. The result is a perfect example apt to describe the resilience that will characterise our work in the future. Later, Asplan Viak's project for Deichmans and Wilses Gate in Oslo, Norway can be mentioned. The realisation offers a particularly illustrative scenario of rethinking the water cycle for historic cities. The water flowing off the roofs during the rainfalls becomes urban material, shaping a new architecture of flows (Fig. 9). The disappearance

13 PEUPE, De Urbanisten, 2010.



Fig. 9 Architecture of flows, Deichmans and Wilses Gate in Oslo, Norway



Fig. 10 Deichmans Gate, Oslo, Norway

of asphalt thanks to a reduction of car traffic and the elimination of parking spaces guarantees the possibility of a renewed landscape that will restore the quality of the urban environment and offer a life improvement to residents (Fig. 10).

These are a few examples of an attitude that is in the process of redefinition, episodes of invention that demonstrate water's capacity to once again become a material with which to construct spaces and to recover the sense of an ancient heritage whose legacy is necessary. For now, these are singular or small implementations. Hope is that the future will bring a broad integration of these solutions in the city. This step requires an overall reform project that will necessarily start with the revision of the waterworks that support the present's complex urban metabolism. In this sense, rethinking maintenance processes and procedures as an opportunity to revise models and improve infrastructure's plural meaning is a step of great scope and interest.

Credits:

Figs. 1–5, 8: drawings by Andrea Oldani

Figs. 6–7, 9–10: photos by Andrea Oldani

Bibliography

Edward B. BANNING, *Archaeological Survey*, New York 2002.

Ellen BRAAE, Henriette STEINER (eds.), *Routledge Research Companion to Landscape Architecture*, London 2018.

Matthew GANDY, *The Fabric of Space. Water, Modernity, and the Urban Imagination*, Chicago 2014.

Stanley GREENBERG, *Springs and Wells – Manhattan and the Bronx*, Amsterdam 2021.

Vittorio GREGOTTI, *Il territorio dell'architettura*, Milan 1966.

Francois JULLIEN, *Living Off Landscape: or the Unthought-of in Reason*, London 2018.

Carina KESKITALO, *Developing Adaptation Policy and Practice in Europe: Multi-level Governance of Climate Change*, Amsterdam 2014.

Nicholas MIRZOEFF, *How to See the World*, London 2015.

Andrea OLDANI, *Acque e paesaggi di invenzione. Descrizione, meraviglia e nuova interpretazione di infrastrutture e architetture dell'acqua*, Melfi 2020.

Dirk van PEIJPE et al., *De Urbanisten and the Wondrous Water Square*, Amsterdam 2010.

Ernesto N. ROGERS, *Esperienza dell'architettura*, Milan 1997.

Ernesto N. ROGERS, *Gli elementi del fenomeno architettonico*, Milan 2006.

Carl SMITH, *City Water, City Life. Water and the Infrastructure of Ideas in Urbanizing Philadelphia, Boston and Chicago*, Chicago 2013.

Pierre STROSSER et al., *Natural Water Retention Measures in Europe*, Brussels 2014.

Katja THÖMMES, Ronald Hübner, *Why People Press 'Like': A New Measure for Aesthetic Appeal Derived from Instagram Data*, in: *Psychology of Aesthetics, Creativity, and the Arts*, Advance online publication, 2020.

Berlin Paper On Water Heritage

Over millennia, humans have developed, managed and controlled water to make it available for human use. A wealth of techniques and approaches regulate the use of water to let culture thrive, which today has left us an immense number of water-regulating devices ranging from canals and irrigation systems to water distribution in urban environments and palatial gardens with their decorative fountains.

Managing water has been an inevitable corner stone for human activities. Settlements only thrived with constant access to water, the control of it powered the rise of civilizations, creating water engineering wonders in their path giving water heritage a unique socio-cultural value. In addition to their historic value, these waterscapes have also inspired artists, poets, writers and travellers for their magnificent aesthetic values.

However, today, this very important aspect of cultural heritage has received far too little attention. This is why the conference *Water Heritage – a Source of Knowledge for Sustainable Development. Contribution to the Global Climate Goals and to the Conference on the Future of Europe*, proposes to enhance the transmission of the cultural values of water heritage, to better address the many challenges it faces and, above all, to highlight its crucial contribution to the global climate goals.

Many questions and concerns were raised and discussed during the two-day conference, the essence of which we would like to share with the public through this paper.

Observations

Several observations have been made by the heritage and water experts:

- Water heritage is a unique source of collective memories resulting from the constant interaction between human activities and natural conditions.
- There is no cultural heritage without the element of water.
- Water heritage is not only historically valuable, but also a source of knowledge that can contribute to solving current water problems.
- Still functioning historic water distribution systems can show how water-related systems have evolved and stood the test of time. The aim is to reveal some of the wisdom of these sites to make it useful for today's technology.
- UNESCO's global network of water museums has the goal to foster an emotional bond with water. Engaging audiences by disseminating knowledge about water heritage is crucial to better face the global water crisis.
- In the recent past, water has often been merely seen as a means for industry, transport, etc., or as a threat, wherefore the control of water was considered the priority aim without alternative.
- Water links with growing employment opportunities (renewable energies, transport, tourism...).

Challenges

As mentioned above, water heritage has been overlooked and receives too little attention from authorities, planners and even heritage experts. For that reason, today, it is facing several challenges, which have been discussed in depth during the conference:

- A lot of water heritage is mismanaged, either disregarded completely and abandoned or poorly maintained and over-exploited.
- Migration, soil erosion, climate change, droughts, rural depopulation, deep wells, modern technology, heavy rainfalls and loss of traditional knowledge are some of the threats of rural water heritage.
- Further, urban water heritage is threatened by constant uncontrolled urban development worldwide, leading to the loss of these historic elements making way for modern structures.
- Outdated local policies are another main reason that pose a problem to the preservation of water heritage restricting in parts or fully the access to and use of waterways in cities.
- There is a plethora of interests from different sectors, which sometimes collide with each other (boat, fishing, transport, heritage).
- The loss of water heritage sites and their values, will eventually lead to the vanishing of traditional knowledge and techniques.

Recommendations

In a response to these complex challenges, the experts and participants of the conference present the following list of recommendations:

- **Dialogue between all stakeholders:**
Reach out and initiate dialogues between heritage experts, organizations, policy makers and citizens/communities to work out practical cases and show how water related heritage can make a significant impact. Involving local stakeholders through a participatory and multistakeholder partnership approach is crucial. Inclusive participation of all stakeholders, including communities, in the management of heritage sites, is key to sustainable preservation.
- **Water heritage as a source of knowledge in reaching Climate Goals:**
In face of the most serious man-made crisis, climate change, we need to learn from the past and draw lessons from centuries of an evolving water sector: How did past generations manage to master the basic element of water? What role did water play in politics, economics and social development? What do we have to be aware of? Bearing this in mind, water heritage is also a key knowledge resource that cross-links various perspectives set up in the SDGs.
- **Water heritage as an essential element for local economy:**
Understand water heritage as an economic asset harnessed through adaptive reuse. Turn water heritage into a sustainable attraction and focus on responsible tourism (slow tourism) including ways of sustainable mobility by bicycle or canoe supporting the local economy.
- **Water heritage as a rich source of tangible and intangible cultural heritage:**
Water heritage celebrates the natural and cultural diversity in both tangible and intangible ways. Both are important inspirational sources for arts, technology, innovation, education, sustainable tourism and creative industries etc. Preserving intangible assets of water heritage can be reached through the transmission of water stories in (guided) tours. This should also feed the interpretation of these sites to counter the disappearance of water way culture. Preserving oral history and memories of boatmen, sailors and fishermen, as well as the literary landscape including novels and poetry, and other cultural representations like paintings, photography, postcards and traditional knowledge of craftsmen and ferrymen.
- **Digitalization as a tool to preserve water heritage:**
Digital technologies play an increasing role in interpreting and disseminating elements and values of heritage. They can be used as a tool to facilitate access to water heritage and to promote sustainable tourism (to access hidden heritage and to engage the youth audience) for example through interactive maps rendering space and place. Moreover, digitalization encourages and fosters communication. It enables easy access to and dissemination of knowledge, in particular among young generations and with the support of education transformation.
- **Inventory of water heritage:**
A first step to preserve water heritage is its mapping and setting up of a (global) inventory. This can help to show the rich and diverse water heritage sites and build a repository of visual knowledge to commemorate the past, explore the legacy of water assets with digital trails for responsible tourism and inspire future generations by learning from previous sustainable uses of water.
- **Community engagement and outreach:**
Heritage protection needs citizen engagement and dialogue with politics. This is particularly important when it comes to water heritage, as it is a multi-layered concept with local communities playing a central role in this human society-nature interaction. Furthermore, citizen engagement from different backgrounds is needed to efficiently protect water heritage – this includes spiritual relationships between water and communities.
- **Policies and politics have a direct impact on water heritage:**
The study of water management policies and the appreciation of water related heritage in the policies of government and water institutions is helpful to better understand and control this impact. Moreover, it is crucial to foster education disseminating water related knowledge in order to secure long-term conservation and to identify national interests in order to get national water communities on board with international working groups.

Conference Programme

Thursday, 11 November 2021

Water Heritage and Water History as Knowledge Resource

09:30: Registration

10:00 Opening, Welcome and Introduction

Greetings

- Dieter Ernst, Chairperson European Academy Berlin
- Tino Mager, ICOMOS Germany

Keynote

- Hildegard Bentele, MEP, Conference on the Future of Europe
- Christian Johann, Managing Director European Academy Berlin

Session 1

11:00 Water-related Heritage – Historical Resource and Future Potential

Moderation: Weronika Priesmeyer-Tkocz

- *Domestication of Water. Management of Water Resources in the Dry Zone of Sri Lanka as Living Cultural Heritage*
Wiebke Bebermeier, FU Berlin
- *On Water and the City: A Heritage for Lisbon*
The Water Heritage and Water Museum of Lisbon. Learning from the Past for the Future?
Paolo Oliveira Ramos, Universidade Aberta
- *Unveiling Venice's Waterways Heritage. From the Extended Water Museum of Venice to UNESCO-IHP's Global Network of Water Museums*
Eriberto Eulisse, Global Network of Water Museums / University of Venice Ca' Foscari

Session 2

14:00 Water Heritage and Inclusive Development

Moderation: Tino Mager

- *Waters and Landscapes of Invention: for a New Interpretation of Water Heritage*
Andrea Oldani, Politecnico di Milano
- *Bridging Divides – Between Water Heritage and Water Management*
Henk van Schaik, ICOMOS ISC Water and Heritage
- *Communicating Water Heritage and Mobilizing Citizen Science and Civic Engagement*
Carola Hein, TU Delft

Session 3

17:00 Inspired by Water Heritage

Moderation: Jörg Haspel

Inspiration talk:

Artistic Approaches to Water Heritage in the Netherlands
Anna-Rosja Havemann, University of Groningen

Panel Discussion:

- Anna-Rosja Havemann, University of Groningen
- Henk van Schaik, ICOMOS ISC Water and Heritage
- Rainer Nagel, Bundessstiftung Baukultur
- Steffen Skudelny, Deutsche Stiftung Denkmalschutz
- Dieter Ernst, IWC – Innovation and Water

18:30 End of first conference day

Friday, 12 November 2021

Implementing Water Heritage for Sustainable Development

Session 4

09:00 Future Workshop Water Heritage (Live Stream)

Inspiration talk:

E-learning Curriculum on Water: Friend and Foe of Miners in Mining Region Erzgebirge/Krušnohoří
Ping Kong, Heritage & Education gGmbH
Friederike Hansell, Saxon State Office for the Conservation of Monuments

3 Workshops:

Development of a Berlin Paper on Water Heritage

- Education & Culture
- Citizen Engagement
- Policy Making

12:00 Presentation of the Results of the 3 Panels

Presenters and rapporteurs with references for Berlin Paper on Water Heritage

12:30 Summary of the Conference, Conclusion

Tino Mager, Christian Johann

13:00 End of the conference

Curricula Vitae

Carola Hein

chairs the Department of the History of Architecture and Urban Planning at Delft University of Technology as well as the UNESCO Chair Water, Ports and Historic Cities. She has published widely in the field of architectural, urban and planning history and tied historical analysis to contemporary developments. Among other grants, she received a Guggenheim Fellowship to pursue research on The Global Architecture of Oil as well as an Alexander von Humboldt fellowship. Her recent (co)edited books and monographs include *Oil Spaces* (2021), *Urbanisation of the Sea* (2020), *Adaptive Strategies for Water Heritage* (2020), and the *Routledge Planning History Handbook* (2018).

Rolf Höhmann

has a diploma in architecture and town planning from the Technical University of Darmstadt in Germany, where he also worked as a researcher in the project „Early Industrial Buildings“. In 1989, he founded his own independent Bureau for Industrial Archaeology for the documentation, evaluation and restoration of industrial monuments in Germany and Europe. He worked in different stages on several World Heritage projects, like the Völklingen Ironworks and the Erzgebirge/Krušnohoří Mining Region and prepared Tentative List proposals as well as the nomination dossier for the Water Management System of Augsburg, included in the World Heritage List in 2019.

Rolf Höhmann is speaker of the Working Group on Industrial and Technical Heritage of ICOMOS Germany, a long-time member of ICOMOS and TICCIH, and ICOMOS monitor for the Zollverein Coal Mine Industrial Complex and the Völklingen Ironworks World Heritage Sites.

Andrea Oldani

(MArch, PhD) is an assistant professor of landscape architecture at the Department of Architecture and Urban Studies at the Politecnico di Milano. A faculty member of the School of Architecture, Planning and Construction Engineering, he teaches Landscape Architecture and Design. Since 2008 he has developed theoretical, didactic, and design contributions on the landscape of contemporary infrastructures, focusing on riverscapes and waterscapes architecture.

Paulo Oliveira Ramos

was assistant professor of Heritage Studies at the Universidade Aberta (Portuguese Open University) and researcher at the Art History Institute NOVA-FCSH. He has more than 30 years of research experience in the fields of history, heritage studies, industrial archaeology, and museum studies and has published widely on cultural heritage. Among his publications are *Iconografia Histórica da EPAL*, 2 volumes, EPAL, 2007 and 2008, *O Projecto de Louis-Charles Mary para distribuição de água na cidade de Lisboa, 1856*, EPAL, 2011 and „Ports: An (ancient) History, a (new) Heritage“ in: *Knowledge of the Seas Pavilion: 1998 Lisbon World Exposition, 1998*, pp. 225-240.

Henk van Schaik

is the Honorary Vice President of the ICOMOS International Scientific Committee for Water and Heritage and Ambassador for Water and Heritage of ICOMOS Netherlands. Since 2019 he directs the International Centre for Water and Transdisciplinarity (CIRAT) in Brazil. In the past, he chaired the Advisory Committee of the Sustainable Water Subsidy Fund of the Netherlands Government, represented the Lead Water of the University for Peace in The Hague, and was also a member of the Alliance of the Water Integrity Network. From 2001 to 2012 he directed the International Cooperative Programme on Water and Climate. He previously worked as a Water Advisor of and for the Dutch Ministry of Development Cooperation. Upon completion of his MSc in Water Management at Wageningen University, NL, he worked for several years in rural water supply provision in Malawi and Zambia. He co-edited the book *Water and Heritage: Material, Conceptual and Spiritual Connections*, published in 2015.

Till F. Sonnemann

works at the Bonn Center for Digital Humanities at the University of Bonn. A trained geophysicist, he completed his PhD at the University of Sydney on the archaeological landscape of Angkor in Cambodia, giving him the opportunity to do extensive fieldwork from 2007 until 2012. From 2013 until 2016, he conducted postdoctoral research at Leiden University, from 2016 until 2022 he was junior professor for digital archaeology at the University of Bamberg. He is interested in the use of non-destructive techniques to investigate archaeological and heritage sites, with particular focus on water management.

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