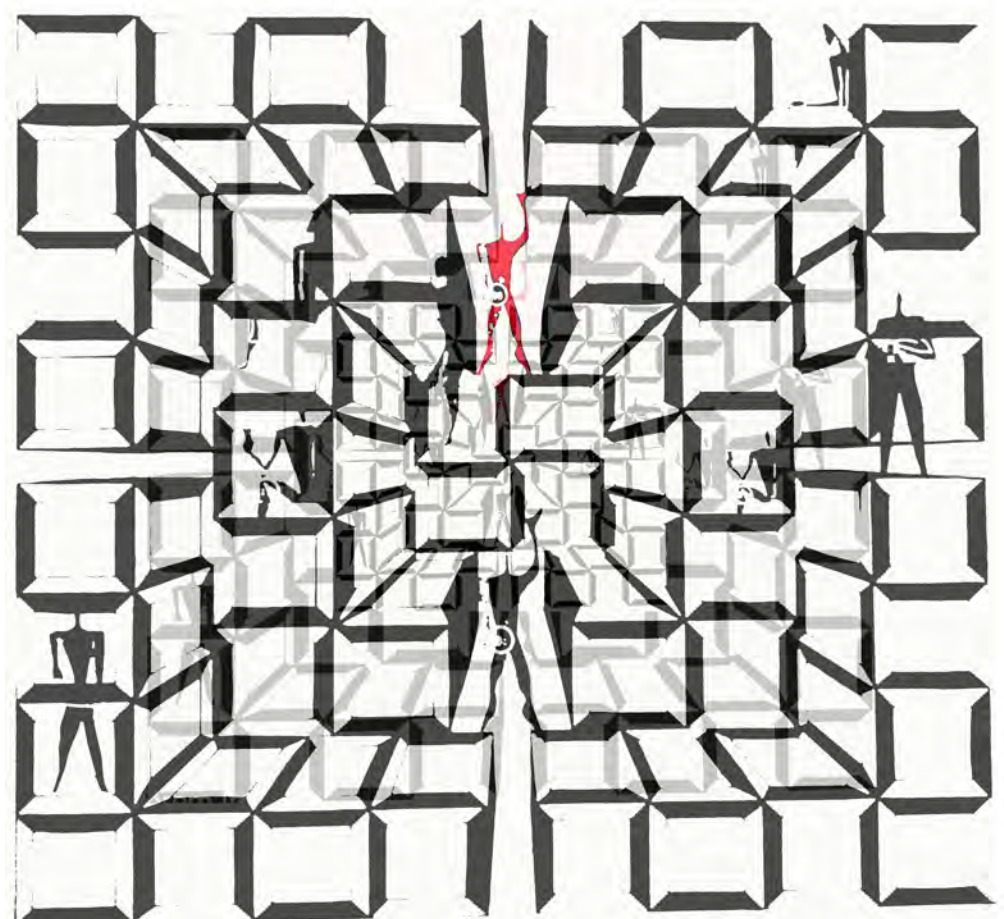


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a cura di Giulia Pellegrini



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The Fortress of Hvar Tvrdalj in Croatia Survey and modelling

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Abstract

The research is focused on the study of the Fortress of Hvar Tvrdalj, Croatia, with cognitive investigation operations that expose the ponderous geometric and structural beauty of the fortified architecture. Through a reading of the identity issues of the design, the graphic aspects and structural values of the Renaissance fortified villa on the Croatian island of Hvar, built by the humanist Petar Hektorovic (1487-1572), which includes the palace, a lush garden, a dovecote and a fishpond surrounded by arcades where fish still swim.

The representation of the architecture and the environment was set up by providing, at an early stage, the execution of a basic survey in order to define a primitive geometric model; then, digital measurements with laser instrumentation and the related processing of the collected data were carried out. Adequate photographic documentation was also carried out, in addition to the verification of the scarce sources of bibliographic, archival and iconographic material.

The study, therefore, proposes the digital survey and the relative graphic modelling in order to propose interventions for the conservation and enhancement of a fortified architecture never before subject to scientific studies and research.

Abstract

La ricerca è incentrata sullo studio del Fortino di Hvar Tvrdalj, in Croazia, con operazioni d'indagine di carattere conoscitivo le quali espongono la ponderosa bellezza geometrica e strutturale dell'architettura fortificata. Attraverso la lettura delle questioni identitarie del disegno s'individuano gli aspetti grafici e i valori strutturali della villa fortificata rinascimentale, sita sull'isola croata di Hvar, fatta costruire dall'umanista Petar Hektorovic (1487-1572), che comprende il palazzo, un rigoglioso giardino, una colombaia e una peschiera circondata da portici dove tutt'oggi nuotano i pesci.

La rappresentazione dell'architettura e dell'ambiente è stata allestita prevedendo, in una fase iniziale, l'esecuzione di un rilievo di base al fine di definire un primitivo modello geometrico; successivamente, sono state effettuate le misurazioni digitali con strumentazione laser ed il relativo processing dei dati raccolti.

È stata inoltre realizzata un'adeguata documentazione fotografica oltre alla verifica delle scarse fonti relative ai materiali di tipo bibliografico, archivistico, iconografico.

Lo studio, quindi, propone il rilievo digitale e la relativa modellazione grafica al fine di proporre interventi di conservazione e valorizzazione di un'architettura fortificata fino ad oggi mai soggetta a studi e ricerche di carattere scientifico.

Introduction

The present work proposes to document and reconstruct the historical evolution of the Hvar Tvrđalj Fortress through a series of digital drawings, but above all 3d parametric modeling systems of the external spaces, with particular reference to the fishpond located inside the fortified structure. The theme of digital modeling is of great importance, because it allows to face, according to the disciplinary assumptions such as technical-instrumental and theoretical applications, the dynamics of the drawing related to both traditional and innovative digital representation. With this science the aspect concerning the visualization is determined, a fundamental element for the communication of the object examined, through which it is possible to define the final graphic rendering compatible with the purpose of the relevant activity, both relative to the knowledge of the existing and indicative for the protection and enhancement of the good. The critical description of architecture, starting from the graphic reading of the typological imprints of the constructions of the past and the morphological configurations, with reference to the discipline of drawing, makes explicit the awareness of the scientific and cultural foundations of the methods of representation aimed at understanding architecture: first of all through the drawing of the plan, the section and the elevation; also through the measurable three-dimensionality of axonometry and, finally, through the ideal spatiality of perspective. Therefore, new information technologies applied to geometry become an instrument of restitution, analysis, information of the Fortress of Hvar Tvrđalj. In the illustrated graphic system, the drawing of architecture, that is the practical one oriented to model the object as a form, covers the main critical and theoretical exercise of method for digital technologies by defining the geometric questions necessary for the virtual models.



Fig. 1 The Fortress of Hvar Tvrđalj, cloud of points on the outer elevation overlooking the main square



Fig. 2 The Fortress of Hvar Tvrđalj, cloud of the points of the inner courtyard, the fish tank and the vaulted system



Fig. 3 The Fortress of Hvar Tvrđalj, view towards the southwest of the tank

In this sense, the method of orthogonal double projections, parallel projections and central projections constitute the explanation of its scientific features through their intrinsic ability to bring out the thematic and ideal contents of architecture.

Digital representation, as well as the implicit creation of models, besides playing a graphic role of three-dimensional reproduction of the object, is an instrument for verifying the congruence of conventional representations, such as plans, sections and elevations. The model is an ideal icon of reality and, as far as morphology is concerned, it shows all the characteristics indicated by the drawing, specifying in the best way possible its shape and particularities, representing and manipulating real elements through complex simulations.

These computer activities determine a dynamic representation of three-dimensional data using articulated visualization techniques and using materials, lights, colors, tends to reproduce the characteristics of the real world. Of great interest is the primordial phase of modeling, that is the activity of three-dimensional transformation of two-dimensional graphs, which allows an immediate visualization of geometric shapes and basic volumes. These physical models constitute both geometric configurations to define the volumes and the bases with which to interact through photo-modelling.

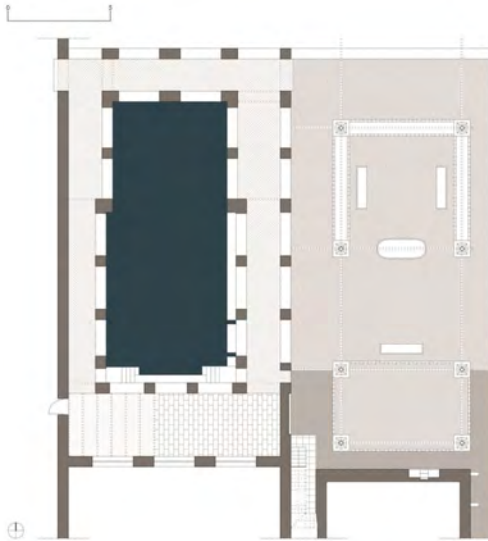


Fig. 4 The Hvar Tvrdalj Fortress, general plan of the central courtyard with the tank and the back garden

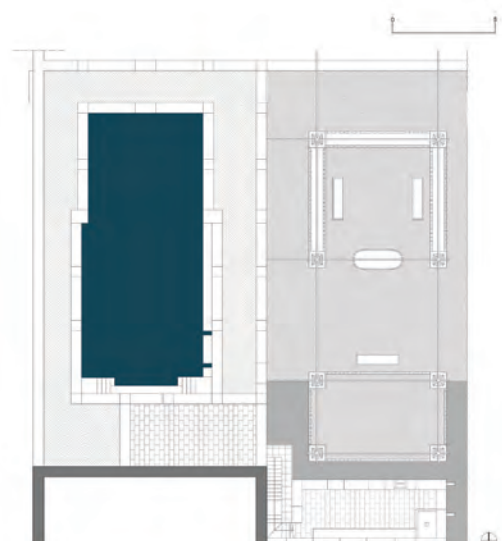


Fig. 5 The Fortress of Hvar Tvrdalj, general planimetry of the roofs

These computer activities determine a dynamic representation of three-dimensional data using articulated visualization techniques and using materials, lights, colors, tends to reproduce the characteristics of the real world. Of great interest is the primordial phase of modeling, that is the activity of three-dimensional transformation of two-dimensional graphs, which allows an immediate visualization of geometric shapes and basic volumes. These physical models constitute both geometric configurations to define the volumes and the bases with which to interact through photo-modelling.

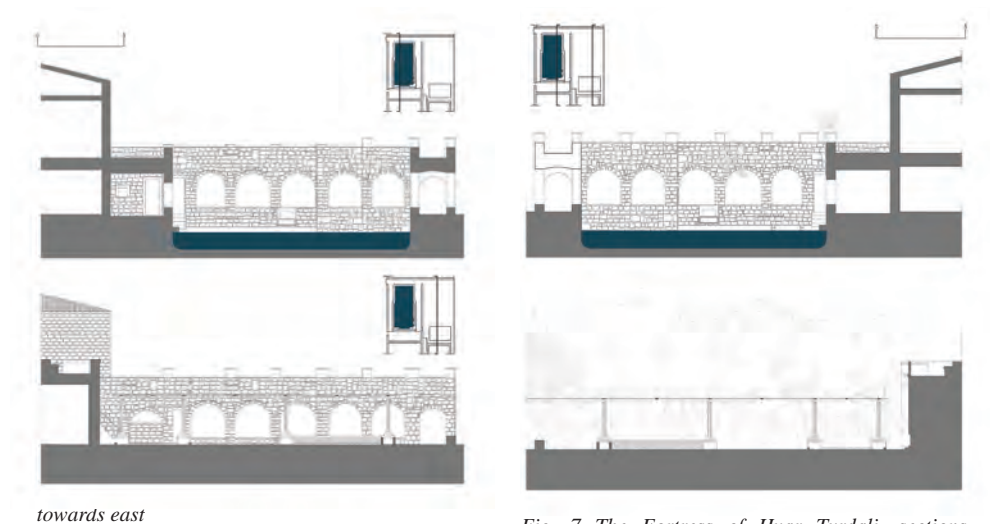


Fig. 7 The Fortress of Hvar Tvrdalj, sections towards west

The survey and the digital model

The activity of representation of the Fortress of Hvar Tvrdalj was set up by providing, in an initial phase, the execution of a basic survey extended to the architectural organisms and the surrounding green space in order to define a first two-dimensional geometric model; then, in a second phase, were made the survey graphs and the consequent graphic restitution with the measurements of architectural details and the complete survey of the inner tank. In addition, an adequate and complete photographic documentation was carried out, as well as investigations of the scarce bibliographic, archival and iconographic sources.

Particular attention has been paid to the concept of the photographic image which, besides representing an absolute database value that can be drawn from even after the survey phase, constitutes a dynamic knowledge tool. It is evident the possibility of interpolating this static figurative data with instrumental information technology elements deriving from the technological evolution of recent times. For the knowledge activities, in addition to the consolidated methodologies of the discipline, we have taken into account the Ryobi laser instrumentation applied on portable computer equipment, both tablets and smartphones, which allows an immediate vision of the survey data on the photographic image taken from the support, transforming the latter into a dynamic data.

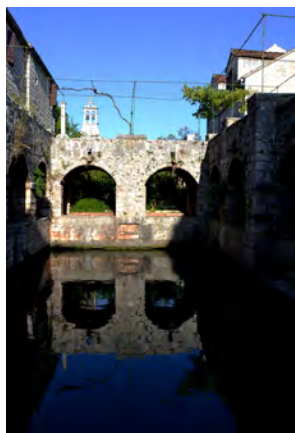


Fig. 8 The Fortress of Hvar Tvrđalj, north view of the tank, detail



Fig. 9 The Fortress of Hvar Tvrđalj, digital model of the fish tank, detail of the southern elevation



Fig. 10 The Fortress of Hvar Tvrđalj, digital model, south view

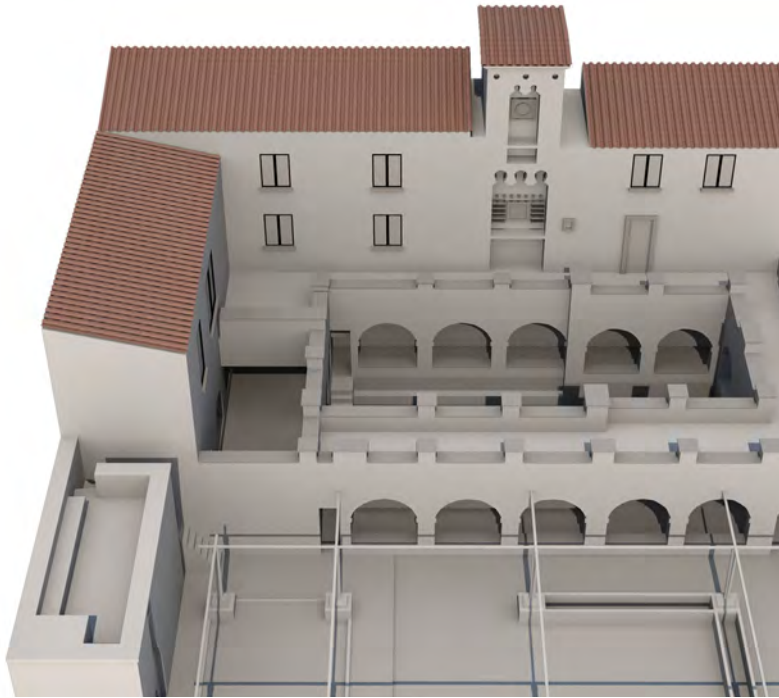


Fig. 11 The Fortress of Hvar Tvrdalj, digital model, east view

The aid of this photographic technology becomes the main device of the surveying operations because it contains both the measurement data and the geographical coordinates connected to the device used, as well as the information related to the date and time of the execution of the surveying campaign. The image is a graphic tool of geometric drawing at the service of representation and proposes the study of modes, techniques, sciences and arts. This figuration, in fact, covers the role of graphic visualization of architecture with the consequent need to address a specific theme of representation, consisting of descriptive geometry, which, as is known, allows to describe the figures in space on the drawing plane. This representation takes place through certain methodologies in order to bring the three-dimensional images back on a two-dimensional plane. The plane graphic transformation is reported by the projection determined by a point and the section, i.e. the intersection with a plane. These properties graphically reproduce on a plane what the vision of the human eye perceives. The projective geometry, therefore, allows us a flat representation of reality while preserving some known measurements. The digital modelling of Hvar Tvrdalj's Fortress, a Renaissance fortified villa built by the humanist Petar Hektorovic (1487-1572), which includes a lush garden, a dovecote and a fishpond surrounded by porticoes where mullet swims still today, has made it possible to integrate the disciplinary skills of architectural design with the mathematical numerical bases of the latest generation software in order to develop parametric models that can be questioned and managed in terms of conservation and protection.

Conclusion

The digital modeling of the Hvar Tvrdalj Fortress has enabled the scientific documentation for the dissemination of the collected information for tourism purposes, in order to create an interactive database. The interaction between the geometric model and the collected data, allowed the interrogation of the digital model through the use of 3D parametric software, both for graphic visualization and to plan conservation and enhancement of the property. The research, therefore, presents for the first time, a scientific study on a structure of great architectural and landscape interest, and a cornerstone of the island of Hvar for local tourism.

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Unified survey as cognitive tool

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Abstract

The objectives of the survey defined as “unified”, deduced from the research in progress, provide for a philological-critical approach for documentation, knowledge and management in the field of Cultural Heritage as recognized by the Code of Cultural Heritage and Landscape.

The digital revolution has made possible new ways of representing metric-geometric data acquired through advanced indirect survey technologies which nevertheless confirm the traditional concept of Survey as a complex cognitive act at different scales, from territorial to architectural detail.

The different operations and procedures that in a transversal approach contribute to the constitution of a complex discipline are systematized in a process that allows to implement the current methods of data processing and visualization in order to exploit and disseminate final scientific results, both in portable and slender, which in more sophisticated three-dimensional views, as well as making visible the convenience of the model and its compliance with historical sources.

The scenario that emerged from the analysis of the scientific literature shows how it is not possible to attribute to the technologies present on the market this value of comprehensive information collectors: on the contrary, this holistic approach constitutes the principle of integrated / advanced modeling, conceived within this research as a process of representation of architectural knowledge, which is configured as a complex procedure that this study has led to define a unified survey, as further step compared to integrated survey.

Abstract

Gli obiettivi del rilievo definito “unificato”, dedotto dalla ricerca in atto, prevedono un approccio filologico-critico per la documentazione, conoscenza e gestione dei Beni Culturali così come riconosciuti dal Codice dei beni culturali e del paesaggio.

La rivoluzione digitale ha reso possibile nuove modalità di rappresentazione dei dati metrico-geometrico acquisiti tramite tecnologie avanzate di rilevamento indiretto che tuttavia confermano il concetto tradizionale del Rilievo come atto conoscitivo complesso alle diverse scale, dalla territoriale al dettaglio architettonico.

Le diverse operazioni e procedure che in un approccio trasversale concorrono alla costituzione di una disciplina complessa vengono sistematizzate in un iter che consente di implementare le modalità attuali di elaborazione e visualizzazione dei dati al fine di sfruttare e diffondere risultati scientifici finali, sia in applicazioni portatili e snelle, che in più sofisticate visualizzazioni tridimensionali, oltre a rendere visibile la convenienza del modello e la sua conformità con le fonti storiche.

Lo scenario emerso dall'analisi della letteratura scientifica mostra come non sia possibile attribuire alle tecnologie presenti sul mercato questa valenza di raccoglitori omnicomprensivi di informazione: tale approccio olistico costituisce, al contrario, il principio della modellazione integrata/avanzata, concepita nell'ambito di questa ricerca come processo di rappresentazione della conoscenza architettonica, che si configura come un procedimento complesso che la ricerca presentata ha portato a definire rilievo unificato come ulteriore passaggio rispetto al rilievo integrato.

Introduction

The analysis of objectives for solving the problem, of the type of survey and of the kind of representation useful and necessary to document and transmit the results aimed at knowledge, make possible a correct measurement operation and a subsequent production of documents that will constitute a first cognitive approach for the right representation.

The survey of the Architectural Heritage compares the technical aspect for the development of new methods and new type of drawing restitution of the measurement operation results more and more in line with the needs of the survey and with the historical-humanistic aspect. Experimentation therefore requires that none of the currently available techniques can be discarded a priori.

All the measurements must be able to be traced back to a single three-dimensional reference system, so that even the techniques that by their nature require the execution of measurements in local reference systems must be organized in such a way as to allow automatic insertion of the results into the system spatial reference chosen for the description of the geometry of the object.

It is not possible to define a priori the best metric survey techniques for Cultural Heritage: the choice of measurement methods varies from case to case according to the parameters mentioned above: the precision and the types of representation to be created.

The project of a survey includes four fundamental phases:

- definition of the objectives of the metric survey;
- verification and validation of existent metric surveys;
- analysis of the object and selection of the points to be detected;
- organization of the operational phases and identification of the techniques to be used.

Just a patient work of comparison and examination of the points listed above allows us to define the design of the metric survey in all its complexity.

The analysis of objectives for solving the problem, of the type of survey and of the kind of representation useful and necessary to document and transmit the results aimed at knowledge, make possible a correct measurement operation and a subsequent production of documents that will constitute a first cognitive approach for the right representation.

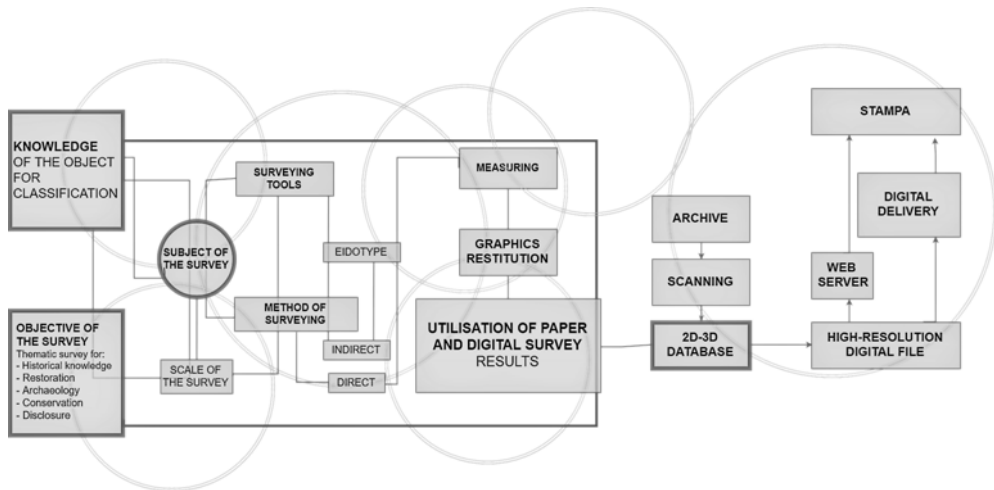


Fig. 1 From the metric survey to the thematic survey for the heritage classification

Methodology

The method, in which the objectives are defined, follows a planned and systematized path, organized by phases, which allows to arrive at the final checks, in particular with regard to the field of Cultural Heritage as a complex system and which requires a first methodological approach to cataloging. To demonstrate and to verify an integrated and unified selective method in order to detect, analyze and develop an explorative-cognitive method of an architecture and, more generally, of a cultural asset, in its complexity, also and above all by declining it in methodological and interdisciplinary applications. Each purpose, once clearly defined, allows us to understand the extent of the tolerances to be achieved and the types of representation that you intend to prepare: traditional drawings (plans, elevations, sections), ortho-projections, virtual and /or real 3D models, geometric bases for the constitution of Space Information Systems. Particular attention must be paid to the verification phase of the testing of a general metric survey by the conversion of the measures considered acceptable into the formats that will be adopted for the constitution of the geometric base. This step is not easy and should be defined in detail to avoid significant errors when converting the data in order to proceed with a careful planning of the metric data to be acquired: coordinates of points and images.

It is in this phase that the eidotypes must be produced in order to monitor the various phases of the actual metric survey.

This study compares direct survey, terrestrial photogrammetric survey and drone survey, lidar and structure from motion.

The advantages of photogrammetric survey are many. First of all, the data acquisition phase (the images and some known coordinate points useful for determining the orientation of the same) is very short, reducing the inconvenience of operators who, with the methods seen above, have to spend a lot of time in direct contact with the object in sometimes not easy conditions. Once the images have been acquired and oriented, virtually all the coordinates of the points captured by the two images are already detected. The extraction of their spatial positions is an operation that takes place in the laboratory in the times and in the manner required from time to time. Finally, the photogrammetric survey, if correctly applied, allows to reach the desired accuracies of whatever entity they are.

The LIDAR technique represents one of the most effective indirect survey methodologies, its potential is enhanced if integrated with the digital photogrammetry technique that allows you to associate its radiometric description to the geometric 3D model of the object for the production of realistic and orthophoto.

In this step the UAV (Drone) Photogrammetric survey has been used, through the experimentation of different categories that can be considered the fundamental operations of the survey of tangible heritage:

- Software for territorial mapping
- Software for territorial modeling
- Photogrammetry software
- Organic modeling software¹

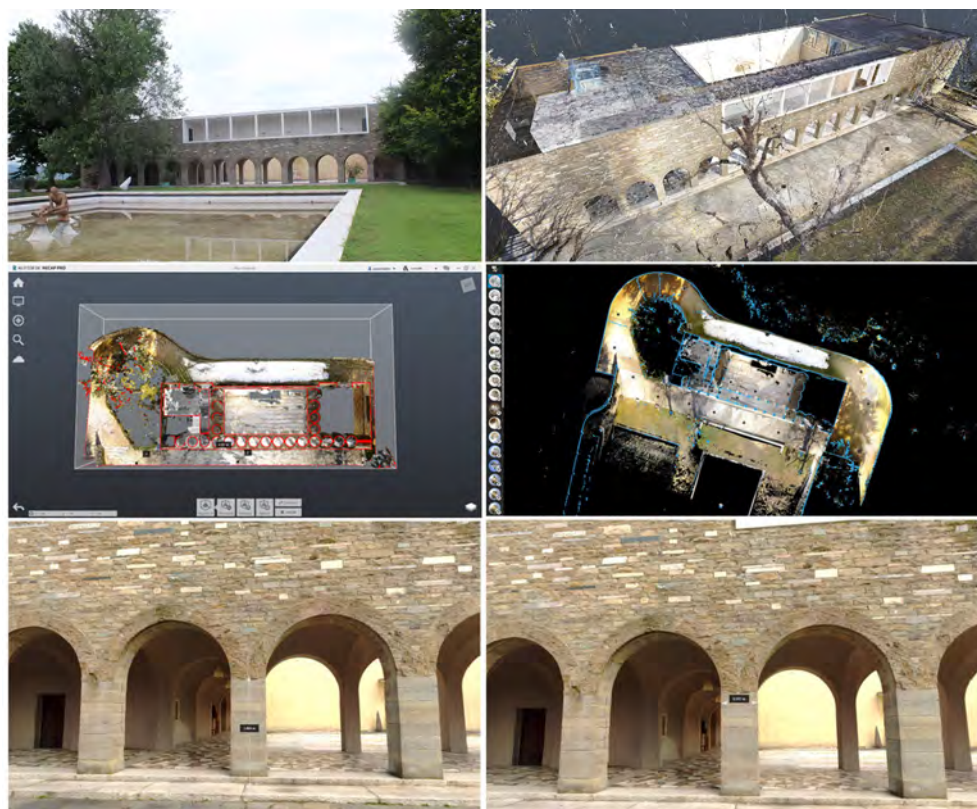


Fig. 2 Point cloud restitution of the Atelier degli Artisti (Villa Ottolenghi - Acqui Terme): Survey with Drone laser scanner FARO 360, and processing phases for the restitution on ReCap Pro to define dimensions and point visualization

¹ G. Pellegrini, F. Salvetti, Advanced representation for preservation and communication of cultural heritage. In XVIII International Forum Le Vie dei Mercanti World Heritage and Contamination – Ed. Gangemi, ISBN:978-88-492-3937-9, 2020.

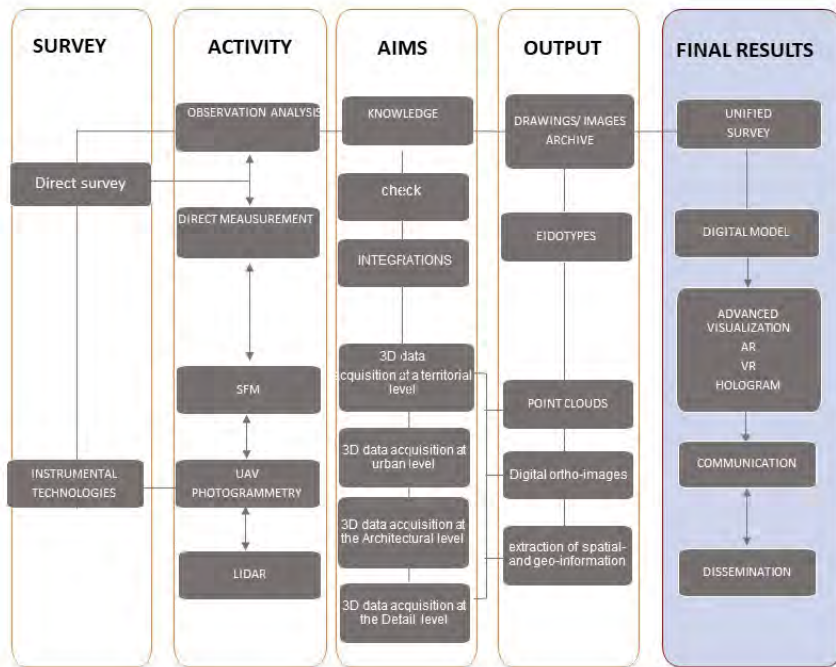


Fig. 3 Flowchart of the Unified Survey analysis procedures

Application phases: experimentation and comparison

Photomodeling

Photomodeling is an indirect survey technique, where the photography is a document that guarantees the possibility of obtaining complementary measurements. In fact, the information found in a photograph can be extracted in more or less detailed in relation to the purpose of the return and the complexity of the object.

In photomodeling, the computation of a three-dimensional model of a building passes from the geometric characterization of the elements that compose it to the restitution of the surface appearance of its different parts.

It is of fundamental importance to consider the possibility of associating the survey of reference points or distances to the photographic recording. This complementary information can be exploited to introduce a unit of measurement in the photomodeled scene, with the aim of defining geometric constraints during the calibration and orientation of the cameras and to check the results.

All this corresponds to three different stages of processing.

-Acquisition of spatial coordinates

The phase of acquisition of spatial coordinates consists in determining the metric characteristics from digital photographic images.

Starting from the known projections of an element and from the knowledge of the parameters concerning the cameras that have been used, it is possible to determine their position and orientation in space at the time of photo-shooting.

The points of an image are selected or associated with homologous points present in other images relating to the same scene. Then, once a sufficient number of matches have been obtained, a procedure called calibration and orientation of the cameras allows to deduce the projective relationships between the optical centers of the cameras, the points on the images and the 3D coordinates in space, by doing so, on the basis of the determination of the projective properties, of the positions and orientations of each photograph, it is possible to obtain the position in space of the points selected on the images.

-Three-dimensional reconstruction

After defining the points in space, it is possible to reconstruct a three-dimensional representation that groups these points and expresses the geometric nature of the elements of the photographed scene. This phase involves a real geometric modeling, which can be based on the positioning and deformation of geometric features on the extrusion functions of polygonal faces or on more complex procedures for generating parametric surfaces.

-Drawing Restitution

The correlation between these three phases is revealed in the choice of information obtained from the photographs in order to carry out the 3D reconstruction operations according to the geometric modeling procedures. It will then depend on the geometric approximation chosen during the modeling phase as well as on the strategy adopted for the texture extraction.

What is of interest is basically the description of the surface aspects, associating the textures acquired at the time of the photo shoot with the 3d model.

Through the projective relationships established during the calibration of the optical centers of the cameras, the polygons created in space and the image planes, it is therefore possible to extract portions of the image which are then projected onto the 3D model.

In any case, it is of fundamental importance to consider the possibility of associating the survey of reference points or distances to the photographic recording. This complementary information can be exploited to introduce a unit of measurement in the photomodeled scene, with the aim of defining geometric constraints during the calibration and orientation of the cameras and to check the results.

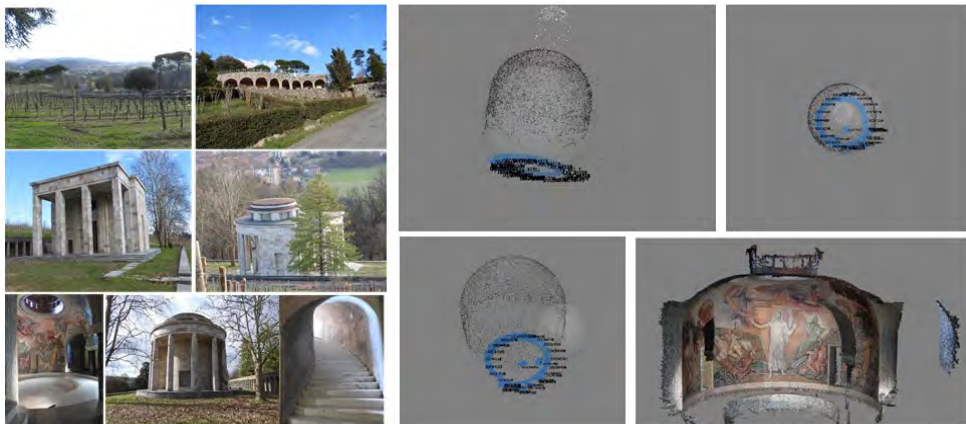


Fig. 4 Acquisition, processing, execution of the scattered point cloud, dense cloud, mesh and texture of the Mausoleo Villa Ottolenghi- Acqui Terme

Laser scanning: from 3d to 2d

Laser-scanning is a remote survey technology that allows you to collect millions of points in a few minutes. The collected data is returned through a cloud of points that constitute a sort of decomposition of the detected architecture. The points detected on the object can be placed at very short distances and the instrument, conversely, can also be placed at a great distance, completely eliminating the need to directly reach each point in order to survey the object of study.

It is automatically possible to connect the points of the cloud in polygon mesh, effectively transforming them into vertices of flat figures, giving shape to a real three-dimensional model.

During this operation, however, a new factor is introduced which is intended to add a further degree of indeterminacy in the precision of the geometric model itself. However dense the mesh of points detected is, in fact, it will never be possible to expect the instrument to perfectly identify every single edge of every single architectural element; the operation of determining the edges is therefore left to the operator who acts on the point cloud and on the three-dimensional model. Even in the latter case, the problem can be partially solved by detecting some parts through the instrument or directly, or by integrating the laser-scanning with a photogrammetric survey, through which the identification of the edges is always uniquely determined.

The main problem of the method consists in the georeferencing of the image and their automated mosaic. The first is achieved through direct correspondences between elements on the 3d model and visually recognizable on the frames (vertices, targets, silhouettes, etc ...), an operation on which the success of the system depends. To simplify this operation, some software provide for the insertion of data deriving from preventive calibration of the camera, so as to be able to consider a lower number of points than other systems. The minimum points suggested by default are generally insufficient for complex scenes: the result is a mediation of homologue points homogeneously distributed in the framing of the photo, on distinct planes and at different depths, in order to obtain an optimization of the procedure.

Furthermore, for large scenes, a large amount of frames is required which makes the computations complex, long and often unmanageable (if accurate metric and colorimetric precision are sought). However, it is possible to derive, from the integration of the systems analyzed, a single procedure that optimizes the advantages of one and the other method; implementing a combination of basic shapes deriving from image-based procedures or from modeling in a CAD environment and details returned with laser scanning, we arrive at more logical solutions.

In the photorealistic 3D model, therefore, regardless of the technique taken into consideration to create it, the advantages of survey and photography are unified: precision and high visual impact.

It is important to systematize the Survey procedures according to specific types of artefacts, due to their formal and dimensional complexity, to define the criteria to be followed in the Survey itself (including the use of new techniques linked to constantly evolving instruments) and in the restitution. -graphic (in particular in relation to the potential of the increasingly numerous software capable of creating computer models), establish the acceptable error limits and therefore the tolerances allowed in the acquired measurements, according to the size of the objects and so on. It should be noted that in order to obtain a correct geometric survey of an artifact it is always essential to integrate the different methodologies (photogrammetry, laser-scanning and direct survey) avoiding assigning a supposed superiority to one method over the others.

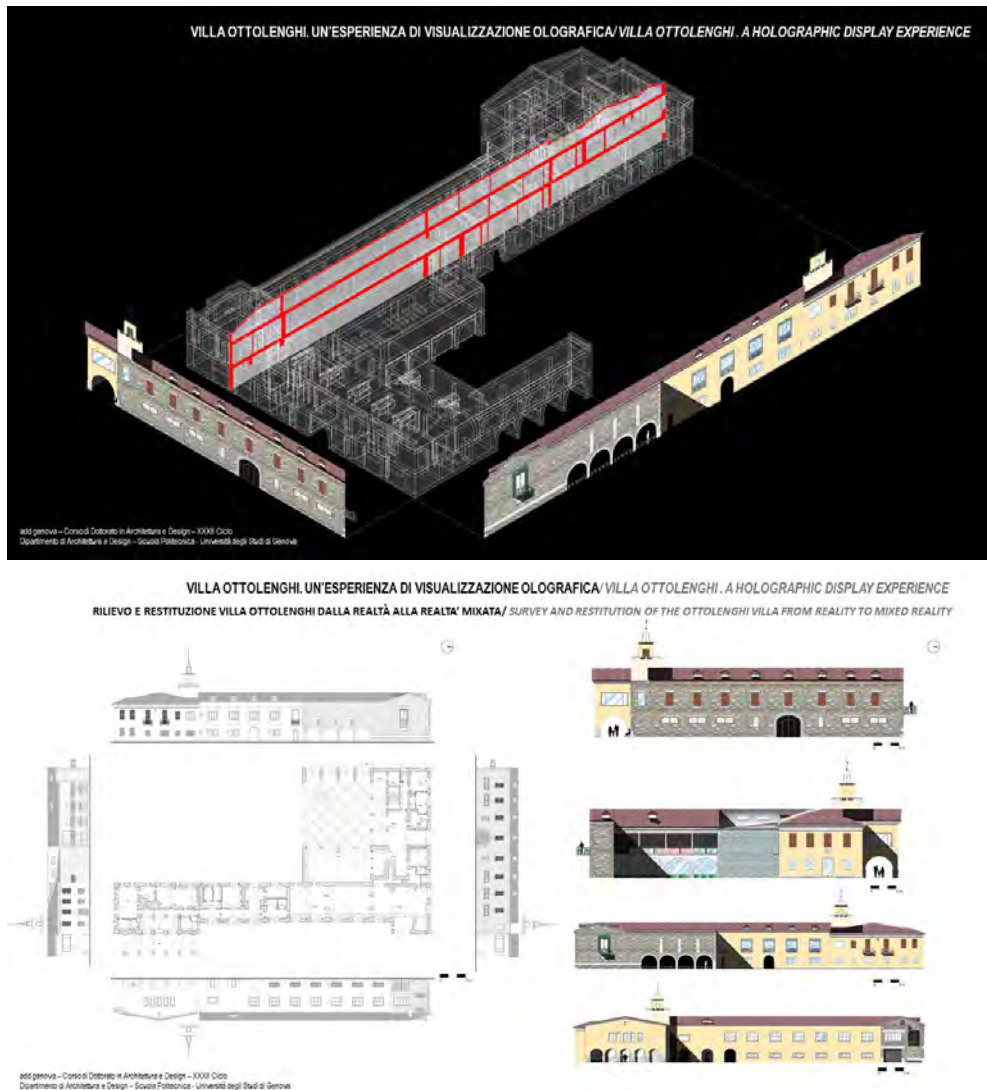


Fig. 5 Graphic rendering of the survey of Villa Ottolenghi - 3D graphic drawings - Section - European orthogonal projections aimed at holographic visualization

3D Floating Images

The challenges in the representation of architecture through digital tools, nowadays, are mainly characterized by theoretical and technical problems

Through the systematization of the data relating to these paths, an application reference scheme could be defined that provides indications about the most appropriate areas of use in the field of communication (visual / informative / graphic), in the face of a careful analysis of the state of the art of national and international digital culture and of the comparison of integrated metric-geometric survey systems with

the experience of infographic modeling of the metric data acquired for the analysis of the historical-architectural heritage in the integrated procedures for the conservation, protection and enhancement through multi - projection techniques.

The multi-projection techniques of the image offer considerable possibilities in the context of the communication of cultural heritage from the architectural scale to that of the archaeological find of a few centimeters. The floating 3d projection allows you to replace the original find by simulating its three-dimensionality in space and guaranteeing a complete 360 ° view. In order to obtain a good level of representation of the details and therefore of perception by the user of the object represented, it is necessary that the projection system is optimized in terms of materials and shape.



Fig. 6 Representing architecture therefore means representing space. The better the technique used the better will be communication and perception. Today, through different types of “pseudo” holographic projections, it is possible to take the architecture model out of the monitor and transfer it on non-planar surfaces or on surfaces in open spaces, up to the three-dimensional representation of objects at scales close to reality in empty spaces. The Salamander: polychrome majolica pot with lid, decorated with marine decoration. Height 52 cm



Fig. 7 Graphic rendering of the survey of Villa Ottolenghi - Planimetric and axonometric exploded view

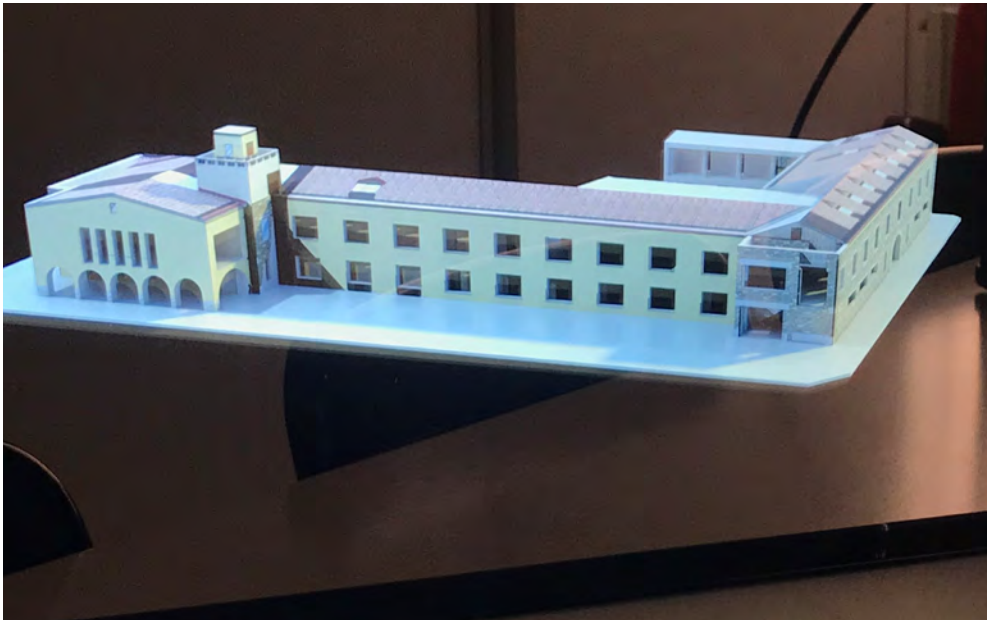
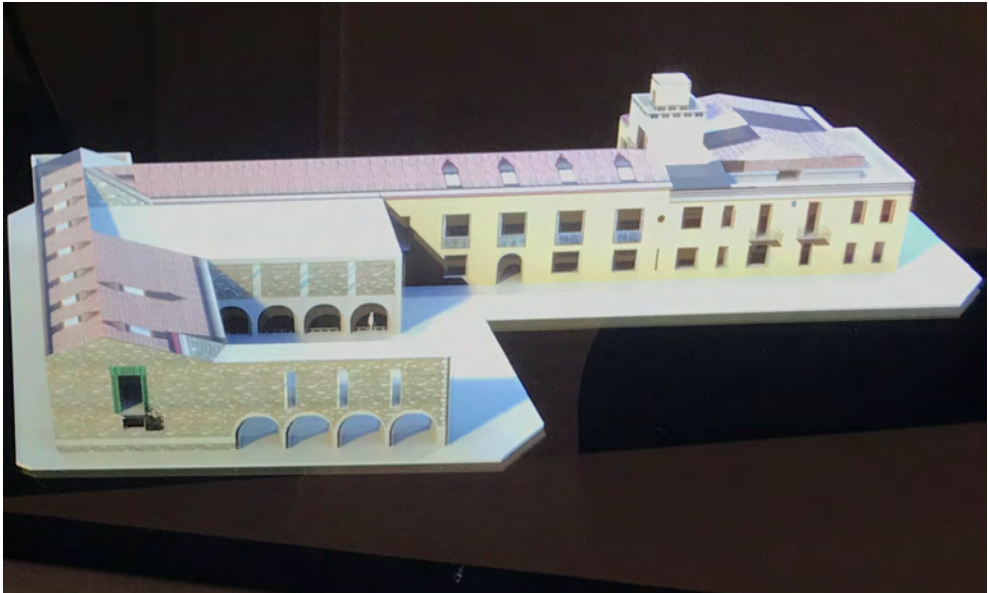


Fig. 8 Different points of view of the Villa through holographic visualization. Final result of the PhD research "The advanced representation in reality mixed. Critical/analytical considerations and applicative experiments" by Sara Eliche, tutor: Giulia Pellegrini.

By investigating themes belonging to the disciplines of drawing, in the broadest sense of its meaning, closely linked to the unavoidable component of advanced cultural communication in the field of cultural heritage in a museum environment, this research aims to demonstrate, specifically, how much digital technologies of three-dimensional visualization can be used as a method of knowledge and dissemination aimed at the conservation of knowledge in the museum:

- The virtual museum offers a series of inclusive / interactive “settings”, of a contemporary type in the literal sense of the term (not only works and / or architectures reproduced on a screen, but subjects that speak, tell each other, interact with each other and interact with the visitor).
- The choice of works is based on thematic criteria and / or related to the identity identity of the specific museum.

The desired result at the end of the itinerary is the deep interactive understanding of the work by all visitors, and the possibility of global sharing on dedicated platform.

Conclusion

This research aims to experiment and coherently adapt IT applications capable of displaying three-dimensional images and information data relating to existing and non-existent artistic and architectural cultural heritage.

The research is the first analytical / experimental method approach in a broader transdisciplinary methodology, which is more like a new paradigm, or as a new knowledge of the paradigms common to the different disciplines, than as a discipline in itself.

Contents and issues related to digital representation relate transversally with history, information technology and theories of communication. The research project made use of a transdisciplinary perspective that is able to find convergent solutions to problems related to contemporary museology, which generate cognitive dynamics identified on the spatial exploration of data and the systemic understanding of the processes and relationships that distinguish them.

The most up-to-date studies on the perception of space by means of digital visualization devices have exponentially increased the experiences in this branch of applied research. The most popular model is that of dynamic information, that is, that which, by playing above all on its interactivity and multimedia, allows quick and personal direct access to contents and an intuitive and immediate consultation of all archives. Therefore, widespread information that, through the Internet “network”, sweeps the entire globe at increasing speed.

The current tools for surveying, data cataloging and digital restitution made it possible to compare three-dimensional parametric / assisted modeling software with computational / generative design software along a real application path.

Digital representation for communication and learning of culture propose to rethink communication strategies and tools such as virtual and augmented reality, interaction through gestures, device localization and multimedia technologies, allow you to transform the visit of a place from a purely passive event to an active and engaging experience.

This research stems from the idea of using digital content to create alternative forms of use of places, the learning dynamics of the target and the visit path that combines real and virtual elements.

The main objective of the research is to obtain an easily reproducible system for the representation of the model, ensuring scientific consistency, visual and geometric accuracy and semantic understanding.

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While sharing the result of this research, Introduction; Methodology; Conclusion are attributed to Giulia Pellegrini. Application phases: experimentation and comparison is attributed to Sara Eriche.

Detect VS Reveal
The survey as an investigative tool in
the didactic experience of the architectural project
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Abstract

The aim of the contribution is to reflect retrospective on the experience developed within the *Laboratory of Architectural Design I* of the *Bachelor of Architecture Design* course at the School (AUIC) of the Politecnico di Milano (Campus Piacenza). The teaching structure includes, in addition to the module of *Architectural and Urban Composition* (8CFU) and *Architectural Design* (4 CFU) a further module of integrative teaching of *Representation Techniques* (4 CFU) of ICAR/06. The aim of the latter is to provide students with the theoretical and operational information necessary for the survey and graphic representation of the architectural work and its reference context. The *Representation* module recalls the important role assumed by the disciplines that form the background to the representation of the territory such as *cartography*, *topography* and *photogrammetry* and allows to acquire *methods* and *tools* for framing, surveying and graphic representation, providing an indispensable support to the project research work.

The experience reported concerns a specific context, three Mediterranean islands: Favignana, Sardinia and Menorca. The survey from above, with the drone, of the project area allows the restitution of maps, to describe some thematic reports:

- *topography/morphology*, through the geographical palimpsest of the Mediterranean context;
- *land/sea*, through the threshold space of the coastline.
- *typology/function*, through the proposition of residential models according to the tradition of Mediterranean live.

The retrospective reflection questions how the new techniques of investigation and representation of architecture and the environment flow into the project design exercise of the students at their first significant training experiences.

Abstract

Il contributo ha come obiettivo la riflessione a *posteriori* dell'esperienza sviluppata nell'ambito del *Laboratorio di Progettazione Architettonica I* del corso di Laurea Triennale in *Progettazione dell'Architettura*, presso la Scuola (AUIC) del Politecnico di Milano (Campus Piacenza). Il Laboratorio è strutturato da tre diversi insegnamenti: *Composizione Architettonica e Urbana* (8CFU), *Progettazione Architettonica* (4 CFU) ed un ulteriore modulo di *Tecniche della Rappresentazione* (4 CFU) di ICAR/06. Quest'ultimo ha come finalità quello di trasmettere agli studenti le competenze teoriche ed operative necessarie per il rilevamento e la rappresentazione grafica dell'opera architettonica e del suo contesto di riferimento. Il modulo di *Rappresentazione* richiama l'importante ruolo assunto dalle discipline che fanno da sfondo alla rappresentazione del territorio quali la *cartografia*, la *topografia* e la *fotogrammetria* e permette di acquisire *metodi* e *strumenti* per l'inquadramento, il rilevamento e la restituzione grafica, fornendo un indispensabile supporto al lavoro di ricerca progettuale da parte degli studenti.

L'esperienza riportata riguarda uno specifico contesto, il Mediterraneo attraverso tre diverse isole: Favignana, Sardegna e Minorca. L'operazione di rilievo dall'alto, con il drone, dell'area di progetto ha permesso la restituzione di mappe necessarie per la costruzione del modello fisico e di descrivere successivamente alcune relazioni tematiche di natura dicotomica tra:

- *topografia/morfologia*, attraverso il palinsesto geografico del contesto;
- *terra/mare*, attraverso lo spazio soglia della linea di costa;
- *tipologia/funzione*, attraverso la proposta di modelli residenziali secondo la tradizione dell'abitare mediterraneo.

La riflessione a *posteriori* si interroga su come le nuove tecniche di indagine e di rappresentazione dell'architettura e dell'ambiente confluiscono nell'esercizio progettuale degli studenti alle loro prime significative esperienze di formazione.

Introduction

The Magistrate, one of the two characters in Erri De Luca's latest book entitled *Impossible*, answers during the interrogatory of the defendant: "*Mi informerò sulla possibilità di un sopralluogo. Oggi ci sono mezzi che permettono di fare rilievi a distanza, useremo un drone*". The defendant in turn replies: "*Sarà sufficiente per l'osservazione su qualche schermetto. Non servirà a lei per sapere come si sta in quel punto. Si fanno così le indagini ai tempi vostri, con le telecamere di sorveglianza, con il DNA. Ma di come si cerchi la verità dei fatti sul campo, si è persa l'usanza. Prenda pure un drone per mandarlo sulla cima dell'Everest, ma non dica che le basta così e non le serve esserci stato*"¹. In the words of the Magistrate we can find the incipit to describe a *posteriori* the experience of the inspection of the project area, made by the students of the first year of architecture of the Campus of Piacenza, in which they are called to carry out their design exercise. We have already mentioned that the context is that of three different Mediterranean islands: Favignana, Sardinia and Menorca².

¹ Erri De Luca, *Impossibile*, Feltrinelli, Milano, 2019, p. 36

² The order of the list with which the three islands have been listed coincides with the experiences of the Laboratory of Architectural Design I dedicated to the theme of living in the Mediterranean. A.A. 2016-17: The island of Favignana between *Tòpos* and *Khôra*; A.A. 2017-18: Stereotomic VS Tectonic. Project for a *dépanance* at Casa Arzale by Marco Zanuso; A.A. 2018-19: Project for a house on the island of Menorca.

Specifically:

- on the Egadi island, in the area of the former *Cave di Scalo Cavallo*;
- on the coast of the Gulf of Arzachena (Sassari) *Monti di Mola* near “Casa Arzale” designed by Marco Zanuso (1963-64);
- and finally on the Balearic Islands in *Cala Mesquida*.

Three contexts strongly connoted by a single common geographical background, such as the Mediterranean, but specifically differentiated by the specific environmental conditions present in each site and the functional program chosen:

- in the first experience the project, in an abandoned area, of a small *Student Residence* of the *Experimental Music Research Centre of the Mediterranean*, with spaces dedicated to educational and cultural activities (*Fig.1*);
- in the second experience the project of a *Dépendance* through the extension of a modern architecture author's house (*Fig.2*);
- the last experience, instead, the design of a *single-family holiday home* overlooking the sea and strongly influenced by the impervious topography of the site (*Fig.3*).

The survey as a tool of investigation

The choice of *non-urban* areas is strongly desired to define the scope of the students' design exercise to their first experience. This allows to reduce the number of variables to a few significant elements that can enter the compositional exercise experience. These elements, in order, are:

- the *morphology* of the soil;
- the *limit*, understood as the threshold space, between the land and the sea;
- the *functional typology*;

Regarding the *morphology* of the soil, it is detected by the techniques and methods of the discipline of *topography* (an integral module of the Laboratory) and its new instruments, such as the drone, which allow to *detect* the project area. The return of the flight allows students, through specific software, to elaborate updated maps useful for the definition and construction of large-scale physical models built thanks to *Laboratory of Modelling* of the Arata Campus³. A descriptive act, that of model construction, which allows to reveal the formal and spatial structure of the site. The description of the *soil morphology* becomes a first useful material for the definition of the project. A first element able to define the “settlement principle” in relation to the “position value” inserted in the context.

With regard to the *threshold* space, represented by the coastline, the boundary between land and water, it is interpreted as a privileged place of the compositional relationship between the *horizon line* of the sea and the *verticality* of the built architecture. In this connection, It should be noted that, the Master, Le Corbusier in his Third lecture held on 8 October 1929 at the Faculty of Exact Sciences, Buenos Aires,

³ Since 2015 at the Arata Campus of the Campus of Piacenza - Politecnico di Milano - students of the School of Architecture - AUIC - have at their disposal the Laboratory of Modelling called LabMod and FabLab, with spaces dedicated to the technical elaboration of models, maquettes and models and practical experimentation of innovative techniques for the three-dimensional modelling of prototype elements for architecture.

entitled “Architecture en tout Urbanisme en tout” and published in his text *Precisions. Sur un état présent de l’architecture et l’urbanisme*: “Je suis en Bretagne; cette ligne pure est la limite de l’océan sur le ciel; un vast plan horizontal s’étend vers moi. J’apprécie comme une volupté ce magistral repos. Voici quelques rochers à droite. La sinuosité des plages de sable ne ravit comme une très douce modulation sur le plan horizontal. Je marchais. Subitement je me suis arrêté. Entre l’horizon et mes jeux, un événement sensationnel s’est produit: une roche vertical, une pierre de granit est là debout, comme un menhir; sa vertical fait avec l’horizon de la mer un angle droit. Ici est un lieu où l’homme s’est arrêté, parce qu’il y a symphonie totale, magnificence des rapports, noblesse. La vertical fixe le sens de l’horizontal. L’un vit à cause de l’autre. Voilà des puissances de synthèse”⁴. The reference to the Swiss architect’s story allows students to experience the description and to implement a “device of relationship”, through *Le Poème de l’Angle Droit*, between the verticality of the architecture and the horizontality of the sea.

To complete the triad of the elements made available on the test field we have the *functional type*. A program that of Living, according to the Hideggerian exception, declined in a coherent way with the particular conditions expressed by the site in possible different forms:

- of *collective living* in the “Student Residences of the Research Center”;
- of *living in relation* to a space already built through “Dépendance”;
- of *temporary living* in the “Single Family Holiday Home”.

Three different conditions held together by a constant and unique research, beyond its functional program to which it have to respond, that of the research of the “*luogo come chora, ricettacolo anche di un ordine, di una disposizione che permette di fare spazio al destino dell’abitare*” as Fabrizio Spirito⁵ writes. The aim is to understand the “Living’s as a necessary condition to transform the state of fact into “un luogo: dimore di cose e di eventi”⁶.

Redesign through the “morelliano method”

During the *inspection* the reading through the survey is intended as an essential moment to select and highlight the specific characters of the area. A *detection* operation able to go beyond the pure technical *survey*. As in a circumstantial research of “morelliano method”, developed in the second half of the nineteenth century by the art historian Giovanni Morelli, where “*tracce magari infinitesimali consentono di cogliere una realtà più profonda*”⁷. Still he writes that the man “*ha imparato a fiutare, registrare, interpretare e classificare tracce infinitesimali... ha imparato a compiere operazioni mentali complesse con rapidità fulminea, nel fitto di una boscaglia o di una radura piena d’insidie*”⁸. The students explore, through the operation of surveying with topographic instruments, not only the space from the dimensional point of view, but also from the point of view of the character of the site, because reading of the *state of the area* already contains in itself the first elements, often only circumstantial, but

⁴ Le Corbusier, *Precisions sur un état présent de l’architecture et l’urbanisme*, (1930). Reprint 1994, Altamira Editions, Paris. In italiano: F. Tentori (edited by), *Le Corbusier. Precitazioni sullo stato attuale dell’architettura e dell’urbanistica*, Laterza, Bari, 1979

⁵ F. Spirito, “Dallo stato di fatto allo stato di progetto”, at F. Ferrara, P. Scala (edited by), *Il sopralluogo. Materiali di ricerca* N. 5, CEUN, Napoli, 2006, p. 17

⁶ Ivi, p. 17

⁷ C. Ginzburg, “Spie. Radici di un paradigma indiziario”, at Miti, emblemi, spie. *Morfologia e storia*, Einaudi, Torino, 1986, p. 165

⁸ Ivi, p. 166

able to turn into useful materials for design. A paradigm that of the circumstantial *reading* is certainly not rigorous, but if accompanied by *abstraction* and *imagination* it allows to advance from the reading of the state of fact to the *description* of the project still *in nuce*, and being the latter, the *description*, a language problem, as Giuseppe Samonà said, becomes a problem of form.

The *a posteriori* reflection on the experience of the *inspection* through the new techniques of investigation and representation of architecture and the environment, can affirm with conviction that they are increasingly necessary for precise and high-definition returns, but it is equally true that they cannot replace the exploration activity, sometimes made by intuitions or fortuitous discoveries, fundamental before proceeding to the design phase, since, even before being at the service of the construction, *technique* must be at the service of the defining the *character* of architecture, as Boullée⁹ said.

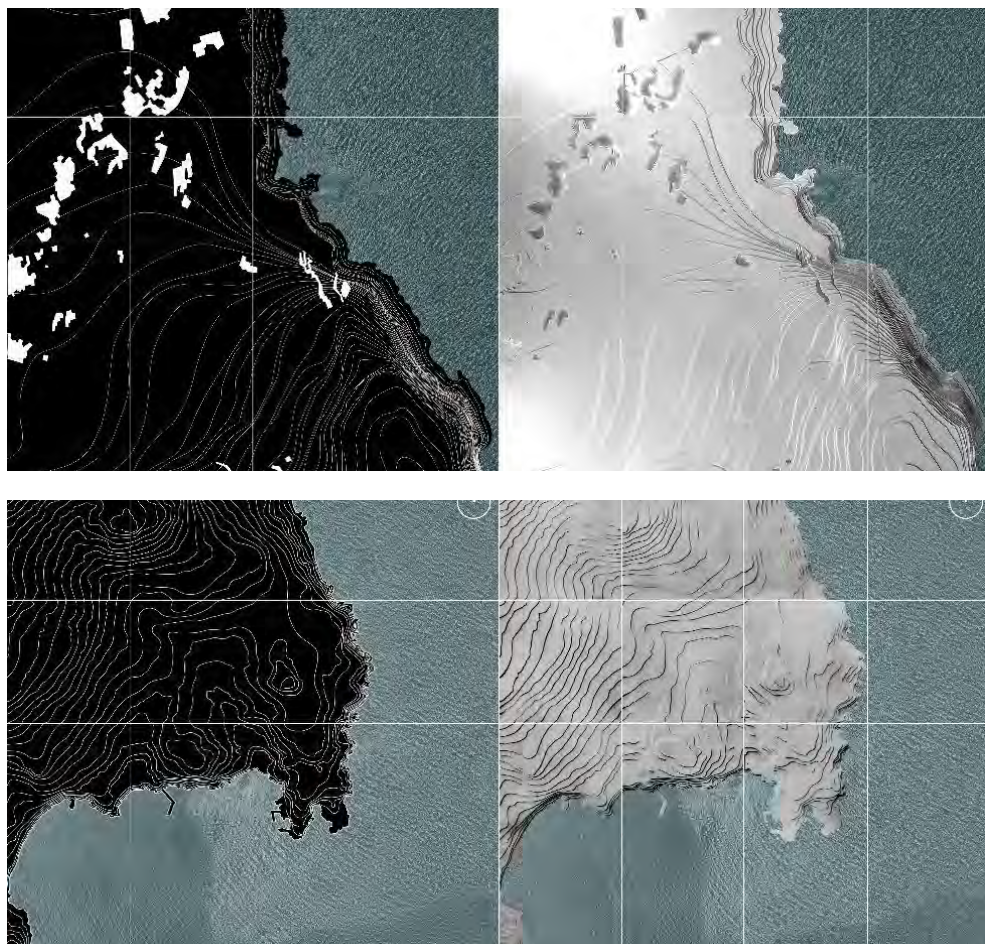


Fig. 2 Planimetry and model of the Gulf of Arzachena (Sassari). Island of Sardinia, Italy

⁹ A. Ferlenga (edited by), Étienne-Louis Boullée. Architettura. Saggio sull'Arte, Einaudi, Torino, 2005

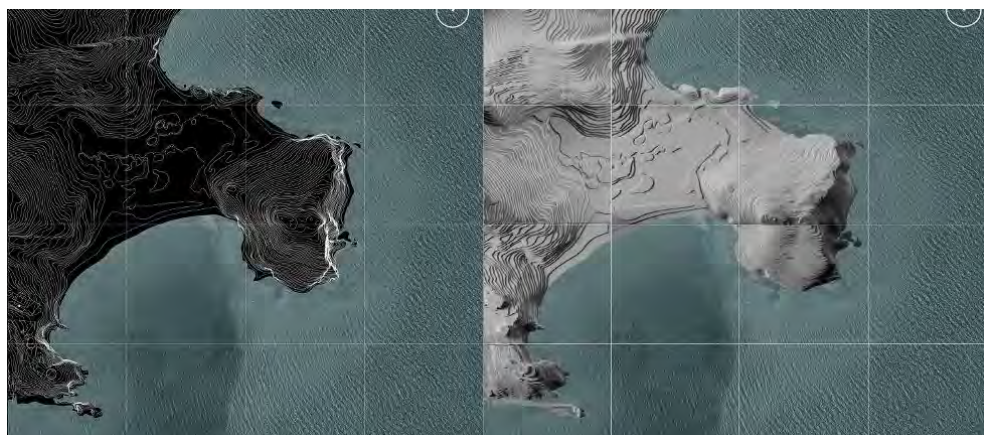


Fig. 3 Planimetry and model of Cala Mesquida. Island of Minorca, Spain

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The mosques of the city of Berat in Albania

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Abstract

The present research has as theme the mosques of the city of Berat, in Albania, and is part of a wider knowledge path focused on the study of religious architecture in the Balkans in order to make a critical reflection on architecture and the surrounding environment with particular attention to the themes of knowledge, representation and valorization. Specifically, the city of Berat, which became a UNESCO World Heritage Site in 2008, still preserves numerous religious buildings, both Christian and Muslim, and has always been considered the landscape of the secular coexistence of different faiths: Catholic and Orthodox Christians, Muslims and Bektaschi who, over the centuries, have witnessed an extraordinary example of religious cohabitation and mutual respect. In particular, with this research, three religious architectures will be analyzed, namely the White Mosque and the Red Mosque in the Kala district and the Bachelors' Mosque in the Mangalem district, with the aim of undertaking a path aimed at spreading the knowledge of the analyzed heritage that is able to trigger deep reflections on the conservation and enhancement of religious worship, as a heritage transmitted over the centuries by different cultures, using historical-iconographic sources and consolidated methodologies of architectural survey and drawing

Abstract

La ricerca sviluppa il tema delle moschee della città di Berat, in Albania, e si inserisce in un percorso di conoscenza più ampio, incentrato sullo studio delle architetture religiose nei Balcani, al fine di operare una riflessione critica sull'architettura e sull'ambiente con particolare attenzione ai temi della rappresentazione e della valorizzazione delle strutture religiose. Nello specifico, la città di Berat, divenuta nel 2008 sito UNESCO Patrimonio dell'Umanità, conserva ancora oggi numerosi edifici religiosi, cristiani e musulmani, ed è considerata come "il paesaggio della secolare convivenza di diverse fedi: cristiani cattolici e ortodossi, musulmani e bektaschi che, nei secoli, hanno testimoniato uno straordinario esempio di coabitazione religiosa e di rispetto reciproco". In particolare, sono analizzate tre architetture religiose ovvero la Moschea Bianca e la Moschea Rossa nel quartiere Kala e la Moschea degli Scapoli nel quartiere Mangalem, con l'obiettivo finalizzato alla diffusione della conoscenza del patrimonio analizzato in grado di innescare riflessioni profonde circa la conservazione e la valorizzazione del culto religioso, quale patrimonio trasmesso nei secoli da differenti culture, avvalendosi di fonti storico-iconografiche e delle metodologie consolidate del disegno architettonico.

Introduction

The Albanian architecture, which for centuries belonged to a great multi-ethnic empire, the Ottoman Empire¹, characterized by an important religious plurality², reflects with particular attention the multiple social and cultural aspects in the context of the city of Berat. Specifically, the religious question has been a fundamental point of Albanian history and culture for centuries as a succession of different religious faiths have contributed to the cultural development and the consequent landscape and cities configuration. As is well known, the Albanian writer Paskho Vasa³ wrote “do not look at churches and mosques. The faith of the Albanians is Albanianism”⁴, fully current theory about religious multi-ethnicity and its architectural and cultural configuration. In the analysis of the territory it is useful to analyze the history of the places: the ancient inhabitants of the Albanian Region, the Illyrians, practiced pagan worship in addition to those of the Sun and the Snake, while, from the first century AD, Christianity spread and, during this period, the first Christian churches and communities were founded. Following the division of the Roman Empire in 395, the territory was subjected to the jurisdiction of the Eastern Roman Empire. From 1054, following the schism of the East, there was a division between Catholics and Orthodox of the Byzantine rite; consequently some inhabitants remained faithful to the Albanian Catholic Church, others adhered to the Byzantine Orthodox Church. In 1478 the territory became part of the Ottoman Empire and, for over four centuries, Islam⁵ was the religion of the majority of the population while Christianity, both Orthodox and Catholic, was practiced to a lesser extent⁶. However, the Constitution of 1928 stated that there was no official religion and that all faiths were respected. However, after the Second World War control of the country in the hands of the Communist government vetoed the various religious communities. Ultimately, it was only in December 1990 that freedom of cult was officially restored. As a result of the historical vicissitudes described above, Albania can be considered a place characterized by the peaceful coexistence of different cults, namely Catholic and Orthodox Christians, Muslims and Bektashi. In this regard, a clear example of cohabitation and mutual respect of different religions, a phenomenon unparalleled on the European continent, is offered by the city of Berat in Albania, considered as “*the landscape of the secular cohabitation of different faiths that, over the centuries, have witnessed an extraordinary example of religious cohabitation and mutual respect*”⁷. In fact, the city of Berat, included in 2008 in the list of World Heritage Sites, still retains a total of 42 Christian Catholic, Orthodox and Muslim religious buildings, while the oldest artifacts, dating back to the fourth-sixth century, have preserved very few remains of the original architectural conformation. The choice to analyze the city of Berat and in particular some Mosques in it, is justified by one of the criteria used by UNESCO for the inclusion of the city in World Heritage Sites, which illustrate architectural, historical and religious observations. This criterion underlines that “*the old city remains an exceptional testimony of a lifestyle now disappeared influenced by the tradition of Ottoman Islam (criterion III)*” and, as such, deserves to be analyzed with greater attention. From an accurate

¹ From the XV century to the 1912.

² 70% Muslims, 20% Orthodox, 10% Catholics.

³ Albanian poet and intellectual lived between 1825 and 1892.

⁴ This phenomenon occurred as a result of numerous attempts to unite Albania during the Ottoman domination.

⁵ The Albanian Muslims were divided into two communities: the Sunnis and the Bektashi Sufis, the first resident in the cities, the second in the countryside.

⁶ It must be remembered that the Turkish authority was pushing for conversion through strong taxation on the property of non-Muslim Albanian families.

⁷ The city of Berat has been declared by UNESCO as “a rare example of a well-preserved Ottoman city and a shining model of peaceful coexistence of different religions in past centuries”.

analysis of historical and iconographic sources it is possible to trace a path of knowledge of the territory starting from the districts of which the city is composed: Kala, inside the walls of the old Fortress, at the top of the hill on the left bank of the Osum river, Mangalem, along the hill and towards the river, Gorica, the Christian quarter, on the flat, beyond the Osum river nestled between the mountains.



Fig. 1 The city of Berat: graphic restitution of the historical plan with identification of the three districts: Kala, Mangalem and Gorica

Methodological investigations conducted

A first methodological approach to the research involved the knowledge of religious artefacts taken as a model for the survey. Specifically, religious culture has led to the creation of architecture developed following its own models but adapted to the individual experiences and to the characteristics of the places, forming centres of aggregation of values and experiences that have contributed to the definition of the landscapes, in terms of form and therefore as material elements of the territory as well as spiritual form. The research activity involved the survey of the religious structures analysed with the aim of obtaining the metric data suitable for graphic restitution. To this purpose, the consolidated methodology of the architectural survey is of considerable importance, as it allows to acquire a series of information, from the material to the dimensional and from the constructive to the formal ones, concerning the architectures, which can then be graphically elaborated through specific digital software. Specifically, two types of relief were used, namely instrumental and photogrammetric. In the first case, the Ryobi instrument was used, that is a laser that allows to pick up large distances and bring them directly back on photographic support obtained through the use of smartphones or tablets.



Fig. 2 The Mosques of the city of Berat: some examples of the instrumental survey carried out using the Ryoby instrument

In addition to the instrumental survey, a photogrammetric survey has also been carried out using passive measuring instruments, i.e. cameras, which make it possible to obtain the coordinates of the surveyed objects solely from the information contained in the images. In this case, the measurements were taken by identifying the same characteristic elements on two or more frames taken from different points of view and obtained through the so-called rangephotogrammetry.



Fig. 3 The Mosques of the city of Berat: points cloud of the White Mosque and the Red Mosque

In fact, during this phase a series of overlapping photographic images have been acquired for 30-40% of their total surface in order to guarantee a correct functioning of the following alignment phase, obtained through digital software for three-dimensional modeling. The first result obtained through the photogrammetric survey was the realization of a point cloud thanks to the transformation of the coordinates and data acquired through the photographic images. Continuing the narration, it is useful, for research purposes, to describe the 3 religious architectures analyzed.

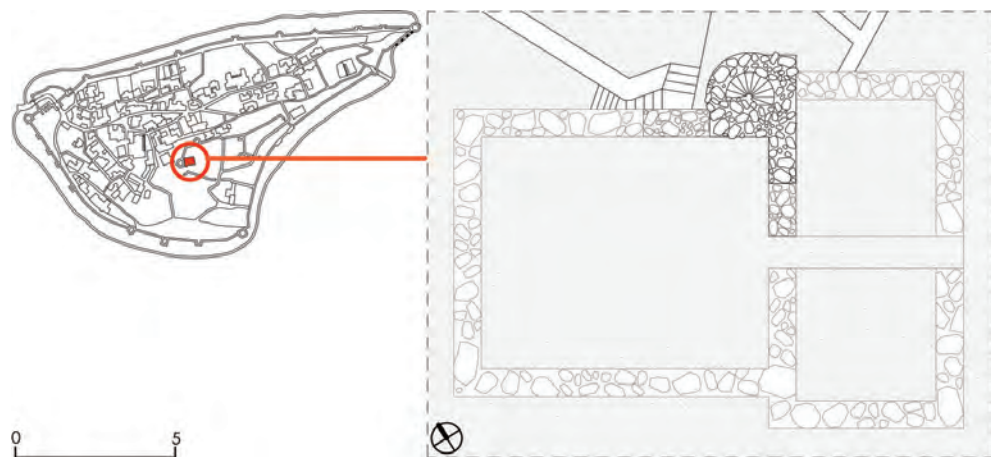


Fig. 4 The Mosques of the city of Berat: graphic restitution of the plan of the White Mosque

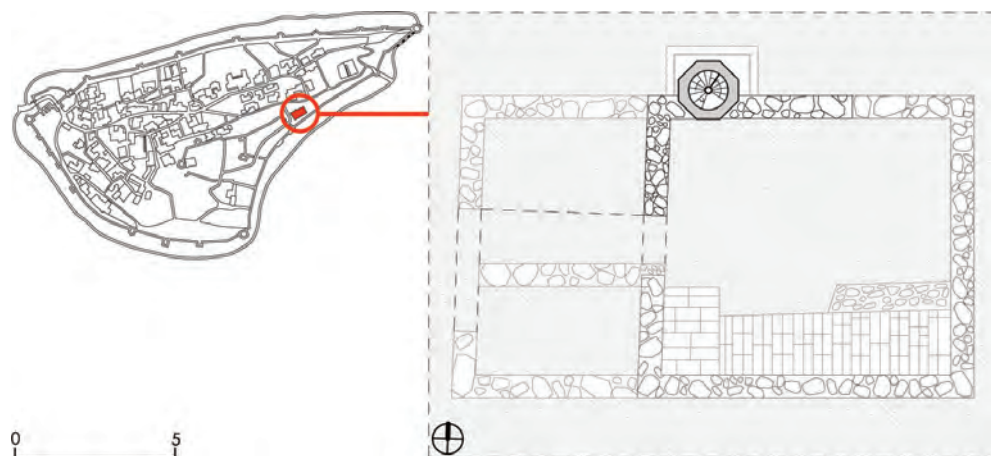


Fig. 5 The Mosques of the city of Berat: graphic restitution of the plan of the Red Mosque

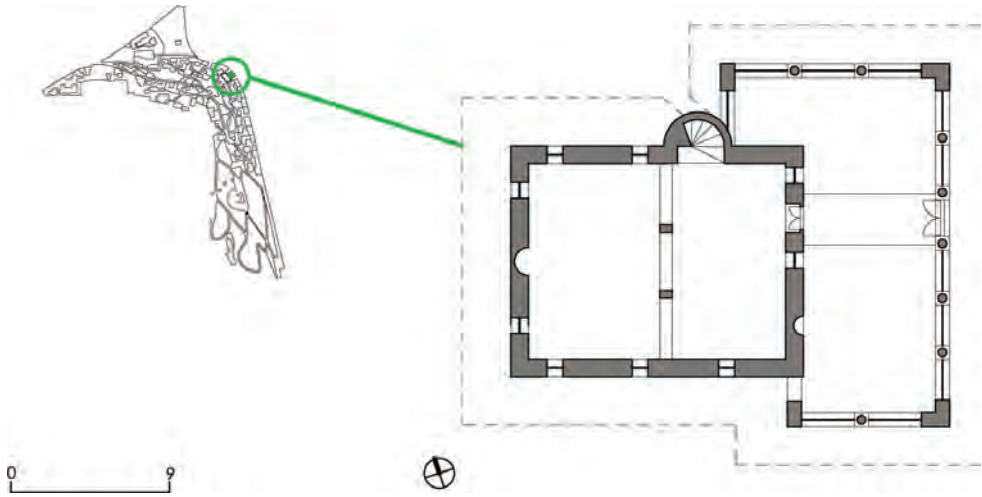


Fig. 6 The Mosques of the city of Berat: graphic restitution of the plan of the Bachelor Mosque

The first is the White Mosque in the Kala district, an artifact intended for Islamic worship. Probably built during the second half of the 16th century, it is also known as the Fatih Mosque. The current structure is part of a reconstruction on the original model and is located within the second perimeter of the castle walls. The Mosque consists of a prayer room with a porch as wide as the Mosque itself, and a minaret to the south. The entrance is to the North and a corridor in the portico leads to the prayer room which is on a lower floor. It is assumed that it was covered by a wooden roof now lost.

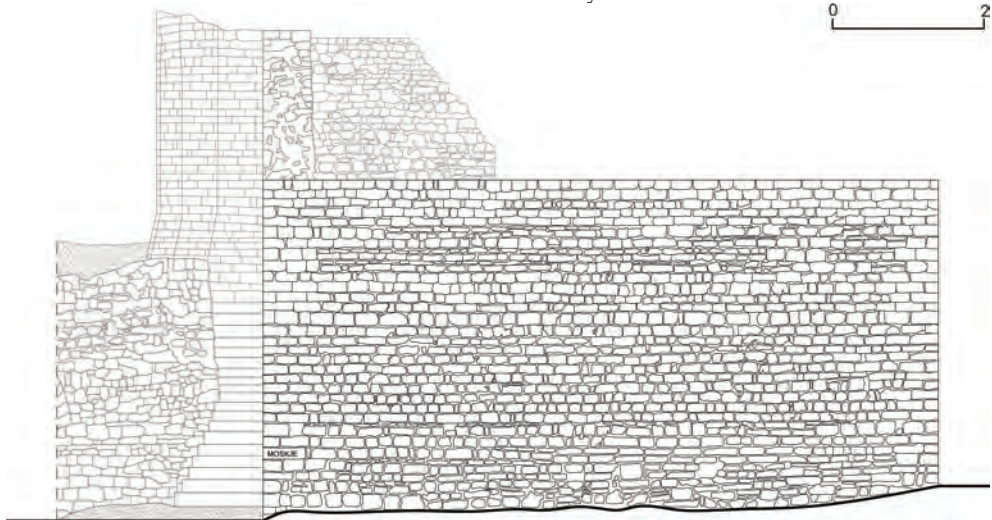


Fig. 7 The Mosques of the city of Berat: drawing of the North-East Elevation of the White Mosque

The second religious architecture analyzed is, instead, the Red Mosque known to have been built by Bayazit. The plan presents the remains of the prayer room, the porch and the minaret made of red bricks that give it its name. The latter is of great interest because it was built on the outside of the prayer room and not on the west side as was customary. This factor is explained by the proximity of the mosque with the perimeter walls of the castle and, therefore, the minaret was built in the eastern part for configurational architectural reasons. Judging by the second name given to the Mosque, “Fetije Xhami”, which means “The Mosque of the Conquest”, and by the same construction technique found in other Albanian mosques of the 15th century, it is thought that the Mosque belongs to the period immediately

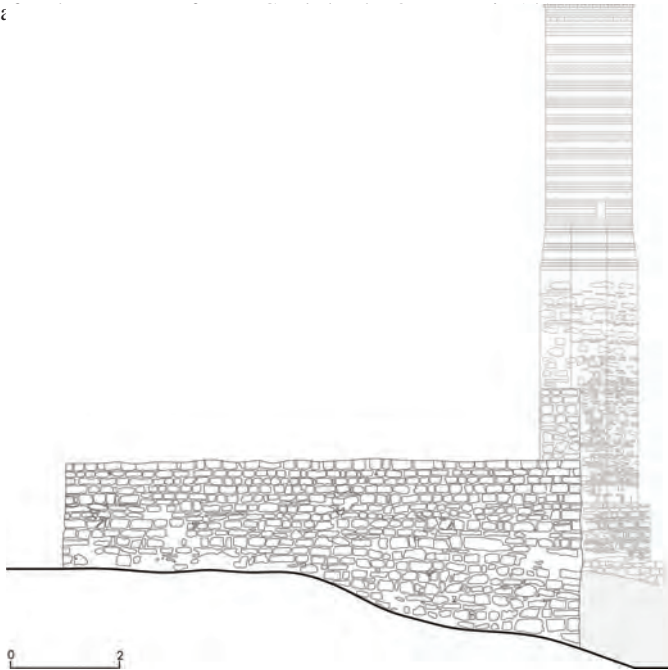


Fig. 8 The Mosques of the city of Berat: drawing of the East Elevation of the Red Mosque

The last religious artifact analyzed, finally, is the Mosque of the Bachelors in the Mangalem district. Built towards the end of the 18th century, it consists of two levels: the lower one consists of a room with three galleries leading to a system of arches in the south wing, while the upper one consists of a prayer room measuring 11 x 9.63 meters and a further arcade surrounded by arches on three sides. Outside between the arches and windows, the mosque is decorated with paintings 1.5 m high in which there are floral motifs and landscapes of Islamic architecture and other representations without volume or perspective⁸.

⁸ The paintings are the work of master ZaimKurti.

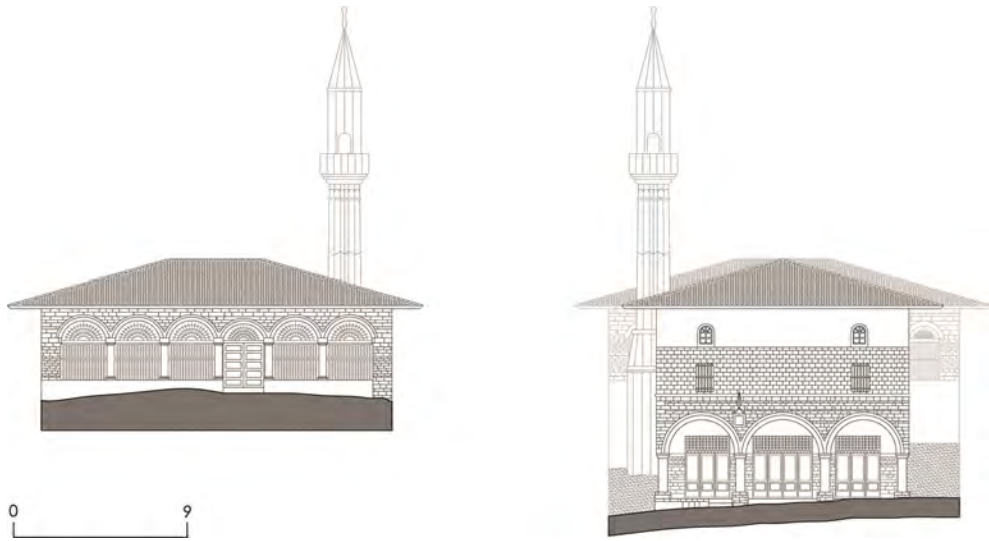


Fig. 9 The Mosques of the city of Berat: drawing of the East Elevation of the Bachelor Mosque

Conclusion

The survey carried out is a possible example of a reading of religious architecture in the Balkans, proposing the analysis of the information acquired through survey campaigns and subsequent graphic restitution. The objective is the virtual recomposition of all the material, formal and dimensional aspects of the mosques analysed. The use of digital modellers for the restitution of complex organisms and digital photogrammetry techniques capable of reconstructing the external appearance of the analyzed artefacts have favoured the realization of the research. Such software, in fact, have allowed to encode, decode and archive the information acquired through the survey leading to the realization of digital elaborations. From this point of view, the methodology of representation as a critical discipline able to summarize both the real data, through the survey, and the virtual one, through the graphic restitution, has allowed to analyze three different religious architectures and to make interact distant times, that is those of history, with the current ones. Specifically, graphically extrapolating the abandoned, forgotten and degraded architectural spaces from the complex urban mosaics will contribute to their valorisation.

Acknowledgements

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New signs for the urban landscape

The Bus Rapid Transit case redesigns the city

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Abstract

The proposed research project starts with a need for the Municipality of Perugia: to rethink public mobility from a perspective of sustainability and urban identification.

A proposal for Bus Rapid Transit was drawn up, an efficient system that leads to the redesign of the districts along a 12.5 km route connecting about 25000 people. The proposal is aimed at creating a more performing and sustainable offer of transport solution that has as an indirect, but not secondary, result in the regeneration of the city itself. The sustainability that is attempted to pursue does not pass only through the impact of the works and means but is also based on the ideal that sustainability is also in architecture and landscape. Among the aspects characterizing the new sustainable infrastructure, in addition to efficiency and performance, there are also visual communication aspects. In addition to the road sign, which aims to be

recognizable, there is also the architectural theme inherent in the design of the bus shelters, which include seats, sunshades and accessible ramps. Each station is designed through generative algorithms in order to be recognizable and scan the route and is positioned in such a way as to connect BRT with the pedestrian and cycle paths, thus creating an integrated and widespread network.

Abstract

Il progetto di ricerca proposto nasce da un'esigenza del Comune di Perugia: ripensare la mobilità pubblica in un'ottica di sostenibilità e identificazione urbana.

È stata redatta una proposta di Bus Rapid Transit, un efficiente sistema che porta al ridisegno dei quartieri lungo un tracciato di 12.5 km che connette circa 25000 persone.

La proposta è volta a creare una più prestante e sostenibile offerta di soluzioni trasportistiche che ha oltretutto come risultato indiretto, ma non secondario, la rigenerazione della città stessa.

La sostenibilità che si tenta di perseguire non passa allora solamente per l'impatto delle opere e dei mezzi, ma si fonda anche sull'ideale che la sostenibilità sia anche architettonica e paesaggistica.

Tra gli aspetti caratterizzanti la nuova infrastruttura sostenibile, oltre all'efficienza e alle prestazioni, ci sono anche gli aspetti di comunicazione visiva. Oltre al segno stradale, che vuole comunque essere reso riconoscibile, si delinea anche il tema architettonico insito nel progetto delle pensiline, che comprendono sedute, frangisole e rampe accessibili. Ogni stazione è progettata con l'ausilio di algoritmi generativi con lo scopo di essere riconoscibile e scandire il percorso ed è posizionata in modo da connettere BRT con i percorsi ciclopeditoni, andando a creare così una rete integrata e capillare.

Introduction

The city is made of more or less visible signs. Among these, transport infrastructures certainly play a central role, on the one hand as elements of generation of the urban form, on the other as main vectors of the construction of the image of the city. This never develops in a static sense, but in a process of dynamic discovery, which implies the use of these infrastructures, conditioning their perception.

Le Corbusier perceives the "constriction and tyranny of the road" as fundamental for urban regeneration (Le Corbusier, 1965, p. 81), which since ancient times has always been the infrastructure at the base of the development of urban space (Filippucci, 2012): the layout is always a way to draw the territory, a furrow that makes possession possible, separating thought uniting. Even today their value is crucial, because infrastructures upset relationships, reducing travel times between poles, thus transforming the economic value of the territories, a condition still alive even in the society of information, with its new virtual connective infrastructures that do not take away value from the street, still essential places for man (Rudofsky, 1969).

Infrastructures are generally defined as "the basic systems and services, such as transport and power supplies, that a country or organization uses in order to work effectively"¹. The same have a certain relevance to the landscape, which "means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors"². It could therefore be said that, the infrastructures are the result of human activity in the area, aimed at the overall development of the society, and that the landscape is defined as a result of this process (Nijhuis & Jauslin, 2015). Taking these two definitions, independently of each other, there emerges a consequentiality of the landscape to human activity aimed at the infrastructure of the territory, as if it were the direct result. In reality, today spatial planning methods are increasingly aimed towards an integrated design between infrastructure and landscape: only when architecture, mobility and landscape are synergically guided in the same direction, then infrastructures take on further importance, becoming the tool through which to reduce marginalization in favor of inclusion and interaction (Shannon & Smets, 2011).

The infrastructures possess their importance, their identity and are themselves the result of the historical, social, cultural and economic factors that define the expression proper of the city (Nijhuis & Jauslin, 2015). The multiplicity of meanings, implications and consequences that derive from it, make the collaboration between landscape ecologists and urban planners and designers indispensable to guarantee an interdisciplinary design capable of providing an effective contribution to the current city and a solid development base for the future city (Ahern, 2013). The contemporary landscape bases its

¹Definition of infrastructure, online Cambridge Dictionary.

²European Landscape Convention, Firenze, 20 October 2000.

aesthetics on the value of the street, well expressed by Jack Kerouac's "on the road" culture, but which is also explicitly expressed in the architectural sphere in the rediscovery of the Las Vegas visual culture (Venturi, Scott Brown, & Izenour, 1972) and its strip (Al, 2017).

In fact, from the street is possible to extract the sequence of images that characterizes the interpretation and the meaning of the place³. It should be borne in mind that man is a predominantly visual animal. More than 50% of the neurons in his brain respond to this sensory entry (Maffei, 2007). The experience of space is conditioned by the movement of the visual organs that create the paradox of the "contradiction of dynamic unity and static discontinuity" (Kepes & Rossi Chiaia, 1990, p. 63), with the eye constantly seeking and the images that immobilize over time what remains from the vision. Knowledge is guaranteed by the recomposition of successive shots that structure the figuration, an uninterrupted process of verifying the relation between singularity and totality that avoids the traps of prospective deceptions (Filippucci, 2010) and manifest their founding continuity (Appleyard, Lynch, & Myer, 1966). Le Corbusier states, "the spectator's eye moves in a landscape made of streets and houses, receiving the shock of the volumes that rise around" (Le Corbusier, 1989, p. 35). The figuration is the identification of the "point" of the houses and the "line" of the streets, polar elements that create the mental map, the path of the imagination, therefore an active image. The essential elements of form, extrapolated from perception, are the fundamental entities of what can be defined as "the logical support of every architectural manifestation" (Klee, 1984, p. 48).

This unitary view of the city cannot be separated from a careful and targeted assessment of the quality of the urban space, which can be significantly improved by analyzing the impact that certain design choices have on the perception of this space (Bittermann & Ciftcioglu, 2008). Precisely perception guides the observer in his movements, in his actions within the city. It is the basis of the *way finding* that Kevin Lynch defined as "the original function of the environmental image, and the basis on which its emotional associations may have been founded. But the image is valuable not only in this immediate sense in which it acts as a map for the direction of movement; in a broader sense it can serve as a general frame of reference within which the individual can act, or to which he can attach his knowledge. In this way it is like a body of belief, or a set of social customs: it is an organizer of facts and possibilities" (Lynch, 1960, pp. 125-126). In the image of the city, Paul Klee's assumption holds that "the orientation in the space of the work has as its basis the notion of the work as a mirror image of the self, that is, vertical mirror image of an ego standing in feet or at least vertical" (Klee, 1984).

We orient ourselves in cities we do not know, decoding through the sense of sight, the architectural signs, recognizing landmarks, margins, nodes of connection between paths; we also evaluate within the urban scene even the small furniture elements, such as those that characterize the urban landscape in the drawings of Gordon Cullen (Cullen, 1961). Turri argues that, for travelers, perceiving consists in fixing many perceptions, images or *iconema*, since travel is primarily a visual experience (Turri, 2004). Man observes the environment in which he finds himself, evaluates it, he creates its own representation (Bianconi & Filippucci, 2018), certainly subjective (Lowenthal, 1961), linked to the relation between perception and emotions (Bianconi, Filippucci, & Seccaroni, 2019). Thus "emotional territories" are born, the concept of landscape, which becomes part of the identity of the individual, in an inclusive process in which he feels he belongs sincerely to that place (Burkhardt, 1998). This is why Kevin Lynch explains that "we need an environment which is not simply well organized, but poetic and symbolic as

³ Dame Sylvia Crowe's in *The Landscape of Roads* (1960).

well” (Lynch, 1960, p. 118). In fact, as the American scholar himself explains, in this association between identities it arises the “meaning”. This is definable as “the clarity with which it can be perceived and identified a place and the ease with which its elements can be connected to other events or places in a coherent mental representation of time and space, in turn related to concepts and non-spatial values” (Lynch, 1990, p. 133). The result is therefore a landscape defined by a complexity of events, factors which, combined with each other, construct its image, identity, and thus they influence the relation of individuals with the city and, consequently, their sense of belonging to it. The road layout then veils like the invisible structure that conveys the image and values of a place.

Perugia and its infrastructures for the regeneration of the Umbrian territory

The road layouts were also essential elements for the city of Perugia, through which it defined its growth in the various eras. Perugia is a complex, layered city that summarizes centuries of history in which epochs and civilizations have followed one another and have conquered a place whose orography did not allow easy solutions. The streets have always made the fortune of a place, a condition proper to the birth of the Umbrian city, a crossroads between north and south, between the east and the largest area of the Mediterranean sea (Grohmann, 1981).

The city through the streets draws the territory and establishes relations, and since its birth, it has understood that sacrilege and that sacred value that a sign has and will have in the territory. We need a mediating figure, a *haruspex*, who knows how to transcribe the sky in the earth: it is what you see in the center of the city, in the orientation of its main axis towards the north, towards values that exceed man, and on the other axis which, unlike Roman culture, is only topologically orthogonal, because it adapts deeply to the urban form. The design of the city is an absolutely symbolic, metaphysical act, similar to the *Model of the sheep liver in clay* in Piacenza⁴, where the drawn parts of the organ are linked to the interpretation of the omens (Freedman, Sally, & Sakin, 1998).

The streets have always drawn the city and in the intrinsic conflict between the abstraction of geometry and the pre-existence of the landscape structure, the place that in part camouflages the cruciform nature of the axes has the best. In fact, the place increases the formal complexity of the urban structure with paths that follow the ridges and become the implicit protagonists of the morphological evolution of the city. This determines the first configuration of the city that Alberti compares to the fingers of one hand (Alberti, 1443), an atypical urban morphema at the same time extremely characteristic, because, as Benevolo says, “what really distinguishes the European urban space is the infinite series of combinations of regularity and irregularity” (Benevolo, 1994, p. 49).

The relation with the streets does not stop at the urban form only, but the tracks polarize the cultivated territory by virtue of their quality of linear attractors. From the 11th and 12th centuries, there has been a demographic increase, which leads to the saturation of the space inside the walls and pushes the population to expand in the surrounding territories unevenly, due to the morphological and the hydrogeological situation of the terrain. The expansion therefore takes place along the road axes that lead from the five main city gates to the neighboring cities and induces the development of the villages outside the Etruscan walls, which will then be incorporated into a second medieval city wall. In the Roman era, sculptural representations of “monsters” were placed at the gates of the city, defending the *Civitas* and the *Urbs* from what is external, unknown, and therefore evil. In the evolution of the urban form,

⁴ Cfr. E. Rossi, Piacenza: Fegato bronzo etrusco, [s.e.], Fabbrica di Roma 2002.

still along the streets, before entering the places of the community were located in the great mendicant orders, monks or communities of prayers, which marked the new image of the city. The morphological transformation of the urban space is therefore also part of a symbolic *translatio* of the meanings, as in fact the places of retreat take on the role of bulwark of faith against the spirits of evil, they also become the poles from which the whole territory is designed and governed.

Perugia, as well as Umbria in general, will continue to base its economy on agriculture over the centuries and therefore penalized from the point of view of trade and exchanges with other regions, especially with the installation of the railway network, which only marginally connects it with the main Italian cities (Bianconi, 2011b). Over time, the tracks will continue to adapt to the different needs of the times, but will not change substantially until the advent of Modernity and the birth of the new Italian state. In this period, Umbria experienced an important transition from a static territory to an agricultural vocation, to a transit node and a productive reference point (Furiozzi, 1987). It is a sudden change that has matured over the turn of the century through the major issues of industrialization and new urban areas (Bianconi & Bonci, 2010), but also of road infrastructure, aqueducts, large civil works, which introduced as new signs and as many meanings into the territory (Bianconi, 1996). In this sense, with the advent of Modernity, the assumptions that had hitherto characterized the historical environment failed (Sereni, 1986) and the changed economic and social reasons brought to light the need to adapt the natural territory more and more to the artifice modern (Farinelli, 2009). So much so that in a short time the loss of the dominant role of nature was evident with the introduction of new and important signs, new materials and new shapes, but also with the discovery of new points of view and the birth of a new and unprecedented Umbrian landscape (Bianconi, 2011a).

In fact, only by the end of the nineteenth century the Umbrian landscape acquired its current identity, profoundly designed by the infrastructures. Then, from the twentieth century, through the construction of the railway, the new roads, the reclamation canals, it was possible to discover areas never investigated nor by landscape painters, who portrayed the cities seen from outside (and therefore the natural environment was the best place to place the point of view of the representations), nor by the cartographers, who relegated these spaces to the un-drawn white of the cartographies. The Umbrian landscape, therefore, until Modernity was the unspoken backfield of the walled city, the undisputed protagonist in the representations and therefore the only concrete figuration.

Under the same thrust with which the nascent Italian state acquired a considerable railway system, the provinces of central Italy obtained substantial public funding for the creation and arrangement of the road network. In the five years following 1865, Umbria expanded its already efficient road network, reaching a configuration close to the current one. In fact, in 1928 the Autonomous Company of the State Roads, in launching the reorganization and reconstruction plan, did not foresee investments in the Umbrian territory considering it already sufficiently served, and this structure did not undergo particular changes during the whole Fascist period.

Since the nineties, Perugia faced an important expansion process that led to a significant consumption of land, without being accompanied by a parallel population growth: the population remains almost static, while the city continues to extend occupying surface. The territory is therefore eroded, consumed, used for the establishment of productive, commercial, receptive, recreational activities, without an overall vision of the city, reducing itself to establishing the functions, which are necessary, where it is simpler, where there is unused space. The result of a push for micro-entrepreneurial culture and an economy that finds its roots in the rural world was that of a heterogeneously dispersed urbanization. The characteristic of Perugia to be a widespread city (Indovina, 1999), in which therefore the expansion

outside the historic center was not regulated but it occurred spontaneously, although being influenced by urban culture, it necessarily implies a close dependence of the population from means of transport, both private and public to face the great distances that in most cases are necessary to travel in order to carry out any type of activity, either work or recreation.

These transformations towards a widespread city without limits change the proportions and relations in the city, due to the inhomogeneity of sizes that determines observation difficulties. It is the problem of the field (Arnheim, 1985), because from the inside the figuration is guaranteed only for the distances in which the eye can focus on points of reference, otherwise it remains in the sense of the labyrinth that the lack of orientation creates. For this reason, the tracks increasingly acquire a crucial role in ordering the territory, becoming as supporting structures for the recomposition of the images and a new orientation in a dimension that would otherwise be uncontrollable.

New tracks for the territorial regeneration

In the face of the evident problems related to travel on its territory, in 2019 the municipality of Perugia adopts the PUMS (Urban Plan for Sustainable Mobility). The European Guidelines⁵ define PUMS as a strategic Plan aimed at satisfying the demand for mobility of people and businesses in urban and peri-urban areas to improve the quality of life. The PUMS, in particular, should not be considered yet another plan, rather it must include and integrate with the existing tools, enhancing the principles of integration, participation, evaluation and monitoring. The principle of the integrated approach between the various modes of transport is therefore fundamental, which is linked to participatory planning systems, thanks to the direct involvement of the population in the design choices.

Specifically, the primary objectives that the plan intends to pursue concern the integration between the various public and private transport systems, but also the integration of different public transport systems between them. The creation of a network that allows to move hierarchically from means of transport that connect the neighboring areas of the city to others that allow urban movements, up to the historic center, favors the development of collective mobility. It is therefore necessary to renew the transport fleet with the introduction of low polluting impact vehicles and a parallel introduction of motorized mobility systems shared between multiple users, as is already the case in other cities where the level of pollution is very high. The development of pedestrian and cycling mobility systems and their integration with the new public mobility will finally allow the creation of that interchange system between the different types aimed at reducing a good part of the private motorized circulation.

In this perspective, the diffusion of culture related to the safety of mobility and sustainable mobility plays a fundamental role in the education of the citizen, who must personally use the new tools correctly.

⁵ Wefering, F., Rupprecht, S., Bührmann, S., Böhrer-Baedeker, S., Guidelines. Developing and Implementing a Sustainable Urban Mobility Plan. January 2014.



Fig. 1 The masterplan illustrating the BRT path from Fontivegge Station (above) to the terminus in Castel del Piano (below)

BRT is defined as a "rapid mode of transportation that can combines the quality of rail transit and the flexibility of buses" (Levinson, Zimmerman, Clinger, & Rutherford, 2002). More specifically, "BRT is a flexible, rubber-tired rapid transit mode that combines stations, vehicles, services, running way, and ITS elements into an integrated system with a strong positive image and identity. BRT applications are designed to be appropriate to the market they serve and their physical surroundings and can be incrementally implemented in a variety of environments. In brief, BRT is a permanently integrated system of facilities, services, and amenities that collectively improve the speed, reliability, and identity of bus transit. In many respects, BRT is rubber-tired light rail transit (LRT), but with greater operating flexibility and potentially lower capital and operating costs" (Levinson et al., 2002).

The proposal for the reorganization of the urban public transport network is based on a system of transport by road and on its own premises, allowing maximizing the capacity and speed of the buses, reaching yields similar to those of a system with constrained rail guidance, while maintaining the low costs associated with a road system. The route develops along a path that in just 12.5 km connects about 25,000 people, passing through some of the city's key points: from Fontivegge station to the commercial area of via Settevalli up to the hospital, passing through several neighborhoods and then arriving at the industrial area of Sant Andrea delle Fratte and finally at the terminus (Fig. 1).

If the BRT is unable to transit on its own premises, it circulates on a promiscuous location, shared with other vehicles and, in this case, at intersections, always takes precedence, through traffic light priority where necessary, to ensure high travel frequencies. In this regard, the traffic control systems and user information provide information on the network and timetables, indicating the arrival time in real time to guarantee the best possible service. The route thus defined assumes the particular role of unifying sign, a route that crosses the city in a decisive but discreet way, without distorting it but at the same time triggering in it a process of renewal of the surrounding territories. The new urban sign is the bearer of a great change, modifying the perception of the places concerned, introducing a new reference and thus modifying the citizen's relation with the urban environment and with the mobility within it. The new path becomes the path (Lynch, 1960) that Lynch identifies among the fundamental elements that allow man to orient himself in an urban landscape. Through it, the observer makes his movements and lives the city, adapting the image he has of it to the perception that has it in motion. The presence of this permanent sign therefore becomes a guide that orients the movements according to a very precise direction: the one leading from the suburbs to the city and vice versa. Then there is an additional feature that makes this path even more evident: the color. In fact, the site reserved for the circulation of the BRT, will be covered with a green coating system of asphalt with high solar reflection that reduces the amount of heat transmitted inside the treated surfaces (Fig. 2). This is possible on the one hand, thanks to a high daytime solar reflectance, which consists in the ability to reflect solar radiation in the visible, infrared and ultraviolet rays, thus reducing the transmission of heat inside the building, and towards the external area that surrounds it. On the other, thanks to a high nocturnal thermal emission, which consists instead of the ability to return the heat accumulated as absorbed solar energy at night.



Fig. 2 The high solar reflection coating of the path on the BRT's premises by the University stop.

A second well characterizing element of the project are the BRT stops. These technological canopies are the architectural sign that joins the road one, marking the path previously described through landmarks (Lynch, 1960), which represent the reference point for long-distance identification of the track and, as such, they configure as identifying elements of the place. Actually, Lynch's landmark is indeed a characteristic object, but with which the observer does not physically come into contact; while, for these canopies, there is not so much of an observer as of a user, for they are directly aimed at providing shelter to travelers and information on vehicles in circulation. The stops are the result of the same stylistic process, which necessarily leads to configure them all by using the same elements, albeit with variations depending on the specific place and case in which they are inserted. In fact, there is the case of a single canopy, which stands along one side of the roadway, in one direction only (Fig. 3) or that of a passing canopy, in which two stops facing each other they join above the road, creating a portal that marks even more that specific place (Fig. 4).



Fig. 3 The single canopy that stands along the BRT path at S. Sisto stop.



Fig. 4 The passing canopy that stands along the BRT path at the Piccolpasso stop

A further particular case concerns the terminal in Fontivegge, where the back of the railway station has been completely redesigned, taking advantage of an area where disused tracks are located (Figs 5-7). The use of generative algorithms for the design of the shelters has therefore made it possible to make this reference point adaptable to different situations, while remaining recognizable, because it presents the same characteristics. In particular, all canopies are equipped with seats to allow waiting for the vehicle, sunscreens on the roof to shield the sun and accessible ramps. Universal accessibility is, in fact, one of the regulatory principles of the project. The buses and sidewalks are built in an integrated manner: the entrance to the bus is located exactly at the level of the sidewalk, thus also allowing users with reduced mobility to use the service easily.



Fig. 5 Front view of the new BRT terminal at Fontivegge Station



Fig. 6 Rear view of the new BRT terminal at Fontivegge Station

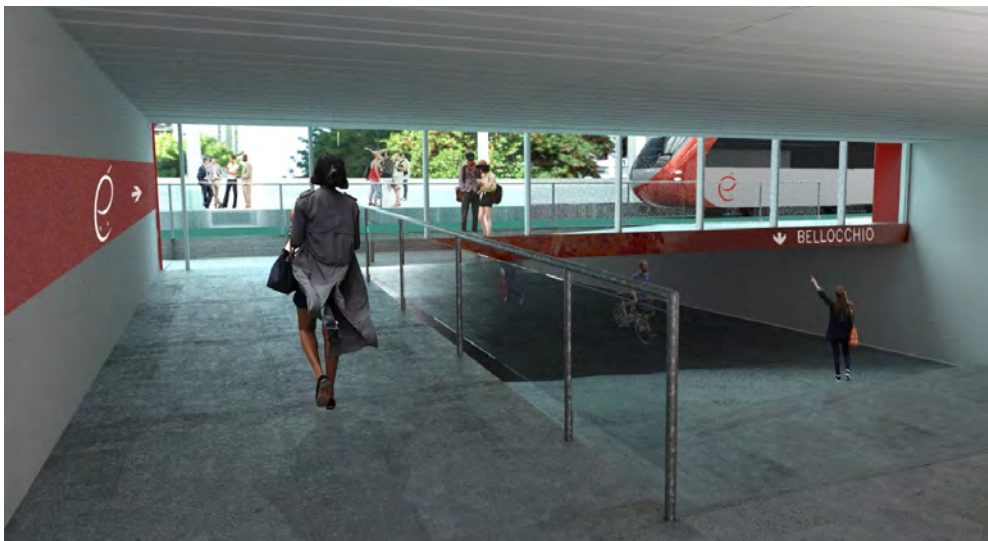


Fig. 7 The connection between the BRT terminal, the surrounding neighbourhoods and the railway station

The composition of the sunblind of the shelter is a reference to the conceptual art of Sol Lewitt (Fig.s 8-9). It refers to the free expression of the artist who does not aim to excite or explain a theory; there is not necessarily a logic guiding the drawing. Sol Lewitt believes that "the idea becomes a machine that makes the art" (LeWitt, 1967, p. 80), from which it derives the contrast between conception and perception, one is the background and the other is the consequence. In the PUMS project, the shelter is the characteristic element that stands out within the city, as an easily recognizable reference point; its goal, though, is not to arouse emotions in the observer since it must not be observed but simply

identified, it is to find its position in the urban context. The will is not to connote it with a precise figurative identity, attributing it visual characteristics that would inevitably clash with those of the place where it is inserted. The shelter is a functional object located in that particular context because it has its own specific utility linked to it, and as such must necessarily constitute itself as a reference point in space, to communicate its position so that users can identify and use it. Therefore, it has no other purpose than this, it must "engage the mind of the viewer rather than his eye or emotion" (LeWitt, 1967, p. 81) and its image is linked only to the localization, to the identification of the public transport space in the urban context. Any other information or sensation aroused by the object would be superfluous and, in the same way, its specific stylistic characterization would necessarily meet contrast with the identity of the place where it is located.



Fig. 8 The elements of a standard canopy

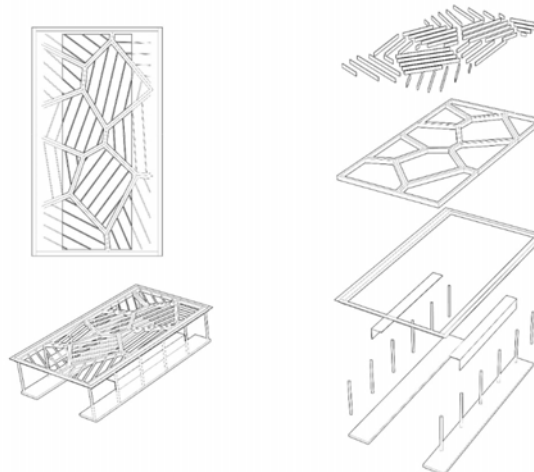


Fig. 9 An exploded view of a passing canopy highlighting the structure and sunscreens.

Finally, a further and fundamental part of the project consists of its integration with the existing cycle and pedestrian network, but also of new construction. One of the PUMS's goals is precisely to encourage non-motorized private mobility and therefore the presence of an efficient public transport system proves fundamental to allow citizens to move without using their own means, integrating public mobility systems with pedestrian routes and cycle paths. The cycle paths, in particular, are divided between high and low frequency, thus distinguishing the type of flow that interests them and limiting any conflicts of use. In order to make the entire system efficient and interconnected, it is envisaged to include bike-sharing velostations in strategic locations, as well as to increase the ZTL and 30 areas. The result is therefore an integrated and widespread network, which hierarchizing the movements, it manages to mend the great distances typical of a widespread city (Fig. 10).



Fig. 10 A zoom illustrating the interventions that integrate motorized mobility and alternative mobility in via Settevalli

Conclusions

The theme of public mobility was an occasion, in the plan presented, to reflect on the city as a whole and on the relation it maintains with the traffic systems within it. The question of landscape design is very significant within an urban plan for sustainable mobility: infrastructures are one of the strongest signs that characterize the landscape and give it its identity in the eyes of observers. They bind to the territory they pass through, becoming innervated within it and deeply influencing the evolution of the overlooking city. In the same way, citizens, the main users of road networks, see their perception of the city changed through the new system of mobility, since the movements and their speed influence that image each individual builds of the places he crosses. Rethinking the mobility system, therefore, does not mean making public transport more efficient and ecological, promoting non-motorized mobility by improving and increasing cycle and pedestrian paths and the interconnections between them and the public system, but also modifying the relation between the users and the context, to regenerate the city in a real and concrete way.

In this urban regeneration process, the city becomes permeable to movement, offering a renewed freedom of movement. The sustainability of the new public means of transport, characterized by reduced emissions, is accompanied by landscape sustainability: the existing infrastructures, following adaptation to the design provisions, are not subject to changes, the city road system remains almost the same, with the exception of some new branches and interventions at the intersections, in the utmost respect that a new planning can have towards the existing one.

The infrastructure conceived as an element of urban reconnection deeply linked to the territory through which it is articulated thus becomes the opportunity for a regeneration of the city, which, driven by the new road system integrated in it, adapts to this new presence. The result is therefore a single large organism in which each device performs its function both individually and interacting with the others: through the design of the landscape the urban environment is stitched up, it develops new connections, it becomes permeable to its users who develop a strong sense of belonging, strengthening its identity.

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Orthodox monasteries in the landscape of island Greece

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Abstract

The research presents the results of the campaigns of architectural and landscape significance of some monasteries in southern Greece, paying particular attention to the Monastery of the Spring Fountain on the island of Poros, the Monastery of the Assumption of the Virgin Mary on the island of Hydra, the Monastery of St. Nicholas in Spetses. The religious complexes are analysed in their current religious functions and in their configurations rich in interest on the analysis of their respective architectures: community buildings, churches, service structures, cells. The architectural installations display harmonious lines grafted into the urban complexes or in the natural greenery that envelops them in an aura of contemplative participation also testified by recent photographic shots of useful approach to the complexes in the landscape. Of the monasteries under examination, the dimensions, the open and closed spaces, the geographical configurations in their specific regularization of the sacred perimeter intended for the hermitage of community buildings and the pertinent church, as well as the relationship with the surrounding natural or urban landscape, have been noted. They are structures erected between the mid-seventeenth century and the second half of the following century of which few documents remain of their original spatial configuration in the context of places, proposing, today, interesting perceptions, research and analysis. Even the urban or natural environment that surrounds them is still full of charm, with visions of the cities and the sea from the chosen settlement in an emerging position with respect to the cities.

Abstract

La ricerca presenta i risultati delle campagne di rilievo architettonico e paesaggistico di alcuni monasteri nella Grecia meridionale, ponendo particolare attenzione al Monastero della Fonte Primavera sull'isola di Poros, al Monastero dell'Assunzione della Vergine Maria sull'isola di Hydra, al Monastero di San

Nicola a Spetses. I complessi religiosi sono analizzati nelle loro attuali funzioni religiose e nelle loro configurazioni ricche di interesse sull'analisi delle rispettive architetture: edifici comunitari, chiese, strutture di servizio, celle. Gli impianti architettonici espongono linee armoniose innestate nei complessi urbani o nel verde naturale che avvolge in un'aura di partecipazione contemplativa testimoniata anche da riprese fotografiche recenti di utile approccio di conoscenza dei complessi nel paesaggio. Dei monasteri in esame, sono state rilevate le dimensioni, gli spazi aperti e chiusi, le configurazioni geografiche nella loro specifica regolarizzazione del sacro perimetro destinato al romitaggio delle fabbriche comunitarie e della chiesa pertinenziale, nonché il rapporto con il paesaggio naturale o urbano circostante. Sono strutture erette tra la metà del seicento e la seconda metà del secolo successivo di cui restano pochi documenti della loro configurazione spaziale originale nel contesto dei luoghi, proponendo, oggi, interessanti percezioni, ricerche e analisi. Anche l'ambiente urbano o naturale che li circonda resta pur sempre carico di fascino, con visioni delle città e del mare dal prescelto insediamento in posizione emergente rispetto alle città.

Introduction

The research is focused on the study of some monasteries in the Saronic Gulf in southern Greece, with particular attention to the Monastery of the Spring Fountain on the island of Poros, the Monastery of the Assumption of the Virgin Mary on the island of Hydra, the Monastery of St. Nicholas in Spetses. The activities of investigation of religious architectures have included several survey campaigns aimed at the knowledge of the structures and the surrounding territory: the graphic analyses, in fact, have produced a first geometric model later expanded with architectural details. The photographic documentation was also carried out, in addition to checking the scarce bibliographic, archival and iconographic documentation. In this system of representation, the photographic image, in addition to constituting a database value from which it can be drawn also in times subsequent to the survey phase, the possibility of interpolating this static figurative data with dynamic computer elements appears evident.



Fig. 1 The Monastery of the Spring Fountain on the island of Poros, seen to the south



Fig. 2 The Monastery of the Assumption of the Virgin Mary on the island of Hydra, seen towards north



Fig. 3 The Monastery of St. Nicholas in Spetses, seen towards east

For the knowledge activities, we have taken into account the Ryobi laser instrumentation applied on a portable computer support, both tablet and smartphone, which allows an immediate vision of the relief data on the photographic image taken from the support, transforming it into a dynamic data. The aid of this photographic technology becomes the main surveying tool since it contains both the measurement data and the geographical coordinates connected to the device used, as well as information regarding the date and time of the survey campaign. The Saronic religious complexes are proposed, in this path of knowledge, in their current religious functions and in their configurations rich in interest on the analysis of their respective architectures: community buildings, churches, service structures, cells. The architectural installations display harmonious lines grafted into the urban complexes or into the natural greenery that envelops them in an aura of contemplative participation that is also testified by recent photographic footage of a useful approach to knowledge of the complexes in the landscape. Of the monasteries under examination, the dimensions, the open and closed spaces, the geographical configurations in their specific regularization of the sacred perimeter destined to the hermitage of the community factories and the pertinent church have been noted.

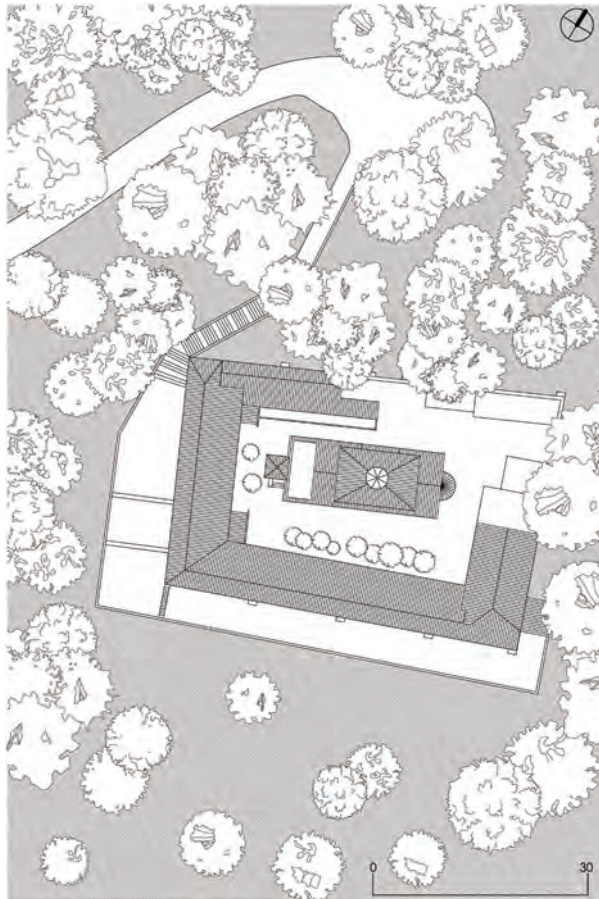


Fig. 4 The Monastery of the Spring Fountain on the island of Poros, general plan

The survey of the Monasteries in the Saronic Islands

The Monastery of the Spring Fountain, located on the island of Poros in a thick pine forest not far from the town of the same name, was founded in the 18th century near the only local fresh water spring which, as local legends tell, miraculously healed the Archbishop of Athens in 1720. A mystical place, recognized in 1733 by the Patriarch of Constantinople under his own jurisdiction from which he obtained numerous economic privileges, in 1814 it hosted a group of monks from Mount Athos who contributed to the architectural and spiritual growth of the place. A few decades later, within the premises on the ground floor, the first orphanage of the Greek nation was founded for the orphans of the warriors of the War of Independence. Currently the Monastery consists of a building with a central courtyard in which stands the Church with a dome and a bell tower. The double level hermitage has in the lower part the service rooms such as a refectory, kitchens, storerooms and rooms for the reception of the faithful, and in the upper part the monks' cells, 17 of which are occupied.



Fig. 5 The Monastery of the Spring Fountain on the island of Poros, view of the main elevation

The Monastery of the Assumption of the Virgin Mary located on the island of Hydra, instead, occupies a dominant position with respect to the port overlooked by the ponderous clock tower. Documentary sources identify a first religious complex already in 1643 consisting of a central church and a nucleus of cloistered cells of the 18 religious. The structure was destroyed in 1774 by a violent earthquake and rebuilt in the following years with Venetian architectural influences deriving from the “Serenissima” domination in the Mediterranean. The same type of building, named after the Assumption of the Virgin Mary, however, was entrusted to a group of Orthodox monks. The Cathedral, in Byzantine style, has three naves ending in three semicircular apses with frescoes from the 18th century: the interior preserves numerous icons in gold and silver from the Byzantine period and in the centre of the central dome hangs an imposing gilded chandelier.

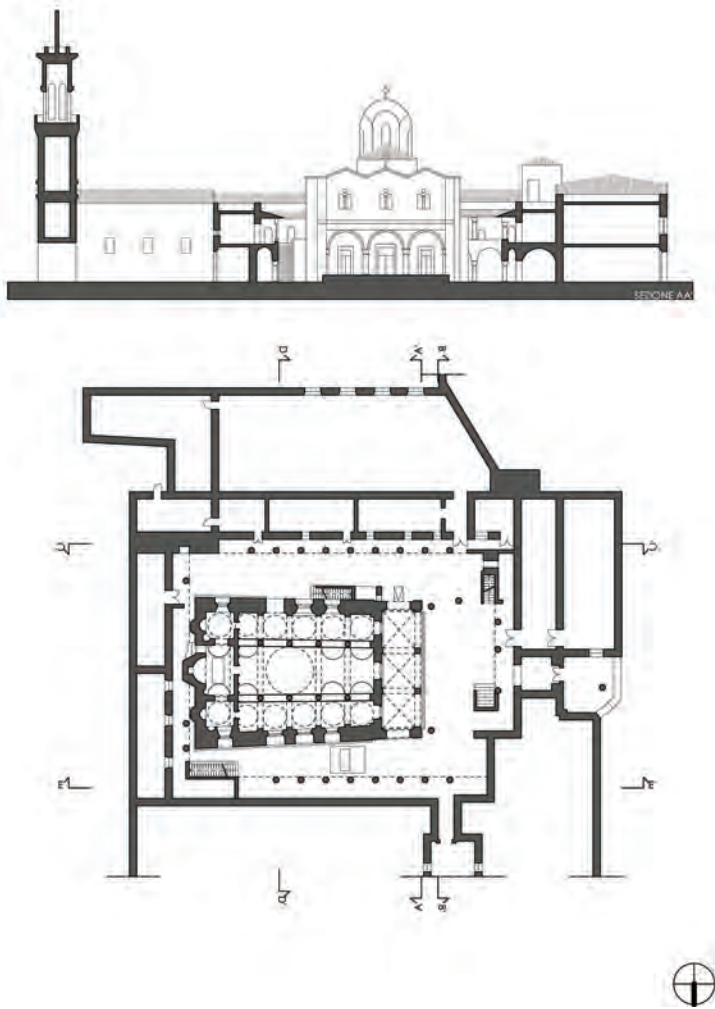


Fig. 6 The Monastery of the Assumption of the Virgin Mary on the island of Hydra, section eastwards and ground floor plan

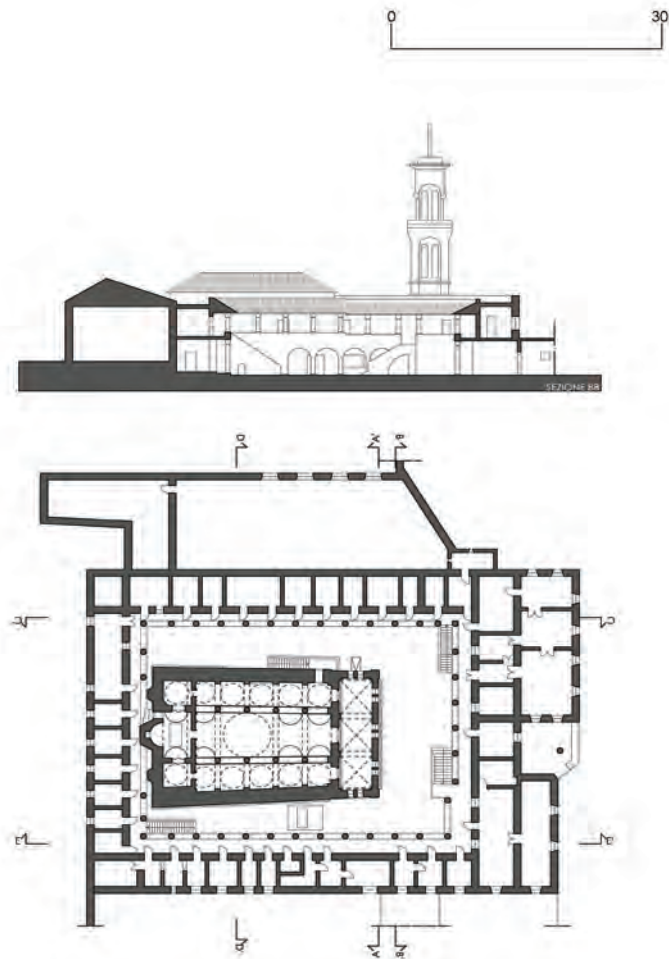


Fig. 7 The Monastery of the Assumption of the Virgin Mary on the island of Hydra, section towards west and planimetry first floor

In the monastic enclosure there are two bell towers, the first, dating back to 1643 and remodelled in 1806, on three levels is covered in marble and was designed by Venetian and Genoese architects for the previous women's monastery, the second, larger, dating back to 1874. Currently the side courtyard houses the busts of some of the heroes of the Greek War of Independence of 1821 against the Turkish people, in memory of the transformation of the religious structure into a military quarter: the monastic cells, in fact, were used as chambers for admirals and captains who managed the military attacks towards the Near East.



Fig. 8 The Monastery of the Assumption of the Virgin Mary on the island of Hydra, seen towards north

Finally, the Monastery of St. Nicholas in Spetses is located along the northern coastal strip of the island and in 1821 it represented the political, as well as religious, in the center of the local community. In fact, during the War of Independence, it was the place where battles and military strategies were agreed upon by captains, lords of the island and priests. The main façade, facing west, is characterized by a ponderous entrance portal surmounted by the bell tower built in 1805 with marble from the island of Tinos. The entire complex on a double level with a central courtyard and a church with a nave and two aisles is characterized by a floor made of sea pebbles arranged according to a geometric design. Towards the east the building is characterized by a single floor, the ground floor, while on the first floor there is a panoramic terrace overlooking the surrounding gulf where there is a portico leading to the monk cells.



Fig. 9 The Monastery of St. Nicholas in Spetses, general planimetry



Fig. 10 The Monastery of St. Nicholas in Spetses, view of the main elevation.

Conclusion

This process of knowledge in the Saronic Gulf in Greece involved three settlements of Orthodox monks, the Monastery of the Spring Fountain on the island of Poros, the Monastery of the Assumption of the Virgin Mary on the island of Hydra and the Monastery of St. Nicholas in Spetses dedicated to hermit life. They are structures erected between the middle of the seventeenth century and the second half of the following century of which few documents remain of their original spatial configuration in the context of the places, proposing, today, interesting perceptions, research and analysis. Even the urban or natural environment that surrounds them is still full of charm, with visions of the cities and the sea from the chosen settlement in an emerging position with respect to the cities. Of the three complexes under examination, the knowledge of the current aspects, of the destinations of use, has been addressed through manual and instrumental surveys, graphic returns compared to archive drawings that attest their past function. It should be emphasized that knowing a settlement and its territory means confronting the legacy of the past and the history of its inhabitants and its residential fabric or acquiring the hermit structures of the past and those still present and with greater attention, moreover, to what is preserved environmental heritage to be protected as a strong current sign and future cultural and social welfare. Acquiring information and understanding the value of the human, urban and monumental heritage of the Saronic structures in their design means making the image of the site and its identity your own.

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Slow mobility-based representation of coastal territory The Costa dei Trabucchi case study

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Abstract

This research explores the relationships between the representation of digital models and mobility flows related to a coastal territory. The aim is creating a synergy between travel data and their representation, in order to optimize the territorial development strategies of soft mobility. A combination of GIS and Computational design digital tools has been used to achieve this goal. The case study selected is the set of municipalities on the Abruzzo coast, ranging north to south from the territory of Ortona to San Salvo. The choice of a case study limited to the coast was determined by the need to make different flows coexist between the summer and winter seasons. In the analysed territorial ecosystem, a useful strategy was developed to integrate private transport with an apparatus that facilitates soft mobility. To this purpose, seasonally adjusted isochrones were developed from the urban centres of the eight municipalities considered. The calibration of the isochrone was elaborated (Schantz and others, 2017) by calculating an area reachable by bike with a travel time of 25 minutes. The overlap between the isochrone of contiguous municipalities provides information about the areas where the cycling network needs to be implemented in intra-municipal and inter-municipal mobility. Finally, the studies carried out show that these overlapping areas are not localised as would be conceivable on administrative borders.

Abstract

La presente ricerca esplora le relazioni tra la rappresentazione dei modelli digitali e dei flussi di mobilità relativi ad un territorio costiero. Lo scopo è creare una sinergia tra i dati relativi agli spostamenti e la loro rappresentazione, per ottimizzare le strategie di sviluppo territoriale della mobilità dolce. Per raggiungere tale scopo è stata utilizzata una combinazione di strumentazioni digitali Gis e Computational design. Il caso studio selezionato è l'insieme dei comuni della costa abruzzese limitato a nord dal territorio di Ortona a sud da quello di San Salvo.

La scelta di un caso studio limitato alla costa è stata determinata dalla necessità di far coesistere dei flussi diversificati tra la stagione estiva e quella invernale. Nell'ecosistema territoriale analizzato è stata elaborata una strategia utile per integrare i trasporti privati con un apparato che agevoli la mobilità dolce. A tal fine sono state elaborate delle isocrone destagionalizzate a partire dai centri urbani degli otto comuni presi in considerazione. La calibrazione delle isocrone è stata elaborata (Schantz e altri, 2017) calcolando un'area raggiungibile in bici con un tempo di percorrenza di 25 minuti. La sovrapposizione tra le isocrone di comuni contigui fornisce informazioni relative alle aree ove la rete ciclabile ha la necessità di essere implementata nella mobilità intra comunale ed intercomunale. Dagli studi effettuati si rileva infine che queste aree di sovrapposizione non sono localizzate come sarebbe ipotizzabile sui confini amministrativi.

Introduction

This research, carried out by the Department of Architecture and Urban Studies (DASU) of Politecnico di Milano, in collaboration with the Department of Civil, Building, Architecture and Environmental Engineering of the University of L'Aquila, aims to develop an interpretation of the phenomena related to mobility that occur in a coastal area, innovative in methods and cartographic representation. The study area is included in four among twenty-one "landscape environments", defined by the new Regional Landscape Plan of the Abruzzo Region using as guiding parameters the ones that describe the naturalistic-environmental, historical-cultural, symbolic and anthropic aspects of the region according to the principles expressed in the European Landscape Convention. The landscape areas this work is referred to are: the Theatine coast, the Chieti and Lanciano hills, the Sangro valley and the Vasto hills. Within this framework, an analysis of the mobility of eight municipalities has been carried out taking into account multiple criteria and their interrelationships from different points of view. The choice of the case study was guided by the precise need to analyze the fragilities of a lesser territory, whose study campaigns are few and fragmented. It is worth to mention the projects which are focused on this specific area, which are not yet fully implemented and functional. The most ambitious project is VELE, the Adriatic Venezia to Lecce cycleway, the "Bike to Coast" project stretches along 130 km on the Abruzzo and Marche coast and the "Via Verde della Costa dei Trabucchi" runs for 42 km.

The territory of the Trabucchi coast is already following the road of the strengthening of the bicycle networks along the coast, converting the former railroad track into a greenway because of the path the railroad tracks left free from the setback of the main Adriatic railway. The development in this sense of the system of connections between the main longitudinal networks and the minor and difficult transversal networks is of considerable importance for managing traffic flows both along the coast and between it and the inland. The analysis of the evolution of a more efficient slow mobility system is essential to overcome the fragilities of the smaller hilly areas and allowing their organic development.

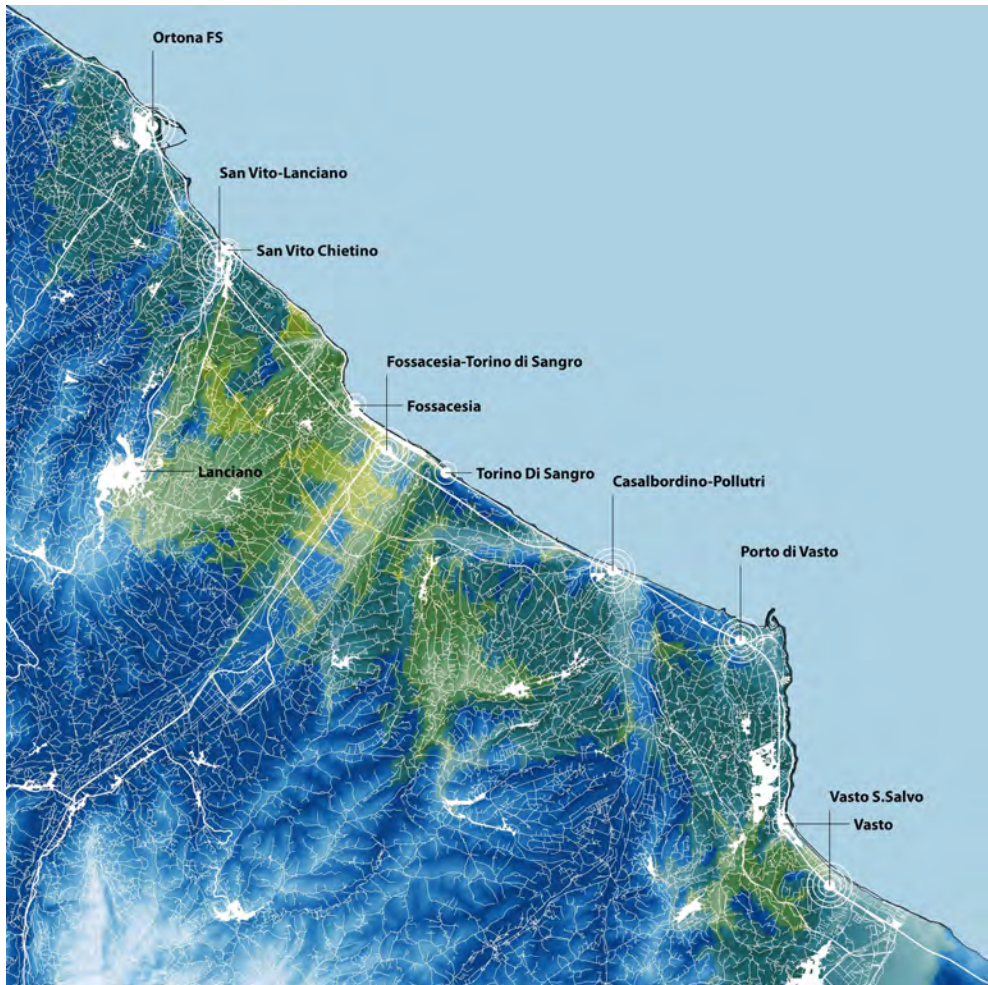


Fig. 1 Isochronic areas in green with origin in centroid of Urbanized areas in white. Shades of green means the overlapping of different isochronic areas. Multiple circled nod are currently operational railway stations, dot are dismissed railway stations

Methodology

The analyses described below have been developed by combining the use of a GIS platform (as far as cartographic representations are concerned) and a NURBS modelling software. The latter was accompanied by the use of a visual programming language through which large georeferenced databases - such as the Abruzzo Region which used in this research - can be managed and processed in order to build accurate three-dimensional models of very large portions of territory. The use of a coding tool was found to be crucial for the implementation of innovative methods of territorial analysis.

In the first instance isochrones were drawn by taking the urban centres of the eight municipalities centroids as starting points. The used analysis algorithm allowed to calculate every possible route within a cycle travel time limit of 25 minutes (Schantz, 2017) using the Open Street Map (OSM) databases containing data related to speed profiles. As a result, isochrone polygons were obtained that describe a certain coverage of the territory according to the set time. It seems worth to be pointed out that the different municipalities isochrones overlap, thus identifying portions of the territory that could be the target of development strategies and deepening of already on-going projects as potential new nodes of an existing bike network. The projects described in introduction section aim to build a sustainable cycling network designed for both daily cyclists and tourists. The overlapping areas are not located, for the most part, on the administrative borders. In the first instance, therefore, it is possible to underline how the planning of a low impact mobility network in this territory requires the synergy of multiple actors, stakeholders and a vision of strategic development of this area that goes beyond the concept of borders and may subvert historical dualisms, such as coast-mountain or center-periphery, which are divisive for what concerns the relations present in the national territory on several fronts.

For the deepening and description of the second step of carried-out analysis, it is useful to recall some concepts related to the graph theory. The spatial analyses based on graph theory have been used in architecture and urban planning for the first time by Bill Hillier, at the University College London, who defined the principles of Space Syntax theory (Hillier & Hanson, 1984). The main idea of this methodology is to represent space as a composition of individual elements (such as streets and buildings) and to analyse their mutual relations. One of the key principles of the theory is the "axial line". An axial line is a visual line in an environment. Based on the fact that axial lines are also used even unconsciously by people as a mental concept useful for orientation within a road network, mainly in an urban environment, Hillier and his colleagues defined the concept of axial maps, used to represent a model of space through a network of linear spaces (Bielik et al., 2012). The algorithm used in the Gis environment to conduct the second analysis, using the principles described, allows to extract a portion of a certain road network according to a certain time and speed of travel. This allowed to visualize the "reachability" of portions of the territory under analysis, at a speed of 16 km/h, considered the average for cyclists, defining four time intervals, with five minutes step increase originated from the 6 railroad stations currently operational in the area, designed as paramount nodes of intermodal exchange. The representation of this phenomenon, in this case, has been connected to the determination of a reachability gradient (expressed in figure 1 with a colour ranging from green to blue) applied to the road network "portions" extracted thanks to the analysis algorithm described above. In this way it has been possible to notice that the road network that can be travelled within the set times is discontinuous, because of a lack of node. In a strategic approach, with the aforementioned aim to improve the territorial connection, it would be advisable to intervene in these areas with further intermodality structures.

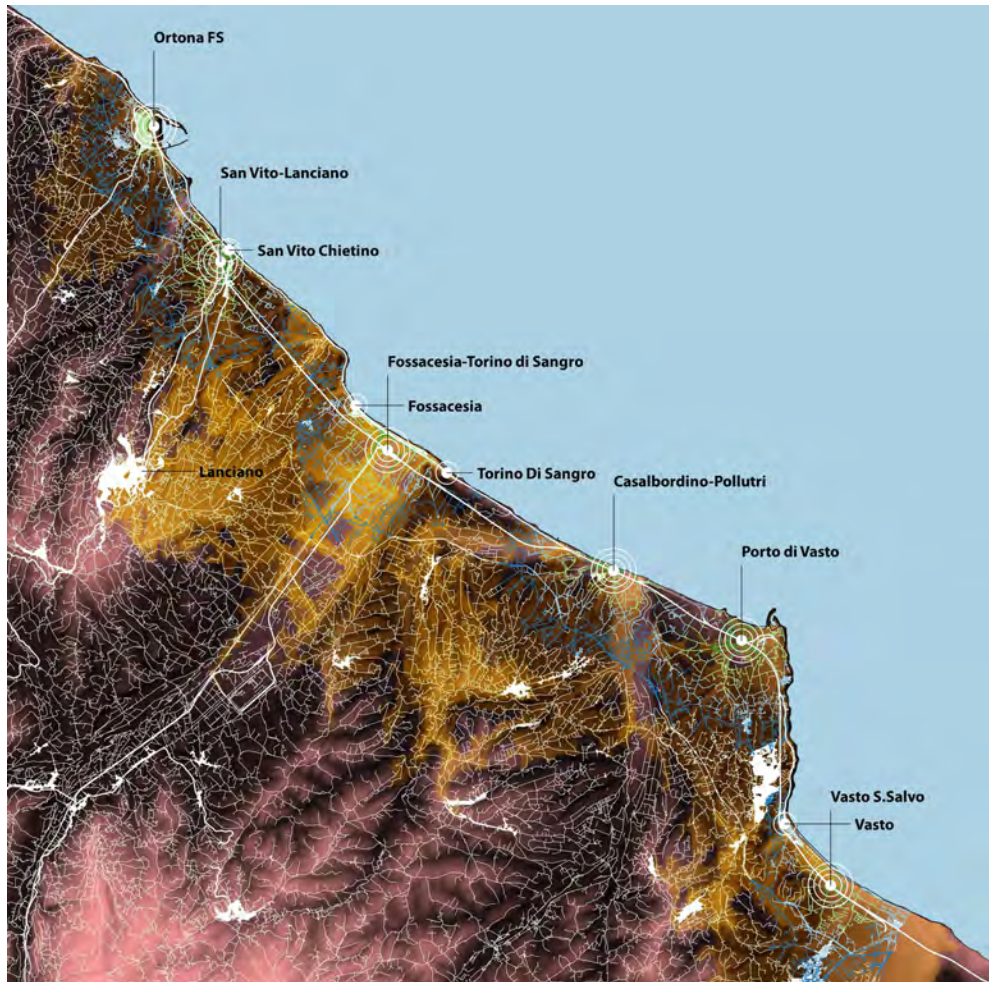


Fig. 2 Comparison of isochronic areas with network isochronic analysis starting from railway stations. Different colours of roads mean different cycling distance from the stations

Conclusion

At the current stage of this research it has not been possible to take into account the altimetric and orographic territorial features. As draft step for future research, a slope analysis was carried out in GIS on the digital elevation model (DEM) of the terrain with 10x10 meters resolution made available by the Abruzzo Region. Gis environment are not endowed with the capability to associate the raster DEM data to the vectorial curves which form the road network. This operation would be useful to autonomously categorize roads according to the slope of each segment that composes them. Currently, advanced experimentation on these issues is being conducted with the use of a three-dimensional NURBS modeller. In this way it will be possible to manage geodata by analysing their geometric characteristics in three dimensions, thus overcoming the typical bidimensional limit of classical cartography. In this way it will be possible to integrate the possibility to make further considerations regarding interacting phenomena that could further orient the consequent design choices.

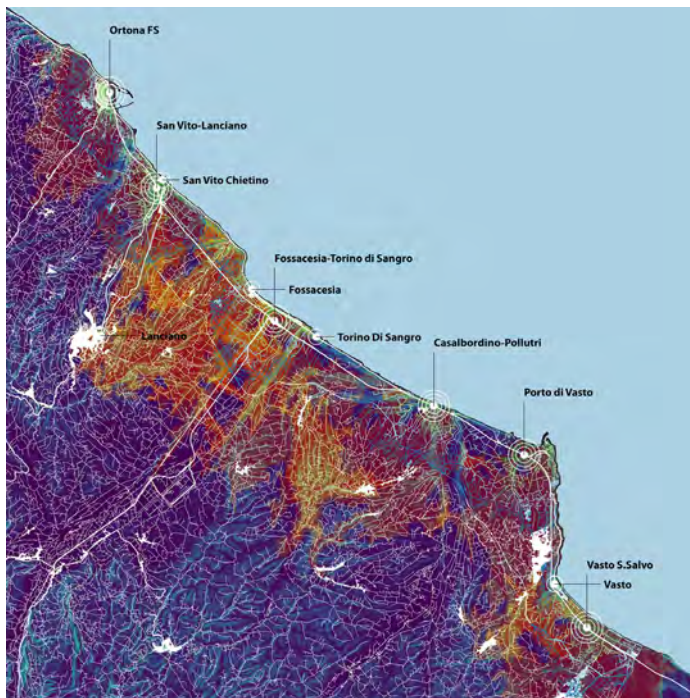


Fig. 3 Cycle Network analysis starting from operational stations, overlapped with slope analysis

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Regenerating Chiascio: the first Green Community in Umbria

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Abstract

The definition of a connective strategy of the Chiascio basin, an important tributary of the Tiber that draws Umbria region, has as its task to design in a holistic and homogeneous way the development of a landscape sector through the enhancement of the peculiarities of the territories and social reactivation, reconnecting the network of physical and immaterial relations and the attribution of meanings to the patrimony of the territorial assets.

The goal is a project of territory, with the birth of a Green Community: the term “green” in a territory that has preserved an important natural and landscape heritage, necessarily refers to a sustainable approach to the use of resources of the territory, while “Community” represents the will to rebuild social relations also thinking administratively a “community of communes”.

Through representation as a place of knowledge, the research path aims to build a strategy of concerted territorial development, focused on an agreement for the valorisation of the present resources and in the co-designing and co-production of the development of the places favouring proximity logics.

Abstract

La definizione di una strategia connettiva del bacino del Chiascio, importante affluente del Tevere che disegna l’Umbria, ha come compito di disegnare in modo olistico e omogeneo lo sviluppo di un comparto paesaggistico attraverso la valorizzazione delle peculiarità dei territori e la riattivazione sociale, riallacciando la rete di relazioni fisiche e immateriali e l’attribuzione di significati al patrimonio dei beni territoriali.

L’obiettivo è un progetto di territorio, con la nascita di una Green Community: il termine “green”, in un territorio che ha conservato un importante patrimonio naturale e paesaggistico, rimanda necessariamente ad un approccio sostenibile all’uso delle risorse del territorio, mentre “community” rappresenta la volontà di ricostruire relazioni sociali ripensando anche amministrativamente una “comunità di comuni”. Attraverso la rappresentazione intesa come luogo della conoscenza, il percorso di ricerca si propone di costruire una strategia di sviluppo territoriale concertata, incentrata su un accordo per la valorizzazione

delle risorse presenti e nella coprogettazione e coproduzione dello sviluppo dei luoghi favorendo logiche di prossimità.

The Research

The creation of the Chiascio green community was born from the vision of rethinking territorial development in the reconnection of smaller areas in their popularity but not in their qualities: if on the one hand the major axes have designed a linear development of the territory in the last fifty years¹, on the other, as explained by the strategies on the internal areas², large portions of the territory must rethink their relationships and a new unity of purpose, with a view to determining a strategy to enhance the Umbrian landscape heritage.

The green community, defined by Paragraph 2 of art. 72 (National strategy of the Green communities) of Law 221/2015, represents a sustainable development plan aimed at enhancing the resources of rural and mountain territories on the subjects affected by the aforementioned regulatory provision, opening a relationship of subsidiarity and exchange with urban and metropolitan areas. The United States³ present the most advanced experiences, from which cases it emerges in a different way a unitary vision of protection of sustainability, water management, protection of the environment and natural landscape, quality of soils, protection of biodiversity, enhancement of networks of sustainable transport, livable communities, social cohesion. The proposed path is based on this vision by placing at the center of interest a holistic action on landscape, environment, nature, agriculture, economic development, tourism, cultural heritage: with the involvement of local actors, the territorial strategies of spatial reconnection are linked to the creation of services and planning of new production and consumption networks. Sustainability is linked to the promotion of the values of the places and it responds to the logics of contemporary communication, essential elements for the concertation and involvement of the whole territory for democratic and participatory development.

Behind this definition, the two founding concepts that structure the substance of the intervention can be segmented: the idea of community (Turner, 2011; Ostrom, 2015; Hampton, 2016) is closely linked to the sociological dynamics implicit in territorial regeneration. The creation of social networks and the enhancement of proximity logics opens up the strengthening of G-local networks (Thompson, Harper and Kraus, 2008; Alberto Magnaghi, 2010; Alberto. Magnaghi, 2010; Polizzi and Bassoli, 2011), a system and a network that cannot be limited to a simple slogan, but must be carefully planned for the realization of a project capable of uniting the assets - environmental, monumental, landscape - with the real productive capacities, in a broad sense, of the territory.

In this context, the enhancement of proximity logics comes into play, starting from farms, to

¹ Umbria. Paesaggi in divenire 1954-2014. Regione Umbria https://www.academia.edu/22478261/Mutazioni_del_paesaggio_umbro_Sette_casi_studio

² Territorial Cohesion Agency. National Strategy for Internal Areas, Expected Results Chart, Result Indicators and Actions. Document under development of 10/11/2015 in http://www.agenziacoese.gov.it/opencms/export/sites/dps/it/documentazione/Aree_interne/Documenti_di_lavoro/Linee_guida_AI_18_11.pdf

³ The main Green Communities in USA:

- Indiana (<https://aimindiana.org/our-purpose/leadership-and-staff/>);

- Iowa (<https://www.mwatoday.com/resources/growingad%E2%80%90greenad%E2%80%90communities/community>);

- Massachusetts (<https://www.mass.gov/>);

- Michigan: (<http://migreencommunities.com/>);

New Hampshire (<http://www.hampshirecog.org/programs%E2%80%90and%E2%80%90services/sustainability%E2%80%90services/green%E2%80%90community-support>).

communicate local production and consumption points, regulate land use, unify and make cultural goods available, organize the points of hospitality. At the center of the route is the vision of common goods (Gardner, Ostrom and Walker, 1990; Altilli, 2010; Maddalena and Settis, 2014): the waters (blue infrastructures), the natural environment (green infrastructures), the natural landscape and anthropized, the networks of sustainable mobility, the community, the identity characteristics, the health of the local economic and social fabric. This can be done through a study aimed at analyzing how the landscape has changed over time, as it helps a correct understanding of how resources have been used and how the environment is capable of responding to human action.

The adjective green is fundamental because it connects to the culture of sustainability (De Carlo and Caso, 2007; Cicatiello and Rossi-Doria, 2012; Ahern, 2013; Maurano and Forno, 2016) in the use of resources. Given the geographical position and the complex geological origin, our territory presents itself as a complex network of ecosystems and biodiversity. This requires an approach with a working method aimed at the conservation and management of all these assets, each in its own specific peculiarity. At the same time, it requires to reflect on the effects caused by our intervention in relation to the environmental conditions, the management and development choices, and the economic and social dynamics of the territory concerned. When land use⁴ has reached such high levels, well beyond the rate of population growth, it is a pivotal goal to rebalance the strong and weak areas, and therefore the interest must return to marginal settlement systems, affected from problems of demographic decrease and abandonment. It is therefore projected to activate a regeneration path that is concerned not only with the landscapes already marked by their quality and reputation, but also with those "minor landscapes" where, however, due to the widespread value present throughout our country, it remains central to promote processes attentive to the enhancement of environmental and natural capital.

Research, in particular the role of the University of Perugia with the Department of Civil and Environmental Engineering, becomes the nerve center for structuring the development of the territory. With this in mind, this proposal has as its objective the definition of a connective strategy⁵ in the heart of Umbria, in order to design the territorial development in a holistic and homogeneous way. It is a matter of enhancing what already exists by enriching it with those missing pieces, re-establishing the network of physical and immaterial relationships. The construction of the Green Community stems from the vision of directing the development and transformation of rural and mountain territories in order to promote a sustainable use of the main resources at their disposal, and to open a new subsidiary and exchange relationship with urban and metropolitan communities.

The route is based on the construction of a Landscape Contract (Bianconi, Ciarapica and Filippucci, 2016a, 2016b, 2016a; Bianconi, Filippucci and Andreani, 2017), for the connective area included in the Chiascio basin, the part of the Tiber from the confluence with the tributary, up to the connection with the path of peace. It is an area characterized by its uniformity in being a place of connection and therefore scarcely valued if not for this functional value. The activation of a social and environmental contract is central because it responds to an important territory for the economic development, where, however, the interest of the private individual to the benefit of the Common Good has rarely been stimulated.

⁴ Data referring to the year 2018 according to the analyses conducted by ISPRA https://webgis.arpa.piemonte.it/secure_apps/consumo_suolo/?entry=5). The percentage of soil occupied is 5.64%, an increase.

⁵ To this end, a proposal was submitted to the call for LIFE19 NAT/ITA, promoting a series of green and blue infrastructure actions and plans through natural conservation and the enhancement of corridors, to improve connectivity between Natura 2000 sites and other protected areas, and to promote human-nature co-production, on the relationship between biodiversity, agriculture and perception.

The hypothesis is therefore the construction of a territorial development strategy concerted and based on an agreement for the valorisation of the present resources and in co-planning and co-production of the future of these places. At the center is the landscape, for its perceptual centrality, for the value of the images in telling the territory, in communicating its values, in creating foundational relationships to strengthen the identity of the community, who has to collaborate actively in this development. The vision of smart landscape is therefore not only aimed at protecting the environment and the territory, it does not lead to reflecting only on goods and places already characterized by a structured quality. Nevertheless, it wants to propose ways of activating citizenship to promote a true shared development the territory, with a view to providing for the maintenance and protection of what has been invested.

In fact, the proposal does not seek to build a new model but it wants to start from the data to derive the existing processes from them and finally manage to direct their dynamism. The scientific and cultural approach refers methodologically to those researches called "Piano Culture" (Faludi, 1997; Imbesi 1988), useful for marking the elements concretely functional and closely related to the governance of the territory. Another substantial issue is inherent in the increasingly structured detachment between data, models and projects, which is associated with sociological transformations and the disintegration of the community in favor of a liquid society (Bauman, 2000). In this regard, the proposal aims to activate a regulated agreement between citizens and administrations thus it projects the participatory path towards the construction of integrated projects through the translation and sharing of knowledge, needs, mutual commitments: knowing the past to try to read the future (Calvino, 2011, pp.14-22) and prefigure possible scenarios for sustainable development of the territory.

In this context, the value of the disciplines of representation becomes clear, a transdisciplinary result of the complexities of reading contemporary space and its meanings. The representation of the landscape then becomes the research field where it is possible to enhance the analytical capabilities of the graphic synthesis, that select, fix and compare the data, and the same research field is linked to the capacity and the structural essence of the design to simulate, evoke and design.

The place

Intra Tupino e l'acqua che discende/ del colle eletto dal beato Ubaldo,/ fertile costa d'alto monte pende,/ onde Perugia sente freddo e caldo/ da Porta Sole; e di rietro le piange/ per grave giogo Nocera con Gualdo.

In the XI Canto of the *Paradise* (45-48), Dante describes the geographical position of Assisi, and indicates the fundamental elements that characterize this important portion of the Umbrian territory and landscape. Although not directly naming it, (*l'acqua che discende*) the water that descends is certainly a periphrasis indicating the Chiascio, a river generated and descending along the Apennine slopes of Gubbio, while (*fertile costa d'alto monte pende*) the fertile high mountain slope hanging down, is Mount Subasio, on whose coast Assisi rises. The Chiascio route begins a little further north of Gubbio, more precisely in the territory of the municipality of Costacciaro, where the two branches of the source, the Chiascio Grande and the Chiasciolo, join to give life to the real river, which descends to Valfabbrica, where it finds an artificial barrier in a dam⁶, which forms a reservoir of water. Beyond Perugia, in Bastia

⁶ The executive draft of the barrier on the river Chiascio is drawn up on 20/12/1971 by Prof. Ing. Filippo Arredi, in the locality of Casanuova in the Municipality of Valfabbrica (PG). It was approved by the IV Section of the Superior Council of Public Works with Vote 656 of 19.07.1973. The barrier has a height of 72 m, a crown length of 463 m, for a volume of the measured 5.766.000mc. The reservoir has a total volume. 224 million cubic meters (of which 181 regulation), a length of 20 km and a lake surface 9 sq km. Vetturini, E. (1987). *La diga del Chiascio nel futuro dell'economia umbra*. S. Maria degli Angeli: Porziuncola, 1987.

Umbra the watercourse takes strength with the influx of the Tescio River, descending directly from Mount Subasio and flowing along the shoulders of Assisi, and then covering a long flat stretch, until it reaches Passaggio di Bettona where, after joining with the waters of the Topino, it reaches Torgiano and flows into the Tiber River.

The territory under consideration is denoted by a triangle at the top of which are the three urban polarities of Perugia, Assisi and Gubbio. These three settlements are historically connected by road infrastructures, which on the one hand coincide with the morphological design of hydrography, which from Chiascio reaches Tiber, on which a cycle-pedestrian path is juxtaposed to connect strategically all of Umbria. The most extensive is the Tiber cycle path⁷ followed by Magione-Perugia-Assisi⁸ and by Spoleto-Assisi⁹ which connects with the former Spoleto-Norcia railway (Cioci, 1997). To all these it can be added Gubbio-Città di Castello¹⁰ and Gubbio- Scheggia¹¹.

Two important paths that take the path of two Saints also cross the territory. The one with the greatest impact on the territory is certainly the "Saint Francis' way"¹², an itinerary accessible both by bicycle and on foot, which already connects Tuscany with Lazio, crossing Umbria: it consists of 13 stages, with a length of over 300 km. The first section is characterized by the crossing of the Tuscan-Romagna woodlands of the Casentino Park, where there is still an immaculate nature, and it is the most demanding part due to its continuous altitude jumps. The second part has fewer gradients, but has long flat stretches that displace along inhabited places. The other path retraces the steps of Saint Benedict¹³, starting from Subiaco, in the Sibillini Mountains, up to the Liri valley, crossing the nature of Umbria and Lazio.

The routes of Modernity superimpose on the historical paths¹⁴, such as the railway, the E45 highway, and today also the airport (Petrangan, 1996), the new road infrastructure that connects and projects towards the Marche¹⁵, the logistics plates (Bellini et al., 2010). However, a large territory remains that needs to rethink its function, reinterpret its role, reactivate new social relations, where it is central to juxtapose structural forms with a lighter system aimed at strengthening a slower network.

The Chiascio designs and connects an important portion of Umbria, a baricentric and central area of Umbria, for the greater concentration of citizens, tourists, productive activities, agricultural activities, environmental goods: crossing with its 60 km the territory of seven municipalities (Gubbio, Valfabbrica, Perugia, Assisi, Bastia Umbra, Bettona, Torgiano) which have about 265,000 inhabitants, almost a third of all of Umbria's population, lapping 200 poles of the Cultural Heritage and crosses four SIC-ZSC areas¹⁶.

⁷ The cycle path of the Tiber consists of 7 stages, reaching a length of 246 km. http://www.bikeinumbria.it/in_bicicletta_nel_cuore_verde_d_italia/it/itinerari/tevere/tappa_01.html

⁸ The cycle path that connects Magione, Perugia, Assisi, covers a length of 53.1 km. <https://www.routeyou.com/it-it/route/view/306421/itinerario-ciclabile/dag-5a-magione-perugia-assisi> The Perugia-Assisi tract is known as "Via della Pace".

⁹ The cycle path of Assisi-Spoleto consists of 2 stages, reaching a length of 52.7 km.

http://www.bikeinumbria.it/in_bicicletta_nel_cuore_verde_d_italia/it/itinerari/assisi_spoleto/assisi_spoleto.htm

¹⁰ The cycle path Gubbio-Città di Castello covers a length of 49.5 km.

<https://www.ciclistiamo.it/04-citta-di-castello-gubbio/>

¹¹ The cycle path that connects Gubbio to Scheggia covers a length of 12 km. <https://www.piste-ciclabili.com/itinerari/781-scheggia-troppola-santubaldo>

¹² <https://www.viadifrancesco.it/la-via-di-francesco-itinerario-del-pellegrinaggio/percorsi-a-piedi-itinerario-via-di-francesco>

¹³ <https://www.camminodibenedetto.it/percorso>

¹⁴ Bianconi, F. (2011). *Tracciati della modernità: l'evoluzione dell'Umbria attraverso un secolo di immagini* (Vol. 1). Foligno: Viaindustriae.

¹⁵ The state road 77 of Val di Chienti (SS 77) is an Italian state road that connects Foligno, in Umbria, to Civitanova Marche, in the Marche, for a total of 95 kilometers, bypassing the Apennine ridge to the Colfiorito Pass (826 m). <http://www.quadrilaterospa.it/>

¹⁶ Boschi del Bacino di Gubbio (IT5210013), Torrente Vetorno (IT5210011), Boschi e pascoli di Fratticiola Selvatica (Valfabbrica) (IT5210075), Colline Premartane (Bettona - Gualdo Cattaneo) (IT5210078) <https://www.minambiente.it/pagina/sic-zsc-e-zps-italia>

The complex interconnected landscape is enriched by the variety of historic settlements of great quality and attractiveness and by functional spaces for productive development; these are linked to the widespread urbanization that transformed Umbria in the post-war period. Modern materials (Bianconi, 2011), the result of an industrial production unconnected to the territory, juxtapose the historical enhancement of the territorial lithic resources: the stone (Sperandio and Zanardi, 2004), used for entire historical villages, the most famous one in Assisi, whose shades range from white to pink, to orange. The tuff¹⁷, material used for the construction of numerous rural buildings and some representative buildings of Bettona. The baked clay brick¹⁸, an element always present in the local tradition. The urbanization, even wild and widespread, interpenetrates in a high-quality environmental and natural context, where in particular the large parks emerge, that of the Sibillini Mountains¹⁹, famous already from the 15th century among travelers and explorers²⁰, and of Mount Subasio²¹, which rises almost isolated in a context characterized by a valley and hilly landscape, made even more famous by the Canticle of the Creatures of Saint Francis²². Among woods and natural areas, man has designed the rural territory with agriculture (Bianconi and Filippucci, 2018), with natural geometries shaped by plowed, tree-lined, divided and fenced lands, whether it be gardens or plots to be cultivated, regulating strips of woods, olive groves, vineyards and bare fields with camporile oaks.

The representation stands as an emblematic testimony of the qualities of the landscape but also of the "bisociation that recalls Don Quichotte's irony, founded on the endemic double meaning of the continuous comparison between reality and fantasy"²³. There is a courtly landscape, in which the protection can also lead to immobility tending to embalming, while the rest of the territory, which is far from the spotlight and does not fall within the sphere of the "romantic" interest, and therefore may be subject to responding to different functional needs. Some places, in fact, do not seem to have been affected by the passage of time. This is evidenced by the frescoes by Benozzo Gozzoli with the Preaching of Saint Francis to the birds²⁴, in which the careful plowing of the fields is emphasized with a play of intertwining between the square mesh of the fields downstream, to the routes of the Roman centuriation. In addition, as Pintoricchio shows us, in the frescoes of the Baglioni Chapel²⁵, in the Annunciation, it reproduces the fenced gardens with canopies, widespread presences in Umbrian urban and peri-urban contexts. Then there are some deeply transformed places²⁶, starting from great public works, through the renovation of hydraulic systems, intensifying the road network and strengthening the railway network. Since the late nineteenth century, Umbria has gone through a process of modernization that remained unfinished. The Umbrian landscape has undergone a profound transformation since the early twentieth century²⁷, the main causes of which are linked to the abandonment of traditional activities, in particular

¹⁷ Fatichenti, F. & Melelli, Laura & M., Santanicchia & B., Torquati & S., Venanzi. (2015). *Forme e colori del paesaggio umbro. Per un approccio interpretativo multidisciplinare.*

¹⁸ Ibid.

¹⁹ <https://bikepacking.com/routes/bikepacking-sibillini-italy/>

²⁰ Santarelli, G. (1974). *Le leggende dei monti Sibillini. Montefortino: Voce del Santuario Madonna dell'Ambro.*

²¹ Rambotti, F. (1986). *Il parco del Monte Subasio: ambiente fisico e umano* (F. Rambotti, eds.). Santa Maria degli Angeli, Assisi: Porziuncola.

²² Bernardini, A. (1926). *Il Cantico delle Creature di S. Francesco d'Assisi*. Lecce: R. Tipografia editrice salentina.

²³ Farinelli F. (1991), *L'arguzia del paesaggio*, in "Casabella", 575-576, 1991, pp.10-12.

²⁴ F., Fatichenti & Melelli, Laura & M., Santanicchia & B., Torquati & S., Venanzi. (2015). *Forme e colori del paesaggio umbro. Per un approccio interpretativo multidisciplinare.*

²⁵ Bemazzi, G. (2000). *Pintoricchio a Spello: la cappella Baglioni in Santa Maria Maggiore*. Perugia: Silvana editoriale.

²⁶ Bianconi, F. (2011). *Tracciati della modernità: l'evoluzione dell'Umbria attraverso un secolo di immagini* (Vol. 1). Foligno: Viaindustriae.

²⁷ Ibid.

of the agriculture, in favor of a transfer to the cities and the possibility of working in the industries. This change brought the creation of new urban areas (road infrastructures, aqueducts, large civil works), which brought a breath of modernity, and added very important new signs.

The case study analyzed shows a series of key issues of governance and development of the territorial of many landscape realities in the Italian context. Despite the big names, places that attract millions of tourists such as Assisi, Perugia and Gubbio, the theme of greatest interest for its greater spatial and social extension is that of "minor landscapes", places that are perhaps not a postcard but that represent the main asset of a patrimony however characterized by a diffused quality of life.

The issues put in place want to face the cultural transformations of the contemporary age, the theme of the image, which goes beyond territorial marketing but connotes a way of life of our information society, but also to the new value of sustainability. In reality, this is a single matter, or in any case two interdependent approaches, which are contextualized in a period of great transformation of the existing political, administrative, economic and management models.

Project Proposal

The development of the proposal is based on the following themes:

- WP1 _ PEDESTRIAN AND CYCLE INFRASTRUCTURE

In the reinterpretation of a contemporary territory, a new role can be provided by light infrastructures, the cycle paths, the paths, the horse trails, the old disused railway tracks, etc. ..., which already exist on our territory. An opportunity to involve a large portion of the territory with the aim of regenerating it, activating recoveries, employment, identity, dignity, sociality and urbanity, through the Chiascio which becomes a file rouge to mend the beauty of places and stories today separate and not known at all. This is the starting point from which to start mending a fragmented territory, aimed at offering new forms of economy, employment and culture through which we can found the new community.

The analysis of all these tracks constitutes one of the qualifying criteria of a Green Community, as they contribute to a low impact and high local performance mobility. However, currently these axes are not able to indicate a defined system: they are disconnected, do not dialogue, often the transition from one to the other is complicated, and moreover, to date some of them are not even complete. Living the landscape through slow mobility changes our perception.

In this regard, the route starts from the cycling mobility guidelines²⁸ where the technical characteristics to be respected are specified, such as the minimum width (Chapter II article 7 - 1.5 m for a direction of travel, 2.5 m in the case of a double), the slope (M.D. 557/99, article 8 - maximum slope 5%), materials (M.D. 577/99, article 12 - does not specify materials, but indicates that these must not cause disturbance to cyclists), design speed and radius of curvature (the ministerial decree is limited to providing the average speed of cyclists between 20/25 km / h, minimum bend radius is 5m), signs (Highway Code Legislative Decree no. 285/1992 DPR no. 495/1992) .

The natural route of the Chiascio river extended about 60 km becomes an opportunity to connect and redefine the wider system with a connection between the two already known cycle paths, that of the Tiber and the one that connects Gubbio to Città di Castello. It wants to also to reach and enhance some tracks of the Saint Francis's way, the most important route that crosses Central Italy. The intent

²⁸ Legge del 28 giugno 1991 n. 208 : "Interventi per la realizzazione di itinerari ciclabili e pedonali nelle aree urbane" e il D.M. 557/1999: "Regolamento recante norme per la definizione delle caratteristiche tecniche delle piste ciclabili", oltre alla Legge 19 Ottobre 1998 n. 366: "Norme per il finanziamento della mobilità ciclistica".

is precisely to intercept users of these tracks and propose an alternative route, made up of places of extreme beauty, but neglected and not valued and even forgotten. In the areas where it will be allowed, the path will be accompanied by avenues of trees of different species, especially fruit trees such as cherry and apple trees, so that after the suggestive flowering period, it is also possible to obtain an economic gain by selling the fruits. The trees, in addition to drawing a continuous path, also represent a biodiversity corridor that can connect several green areas already present on the territory.

To facilitate the preliminary project and the feasibility study, the route was analyzed through the study of 10 sections, made in correspondence with key points of particular interest, following the directives provided by the various municipalities, checking whether the route could cover existing sections or if it was necessary to foresee new interventions.

It has emerged that, by reducing interventions to a minimum, it is not possible to make the path both pedestrian and bicycle in its entirety. For this reason, the sections in which both subjects co-exist are those included within natural areas, in which it is possible to have a greater interest in being in contact with nature, and those within inhabited centers (sections 3-7-8-9-10). The remaining sections mainly have the function of moving from one place to another, certainly easier movement by bicycle.

From this first study, it has been verified that, on a dimensional level and with a minimal intervention, the already existing roads allow reserving a portion for cycling use. Obviously, the problems must be faces on case by case. There are cases (e.g. section 4) in which the space adjacent to the road is very large and in a state of neglect, in which the positioning of a cycle infrastructure allows to redevelop an industrial area dedicated to street art. On the contrary, there are sections²⁹(e.g. section 5), albeit short, in which a more important intervention is required, either on the site, to enlarge the roadway, or on the road network to allow the safe transit of vehicles and cyclists.

- WP2 _ AGRO-ECOLOGICAL INFRASTRUCTURE

Agriculture has always characterized the quality of the Umbrian landscape, an instrument of protection also of the environment and the territory. The proposal aims to innovate the territorial governance processes in order to promote rural development in a new relation between city and countryside defined through the construction of strategies focused on food. At the center is agriculture and its multifunctionality, its role and effects on the landscape, society, economy, environment and health, whose enhancement substantiates the sustainability of our territory. The definition of new processes and services, fruit of the strengthening of the cooperation between agricultural enterprises at regional level, is an innovation of method, and is configured as a bottom-up approach, which finds the connecting element between public and private in the research aimed at determining new models. It is primarily a question of intercepting consumption, favoring a proximity market for the benefit of health and the environment, social cohesion as well as economic development.

In the heart of Umbria, among the most structured and attractive urban centers, a large food Hub could then arise, aimed at providing services to citizens, promoted by public bodies, capable of innovating in places and procurement rules, as well as being tow with the purchase of food related to the services they manage. The promotion of a proximity market then becomes an identifying element capable also of strengthening the attractiveness of the places, enhancement of the resources of the territory according to the dictates set by the green community, a concrete tool for promoting the landscape.

This vision is linked to the proposed infrastructure: through an analysis of the accommodation facilities

²⁹ One of the stretches in question, is the SP250 in sterpeto locality, identified as the cycle path of the Via di Francesco. The route is not very busy with cars, but at present, it does not allow the safe coexistence of both users.

and active farms³⁰ present in the Umbrian territory, it emerged that less than 10 km of the route (the maximum distance that, according to proven analyzes, a cycle tourist is willing to travel away from the main itinerary) there are over 500 companies and they will be assigned a key role for the functioning of the project. In this vision, farmers are associated with the role of protagonists, on the one hand assuming their central interest in the enhancement of proximity logics, on the other, noting the care of the landscape and the territory already implicitly extended by their activity. Therefore, it is not just a matter of physically welcoming and hosting the user, but it also does essential work for the infrastructure management community.

For a better and correct management of the work, this is entrusted to farms and accommodation facilities, which, taking care of a small part of the route in correspondence with their business, will be able to benefit from both the income from the users who use the infrastructure and the goods produced in that part of the route.

- WP3 _ DIGITAL INFRASTRUCTURE

The systematic nature of the territories, the relationships and networks between citizens, from logistics to marketing, pass today through the storytelling of the network and the virtual. The proposal, while not focusing on tourism, can only promote and favor the attractiveness of places and their functionality using virtual systems, certainly connected to previous themes. It is therefore a matter of refining common instruments and themes, capable of involving the various administrations, enhancing their previous activity and the resources present. Still with the support of the activated community and instrumental innovation, the theme of maintenance of these infrastructures is linked to the participatory strategy and the objective of channeling interests towards common goods, with the landscape still becoming the central element of the path of enhancement.

The smart city theory is based on its ability to do more with less. Our territories, our society in general, scarcely manage to promote cooperation systems, new business models, ICT technologies to protect and redesign networks and relationships. The whole segment of the small industry, so strong in the connective basin, can find great advantage from a redesign of the strategy of exploiting resources based on their optimization. The great evolutions in ICT radically and quickly transform the rules and logics of production. The fields of application of this theme must emerge following the involvement of the community and stakeholders. However, by way of example, in this logic the energy optimization paths in their exploitation of renewables can be ascribed, as well as the enhancement of secondary raw materials, with an innovation in the theme of waste and a transformation, also cultural, of the potential inserted in these resources. It is still a matter of intervening in those elements denoting the landscape. These efficiency paths do not forget the value of the images in communicating the connection between productivity and territorial development.

- WP4 _ PARTICIPATIVE PROCESS WITH CITIZENS INVOLVEMENT

The role of the research is functional to characterize the participatory path with structured methodological references, not rigid but associated with the possibility of a flexible and adaptive process development, congruent with the choices agreed together with the local community. For the governance of landscape-sustainable development processes of territorial requirements, it is therefore essential to identify actions for the active and proactive involvement of all social actors in order to develop collective solutions and avoid the emergence of conflicts. At the same time, the need arises for the drafting of an integrated

³⁰ The list of accommodation facilities is made available by the website of the Digital Agenda of Umbria (<http://dati.umbria.it/dataset/strutture-ricettive>); the cases were then georeferenced with the GIS, relating them to the territorial elements of interest

strategy in the various sectors that participate in the enhancement of the territorial assets, with the aim of including the community in this path to increase the sense of belonging and care. The proposal aims at creating a direction capable of coordinating far-reaching interventions regarding the safeguarding and enhancement of the territory and landscape, and of identifying, in a concerted manner, territorial development objectives through the involvement of economic, social and institutional actors present on the territory and the sharing of commitments by all the partners involved, public and private.

- WP5 _ PUNCTUAL STRATEGIC INTERVENTIONS

We want to promote an integrated and transdisciplinary approach: the different municipalities, of such infrastructure, have shown multiple interests to enhance punctually strategic places and integrate the development in their territorial reality into the proposal. Among the various proposals, we can highlight as a paradigm the design of an electrified soft mobility vehicle, capable of providing additional services and of monitoring both the external environment greatness and the parameters related to the use of the vehicle from the user and his health. This vehicle combines with an innovative data collection and analysis platform strongly oriented towards the creation of use models based on artificial intelligence techniques, an instrument of social progress and a point of contact between the territory and the man who lives it. The importance of data hinges on the vision of a widespread Citizen Science, the promotion of local territorial development, the enhancement of landscape assets, cultural processes of awareness and participation on the contemporary challenges of sustainability, education and for a healthy lifestyle.

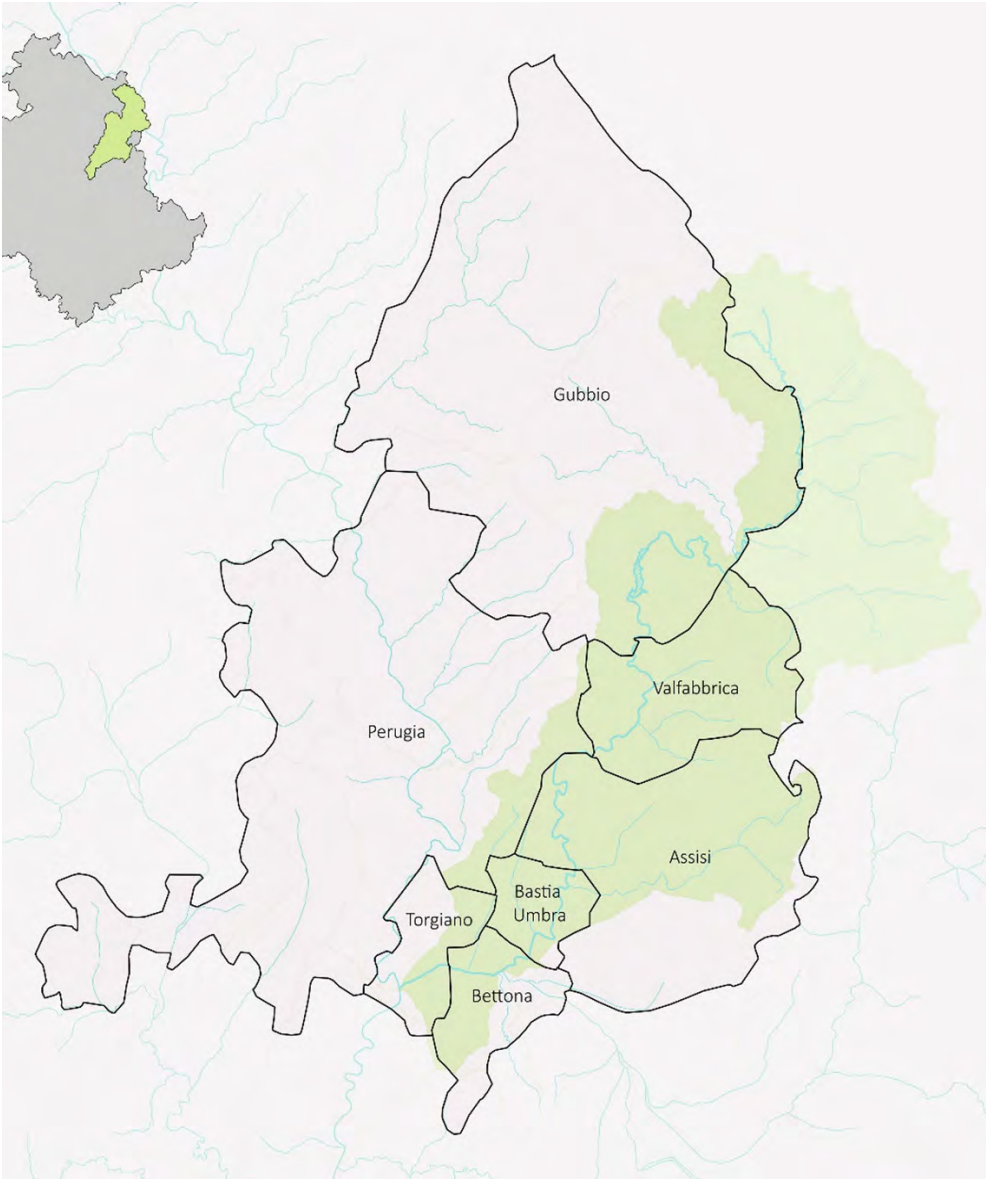


Fig. 1 Chiascio catchment area

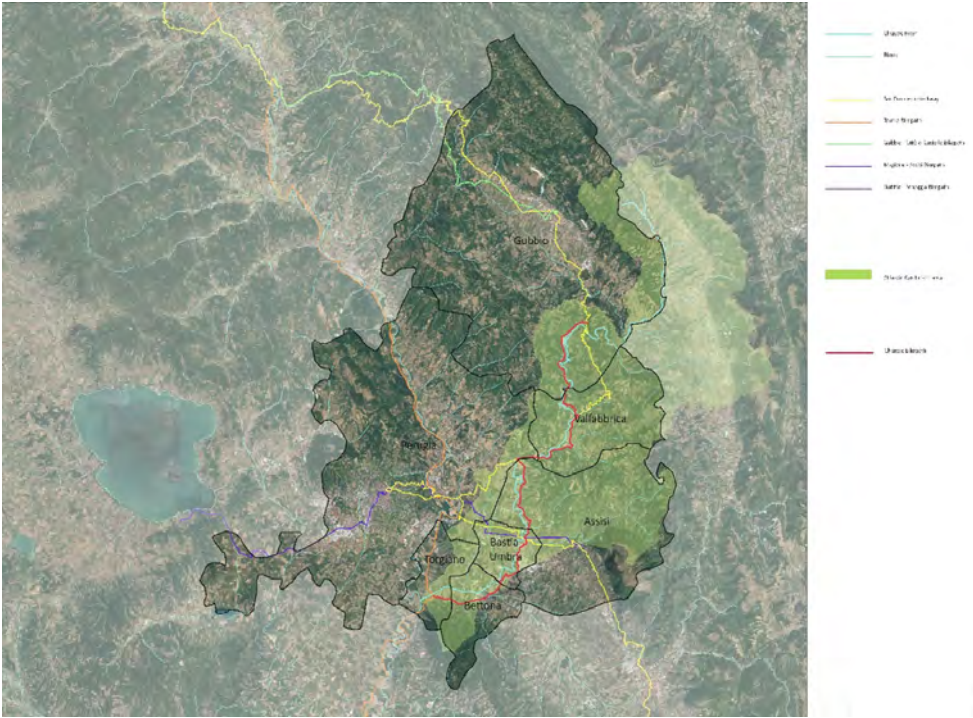


Fig. 2 The main cycle paths



Fig. 3 Landscapes crossed by Chiascio

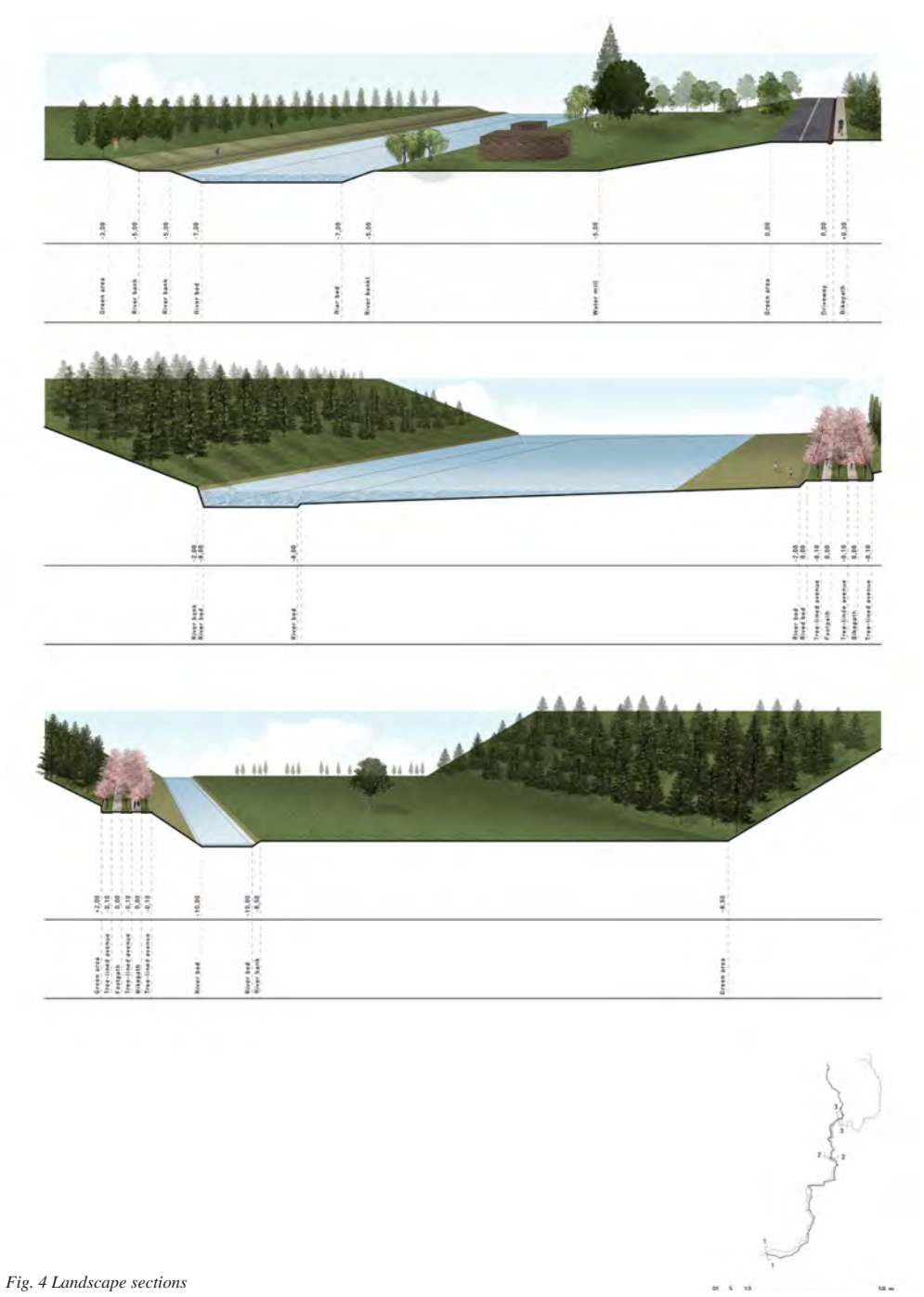


Fig. 4 Landscape sections

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Complexity, coherence and distinction: piet oudolf and the design of spontaneity inspired by nature

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Abstract

In the last century, an increased attraction to the representation of the spontaneity of nature, brought to a cultural change in designing green spaces, raising the differences between a more controlled design and a spontaneous one - naturalistic or apparent.

From the word ecology to the term friche, used by Gilles Clément to designate those liminal and residual areas, abandoned by human but not by nature, landscape designers achieved awareness and interest for these spontaneous and unique places, fascinating and disturbing at the same time.

In this context, Piet Oudolf, a Dutch landscaper and one of the leading exponents of designing by nature, has been able to show this spontaneity in his projects, without sacrificing the intention of the design itself, finding a balance between structure and spontaneity.

How to design spontaneity? What are its rules?

After going through the most significant stages of planting designing by nature, the aim is to understand the keys used by Oudolf to mediate between order and disorder, what is managed and what cannot be controlled.



Fig. 1 Piet Oudolf - Lurie Garden Millennium Park (Chicago, IL, USA), 2004, photo by Catherine Tighe [ggnltd.com]

Abstract

Nell'ultimo secolo, la maggiore attrazione verso la rappresentazione della spontaneità della natura, ha comportato un mutamento culturale nel design delle aree verdi, alimentando le differenze tra una progettazione ordinata e controllata e la spinta verso una spontaneità naturale o apparente.

A partire dalla parola ecologia fino al termine friche, coniato da Gilles Clément per indicare quei luoghi liminali, residuali, abbandonati dall'uomo ma non dalla natura, il paesaggista ha acquisito consapevolezza e interesse per la spontaneità di tali luoghi meravigliosamente unici, creatori di fascino e disagio allo stesso tempo.

In questo scenario, Piet Oudolf, paesaggista olandese tra i massimi esponenti della progettazione ispirata alla natura, ha saputo proporre nei suoi progetti una porzione di quella spontaneità, senza tuttavia rinunciare alla volontà dietro al progetto, in un perfetto equilibrio tra struttura e spontaneità.

Ma come riuscire a disegnare e progettare la spontaneità? Quali sono le sue regole?

Dopo aver percorso le tappe fondamentali dell'evoluzione di un design del verde ispirato alla natura, l'obiettivo dell'articolo è quello di comprendere gli elementi chiave coi quali Oudolf ha saputo mediare tra l'ordine e il disordine, tra ciò che deve essere gestito e ciò che invece non può essere controllato.

Introduction

Essence of spontaneity

Landscape designing is a peculiar creative process in which a living and mutable medium is involved: plants. In designing a garden it's absolutely essential to be aware about their movement, behavior, attitude, needs and, above all, the potential generated interactions, both each other and their surroundings - humans included. Never as in landscape designing, indeed, the relation between human and nature reveals its prominence; an apparently so small gesture, like selecting a plant and defining its place in the project, conceals the propensity to reflect upon the role of nature.

Planting design, as a consequence, brings to - deliberately or not - concretize in the project a whole set of values, definitions and significances that the essence of nature assumes according to specific cultural influences: gardens are the clear expression of the culture that generated them.

Not surprisingly, history of gardens could be defined as the history of symbolization of the idea of environment (Zagari 1988) and nature itself; however, this idea has made so many changes depending on historical, political, geographical and - obviously - cultural factors, that even the definition of what is described as "nature", "natural" or "naturalistic" is still widely ambiguous and unclear (Kingsbury 2004).

Currently, in the contemporary approach to landscape design, when we refer to "natural" or "inspired by principles of nature" generally we evoke the concepts of "ecology" and "sustainability".

Especially since early 1970s and 1980s, for dealing with the challenge to reduce the higher management costs for public green areas, it was required to embrace new landscape designing.

alternatives, less focused on mere aesthetical and horticultural criteria, but mainly watchful to maintenance and resilience (Kühn 2006). Climate change and weakness of urban landscape have made this require a kind of imperative, emphasizing the relevance to consider, along with maintenance, the environmental cost (Neonato 2019).

What emerged was that spontaneous vegetation, especially the one in marginal context of urban areas, could be the key for the upcoming planting design: due to its complexity and biodiversity, spontaneous

vegetation is naturally auto-regenerative with low need of additional inputs of nutrients, water and pesticide - reducing thus management costs; it represents a potential habitat for other organisms and, in some cases, has cultural evidences for local people (Hitchmough e Dunnett 2004). However, it must be said “ecological approach”, however, includes several ways to approach to nature, not always so closely linked to ecology, but sometimes, just labeled as one, so influenced by commercial pressures, fashion consciousness and a simple desire to be on a bandwagon (Kingsbury 2004).

At this point, a question arises: if spontaneity itself means the quality of not being planned in advance¹, therefore how might it be possible to make a design - hence, a planning - of it?

One of the possible solutions might be found in the work of the Dutch landscaper Piet Oudolf.

Methodology

In order to understand the Oudolf mediation to the controversy between the essence of spontaneity and its design, between order and disorder, it's fundamental to know the evolution of the concept of spontaneity itself. For this reason, the research has explored the evolution of the idea of spontaneity throughout those design expressions and experiences occurred in history which had an influence for the work of Piet Oudolf. This journey through the idea of spontaneity doesn't end with Oudolf, obviously, but it continues further, yet, it's not the aim of this research to explore all those practices mainly focused on ecological criteria and less on designing.

This study is about the fine line where contrast between order and disorder is more vibrating.

After exploring the evolution of the concept of spontaneity and the three main ways adopted to design it, we focused on the features emerged from observation of nature, finding out that, according to Oudolf, disorder could be just another kind of order. Spontaneity has, indeed, its own defined structure, which is possible to emulate in order to evoke the appearance of wildness.

Finally, the research analyses the way Oudolf succeeded in using the three previous methods as one, investigating the distinctive marks of his design work.

What is worth remembering is that it's impossible to abstract the design - as drawing - from the planting design, which means choosing and placing a living plant, because one design is essential to the other. Using Oudolf own words, plants are the material of design and the drawings, the tools (Oudolf 2014).

Before spontaneity

History of the idea of spontaneity in landscape design seems to follow a chronological development often defined by an overlap of apparently slight different conceptual views not depending entirely on the historical timeline, rather on geography, politics and culture (Woudstra 2004) resulting in a seamless narration.

Nevertheless, as Woudstra himself suggests, discussion about spontaneity might begin with a renowned interest in nature after Enlightenment. It supported a new vision of environmental, resulted in the born of the word “Oekologie” invented by Ernst Haeckel in 1866 and followed by an attempt to strongly imitate nature - especially in botanical garden - according to a scientific approach based on geographical and physiognomical characteristics of vegetation; afterwards, garden designers and landscape architects, such as Gertrude Jekyll (1843 - 1932) and Willy Lange (1864 - 1941) tried to explore and

¹ Definition by dictionary.cambridge.org

investigate the aesthetic of a “naturalistic” approach to planting design, sharing the attitude to not imitating nature but trying to become well acquainted with her moods and ways (Jekyll 1914), yet reaching divergent outcome for design and criteria. Similar intent could be found later in Roberto Burle Marx (1909 - 1994) and its determination to enhance the spontaneity and wildness of Brazilian nature, highlighting its strong cultural and national value in his “picturesque” projects (Zagari 1988).

Around the same period, Richard Hansen (1912 - 2001) studied planting association to develop a naturalistic and “wildlife-friendly” style in designing public spaces (Outdoor e Kingsbury 2013) and, due to his wide knowledge of plant community system, seems to be considered the father of a scientific approach to spontaneous planting (Dunnett 2004).

Meanwhile, the Dutch landscape designer Mien Ruys (1904 - 1999) started to use a prairies-like style, using perennials in her informal garden in contrast to more architectural clipping plants. Her work influenced the following generation of landscape designer, including Piet Oudolf (Sautot et al 2012).

Wolfgang Oehme (1930 - 2011) was a German-American landscaper who widely explored the use of site-specific randomized mixes, letting nature to carry out its work (Oudolf and Kingsbury 2004).

In the last decades, modern movement started to focus on the divergences between human and environment, cultural and natural, spontaneous vegetation and anthropic urban landscape: in 1970s, Louis G. Le Roy (1924 - 2012) influenced a whole generation of landscape architect at the time through his ideas of bringing awareness of the importance of spontaneous vegetation to the urban life (Kühn 2006). Although not specifically mentioned in the reference framework of the influential expressions for Oudolf, it's impossible not to name in this context the contribution given by the French landscaper Gilles Clément. The leitmotiv of his work, indeed - divulgative and experiential as well - is about the controversial relation between order and disorder. He states that the so-called disorder in spontaneity of nature is nothing but another different kind of order we have not even considered entirely as a possibility yet. Probably, it's judged as disorder - or even dangerous (Clément 2011) - just because it's far from our rational concept of order, made by grids, defined shapes, stillness and control, whilst - on the opposite - the order of spontaneity involves concept of fluidity, change and dynamic (Dunnett 2004). Clément starts his exploration from “friche”, those unprocessed and residual spaces, abandoned by human but not by nature, which made them dynamic and ever-changing places.

Enhanced nature

Before going further, it's fundamental to anticipate and clarify a crucial aspect of the work about spontaneity of Oudolf: it's not entirely ecological, at least not according the common sense - more a political philosophy than a scientific approach (Kingsbury 2004).

Actually, Oudolf's aim is not to reproduce natural habitats but to realize an “enhanced” version of nature itself, intended as recreating the vision of what we suppose or feel to be natural - or naturalistic - even if, basically, artificial. This should mitigate that little tolerated feeling generated by spontaneity and its “disorder” which causes what Clément call “décalage”: the sense of a total comprehension at all but, at the same time, to not fully get everything figured right.

Designing spontaneity

What emerges from the previous brief historical preview is that, since the beginning of the experiences concerning design of spontaneity - both aesthetical and ecological - the cultural approaches have been several in defining what is the essence of nature and how to represent it.

Since, as mentioned in the Introduction, a garden is the expression of the culture that generated it, so it

does its design.

Depending on the different approaches analysed, it's possible to identify three main graphical methods of representation based on the key elements involved:

- Blocks design: plants - often monocultural - are represented in group and placed side by side according to juxtaposition of aesthetic features like foliage texture, color or structure (Fig.1a)
- Drifts design: an evolution of blocks design; shapes are more complex and sinuous, to strongly imitate the complexity of spontaneous pattern and arranged in order to be seen and enjoyed from various angles in different seasons (Fig.1b)
- Symbol-based design: it's a highly structured approach focused on interactions and movement of each species in order to simulate the wild pattern of spontaneous vegetation, rather than the visual beauty at all (Fig.1c).



Fig. 1 Designing spontaneity by Blocks, Drifts and Symbol-based design;

a- Blocks: Roberto Burle Marx - Study painting for Jardim Palácio Capanema, 1938

b- Gertrude Jekyll - Plan for iris and lupine borders, Colour scheme in the flower garden, 1911

c- Richard Hansen - Basic components of Planting, Design, ecology and management of naturalistic urban planting, 2004

Each approach claims to reproduce an abstraction of the pattern - actually, the cultural vision of it - found in spontaneity. Blocks and drifts design suggest a picturesque and very attractive method. It gives priority to the visual issue, creating naturalistic schemes - drifts more than blocks - thanks to soft and intermingled edge. However, groups of plants are distinct and - in standard condition of maintenance - interaction between them are limited, decreasing the sense of spontaneity: a static garden, where each plant has its own place.

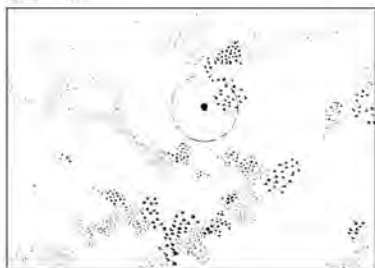
On the other way, the symbol-based design finely describes dynamic of plants but it's often so complex and formulaic that, in order to guarantee the exact realization of the design, the designer itself should be the maker of the garden as well or should work closely with the client, or, even continue to work on both the garden and the design over time. Urs Walser, former Director of the Hermanshof garden, notes that: "designing of a planting is ideally a process...the best situation is when one can continue to develop a planting, making changes, developing nuances, making additions, taking some plants away and always making further corrections. This happens when one can look after plantings over many years" (Kingsbury 2004).

In order to follow the evolution of a spontaneous designed garden means - ideally - continuously implementing and upgrading its design (Fig.2)

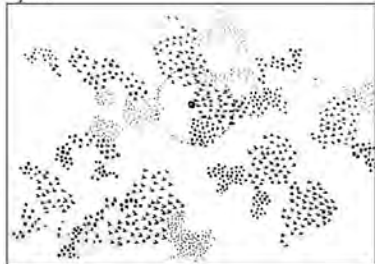
September



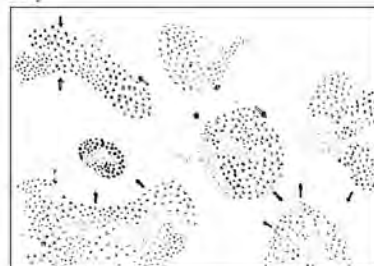
October



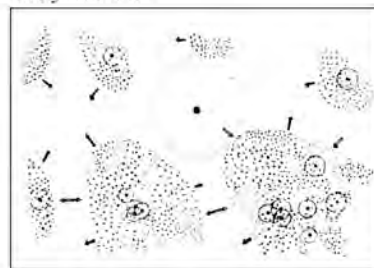
April



July



Two years later



Several years later

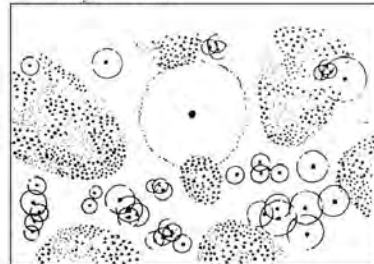


Fig. 2 Gilles Clément Design experience of a garden in movement from bare ground during years

Order of disorder

As seen before, the natural disorder could generate several sensations, both terrific and terrible, because spontaneity is but a cultural notion influenced by different factors.

The paradox - even called the enigma, how Kingsbury notices - is that while much of humanity loves nature, people do not want it untrammelled in their garden, parks or urban spaces.

Nevertheless, Oudolf's works seem to be widely appreciated (Kingsbury 2004, Sautot et al. 2012).

The question is: how to generate the sense of nature without making it unreadable for people, hence, disturbing? According to Oudolf, the answer is designing an order that mimics disorder or - in other words - making disorder understandable. People should identify a familiar look - yet wildly - and perceive a legible structure.

Since a design could not predict all the natural events will stress and change the garden (pests, wind, snow, etc) for achieving the purpose of controlling disorder, a wide knowledge of plants and their transformations is crucial.

This does not mean that control is overtaking the nature, nor it's opposite but there's a balance derived from the knowledge of nature and the acceptance that in planting design not everything can be controlled. This means that gestures of this kind of design are but an input - however - based on knowing deeply how some species will spread, the way other species will transform in dying revealing a new surprising architecture, or the capacity of other species to change a soil and which are the consequences; but - always - being aware of the mystical feature of a similar design, where it could not - must not - designed everything (Oudolf 2014): the arrival of a deep frost, the real competition generated between plants grouping and how they evolve, or the way the light changes foliage are part of the beauty of this kind of design.

Consequently, in order to recall the appearance of spontaneity, it's necessary to know its rules.

Complexity, coherence and distinction: rules of spontaneity

Observing a natural plant community our interest goes through those contrasting elements - interesting in shapes or color - that stand out among a less defined mass of plants, hardly appreciable for its singular species, yet perceived as a composition of intermingling species.

Suppose to look at a mostly yellowish prairie, what we notice first are those few emerging flowers. Then, we perceive the prairie as a single entity, rather than the sum of its plants, even knowing - even feeling - the sense of diversity and complexity of the whole community (Fig.3).

As Oudolf and Kingsbury state: complexity, coherence and distinction.

Within this observation, we are able to perceive and read a potential structure that make the vision clearer. From this point on, Oudolf tried to capture this structure for synthesizing in a methodology: a set of approaches, suggestion and elements.

- Subconscious: since most of people has no specific knowledge about plants, the key is to communicate to their subconscious, selecting those groups of plant which are culturally recognizable and evoke - not necessarily represent - a wild or semi-spontaneous habitat;
- Hierarchy: to make people able to understand disorder, the structure has to be clear, using a hierarchy of plants selected and grouped in order to simulate the perception of nature described above (Fig.4);
- Structural or Primary elements: high-impact plants which give life to the backbone of the project;
- Mass or Matrix: low-impact plants which are used to make contrast with structural one, giving the impression of a sort of backdrop;

- Scattered elements: the truly randomized plants, they do give a real sense of spontaneity, scattered all over the garden; a richness in Oudolf's design;
- Repetition: repeating plants - both in groups and individual - is useful to produce rhythm and fluidity, but above all, it gives to the garden a sense of coherence (Fig.5);
- Layering: the sequence narrated by nature itself and, at the same time, the one led into the design (Fig.6);
- Physical: considering in designing the suggestion of the tridimensional layers emerged in observation of nature (for example: the upper covering trees, at the bottom of which are smaller trees and shrubs and lower lie the groundcover and herbaceous plants);
- Diachronic: the essential ingredient in landscaping, it describes the chronological sequence of the plants transformations and events, suggesting how to plan the different stages of a garden (not only dictated by natural season but also by the realization of the garden itself, such as, for a park, the opening to the public);
- Design: the representation of all the previous points is - literally - made by layering; using a juxtaposition of tracing paper (Fig.7);



*Fig. 3 Complexity, coherence and distinction: a flowering prairie in August with an emerging pale purple *Physostegia virginiana*, photo by N. Kingsbury, in *Planting, a new perspective*, 2013*

In this structured design, it's worth remembering that an element of true spontaneity is always considered and it's part of the actual design, even if is the one not always designed: the arrival of some wildflower, how the self-seeding species propagate and liberally spread, the not-to-remove dry species that reveal an interesting structure in their dormant period.

These are not drawn here, but they are known (Oudolf 2014)



Fig. 4 Hierarchy: P. Oudolf - design sketch for Palais de Tokyo, Paris, 2013, image from "Compositions, in Journal of Landscape Architecture", 2014

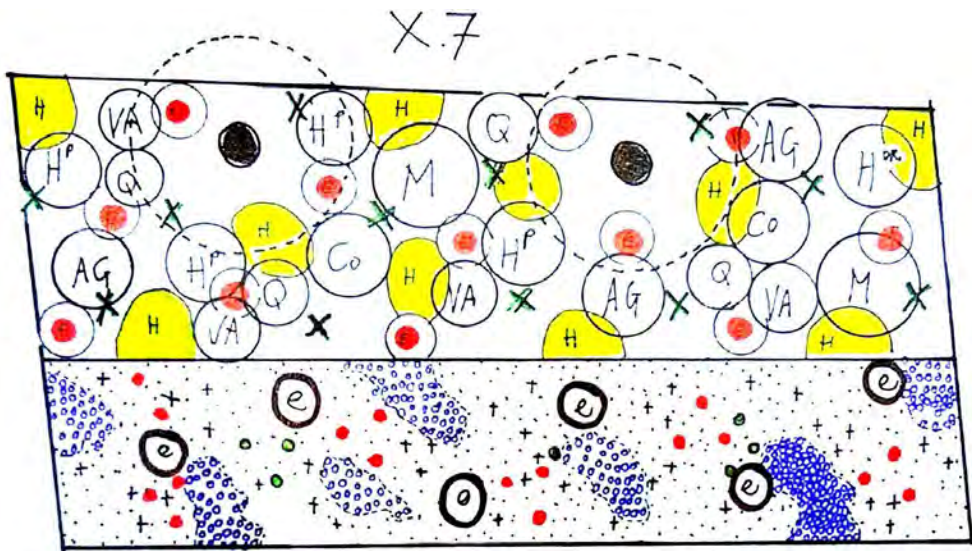


Fig. 5 Repetition: P. Oudolf - Planting design for Westerkade (Rotterdam, Holland, image from "Planting, a new perspective", 2013)

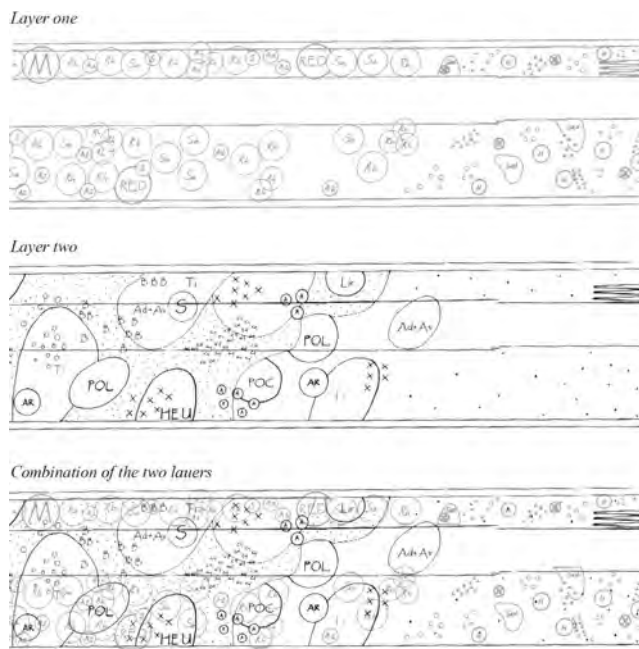


Fig. 6 Layering: P. Oudolf - Sections 26-27 of the High Line (NY, USA), from "Planting, a new perspective", 2013 and the combination of the two layers

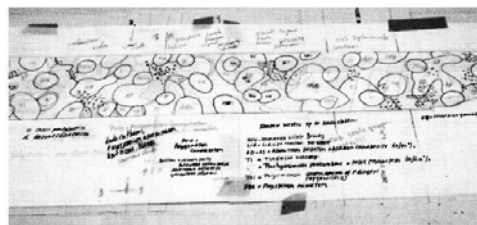
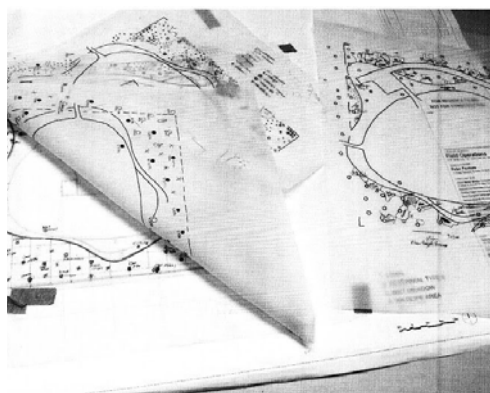


Fig. 7 Layering: P. Oudolf using tracing paper from "Planting, a new perspective", 2013

Conclusion

Spontaneity does not mean disorder, it's just a kind of order we are not able to understand. Nevertheless, it still fascinates us.

Spontaneity is strictly linked to ecology, even its representation could not be ecological in the way we mean.

From these paradoxes, Oudolf managed to make disorder a bit more readable - hence, appreciable - exploring and trying to understand the rules of the natural order for designing them, combining culture and nature.

As seen, the balance between what is planned and what cannot be controlled can be reached just achieving a wide knowledge of grouping plants, which means knowing their survival strategies, predicting their transformations and enhancing their attitude.

Oudolf seems to have found - thanks to the work about spontaneity of his forerunner - a distinctive method to design a well defined structure that allows, at the same time, plants free to express their inclination as into the wild; a method constantly evolving.

This structure is a mediation between order and disorder but also between drifts or blocks design and symbol-based design, composed as well by groups of primary plants emerging in a matrix of mass plant in which scattered elements evoke even more the appearance of spontaneity.

What does really natural mean? What is spontaneity? The freely growing plants in those human-influenced friche? A botanical garden which reproduces a specific habitat? A garden that evokes the appearance of spontaneity?

Order and disorder are but a misleading illusion.

The sign

In Oudolf's design, the drawing of plants is a multilevel narration tools, made by the living material - plants - and its representation - the sign.

Using his own words (Oudolf 2014), indeed, the plants and the several ways they are designed show the contrast between surfaces of groundcover, the repeated volumes of perennials, and the punctuation of shrubs. They show the rhythm of spaces in between. They show structure and spontaneity.

The marks for different plants are abstract—a screen of dots, a solid point, a thickly-outlined letter—and become visual notes of how each species works with an adjacent one to define a whole scheme. A single drawing is simple but layering builds both complexity and clarity. The drawings are the image of the planting;

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Food as a means of change for cities and landscapes

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Abstract

European and global policies are increasingly moving towards new frontiers of sustainability, innovation and social inclusion. Many of the same 2030 sustainable development goals (SDGs) promoted by the United Nations, to which should refer all planning for the future development of cities, focus on urban and landscape quality and land-use, agriculture, soil, food, sustainability, management waste, alternative energy, climate change, social inclusion, cultural diffusion and innovation in businesses. Although the international debate has legitimized the importance of the relationship between food, territory and city, in many countries – in particular, in the Mediterranean Area – food and nutrition (combined with heritage and patrimonial identity) are fundamental and recognized elements of culture, but also of economic development. In cities, the majority of those consumers whose individual choices are decisive in defining the evolution of the food systems - associated to the urban and territorial development - are already concentrating, and will increasingly concentrate. The next step means understanding how the holistic agro-cultural and social systems intercept spaces, actors, resources and dynamics present in a city, moving from the food system – understood as a chain of activities related to the production, processing, distribution, consumption and post-consumption, including related institutions and regulatory activities (Pothukuchi, Kaufman, 1999) – to a new kind of agro-urban integrated system of where innovative food and multi-scalar approaches are combined.

Abstract

Le politiche europee e globali si stanno muovendo sempre più verso nuove frontiere di sostenibilità, innovazione e inclusione sociale. Molti degli stessi 2030 obiettivi di sviluppo sostenibile (OSS) promossi dalle Nazioni Unite, a cui dovrebbero fare riferimento tutte le pianificazioni per lo sviluppo futuro delle città, si concentrano su temi come: la qualità urbana e paesaggistica, l'uso del territorio, l'agricoltura, il consumo di suolo, il cibo, la sostenibilità, la gestione dei rifiuti, l'energia alternativa, I cambiamenti climatici, l'inclusione sociale, la diffusione culturale e l'innovazione nelle imprese. Sebbene il dibattito internazionale abbia legittimato l'importanza del rapporto tra cibo, territorio e città, in molti paesi - in particolare nell'area del Mediterraneo - il cibo e la nutrizione (combinati con il

patrimonio e l'identità patrimoniale) sono elementi fondamentali e riconosciuti della cultura, ma anche di sviluppo economico. Nelle città già si concentra, e si concentrerà sempre di più, la maggior parte di quei consumatori le cui scelte individuali sono determinanti nel definire l'evoluzione dei sistemi alimentari - associati allo sviluppo urbano e territoriale.

Il passaggio successivo significa capire come il sistema del cibo intercetti e trasformi spazi, attori, risorse e dinamiche presenti in una città, muovendosi da sistema del cibo - inteso come la filiera delle attività connesse alla produzione, trasformazione, distribuzione, consumo e post consumo di cibo, incluse le istituzioni e le attività di regolamentazione correlate (Pothukuchi, Kaufman, 1999) - a sistema urbano del cibo.

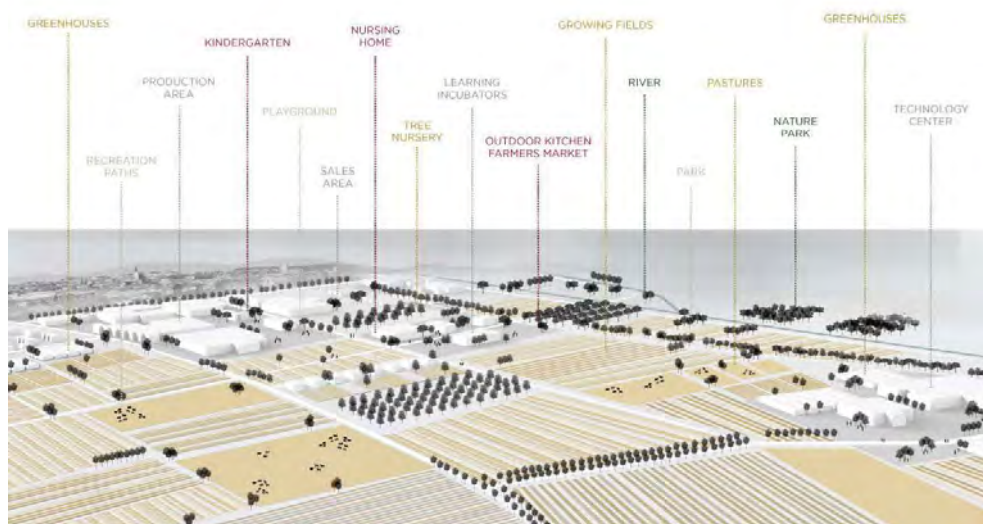


Fig. 1 Productive dynamic Landscape: Productive landscape on the outskirts with a dynamic character, becomes a resilient granary of the self-sufficient city. Idea by Pia Kante, Katja Mali, Vid Bogovič. Biotechnical Faculty, Department of Landscape architecture, Ljubljana, Slovenia

Food as a means of change for cities and landscapes

European and global policies are increasingly moving towards new frontiers of sustainability, innovation and social inclusion. Many of the same 2030 sustainable development goals (SDGs) promoted by the United Nations, to which should refer all planning for the future development of cities, focus on urban and landscape quality and land-use, agriculture, soil, food, sustainability, management waste, alternative energy, climate change, social inclusion, cultural diffusion and innovation in businesses. Although the international debate has legitimized the importance of the relationship between food, territory and city, in many countries – in particular, in the Mediterranean Area – food and nutrition (combined with heritage and patrimonial identity) are fundamental and recognized elements of culture, but also of economic development. In cities, the majority of those consumers whose individual choices are decisive in defining the evolution of the food systems - associated to the urban and territorial development - are already concentrating, and will increasingly concentrate.

At the same time, however, cities are the places where access to food is often problematic and where entire neighbourhoods exist, defined as *food desert*, where it is impossible to find fresh and quality food. Just starting from the awareness of this weakness, cities represent, more and more, the political and cultural arenas in which the movements of opposition to the standardized food systems are manifested with greater evidence, through different phenomena. The “*food movements*”, the Alternative Food Networks (AFNs), Solidarity Purchase Groups (GAS), farmers’ markets, direct sales, Community Supported Agriculture are some of the networks and practices that openly break with respect to the dynamics and values of the Grande Organized Distribution (GDO), proposing new values related to food production and consumption, genuine and cosmopolite at time.



Fig. 2 The Bloomfield Saturday Market in Pittsburgh, PA. Source: Bloomfield Development Corporation

More recently, alongside the forms of reaction activated by organized civil society, experiments related to the so-called *urban food policies*, linked with holistic urban approaches, in which cities are

configured as new actors in the food systems, are spreading internationally. The big news compared to this type of approach, of a punctual and sectorial type, is represented by the promotion by cities of real integrated and multi-sectorial food strategies (Urban Food Strategies, UFS), characterized by a holistic approach to supply chains of development through eco-efficient cycles linked with multidimensional agro-food systems and the multidimensionality of food.

These dynamics identify some pioneering realities, such as large North American urban areas, among all Toronto with more than 100 public markets, Seattle - home to the iconic Pike Place Market, one of the largest public markets in the US, as well as a network of 16 neighborhood farmers markets - and Pittsburgh, often called a “city of neighborhoods” has 48 markets in the city and inner ring suburbs. Subsequently, the phenomenon also extended to London and to small and medium-sized cities in the United Kingdom (which formed a network of *Sustainable Food Cities*, today called *Sustainable Food Places*) and Northern Europe.

More recently, Southern European countries such as France and Italy, Spain or Greece, are also beginning to implement participatory food policies, agro-urban revaluations and a new social sharing cohesion processes. Milan is the first Italian city to have approved an urban food policy, but also the metropolitan city of Turin has started a project in a logic of multiscalar approach - *Atlante del Cibo di Torino Metropolitana* - with the aim of building a support tool for future territorial policies.



Fig. 3 Farmers Markets Pike Place Market in Seattle, WA (CC0).

Of significant relevance is the case of the city of Bristol – European Green Capital Award 2015 – which has developed a sustainable and resilient food plan integrated on a regional level (*‘Who Feeds Bristol?’* Report March 2011). The Bristol Good Food Plan is grounded on thorough analysis of how a city like Bristol and its regional food supply system operates and how the different elements of the system are interconnected.

‘Who Feeds Bristol’ looked at the six key components of the food system: production, processing, distribution, retail, catering and waste, investigating the provision of basic staple food items; the land

use for current and potential food production and the current food supply capacity from the surrounding region in relation to the food needs for Bristol.

It also investigated which businesses were involved in preparing distributing, selling and recycling or disposing of food across the city region and within the city itself.

Then the plan identified eight distinct themes that Bristol needs to address in order to ensure that in the future the city has a healthy, viable and equitable food system that is as resilient as possible to any future shocks and challenges.

1. To encourage people to cook from scratch, grow their own, and eat more fresh, seasonal, local, organically grown food.
2. To champion the use of local, independent food shops and traders to help keep high streets vibrant and diverse.
3. To promote the use of good quality land in and around Bristol for food production.
4. To grow and distribute Bristol grown fruit and vegetables to restaurants, cafes, markets, households.
5. To minimise food waste by encouraging composting and the redistribution of good food that would otherwise be wasted.
6. To retain and strengthen city links with local wholesale markets, and nearby abattoirs, dairies and farms.
7. Increase procurement of regional staples, and establish more markets for local producers.
8. To promote community-led food trade such as co-operatives, buying groups, Community Supported Agriculture and pop-up shops.

The purpose of the food plan is to enable every organisation in the city to examine how they can influence the food system and where they can take action. Everyone – groups, organisations, businesses, individuals – is necessary to clarify where their input and expertise lie. Different groups lead on different themes according to their expertise; they can develop a clear advocacy and food policy leadership role for the Bristol Food Policy Council and to enable effective connecting up within a clear strategy to create positive step-change.



Fig. 4 Bristol aerial view. Photo by UWE Bristol

The two main denominators of urban food strategies are the systemic approach to the theme of food linked with the urban potentials of patrimony, tourism and landscape, translated into policies aimed at integrating and connecting actors, resources and tools and the inclusion of civil society within the processes.

Even if each city develops its own peculiar and contextualized process of defining, adopting and implementing an urban & food policy, it is possible to identify some common phases: an initial phase, of a more informal type, generally launched starting from the interest of individuals in the institutional sphere, or from the commitment of local interest groups (associations, networks of solidarity economy, etc.) convinced of the quality of their own territory;

- a phase of institutionalization of the process through its adoption by the public entity;
- an analytical phase, generally conducted by institutions, universities or other research centres, aimed at evaluating the real latencies – and values – of integrated urban & food systems, mapping its structural actors, its capacities and networked potentials;
- a participatory process that involves system stakeholders and stakeholders in defining the objectives and priorities of the future food policy;
- the construction and adoption of a declaration of intent, formalized in a Charter, an Agenda or an *Urban-Food Manifesto* (for example, the historic Toronto Food Charter, 2001);
- the establishment of a new agro-urban-food governance structure, generally referred to new *agro-territorial urban-food policies*, with institutional boards and partnership;
- the adoption of a strategic document that presents the development vision, general objectives, specific objectives, individual actions, responsible parties, spending commitments and indicators for monitoring.



Fig. 5 The “Unfolding Story of Food in Toronto” developed by the Toronto Food Policy Council in collaboration with Hyphenotic

As early as the late 1990s, Pothukuchi and Kaufman argued that food systems need a place among planners' concerns, so that planning can be oriented towards the future and the public interest in wanting to improve the liveability of the community through community systems and their interconnections.

The next step means understanding how the holistic agro-cultural and social systems intercept spaces, actors, resources and dynamics present in a city, moving from the food system – understood as a chain of activities related to the production, processing, distribution, consumption and post-consumption, including related institutions and regulatory activities – to a new kind of agro-urban integrated system of where innovative food and multi-scalar approaches are combined through 4 main phases:

- **The production phase** is substantiated in the city in the experiences of urban and peri-urban agriculture (producing in the city or around the city), the approach of commercial farms, agricultural parks, the heterogeneous set of horticultural experiences (social gardens, vegetable gardens collectives, private gardens, school gardens, regulated or abusive gardens, guerrilla gardening practices, etc.). With a view to the food system at the city-region scale, it is equally important to know the characteristics of production, analysing the agricultural sector in terms of quality and quantity.

- **The distribution phase** (GDO, retail stores, markets, alternative food networks, online commerce) is the service activity aimed at the transfer of food products from producers and processors to consumers. In general, food distribution intercepts urban dynamics in spatial terms (since it affects the way in which space is lived, designed, consumed), social (in the relationships between actors) and environmental (because it generates impacts in terms of pollution of the air, soil, energy consumption, etc.).

- **The phase of urban consumption** is complex and difficult to analyse, since it includes a multiplicity of issues, ranging from the spaces in which it is consumed (public and private collective catering, domestic catering), to the social and cultural implications related to habits, traditions, consumer choices, ways and times of consumption, food accessibility, the relationship between food and health, etc.

- The last **phase of disposal**, addresses the issue of waste and scraps, which FAO distinguishes between food loss (in the production, collection, distribution and transformation phases) and food waste (produced in the final stages of sale and consumption) and that it is becoming increasingly important in relation to issues such as global climate change, social justice, food education.

It is therefore on these elements and their integration that the analyses of the qualitative and quantitative aspects, the local relationships and those with the higher levels are concentrated, in a logic of multiscale approach, with the aim of constituting an effective support tool for the future territorial policies.



Fig. 6 Non recyclable waste (CC0)

In the last decade, in fact, the agricultural sector has been the protagonist of constant experimentation in integrated agro-food production processes, thanks to the introduction of new technological devices has proven to be able to minimize waste, maximizing production, exceeding the concept of precision I agriculture to approach that of sustainable agriculture. In addition to traditional tools, new technological devices have spread (drones, sensors, robots, apps, etc.) capable of controlling and facilitating production processes. The new generations of agricultural entrepreneurs (farmers 2.0) have rediscovered a new system of “making agriculture” automated and innovative.

An important challenge for the future will be to strengthen collaboration and knowledge sharing between users of food sector (groups, organisations, businesses, individuals, etc.), research and companies by combining the technological capacity of companies, their practical, operational and market visions, with conceptual capacity, the experimental and creative role of research in order to launch proactive exchange platforms on the theme of food and its expressive capacity, as a cultural vehicle of identity, innovation and social integration.

This brief reflection is part of this framework with the aim of focusing on the dynamics underway and promoting social, technological and logistical innovation processes in the transformation of the food sector in cities to facilitate the transition to a sustainable food system, which is changing the perception of how we live the city, able to accompany cities towards a development process in line with the SDGs.

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Terraforming Mars vs Earth's Anthropocene

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Abstract

Starting with the beginning of the Agricultural Revolution 15.000 years ago, it began an epoch of significant human impact on Earth, which we extremely experience nowadays. The latter has been defined as Anthropocene by several scholars in the past century.

In the last decades, with the beginning of space exploration, humans have started to impact not just the Earth, but the entire Universe and latest theories suggest that mankind should become a wandering multi-planetary species in order to survive and, eventually, to save Earth's ecosystem.

However, in every mission of planets exploration it is not directly a human to impact on the environment. Therefore, it would be incorrect to talk about a spread of Anthropocene.

Let us take the example of Mars, that seems to be the most promising planet to host a human settlement: the planet exploration has been carried out by machines and so will be for the first steps of the colonization. Therefore, we should rather talk about Anthropolobotocene, considering robot as the term to define a machine that automatically performs tasks on behalf of a man.

The present contribute provides an overview on the robots that has been used and that will be used in the space exploration. It also analyses similarities and differences between the biggest changes that Earth's landscapes faced since the starting of the Anthropocene era and the ones that will occur on Mars in the next decades.

Abstract

A partire dall'inizio della Rivoluzione Agricola, 15.000 anni fa, è iniziata l'uomo ha prodotto sulla Terra un impatto significativo di cui abbiamo preso particolar consapevolezza negli ultimi anni. Tale epoca è stata definita Antropocene da numerosi studiosi nel secolo passato.

Negli ultimi decenni, con l'inizio dell'esplorazione spaziale, gli esseri umani hanno iniziato a produrre un impatto non solo sulla Terra, ma sull'intero Universo. Inoltre, le più recenti teorie suggeriscono che l'umanità dovrebbe diventare una specie errante multi-planetaria per sopravvivere e, eventualmente, salvare l'ecosistema terrestre.

Tuttavia, durante le missioni di esplorazione planetaria condotte sino ad ora, non è stato direttamente un essere umano ad operare sui corpi celesti e sarebbe, perciò, inesatto parlare di un'espansione dell'Antropocene.

Osserviamo l'esempio di Marte che sembra essere il pianeta più promettente per ospitare un insediamento umano: l'esplorazione del suolo è stata condotta da macchine particolari, i rover, e così sarà per i primi passi della colonizzazione. Perciò, dovremmo piuttosto parlare di Anthroporobotocene -o Anthrobocene- considerando il termine robot utile a definire una macchina che performa, con un grado di autonomia, un compito al posto di un essere umano.

Il presente contributo fornisce una panoramica sui robot che sono stati utilizzati e che verranno utilizzati nell'esplorazione spaziale. Inoltre, analizza le similitudini e le differenze tra i maggiori cambiamenti che il paesaggio terrestre ha subito a partire dall'inizio dell'Antropocene e quelli che avranno luogo durante la terraformazione di Marte nei prossimi decenni.

Introduction

Starting with the beginning of the Agricultural Revolution 15,000 years ago, mankind has proved to be the first known case of an animal species able to act on the planet that hosts it, instead of solely react to the changes of the ecosystem. It began an epoch of significant human impact on Earth, which we extremely experience nowadays. The latter has been defined as Anthropocene by several scholars in the past century.

The reasons behind such hegemonic spread are countless and mostly caused by an evolutionary development of complex cognitive and physical skills, a sophisticated language and an elaborated structured society (Morris, 1967; Diamond, 1997).

Nevertheless, as in any scenario which presents an undisputed monopoly, things got bad very quickly for the Earth's ecosystem. The challenge of the third millennium seems to be trying to save the planet from pollution and climate change, albeit population will continue to grow needing more resources (Cohen, 2017). A possible solution to such problem is given by Elon Musk, chief executive officer of SpaceX, in *Making Humans a Multi-Planetary Species* (2017):

"I think there are really two fundamental paths. History is going to bifurcate along two directions. One path is we stay on Earth forever, and then there will be some eventual extinction event. I do not have an immediate doomsday prophecy, but eventually, history suggests, there will be some doomsday event. The alternative is to become a space-bearing civilization and a multi-planetary species, which I hope you would agree is the right way to go."

Such extinction event may be caused by climate change, resource consumption, a war or, as we are experiencing nowadays, a virus. Moreover, lighten the burden on Earth might lead to the preservation of the other species who inhabit it. The flip side of this scenario is that, by doing so, other planets will face the starting of their own Anthropocene era. However, in every mission of planets exploration so far it was not directly a human but machines to impact on the environment and so will be for the first step of a colonization. Therefore, we should rather talk about *Anthroporobotocene*¹, considering robot as the term to define a machine that automatically performs tasks on behalf of a man. Since Musk (ibidem) suggest that Mars represents the best destination in this regard, the next paragraphs will provide an overview on the players of the Mars' Anthroporobotocene rise and on similarities and differences between the latter and the Earth's Anthropocene in term of changes of the landscape.

¹ or *Anthrobocene*. The term has been used for the first time by the Author in 2020 (Burlando F., 2020) as a neologism crisis of *Anthropocene* (Crutzen P. J., 2006) and *Robotocene* (Søraa R. A. and Fyhn H., 2018). The term propose an epoch of the *Quaternary* in which human and robot activity effect significant environmental consequences on an astronomical object.

Terraforming Mars

The concept of changing environments on a planetary scale was born in science fiction and the term *terraforming* was coined by Jack Williamson in 1949 in the novel *Seetee Shock* (McKay, 1982). Since last century, literature in this regard is very considerable (McKay, 2019; Fogg, 1998) and when it comes to the present contribution, the question which is being answered is not if we would be able to do it or why we should do it but, if it ever happen, how will it work. To allow ecopoiesis on Mars would be the most impressive project of landscape design in the history of humanity and it would require five main steps (ibidem):

Mean global surface temperature must be increased by $\sim 60^\circ$

- The mass of the atmosphere must be increased
- Liquid water must be made available
- The surface UV and cosmic ray flux must be substantially reduced
- Atmospheric composition must be altered to increase its O_2 and N_2 fractions

Here too, there are a lot of theories on how such an outcome can – or cannot – be achieved (Jakosky & Edwards, 2018; Steigerwald, 2018). Not claiming to settle such long-standing dispute, let us focus on what changes the terraforming of Mars could lead in term of landscape.

As can be seen, the main goals are to melt the polar ice caps in order to produce liquid water and to generate a breathable thick atmosphere that will increase the global temperature and protect the surface from UV and cosmic ray.

It is interesting to note that the two main actions – increase the global temperature and melt the polar ice caps – are very similar to those that have contributed to the downfall of the first planet that hosted humanity: the Earth. Those which have been the results of unintentional and unconscious dynamics are now the main goals of an elaborate and complex project of greenhouse warming. On a global scale, this will lead to the following changes of the landscape. First, Mars will no longer be the red planet or, at least, not entirely: we will see oceans on the surface as happened during the *Noachian* billion years ago. As we know, in the history of humanity the first permanent settlements were born in the vicinity of waterways and the latter have played a crucial role in the development of civilizations. Supposedly, in the future there will not only be the first human city on Mars, but it will be a seaside town. The second biggest change for the landscape is about the sky: at this stage Mars' atmosphere is very tenuous, mad of carbon dioxide and has a lot of dust. For this reason, during the day the sky is red and, in contrast to what happens on Earth, it becomes blue during sunrise and sunset. The generation of a thicker atmosphere will cancel this mirror scenario, aligning it on the one whose we are used to. The presence of water and an atmosphere also mean that the future will see clouds in the Mars' sky, nowadays completely empty. Hopefully, thanks to such more Earthlike atmosphere, one of the biggest problems that affect the planet will be reduced: dust storms. The latter are so massive that they grown into global weather events, covering up to one-fourth of the planet for weeks. Such events can drastically change the landscape as it happens, on a smaller scale, in the Sahara Desert, where a dune can change its shape or disappear after a sandstorm.

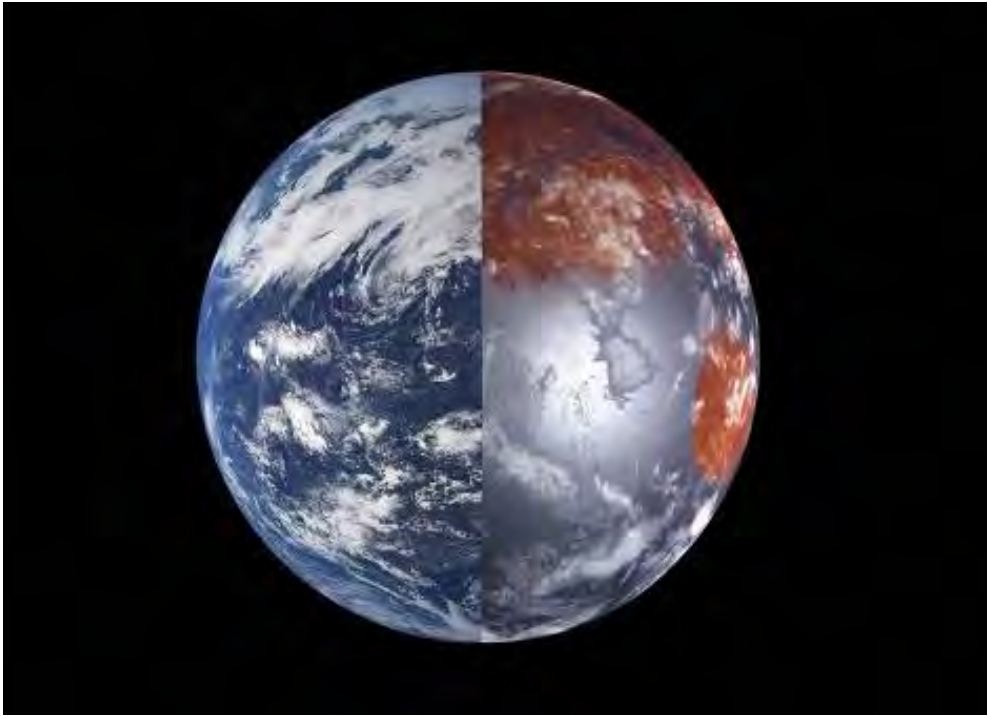


Fig. 1 Comparison between planets: Earth's Pacific Ocean vs. simulation of Mars' appearance during Noachian. Pictures have been merged and edited by the author

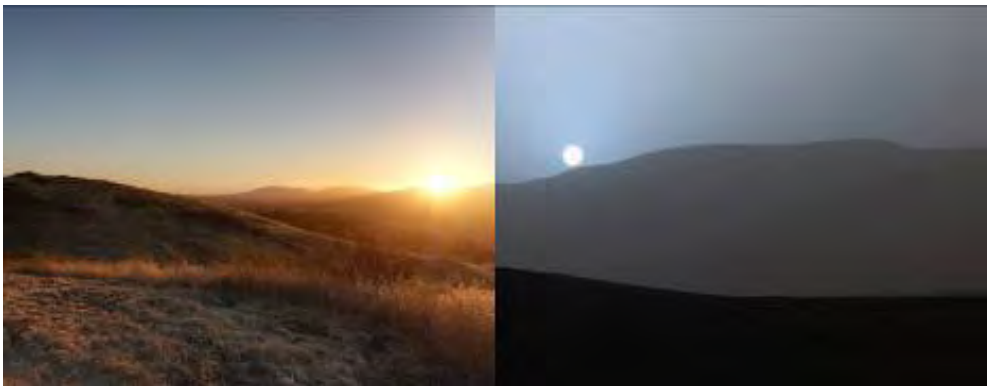


Fig. 2 Comparison between sunsets: hills of Dublin, Ireland, Earth vs. Gale Crater, Mars. Respectively photographed by a human and the Curiosity rover. Pictures have been merged and edited by the author



Fig. 3 Satellite footage of Cerberus Fossae, Elysium Mons, Mars vs. Satellite footage of Kihei, United States, Earth. Pictures have been merged and edited by the author

Anthroporobotocene

Due to the last global dust storms, in June 2018 NASA had to say goodbye after 15 years to *Opportunity*, the rover that has been the protagonist of one of the most successful and enduring feats of interplanetary exploration. When NASA scientists announced that Oppy, as they called it, stopped communicating with Earth, the news spread worldwide thanks to the free translation of the last message from the rover: “My battery is low and it’s getting dark.”

This quote quickly made its way around the Internet, shared by celebrities, reporters and influencer. Everyone was truly devastated to learn the robot’s fate. Someone even admitted that he cried for it. If it is true that the quote is nothing more than a free interpretation, NASA respond with an equally heartbreaking message. After months spent in an unsuccessful attempt to communicate with *Opportunity*, scientist made their final attempt to contact Oppy with a transmission of Billie Holiday’s “I’ll be seeing you”, which ends with the words: “I’ll find you in the morning sun

And when the night is new

I’ll be looking at the moon

But I’ll be seeing you.”

Such expressions of empathy towards a machine are not new and prove us that the consideration

that we have for robots is far better than one might think. We have imagined them since the dawn of literature and cinema, we have designed them, built them and put them to work in environments that are potentially dangerous to us. Likewise, we send them to the space as modern explorers of new worlds in order to ensure us a brighter future in which we will live among them.

We could consider them as a sort of modern, technological pets and we know the importance that the domestication of some species has had in the development of the human civilization. Nevertheless, the work of a rover is not comparable to put a yoke on an ox and let it plough a groove on the behalf of a person. A robot has artificial intelligence, autonomous decision-making capacity and a higher dexterity. No matter how much you love it, you cannot ship a dog on Mars and hope that it will build up a city for you. As regards robots it would be fair to assume that they work with us, rather than for us. Perhaps, humanity shall become not only a multi-planetary species, but rather a multi-planetary multi-species consists both of biological and technological beings. For sure, the Mars *Anthroprobotocene* will start long before our arrival on the planet. When the first person will set foot on Mars, there will be already a settlement waiting for him. Since the process of terraforming will require long term, probably the appearance of the landscape will be still similar to the one that we see in the photographs taken by Opportunity. But there will be housing structures, numerous facilities, grow-room and stretches of solar panel to ensure power. All of this will be built by robots sent to scout ahead. On our planet, the latter are already underway or in a stage of planning by several designers.

Space Robots Design

When it comes to robots for space exploration, one thinks of rovers as Opportunity. However, according to the above-mentioned definition, the category is broader. In 1957, Russians designed a 58 cm diameter metal sphere that had four antennas to broadcast radio and launched it into orbit. *Sputnik* became the first artificial satellite in history. The first artificial object to reach another celestial body – the moon – was *Luna 2* in 1959. The concept behind the design of it was roughly the same as for *Sputnik*: a metal sphere with some antennas to communicate. In 1977 *Voyager 1* was launched by NASA to study the outer Solar System. Here we find a different concept behind the product design: the core is made of a decagonal ring that holds a 3.7 m diameter parabolic high-gain antenna. There are also different arms that include sensor as cosmic ray receptor, magnetometer and ultraviolet spectrometer. It is still orbiting and in 2012 it became the first human-made object to leave our Solar System into interstellar space. As the moment it is at a distance of 2.2×10^{10} km from Earth².

In January 2004, *Opportunity* landed on the surface of Mars along with its twin rover *Spirit*. They are six-wheeled, solar-powered robot standing 1.5 m high, 2.3 m wide and 1.6 m long and weighing 180 kg. They have a “head” which included cameras and an arm that holds some other instruments. The next robots that will reach the red planet will be part of the Mars 2020 mission. *Perseverance* is a rover not so different from *Opportunity*, while *Mars Helicopter*, as the name implies is a sort of helicopter consisting of a box shaped component lifted by a four-blade propeller. What comes next? NASA designers and engineers are working on new robots. One of the latest is nicknamed *Puffer*, short of *Pop-Up Flat Folding Explorer Rover*. It is all right there in the name: this robot can fold its wheel in a sort of limbo dance to investigate tight spots. The inspiration for this lightweight adventurer came

² voyager.jpl.nasa.gov/mission/status/ (accessed Apr. 29, 2020)

from origami designs.

Then there's *BRUIE* (*Buoyant Rover for Under-Ice Exploration*). This robot can float in the water and roll its wheels along the underside of an icy surface, all while taking pictures and collecting data. Scientists hope to someday use a robot like this to search for signs of life on icy bodies elsewhere in the solar system. For example, the underground oceans of Jupiter's moon Europa or Saturn's moon Enceladus. Along with Stanford University and MIT, NASA designed *Hedgehog*, a spiky cube robot developed to explore asteroids or comets. Since these have very little gravity and extremely rough terrain, instead of rolling the robot hops and rumbles and can operate on any of its sides indistinctly.

As can be seen, NASA is not the only research laboratory that work on such topic. Ispace's team designed an unnamed rover for surface exploration on the Moon. The robot has a sturdy core with 360-degree camera and four paddled wheels.

Moreover, there are some robot with a degree of anthropomorphic characteristics, as *CIMON*, an autonomous floating robotic head assistant designed by Airbus on behalf of the German Aerospace Centre. The robot is nothing more than a vocal assistant with a monitor on which is displayed a face. This leads us to approach a key factor in the design of space robots: it seems that in the future we shall see the spread of humanoid robots in space exploration.

Humanoid Robotics

Similarly to what is happening in our world, the scope of space exploration is facing the emergence of robots with some anthropomorphic characteristic. On earth we are seeing an increasing trend of human-like design of CoBots, such as *Baxter*. Even if a robot designed to operate in industrial workspace should not be humanlike for any practical purpose, it seems clear that at least some humanoid features are always preferred in the design of a machine bond to work at the side of a human. Likewise, since 2008 the International Space Station has its own cobot: *Dextre*. It is a two-armed telemanipulator which does repairs otherwise requiring spacewalks, which are some of the riskiest activities astronauts undertake (Coleshill et al., 2009). For its part, the Japanese space agency JAXA sent its own humanoid robot to the ISS in 2013, *Kirobo*. The mini-astronaut was used to test human-robot interaction in space thanks to facial and vocal recognition features and it became the first robot to speak in space (Aloor et al., 2013). In 2019 the ISS hosted *FEDOR*, or *Skybot F850*, a Russian humanoid robot which has been tested in cosmonaut chores, such as working with tools and connecting hardware.

The German Research Center for Artificial intelligence is testing *Aila*, a humanoid robot intended to improve artificial intelligence in space. It can mimic human motions by recording what they do, analysing movements in small segments and then building upon the library of information to make new moves (Lemburg et al., 2011).

NASA's Robonaut 2 has been on the ISS since 2011. The humanoid takes over some of the tedious tasks that astronauts do on the station, such as flipping switches and turning levers. NASA assumes that an upgraded version of the robot could also be used for spacewalking in the future (Ambrose et al., 2000; Diftler et al., 2011).

However, the most advanced space humanoid is, undoubtedly, *Valkyrie* from NASA's Johnson Space Center. The robot looks exactly like an astronaut, is 190 cm tall, weight 125 kg and has 44 degree of freedom. It has been designed specifically to be the first robot to walk on Mars someday its tasks are walking over uneven terrain, climbing a ladder, using tools and driving (Radford et al., 2015).

As can be seen, in the space as on Earth robots find application in different context related to the following areas:

- Work dangerous for humans
- Works which humans find unpleasant or tedious
- Work assistance

Moreover, the degree of human likeness seems to have increased in years in the scope of space robotics, despite the challenges that the design of a robot with human shapes leads to (Di Salvo et al., 2002; Fiorini et al., 2020; Li et al., 2011). Therefore, the main question that arises is: “what are the benefits that lead designers to accept such struggles in order to develop humanoid robots?”.

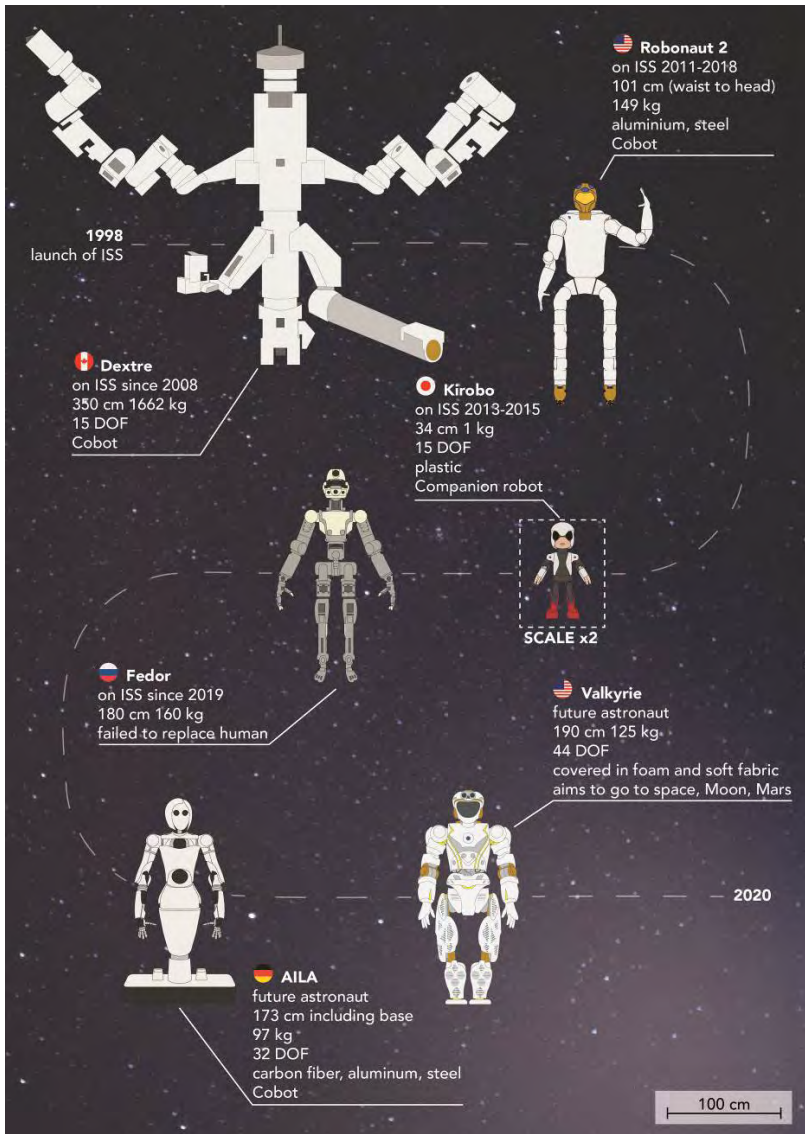


Fig. 4 Evolution of robots in space. Illustration by the author

Mars: a human-robot civilization



Fig. 5 View of the first Martian settlement as it has been imagined by Elon Musk

The reasons behind the increasing trend to design humanoid robots for Mars missions are several, but all based on the precepts of the User Centered Design approach (IDEO, 2015). When it comes to the development of a robot that will operate on an alien planet, a designers must think about three main categories of people that will have to deal with it: engineers and manufacturers who will develop and build up the product, those who will remotely work with the robot and those who will, someday, inhabit the facilities that such robot will build on Mars (Radford et al., 2015). With regard to the first mentioned, the development of a bipedal humanoid of 125 kg leads to huge problems in terms of engineering. Since a wheeled rover, equipped with arms, should easily carry out the same tasks, the latter would be the best choice. However, to colonize a planet which is located approximately at 225 million of kilometres away from us is such a difficult challenge that any other goal appears within our reach, if it's worth it. Regarding the second category of users, even if a robot is intended to carry out tasks autonomously, one can imagine that a humanoid on Mars may also be controlled remotely in some situations. As per NASA own words, *Valkyrie* is based on a human shape so that it could work under the control of humans who have only minimal training with robots (Ackerman, 2013). Such approach pushes the scope of ergonomics towards new frontiers, in every way.

Nevertheless, the main reason in favour of the design of humanoid robots is the following. As mentioned before, those robots are intended to carry out works that are dangerous for humans or that humans find unpleasant. However, when it comes to sharing the working environment, as in a spaceship, this does not exclude that that specific environment is human-centered designed for a lot of good reasons. Therefore, it should be more reasonable to use humanoid robots whose design is based on ergonomics standards rather than to re-design environments and tools (Kajita et al., 2014).

The complementary aspect arises when we consider a robot that is intended to build all the facilities that a human colony will need on Mars. Such humanoid should be optimized to operate in that workplace, but since those facilities will be inhabited by human, it stands to reason that they would be human-centered designed, and so should the robot. A countercheck that highlights the importance of such approach is given by the robots previously analysed: having to work in a zero-gravity environment, Robonaut 2 was designed with a human-like shape only from head to waist. A pair of articulated branches were added in order to hold it to the sides of the ship while it's working, with the same principle that is used for the flex mounts that are used for action cameras. On the contrary, Fedor was designed with a full human like body. Consequently, its application was difficult since the legs designed for a bipedal walking were useless and bulky. Once on Mars, astronauts will walk again and so a bipedal humanoid robot will be the best choice. Nevertheless, if that robot will have to work also in the spaceship on the way to the planet, the winning choice could be to design legs that can be unplugged during the travel period.

However, there is probably one leading reason that leads us to consider a humanoid as the best robot for such purposes. Stories just like the one of *Opportunity* told us as much. During an interview about the vacuum robot *Roomba*, Colin Angle, the co-founder and CEO of iRobot stated:

“In the beginning of *Roomba*, we all took turns answering the support line. Once, a woman called and explained that her robot had a defective motor. I said, « Send it back, we'll send you a new one. » She said, « No, I'm not sending you Rosie. » (Biever, 2014)”

Even if they explicitly designed *Roomba* not to have a face because they wanted to give it more of an industrial look, people personified their robot anyway and over 80% of users named their robot. Designers did nothing to encourage people to do that, but they did it anyway (ibidem). For the record, Mr. Angle's *Roomba* is named Roswell.

For some reason, we are led to empathize with robots as if they were not just industrial objects. Actually, the reasons are well known and they are precisely related with the mechanisms of empathy. We empathize with robots (Kwak et al., 2013) and the more we give importance to that aspect, the better the interaction between users and robots will be (Seo et al., 2015; Leite et al., 2013; Pereira et al., 2011). Moreover, there is a correlation between the degree of anthropomorphism of a robot and the empathy that it generates in the users: people empathize more strongly with more human-looking robots and less with mechanical-looking robots. (Rieck et al., 2009). This last is the main reason why we should design robots with an increasing degree of human-likeness for several areas, and above all for Mars colonization. As stated before, upon our arrival on the Red Planet, we will find ready made buildings, facilities and crops. Real cities ready to welcome us. But those settlements will not be uninhabited, just like the planet itself. It will not be the form of life that we have been looking for many years, but it must be recognized that the first inhabitants of Mars are robots and, at least for a certain period, we will live among them rather than vice versa. We will be guest of our own creations; therefore we better be committed in designing them.

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The dissolution of architecture according to Yona Friedman

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Abstract

The idea of the city and architecture, as we have always thought of them - in their spatial conception of a determined, planned and programmed place - no longer seem to respond to the social structures towards which society is evolving. From the late 1990s to the present, various intellectuals have shown the weaknesses of postmodernity, proposing new perspectives that abandon the postmodern. You may or may not agree with these positions, but in any case, they highlight the acknowledgement of the failure of postmodern promises, decreeing if not the end at least the crisis or its evolution towards a new condition yet to be defined. What seems certain is that today, at the end of modernity, the crisis of the postmodern has also been added. In the world of architecture, one of the most interesting figures of recent decades who seems to be a bridge between modernity, post-modernity and the contemporary condition, is Yona Friedman. His work, although begun in 1956, today fits perfectly into this current crisis, analyzing issues such as the dematerialization of architecture, sustainability, the relationship between new digital relationship systems with architectural and urban space, sharing and social participation of architecture and the city. His thinking shows us today more than ever new and unexpected paths that we will try to analyze, also proposing personal visions for the near future.

Abstract

L'idea della città e dell'architettura, come le abbiamo sempre pensate – nella loro concezione spaziale di luogo determinato, pianificato e programmato – sembrano non rispondere più alle strutture sociali verso cui la società si sta evolvendo. Dalla fine degli anni '90 ad oggi vari intellettuali hanno mostrato le debolezze della postmodernità, proponendo nuove prospettive che abbandonano il postmoderno. Si può essere concordi o no con queste posizioni, ma in ogni caso queste mettono in evidenza la presa d'atto del fallimento delle promesse postmoderne, decretandone se non la fine quantomeno la crisi o una sua evoluzione verso una nuova condizione ancora da definire.

Quel che sembra certo è che oggi, alla fine della modernità, si è affiancata anche la crisi del postmoderno. Nel mondo dell'architettura, una figura più interessanti di questi ultimi decenni che sembra fare da ponte tra la modernità, la postmodernità e la condizione contemporanea, è Yona Friedman.

La sua opera, sebbene iniziata nel 1956, si inserisce oggi perfettamente in questa crisi attuale, analizzando temi quali la smaterializzazione dell'architettura, la sostenibilità, il rapporto tra i nuovi sistemi di relazione digitale con lo spazio architettonico e urbano, la condivisione e la partecipazione sociale dell'architettura e della città.

Il suo pensiero, ci mostra oggi più che mai nuovi e inaspettati percorsi che cercheremo di analizzare, proponendo anche visioni personali per il prossimo futuro.

Introduction

Yona Friedman has spent her career trying to solve the housing problem for the less well-matched classes, always remaining faithful to her vision of architecture as a flexible, dynamic, adaptable and modifiable system according to the needs of those who live there. Known for his utopian theories on living, he has never considered himself a utopian as he believed his theories perfectly feasible: "believing in a utopia and being realistic at the same time is not a contradiction. A utopia is, par excellence, achievable."¹

The Manifeste de l'architecture mobile (1956), the work with which he became famous, expresses his ideas on the need to adapt architecture to the needs of society and "mobility of living", foundations from which one of his most famous visions for the development of the city: the Ville Spatiale (1958-1962), a light and temporary infrastructure capable of responding to the needs of its users.

This project was based on two principles: to create a new elevated urban space by limiting land use and self-planning by citizens through the use of modular structures.

"People ask me how the idea of mobile architecture was born and I answer by asking who had the idea of immobile architecture?"²

There are numerous references to African and Indian tribal cultures in his theories: from his experience as a refugee after the Second World War, a particular sensitivity for the housing needs of the third world will arise in him and, as a Unesco collaborator, he will create self-construction manuals where, through drawings, he illustrated building techniques with poor local and waste materials.

Realizable Utopias (1974), perhaps his most famous work, illustrates his theories on the organizational models of society by analyzing language and communication, showing their limits.

The influence of Yona Friedman's theories is still evident today in many works by famous architects, such as Archigram and Bernard Tschumi.

"A society is a realized utopia: it is an extremely complex organizational project, accepted by a certain number of individuals who manifest, with their daily behaviour, their agreement towards that project, devoid of verbal formulation"³

His constant attention to the search for new architectural solutions capable of responding to the ecological, social and sustainability needs of society has made him a precursor of issues that today are of extreme urgency and topicality.

¹ Yona Friedman, *Realizable Utopias*, 1974.

² Interview on the occasion of his work for the Serpentine Summer Houses, 2016.

³ Yona Friedman, *Realizable Utopias*, 1974.

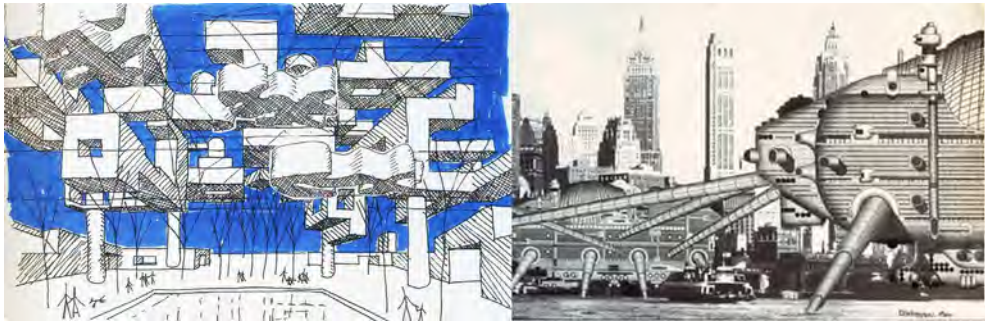


Fig. 1 Left: *La Ville Spatiale* (the 1950s / 60s) by Yona Friedman; right: *The walking city* (1964) by Archigram

The dissolution of architecture according to Yona Friedman

The idea of the city and architecture, as we have always thought of them - in their spatial conception of a determined, planned and programmed place - seem to no longer respond to the social structures towards which society is evolving. From the late 1990s to the present, various intellectuals have shown the weaknesses of postmodernity, proposing new perspectives that abandon the postmodern. You may or may not agree with these positions, but in any case, they highlight the acknowledgement of the failure of postmodern promises, decreeing if not the end at least the crisis or its evolution towards a new condition yet to be defined. What seems certain is that today, at the end of modernity, the crisis of postmodern⁴. In the world of architecture, one of the most interesting figures of recent decades who seems to be a bridge between modernity, postmodernity and the contemporary condition, is Yona Friedman. His work, although begun in 1956, today fits perfectly into this current crisis, analyzing issues such as the dematerialization of architecture, sustainability, the relationship between new digital relationship systems and architectural and urban space, sharing and social participation of architecture and the city, showing us new and unexpected paths.

It all began when, on August 3, 1956, during the X CIAM in Dubrowinc, Friedman presented his *Manifesto de l'Architecture Mobile* for the first time in the world.

His "The Settlement Revolution" presented on that occasion is short, but incisive and determined. This first "publication" will see the production of five private editions, flanked by the publication of various articles in magazines all over the world, which anticipate the book "L 'Architecture Mobile, vers une cite conçue par ses habitants" of 1970. his first texts of 1956, Friedman prefigures the construction of a political project for the city and architecture, which finds its foundations in the erratic and participation. His is an immanent architecture which is never the same as itself, but which becomes a device that responds to the temporary needs of its users.

What the French architect proposes, therefore, is not a project, but a sort of "open source" program, which provides for continuous and constant "updaters", using terms related to the computer world. In this sense, the parallel that we can find between his architectural world and the digital and computer universe is interesting. Just think of his vision of a museum building that is not conceived as a solid object with an "inside" and an "outside, but on the contrary is thought of as a gaseous, open and

⁴Symptom of this conclusion is the exhibition inaugurated September 24, 2011 at the Victoria and Albert Museum, which is called the "first global retrospective" in the world, entitled "Postmodernism: Style and Subversion." We could venture to use this date as a conclusion of the post-modern .

constantly changing structure, just as happens in the galaxy of the Internet.

All his production is based on a paradigm shift. For him, the reality is not built with a form or with the object, but through flexible formulas that maintain constant properties that characterize them, allowing us to build a reality composed of fragments, which float in time and space, able to adapt to various situations. His proposal does not program a final result that can be summarized in an image but is mainly based on the idea of an architectural process, which produces communication and relationship between the parts even before producing objects.

With him, the figure of the architect as a Prometric presence, the author of object-forms disappears and is replaced by an "architect-prompter". The architect then strips off all garments of arrogant wisdom, to return to being humble and wise, an expert at the service of the population to build a new society. An architect for the people and with the people, because only together can we change and make our cities liveable.

Starting from these principles, his idea of Ville Spatale takes shape. A city that, flying over the territory, its spaces, its rubble, its monuments, its infrastructures, reconciles the individual and the collective. His Ville Spatale is the construction of another sky, a positive parasite that establishes itself on the pre-existing city, a new scenography of the city for a superimposed and layered landscape. A sky that every citizen inhabits and designs according to their needs.

His is a poetic invitation to colonize the sky, introducing us to an architecture that dissolves in the air, and is confused in it and with it. Like caged clouds, his city changes shape continuously, without a pre-established or planned design. Introducing a new form of relationship between material and immaterial, linked to the policy of sharing and the democratic sharing of space.

It follows that reality, no longer linked to massive or liquid processes, but moves within constant research that conceives contemporaneity as a gaseous universe in constant change. Through this process, the concept of design, in its various architectural and digital forms, becomes a key and collective interpretative research, towards pluralism and a shared narrative.

Following these principles, Friedman paves the way for a way of conceiving architecture and reality, no longer linked to massive or liquid processes, but moves within constant research that conceives contemporaneity as a gaseous universe that opens the way to new and unexpected conceptual operations. An attitude that is purely gaseous, that is, never linked to a pre-established form and always linked to a dynamic spatial relationship system, capable of changing in any situation.

Yona Friedman's drawings and language

"We think in words and images at the same time. But the regularities that can be expressed in words and those contained in the images are not the same. With words, we present an accumulation; with pictures one totality."⁵

The visionary work of Yona Friedman finds its expression in the numerous publications that have characterized her career: the architect has always accompanied the text to a drawing, the place of imagination where his projects became reality.

"Images are the reality for us, while verbal expressions are abstractions. After all, we are careful to associate images with abstractions"⁶.

By drawing, in general, we mean a graphic representation of real or imagined objects while by architectural drawing, specifically, we mean a set of models - graphic, computer and physical - describe

⁵ Yona Friedman, *The complicated order. How to build an image* (2008).

⁶ Yona Friedman, *The complicated order. How to build an image* (2008).

the design idea.

The architectural technical drawing differs from other types of graphic representation as it has standards and symbols (such as electrical, hydraulic, electronic diagrams) defined by specific international standards.

In particular, architectural drawing is a language while architectural representation is a method for depicting a building work, or for reaching a better knowledge of what is represented.

The works of Yona Friedman do not exactly fall within the definition of architectural drawing: they are very far from those technicalities which, without the knowledge of the exact reading codes, make drawing incomprehensible.

Yona Friedman is an architect halfway between art and architecture: she is not looking for a functional aesthetic but leaves freedom of imagination and creation to her “spatial infrastructures”, she shows no interest in defining the surfaces of these creations but only for the ability of adaptation and transformation of the structure itself.

“An image of the universe cannot be abstract (abstract images are a matter of theology). This image must refer to experience directly.”⁷

In the drawings for *La Ville Spatiale*, the architect uses numerous central perspective views (“The human eye focuses on a clearly perceived central spot while the complete image remains nuanced”⁸) to define the perception of the space that is created between the existing city and the new urban fabric: the design, characterized by the black lines of the ink, is enriched by the use of the colour used in contrast to bring out the infrastructure from the context or to define it the volumes of the houses self-produced by the inhabitants themselves.

There are also numerous collages, by Friedman is a skilled user, where he inserts his colour drawings on black and white photographs; finally, we find more schematic, monochromatic drawings of the *Ville Spatiale* characterized by simplified elements and strokes.

This type of drawing will then be used for the illustrations of *The complicated order* and in achievable Utopias: the drawing is stripped of any technicality, the perspective effects and perceptions given by the colours disappear.

The simplicity of the black line remains, with clear references to tribal art, which alone manages to uniquely communicate the upstream idea.



Fig. 2 Yona Friedman: *Illustrations for Realizable Utopias* (1974)

⁷ Yona Friedman, *The complicated order. How to build an image* (2008).

⁸ Yona Friedman, *The complicated order. How to build an image* (2008).

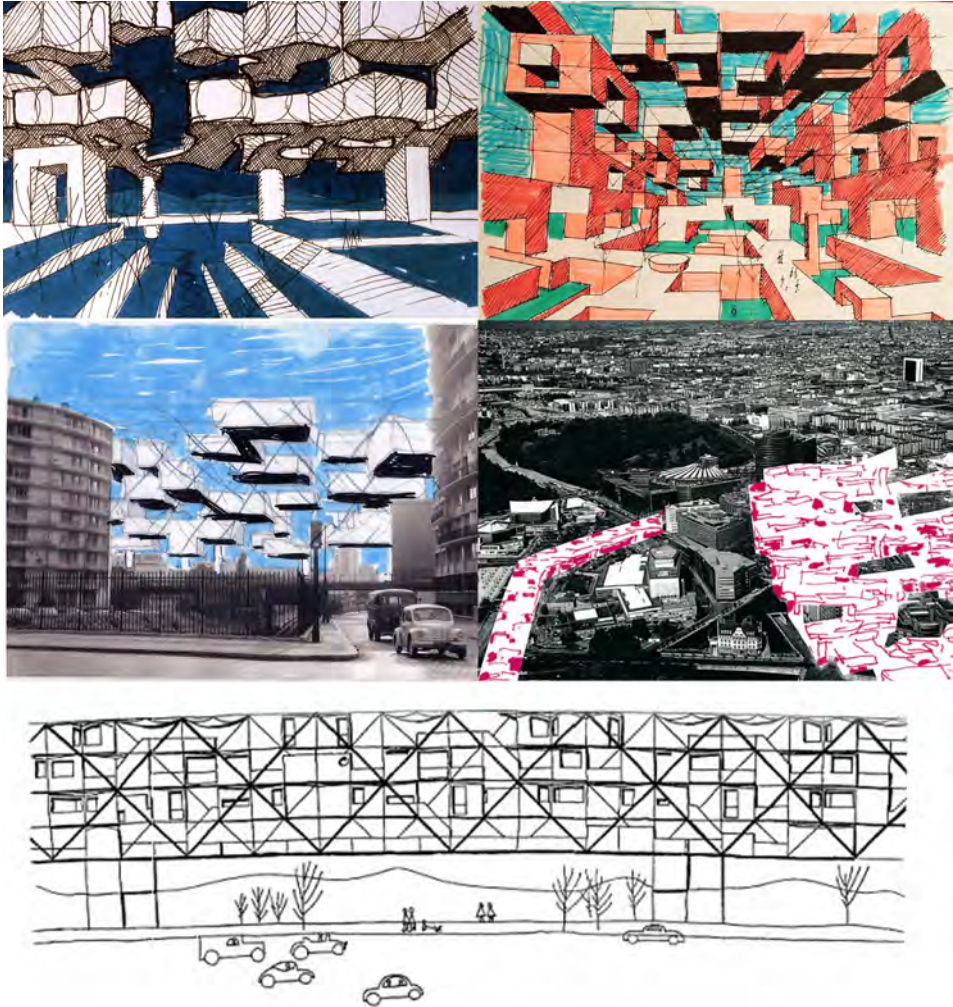


Fig. 3 La Ville Spatiale (the 1950s / 60s): above, Pantone and china perspective drawings; in the centre, photomontages; below, ink drawings

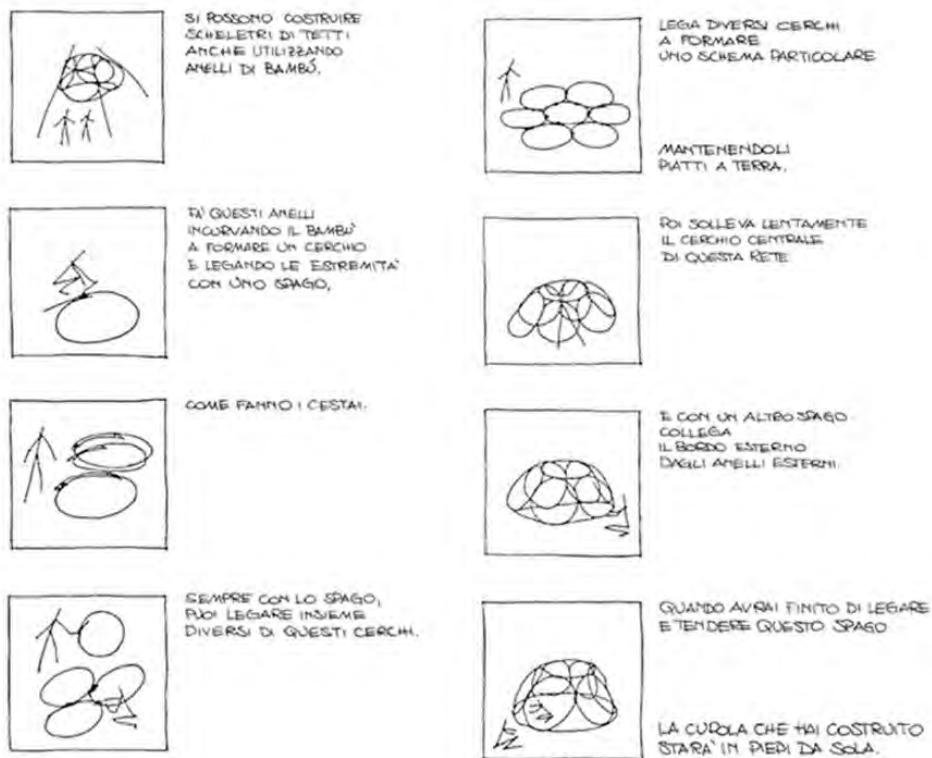


Fig. 4 Yona Friedman: image taken from Tetti, Quodlibet, Macerata 2017 by Andrea Bocco

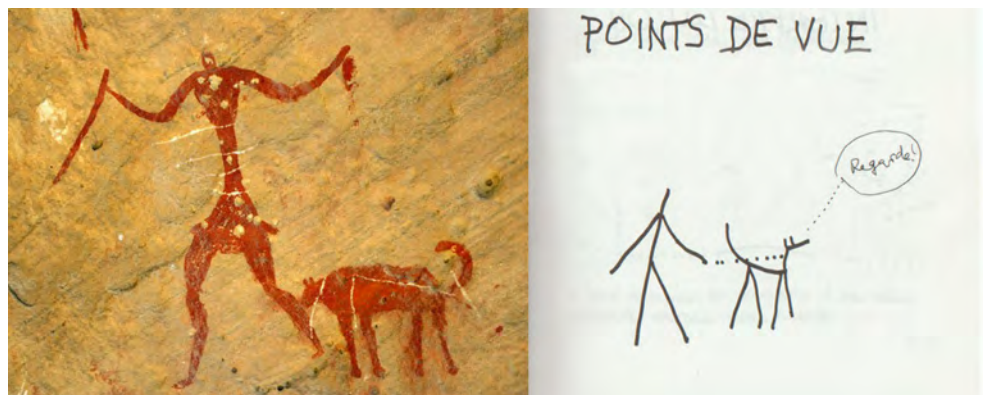


Fig. 5 Left the rock paintings of the Tadrart Acacus, a mountainous area of the Sahara, dated between 12,000 BC. and 100 A.D. Right Yona Friedman, image taken from *The complicated Order, How to build an image* (2008)

Conclusion

In the introduction to the book *Realizable Utopias*, Yona Friedman explains some concepts underlying the theories expressed in the following chapters: among them, the impossibility of global (world) communication, “Utopia as anti-utopia, generalized communication as anti-education are, perhaps, the hallmarks of our epoch”⁹. This impossibility is not given by the lack of adequate technologies (for example the internet) “but derives from the fundamental human inability to generalized communication (of all towards all)”¹⁰. In reality, by analyzing the work of Yona Friedman about his drawings, we can see how the simple, almost primitive elements of the representations present in *The complicated order* and *Realizable Utopias*, we have a communicative form able to overcome even language barriers.

The self-construction manuals created with Unesco in the 1970s for developing countries were translated into different languages and distributed in Africa and India: the drawings, however, were always the same, always understandable even by people from different parts of the world.

After centuries, the primitive or rock drawings they are inspired by still have the same communicative ability to tell us about the life of prehistoric man: perhaps we will never be able to know if these representations had a ritual value or were simply playful expressions decorative but certainly the message or the story they want to tell us is clear. Perhaps in the return to a simple design, devoid of technicalities (“It is not sophisticated technology that leads to new things”¹¹) can we try to find the solution to the human incapacity for generalized communication of all to all? “However, if by raising some problems I give the reader material for reflection, I will have achieved my goal”¹²

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While sharing the ideas expressed in this article, the paragraphs Introduction, The drawing and language of Yona Friedman and Conclusions are to be attributed to Michela Scaglione while The dissolution of architecture according to Yona Friedman to Emmanuele Lo Giudice.

⁹ Yona Friedman, *Realizable Utopias*, 1974, Introduction to the new edition of 2003.

¹⁰ Yona Friedman, *Realizable Utopias*, 1974, Introduction to the new edition of 2003.

¹¹ IAAC Closing Lecture 2012 - Yona Friedman Interview.

¹² Yona Friedman, *Realizable Utopias*, 1974.

Artists in the French arsenals of Louis XIV

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Abstract

During the reign of Louis XIV (1638-1715), thanks in particular to the Minister of Finance, Jean-Baptiste Colbert (1619 - 1683), and his son Jean-Baptiste Antoine Colbert, Marquis de Seignelay (1651 - 1690), France experienced an important Navy development. The world of shipyards went on to transform and new figures emerged in the evolutionary, design and construction process of the ships. Among these, mathematicians played a role of fundamental importance as they brought improvements in shipbuilding using the study of geometry, statics and more specialized disciplines such as hydrostatics and hydrodynamics, the foundations of what we call architecture naval. However, in the world of French arsenals, we compare another figure, who also carries innovations, especially on an aesthetic level: the artist. In fact, it is true that boats are “functional objects”, because their shape is the result of changes implemented by virtue of a continuous succession of construction and nautical improvements, it is equally true that in Louis XIV's France everything had to affirm national power, both in the Kingdom and on the seas. As evidence of that, not only marvelous palaces were built, like the Palace of Versailles, but also prestigious ships; the ships of the Navy will then become a means of showing off the glory of the Sovereign. Therefore, the new fleet was not only meant to be effective in combat but it was also to affirm the French grandeur through its abundance of decoration and formal beauty. Among the figures in charge of dealing with this ambitious project, notable artists in France at the time were involved, such as Jean-Baptiste de la Rose (1612-1687), Pierre Puget (1630-1694) pupil of Charles Le Brun (1619 - 1690) and François Girardon (1627 or 1630 - 1715). The artists' task was therefore to design the sumptuous decorations of French vessels and the interior furnishings, the realization of the works and manage the workers composed of selected minor artists and carpenters who had to carry out the decorations. From the union between artists and shipbuilders, sailing masterpieces such as *Saint Philip* (1663) or *Royal Louis* (1668) were born, both built in the arsenal of Toulon. In this way, then, the image of the France was present in what is another and not secondary variation of art: the naval art.

Abstract

Durante il Regno di Luigi XIV (1638 - 1715), grazie in particolare al ministro delle finanze, Jean-Baptiste Colbert (1619 - 1683), e a suo figlio Jean-Baptiste Antoine Colbert, Marquis de Seignelay (1651 - 1690), la Francia assistette a un importante sviluppo della Marina militare. Il mondo dei cantieri navali fu oggetto di importanti trasformazioni e nuove figure si delinearono nel processo evolutivo,

progettuale e costruttivo dei vascelli, soprattutto da guerra. In particolare, i matematici rivestirono un ruolo di fondamentale importanza, in quanto portarono miglorie nella costruzione navale tramite lo studio della geometria, della statica e di discipline più specialistiche come l'idrostatica e l'idrodinamica, i fondamenti di quella che noi oggi chiamiamo architettura navale. Tuttavia, nel mondo degli arsenali francesi, comparve un'altra figura, portatrice anch'essa di innovazioni, soprattutto a livello estetico: l'artista. Infatti, se è vero che le navi sono "oggetti funzionali", nella misura in cui la loro forma è il risultato di modifiche attuate in virtù di una continua successione di miglorie costruttive, è altrettanto vero che nella Francia di Luigi XIV ogni cosa, così nel Regno come sui mari, doveva affermare la potenza nazionale. A testimonianza di ciò, non furono realizzati solo meravigliosi palazzi, uno fra tutti la Reggia di Versailles, ma anche navi prestigiose; i vascelli della Marina divennero allora un mezzo per ostentare la gloria del Sovrano. Perciò, la nuova flotta non doveva solo essere efficace in combattimento, ma doveva anche affermare, attraverso la sua ricchezza e la sua bellezza formale, la grandeur francese. Tra le figure incaricate di occuparsi di questo ambizioso progetto, emergono artisti di rilievo nella Francia di allora, come Jean-Baptiste de la Rose (1612 - 1687), Pierre Puget (1630 - 1694) allievo di Charles Le Brun (1619 - 1690) e François Girardon (1627 o 1630 - 1715). Compito dell'artista era quello di progettare le sontuose decorazioni dei vascelli francesi e l'arredo interno, la realizzazione dei lavori e anche di gestire le maestranze composte da selezionati artisti minori e falegnami che dovevano realizzare le decorazioni. Dall'unione tra artisti e costruttori navali nacquero opere d'arte naviganti come ad esempio la Saint Philip (1663) o la Royal Louis (1668), entrambe realizzate nell'arsenale di Tolone. In questo modo, l'immagine della Francia era ostentata in quella che è un'altra declinazione, non secondaria, dell'arte: l'arte navale.

Introduction

Century changed drastically thanks to an important development processes of ports, arsenals and shipbuilding that created a strong and powerful Navy. The world of shipyards went on to transform and new figures emerged in the evolutionary, design and construction process of the boats. Among these, mathematicians played a role of fundamental importance as they brought improvements in shipbuilding using the study of geometry, statics and more specialized disciplines such as hydrostatics and hydrodynamics, the foundations of what we call architecture naval. However, in the world of French arsenals, we compare another figure, who also carries innovations in vessels, especially on an aesthetic level: the artist.

Colbert and the naval development

During the reign of Louis XIV (1638 - 1715), the France Navy and the shipbuilding lived a great development especially thanks to the work of the finance minister Jean-Baptiste Colbert (1619 - 1683), helped by his son Jean-Baptiste Antoine Colbert, Marquis de Seignelay (1651 - 1690), both eager to make France a naval power like other rival nations, in particular England, Holland and Spain. Colbert was a disciple of Cardinal Mazarin (1602 - 1661), who were the prime minister since 1643 until his death, after Cardinal Richelieu (1585 - 1642). Shortly before die, Mazarin sent a letter to the king writing: « Je vous dois tout, Sire; mais je crois m'acquitter en quelque manière en vous donnant Colbert. »¹, giving to the monarchy what we could call a reference letter. And so it was that in the 1661

¹ La Roncière, Charles de. *Histoire de la marine française*. Vol. 5. Paris: E. Plon, Nourrit, 1899; p. 312.

Jean-Baptiste Colbert got the assignment to organise and manage the France Navy that was in critical condition; all the efforts Richelieu had made in order to strengthen the Navy had been nullified under the regency of Anne of Austria (1601 - 1666), who became the *Grand Maitrise de la Navigation*² in 1646. That title was created by the prime minister Richelieu in the 1626 in order to remove the Navy from the aristocracy control putting it directly under the king control through the medium of the *Grand-Mâitre*³. In 1661, an inquiry taken by the prime minister showed the state of neglect of the French Navy and Colbert himself commented:

« Depuis dix ans l'on n'avait jamais vu en mer plus de deux ou trois vaisseaux de guerre François; tous les magasins de guerre étaient entièrement dénués; tous les vaisseaux réduits à vingt, – plusieurs mesme hors d'estat de servir, - toute la chiourme à huit ou neuf cens forçats, la plupart malades et affoiblis; six meschans corps de galeres; enfin cette nature d'affaires en laquelle reside la mailleure partie de la gloire du prince et le respect de son nom dans les pays estrangers, reduite au plus pitoyable estat que l'on puisse imaginer. »⁴

In 1664, a further inquiry showed the evident French Navy numeric inferiority compared to the other European powers. The national fleet, indeed, was about 130.000 tons while the English one was 200.000 tons, almost twice the French fleet, and the Dutch fleet was even more than the double with its 600.000 tons⁵, the Dutch *gouden eeuw*. Colbert carried out a manoeuvre to resolve the situation restarting the shipbuilding industry. He recalled many French shipbuilders who had moved abroad⁶ and he also drew many shipwrights from foreign countries, especially Italy and Holland. Doing this, Colbert let the French shipyard learn the Dutch shipbuilding techniques considered to be the best of the time. To get a numerous fleet in the shorter possible time, the prime minister not only started a local ship production, but he also start several negotiations on buying ships from Italy, United Provinces (1581 - 1795), Denmark and Sweden. Furthermore, a fundamental operation started by Colbert included the expansion of ports as Brest, Toulon and Marseille, and the construction of new naval arsenals as Rochefort (1666)⁷. Among those shipbuilding centres there were Brest, Port-Louis and Rochefort on the Atlantic coast, Durkerque on the North Sea, Marseille and Toulon on the Mediterranean Sea⁸.

As we can see, any access to the sea was exploited for the expansion of the naval industry.

Not only shipyards were developed in those centres, but also shipbuilding schools, ship control and management and naval artillery practice, as well as guns foundries⁹.

About this business, Colbert had to create a industry from nothingness. Although some French guns foundries successes in the 16th century, the political crisis lived by the Reign had lead to the vanishing of this industry. Even Richelieu, acting for create a strong Navy, did not deal with guns construction and when Colbert became the prime minister, France completely depended on foreign armaments, especially the Dutch ones. The prime minister, nevertheless, was firmly convinced of the need to develop a national iron armament industry in order to develop a internal trade and to exploit French the iron mines. Thus, from the 1660s a national plan was implemented. It included the extraction and

² Chack, Paul. *Marins à bataille*, Volume 1. Le gerfaut, 2001; p. 169.

³ James, Alan. *The Navy and Government in Early Modern France, 1572-1661*. Woodbridge (UK): Boydell & Brewer, 2004; p. 55.

⁴ La Roncière, Charles de. *Histoire de la marine française*. Vol. 5. Paris: E. Plon, Nourrit., 1899; p. 325.

⁵ Thierry, Sarmant. *Louis XIV: homme et roi*. Paris: Édition Tallandier, 2012.

⁶ Stoll, Mathieu, Thierry Sarmant. *Le grand Colbert*. Paris: Édition Tallandier, 2019.

⁷ Lacroix-Lintner, Dominique. *Marine, beaux-arts et mécénat au XVIIe siècle en France*. 124-Sorbonne. Carnet de l'École Doctorale d'Histoire de l'Art et Archéologie, 2016; p. 3.

⁸ Thierry, Sarmant. *Louis XIV: homme et roi*. Paris: Édition Tallandier, 2012.

⁹ Thierry, Sarmant. *Louis XIV: homme et roi*. Paris: Édition Tallandier, 2012.

transport of minerals in carefully selected centres to supply the all arsenals and the birth of large private companies for the processing of raw materials was stimulated. Despite that, results were not satisfactory, not because of an inability of workers in processing materials, but because of the unsuitable quality of French iron for casting. France did not develop a powerful iron armament industry until the second half of the 18th century, long after Colbert died¹⁰. Except for the failure in the guns production, the other naval development operations were successful. When the Dutch war (1672-1678) broke out, France had 120 ships of the line¹¹ and in 1676 it won a naval battle at Palermo against the Dutch fleet supported by Spain. On that occasion Louis XIV wrote to Colbert:

« (...) Voilà ce que nous souhaitons il y a longtemps vous et moi et il n'y a plus rien à désirer de ce côté-là. Il faut toujours travailler à perfectionner ce qui commence déjà à passer les autres nations. Il faut faire en sorte que la France l'emporte par mer sur les autres nations comme elle le fait sur terre. »¹²



Fig. 1 Jan van Beecq. La jonction de la flotte française commandée par l'amiral d'Estrées et la flotte anglaise commandée par le duc d'York avant la bataille de Solebay. 1672. Preserved at: Musée national de la Mari, Paris

In 1690, the French Navy had almost 150 ships. Three of them were première grandeur ships with 120 guns; these were the Soleil-Royal (1671), the Royal-Louis (1668) and the Dauphin Royal (1668). In the fleet there were also 30 second-rate ships mounting 70-90 guns, 60 third-rate ships mounting 50-70 guns and 30 galleys exclusively used in the Mediterranean Sea¹³. The Roi Soleil was satisfied of Colbert's results and, after a trip to Dukerque, in 1680, the king wrote him a letter saying:

¹⁰ Cipolla, Carlo Maria. *Vele e cannoni*. Bologna: il Mulino, 2019; p. 35-39.

¹¹ Thierry, Sarmant. *Louis XIV: homme et roi*. Paris: Édition Tallandier, 2012.

¹² Murat, Inès. *Colbert*. Paris: Fayard, 1980; p. 336.

¹³ Thierry, Sarmant. *Louis XIV: homme et roi*. Paris: Édition Tallandier, 2012.

« J'entendrai bien mieux présentement les lettres de marine que je ne faisais, car j'ai vu le vaisseau de toutes manières et faire toutes les manœuvres tant pour le combat que pour faire route. Je n'ai jamais vu d'hommes si bien faits que sont les soldats et les matelots ; si je vois jamais beaucoup de mes vaisseaux ensemble, ils me feront grand plaisir. Les travaux de la marine sont surprenants, et je ne m'imaginais pas les choses comme elles sont: enfin je suis satisfait. » ¹⁴

The aesthetic pomp of Versailles in the French arsenals

Today, Louis XIV is remembered overall for the aesthetic pomp of his reign exalted and exasperated by the decorative abundance present in every element and detail. From the fashion of the rich gold-covered clothes and laces worn at court, to the elaborate hairstyles worn by ladies and gentlemen and again by the decorative richness that made the celebrations and architecture of that period famous and unforgettable, like, above all, the famous Palace of Versailles. The taste of the time was justified by the desire to show the wealth and power of the French nation to the world. The maritime power of France also had to become a bringer of a message which showed the abundance and the greatness of the nation in the seas. In order to do this, a large and powerful fleet was not enough, king's ships had to be also recognizable for their beauty and they had to have more ornaments and decoration than any other foreign ship. This aesthetic tendency to glorify everything was therefore also applied to the ships of the Navy. From the second half of the 17th century, in fact, the French ships were large and heavy sailing vessels with low draft, made with sturdy oak wood¹⁵ characterized by the abundance of decorations. The stern part in particular became a stage in which to show the grandeur of Le Roi Soleil to the world.

Since 1660, the will to decorate and adorn ships makes artists come to work in shipyards to create amazing ships worthy of Louis XIV. We can only imagine the ferment of those shipyards in those days. In 1668, at Toulon, for example, three big ships were built at the same time, two of them were first-rate ships, the Royal Louis and the Dauphin Royal, both mounting 104 guns, and the other one was the second-rate Monarque, mounting 80 guns¹⁶. Nonetheless, coexistence on the shipyard between naval workers and artists was not easy; the complaints concerned in particular the insubordination of the latter, which, in the Toulon superintendent Louis Leroux d'Infreville (1642 - 1712) opinions, « (...) ne se gouverne pas comme les autres artisans », so much that the monarchy allowed to force these craftsmen to work even under threat of violence¹⁷.

¹⁴ Thierry, Sarmant. *Louis XIV: homme et roi*. Paris: Édition Tallandier, 2012.

¹⁵ Stoll, Mathieu; Thierry Sarmant. *Le grand Colbert*. Paris: Édition Tallandier, 2019.

¹⁶ De Montaignon, M. Antole. *Archives de l'art français. Recueil de documents inédits relatifs à l'histoire des arts en France*. Paris: J.-B. Dumoulin, 1855-56; p. 253.

¹⁷ Martin, Meredith; Weiss, Gillian. A tale of two guns. Maritime weaponry between France and Algiers. In: Fraser, Elisabeth A. (edited by). *The Mobility of People and Things in the Early Modern Mediterranean: The Art of travel*. New York: Routledge, 2019; p. 30.



Fig. 2 Jean Bérain. Soleil Royal Stern and bow drawings. XVII century. In: Toudouze, Georges G.- et alii. *Histoire de la Marine*. Paris: Les Éditions de L'Illustration, Baschet et Cie, 1959; Tome premier, pp. 148-149

In order to organize this new shipyards reality, the artistic work was divided in ateliers, each of which had an artist in charge. These artistes entretenus had to design the ships decorations, to supervise the work of craftsmen ensuring a successful outcome and also to manage the administrative operations related to works in progress. Their job, therefore, was not to work alone but in synergy with other artists and craftsmen. Nevertheless, often the artistes entretenus, who were leaders of those ateliers, realized the most important and visible elements by themselves, as the painter Jean-Baptiste De la Rose (1614-1687) made with the decorations of the boiseries present in the Chambre du Conseil (also called Chambre de Volontaires, the room where the Council had its reunions and in the three-decks ships it was placed in the middle deck above the Santabarbas¹⁸). Local and less-known artists were thus just executors supervised by the superintendents' watchful eye. Working for the shipyard there were also important artists who were not entretenus and they had a contract work; their job was not exclusively concerned with making the decorations on ships but they also have other tasks, as Pierre Puget (1620 - 1694) who realized drawings showing several ships¹⁹. Artists aspired to become artistes entretenus because the government issued a sort of patent, which was a real document with the same value of the title issued to the artists of the king by the Académie royale²⁰. During the seventeenth century the

¹⁸ Aubin, Nicolas. *Dictionnaire de Marine contenant le termes de la Navigation et de Architecture navale*. Amsterdam: Pierre Brunel, 1702; p. 187.

¹⁹ Lacroix-Lintner, Dominique. *Marine, beaux-arts et mécénat au XVIIe siècle en France*. 124-Sorbonne. Carnet de l'École Doctorale d'Histoire de l'Art et Archéologie, 2016; p. 6-8.

²⁰ Théron, Magali. *Les ateliers de peinture et de sculpture des arsenaux en Provence en marge de l'Académie de peinture et de*

French monarchy played a role of naval art patron and the arsenals became a point of attraction for many artists, sculptors and painters. These centers of artisan construction and practical work became real artistic centres capable of attracting talents from all over France. Among them there were many prominent artists as the sculptor François Girardon (1628 - 1715). He was called to work on the Royal Louis (1668) and the Royal Dauphin (1668) at the Toulon arsenal in the 1667 after finishing a group of sculptures of the Chevaux du Soleil, placed in the Versailles Palace²¹. Moreover, those atelier inside arsenals also attracted foreign artists especially from Flanders and Italy. The migration of artists to French naval production poles meant that « entre 1670 et 1680 plus de quatre-vingts sculpteurs et cinquante-cinq peintres se côtoyèrent ainsi à l'arsenal de Toulon, faisant de la ville l'une des plus peuplées de France en nombre de peintres et sculpteurs par habitant. »²²

This massive introduction of the art of drawing into the shipbuilding process also had an important echo in the evolution of naval science. In fact, it must be kept in mind that at the time the construction of ships was still largely entrusted to skilled shipwrights who with their experience knew how to make the necessary elements for the construction of vessels. In fact, although shipbuilding treaties were beginning to be widespread thanks also to the impulse of the press, there was still no a real phase of design and study of ships. In those treatises the drawing was used to explain how to make the individual elements manually, but was not yet part of the actual construction process. The shipbuilder, in fact, did not draw the ship elements before making them, but he relied on his empirical knowledge and experience to translate the raw material into construction elements. In this perspective, therefore, the choice to introduce skilled designer artists into the world of French arsenals can be considered a boost to the growth and progress of shipbuilding. In order to make statues and decorations on different materials and surfaces these artists previously prepared sketches which were preparatory drawings. This procedure, which was typical of the artistic world, was therefore translated and acquired by shipyards given that artists in charge of the external decoration of vessels began to produce different drawings of sterns, bows and profile of ships. This meant that the ships, or at least their external parts, slowly began to be drawn before they were built. The accuracy of the drawings led to systematise the transposition of an experiential project on paper. Colbert did not miss the great advantages obtainable thanks to this phase of graphic processing. In fact, understanding the potential of these drawings, the minister began to request that all artists send their sketches, creating collections of drawings. Furthermore, Colbert did not had to do only with the national Navy development since he decided to make the world of the French Navy appreciated by the king as Louis XIV was not particularly interested in a faraway world not immediately glorifying his image. And since the king was not used to frequent ports and arsenals, Colbert decided to show the naval world to him through a « tableaux de l'armée navale »²³ specially made by the painter De la Rose. Then, Colbert went further ordering to artists as Pierre Puget and De la Rose to create a collection of drawings illustrating all the elements of a galley or showing « Tous les bâtiments de la Méditerranée ». Moreover, this practice of creating albums containing the ships types remained a trend in use even many years later as the collection *Collection de toutes les espèces de bâtimens de guerre et de bâtimens marchands qui naviguent sur l'Océan et dan le Méditerranée* (c. 1810) made by Jean-Jérôme Baugean (1764 - 1819) in the early 19th century shows.

sculpture de Marseille. In: *Rives méditerranéennes*. 2018/1 (n. 56); p. 149.

²¹ Weigert, Roger-Armand. *L'époque Louis XIV*. Paris: Presses Universitaires de France, 1962; p. 85.

²² Théron, Magali. Les ateliers de peinture et de sculpture des arsenaux en Provence en regard de l'Académie de peinture et de sculpture de Marseille. In: *Rives méditerranéennes*. 2018/1 (n. 56); p. 150.

²³ La Roncière, Charles de. *Histoire de la marine française*. Vol. 5. Paris: E. Plon, Nourrit. 1899; p. 331.

Given the tendency to catalogue information on ships by drawing, to have uniformity in the information acquired the next step was the formal standardization of these catalogs. Drawing was becoming a detailed tool for knowing and investigating reality and the naturalistic and pictorial artistic approach was slowly supplanted by a more geometric vision accompanied by scales and measures. Moreover this process did not only concern the naval world but it also took place in architecture²⁴. This new trend also led to change the processes in French arsenals. In fact, while at first artists were called into the arsenals to assist and help shipwrights in some construction phases, soon the idea of training workers to the drawing directly in arsenals eliminating an external presence started to circulate. In 1672, François Girardon sent a large number (948) of « modèles de plâtre, dessins et estampes »²⁵ books to the ports of Toulon, Marseille and Brest so that artists present in the aforementioned ports could have useful texts for their artistic training. Over time, the arsenals were even equipped with structures for teaching art, drawings and graphic representations arriving to train future ships designers (as much as it may be premature to use this term) on site. During the second half of the seventeenth and early eighteenth centuries, this innovation in the naval world led to the founding of a school of engineers and shipbuilders in 1741 thanks to the initiative of another great person who led the the French Navy world after Colbert, Henri-Louis Duhamel du Monceau (1700 - 1782).

Floating artworks, the Royal Louis (1668)

« Je suis l'unique dessus l'onde, et mon roy l'est dedans le monde. »

This was the motto written in gold letters on a blue background that could be read at the foot of the mizzenmast on the third bridge of the Royal Louis, which was flagship of the Mediterranean fleet and one of the first vessels to be classified as premier rang. This imposing vessel can be considered one of the greatest examples of these fascinating ships made following the French pomp of the seventeenth century. Decorated under the artistic direction of Charles Le Brun and François Girardon, the Royal Louis had on the stern, point of maximum concentration of the ornaments, the statues of the gods Neptune and Thetis who offered the riches of the sea and land to the king, who was seated on the throne of justice surrounded by an abundance of sculptures and ornaments²⁶.

Certainly it has been one of the most majestic ships ever built and in the Navy commissioner Hayet opinion « On peut dire que jamais aucun Navire n'a esté si enrichy de peinture & de sculpture que cet incomparable vaisseau. »²⁷The intent was, in fact, to build the largest and most majestic vessel ever made in France, worthy of bearing the name of the sovereign. For this reason the intendant d'Infréville decided to have three different projects for the decorations of the vessel made by three different artists; they were the painter Jean-Baptiste De la Rose and the sculptors Nicolas Levray (XVII sec.) and Rombaud-Languenu (c. 1637 - 1718) ²⁸. The latter, who was then thirty years old²⁹ and of Flemish origin, was instructed to travel to Paris to submit the three plans to the minister. After seeing them, Colbert submitted them to the court artist Charles Le Brun (1619 - 1690).

²⁴Théron, Magali. 2018. Les ateliers de peinture et de sculpture des arsenaux en Provence en marge de l'Académie de peinture et de sculpture de Marseille. In: *Rives méditerranéennes* 2018/1 (n. 56); p. 152.

²⁵Théron, Magali. *L'ornementation sculptée et peinte des vaisseaux du Roi*. T. 1. Paris: Université de la Sorbonne, 2003. p. 81-83.

²⁶Stoll, Mathieu; Thierry Sarman. *Le grand Colbert*. Paris: Édition Tallandier, 2019.

²⁷Hayet. *Description du vaisseau le «Royal Louis» Dédiée à messire Pierre Arnoul, conseiller du Roy en ses Conseils, intendant général de la Marine de Levant*. Marseille: Charles Brebion, 1677; p. 25.

²⁸Lambert, Gustave. Histoire de Toulon. In : *Bulletin de l'Académie du Var*, nouvelle série – Tome XV, 2eme Fascicule. Toulon: Imprimerie du Var, 1890; p. 324.

²⁹Lagrange, Léon. *Pierre Puget : peintre, sculpteur, architecte, décorateur de vaisseaux*. Paris: Didier et Cie, 1868; p. 111.



Fig. 3 Maître Rodolphe. Drawing of the Royal Louis. In: Hayet. Description du vaisseau le «Royal Louis» Dédiée à messire Pierre Arnoul, conseiller du Roy en ses Conseils, intendant général de la Marine de Levant. Marseille: Charles Brebion, 1677. Source: gallica.bnf.fr / Bibliothèque nationale de France

All three projects were discarded and Le Brun personally created a new project with a non-provincial style and in line with the tastes of Versailles. In addition, another court artist was sent to the Toulon arsenal to oversee the work related to the decorations, François Girardon (1628 - 1715). A lot of manpower was needed to build the Royal Louis, including a hundred craftsmen and artists³⁰. In the only Nicolas Levray's escadre there were seven craftsmen, two garçons, including his son Antoine Levray (17th century) and a Menuisier. His team was commissioned to build « tous les ornemens de la poupe, compris les chevaux marins, le jardin et balustrades, ensemble la sculpture qu'il conviendra faire aux fanaux, et s'assujettir autant qu'il pourra aux ouvrages de fer qu'il faudra faire pour cet effet. » Or again in the Rombaud-Languenu's escadre there were three craftsmen and two garçons with the task of realising « les figures (...) du costé de tribord ».

Many of these workers were unrelated to the shipyards world and because of the difficulty of managing these figures the superintendent of the artistic works d'Infréville wrote a letter to Colbert, dated April 21, 1668, saying: :

« (...) je feray bien mon possible pour les tenir en leur devoir, mais il est absolument nécessaire d'avoir un commandant comme le sieur Girardon ou une personne de sa suffisance pour conduire un sy bel ouvrage et assujettir les gens de ce mestier (...). »³¹

Work on the construction of the Royal Louis began in 1666 at the Toulon shipyard. The direction of the works was followed by Rodolphe Gédéon (17th century), who was a Dutch shipbuilder called to work in France by Colbert.

The result was the construction of the largest ship ever built in France until then: 52.9 meters long, 14.40 meters wide, an immersion of 7.15 meters and a displacement of around 2,400 tons. Its firepower included 16 pairs of guns in the lower deck, 14 pairs of guns in the middle deck and 13 pairs of guns in the upper deck³² plus other guns located at the stern and bow, for a total of 104 guns. It was a three-deck vessel with 800 crewmen.

Talking about decorations, the stern was most expressive area of the artistic pomp of the time. The Royal Louis's stern was decorated with bay leaves, shells and festoons, all covered in gold. In the centre Louis XIV was depicted dressed as a Roman emperor sitting on the throne of justice and crowned by the divinities of the sea and the earth. He had two chained slaves on his feet; The prisoner to the king's right had his hair tied up in a hairstyle called topknot, which immediately identified him as a slave of Turkish origin. For the realization of this statue it is possible that a Turkish slave actually posed as model, indeed, in 1668 while Le Brun was designing his project for the Royal Louis, Colbert sent two exclave Turque as models for the Paris Académie Royale artists. It is therefore probable that some slaves also posed for the artists of atelier inside shipyards. The decision to represent a Turkish slave close to His Majesty was linked to a specific reason. War galleys were still being built in the Mediterranean and therefore rowing boats still represented an idea of naval power. In addition, they were fixed in the common imagination as the ships of the great Roman conquerors and of the Christian struggle against the infidels during the crusades. This is why the rowing slave was associated with the idea of naval power, a symbol of European domination over the rest of the Mediterranean. Representing Turkish

³⁰ Martin, Meredith; Weiss, Gillian. A tale of two guns. Maritime weaponry between France and Algiers. In: Fraser, Elisabeth A. (edited by) *The Mobility of People and Things in the Early Modern Mediterranean: The Art of travel*. New York : Routledge, 2019; p. 30.

³¹ Lagrange, Léon. *Pierre Puget : peintre, sculpteur, architecte, décorateur de vaisseaux*. Paris: Didier et Cie, 1868; p. 113.

³² Winfield, Rif; Roberts, Stephen. *French Warships in the Age of Sail 1626-1786: Design, Construction, Careers and Fates*. Barnsley: Seaforth Publishing, 2017; p. 56.

slaves near Louis XIV therefore symbolized his power and also reaffirmed his loyalty to Christianity³³. The rest of the stern was occupied by mythological figures, such as mermaids, divinities and sea horses, and allegorical ones as the representation of the Four Continents and the Fame playing her trumpets. All these wooden statues were covered in gold creating an effect of magnificence and wealth. The sides of the vessel were equally decorated; under gun-ports there was a golden frame with a floral theme that ran all over the side and the gun-ports were decorated with lilies, suns and the king's initials, and everything was covered in gold. At the bow another allegory Fame supporting the royal coat-of-arms helped by a small triton standing out from many decorations.

The interiors were richly adorned with decorations and paintings too, and even here Turkish slaves were represented to enhance the superiority of the crew over the enemy. Even the Santabarbara, which was located on the lower deck, was decorated with drawings of fleurs-de-Lys enriched with gold threads. And the staircase had balustrades decorated with painted panels. In the middle deck, the *Chambre des Volontaires* was one of the areas that most exalted the artistic pomp. Here, on the walls two large frames ran for almost the entire wall; they depicted two scenes from the Apollo and Python story taken from Ovid's *Metamorphosis*. One depicted Cupid stretching his bow against Apollo, and the other showed Apollo chasing Daphne before she turns into a laurel. The room was adorned with several small painted panels and surrounded by golden mouldings. Inside a large painting there were painted the *Armes du Roy*, the royal coat-of-arms, supported by tritons and the coats-of-arms of the owners of the vessel. They were de Bourbon duca di Vendôme (1594 - 1665) on the right and his son François de Bourbon-Vendôme duca di Beaufort (1616 - 1669) on the left. The ceiling was painted blue with the king's symbols in gold, such as the sun, lilies and crowns, all intertwined with leaves. The floor also symbolized the magnificence of the Royal Louis, being made of precious materials such as olive, ebony and ivory³⁴.

The *Corps de garde*³⁵ was the room under the stern castle, always in the mid-deck. Here, above the entrance there was a panel with the king's initials placed above a golden globe. Inside, the ceiling was covered with golden lilies and crowns intertwined with greyness leaves (greyness is a technique of monochromatic painting in shades of gray). A large table stood at the centre of the room, whose legs consisted of eight fake jasper columns each with its own capital (jasper is a reddish stone with black veins). On the sides of the room there were four gun-ports decorated by cartouches³⁶, which are floral decorations in bas-relief, and everything greyness painted. Large paintings depicting seascapes and other landscapes with golden frames were positioned in the empty space between gun-ports. The officers' cabins, which were in the aft part of the vessel, were equally rich in decorations. The ceilings were adorned with blue panels with gold and greyness decorations representing royal symbols. Large paintings were hanging on the walls depicting mythological scenes, such as Apollo with satyrs, or portraits of sovereigns. Finally, the aft part of the upper deck was called *dunette*³⁷ and in the warships the private cabins of the senior officers, as the *maître* or the *pilote*, were positioned there.

³³ Martin, Meredith; Weiss, Gillian. A tale of two guns. Maritime weaponry between France and Algiers. In: Fraser, Elisabeth A. (edited by) *The Mobility of People and Things in the Early Modern Mediterranean: The Art of travel*. New York: Routledge, 2019; p. 25.

³⁴ Hayet, *Description du vaisseau le «Royal Louis» Dédicé à messire Pierre Arnoul, conseiller du Roy en ses Conseils, intendant général de la Marine de Levant*. Marseille: Charles Brebion, 1677; p. 26.

³⁵ Aubin, Nicolas. *Dictionnaire de Marine contenant le termes de la Navigation et de Architecture navale*. Amsterdam. 1702; p. 279.

³⁶ For some examples of typical Louis XIV *cartouches* see: Syracuse Ornamental Company. *Ornamental borders scrolls and cartouches*. New York: Dover Publications, 1923; in particolare tav. 92.

³⁷ Aubin, Nicolas. *Dictionnaire de Marine contenant le termes de la Navigation et de Architecture navale*. Amsterdam. 1702; p. 336.

In the biggest warships, as the Royal Louis, the dinette was even divided into two areas. The access to the first dunette led to a corridor with two room's doors on each side, each one decorated with floral decorations and leaves of various colours. Inside the cabins there was once again the pomp that enveloped the rest of the ship. Wherever the eye looked, it found decorations of leaves enveloping gold lilies and royal initials, generally on a blue background. There were paintings hanging on the walls enclosed in large golden frames, which represented landscapes, military scenes with armies and fleets and naval combats. Raised compared to the first, the second dunette had eight small cabins all with interiors decorated and painted in perfect Versailles style and the bulkheads were made of marble and precious olive wood.

Its realization was undoubtedly expensive. In a letter from the superintendent d'Infreville addressed to Colbert, dated 4 November 1667, we can read the estimated cost for the realization of « sculptures, dorures et peintures des trois desseins par eux dressez de la poupe » by De la Rose and the other master sculptors of the Toulon arsenal. For De la Rosa's work, the cost was 37,060 lire [livre tournois³⁸], 21.300 lire of them were for sculptures and 15.760 lire for the payment of materials, including painting and gold to cover the ornaments, and workers' salaries. For Rombauid Langrune's designs the total amount was 25.850 lire and again 23.800 lire for the work of Nicolas Leyvray. A total of almost 89,000 lire which concerned only the expenses for the artists' work³⁹. Ten years later the d'Infreville's letter, in 1677, when the coinage had undergone changes in its value, a published text reported that overall the cost of the vessel was 65.800 livres of which 20.000 livres to pay for sculptures and paintings and 27.000 livres spent for carpentry work⁴⁰. Knowing that it would make no sense to compare the current coinage to understand its value, however, it is possible to make a reasoning for relationships, from which it can be deduced that the cost of decorations was almost equal to the cost of carpentry. This makes us understand that the aesthetic value of ships and the value attributed to the efficiency in navigation were placed on the same level of importance.

However, Colbert was able to bear the high construction costs thanks to his autonomy in the manoeuvrability of the economic flows resulting from the various political offices that the king had entrusted him because of his undoubted honesty. Indeed, besides being the superintendent des bâtiments, Colbert was also in charge of contrôle général des finances and he was the superintendent of des arts et des manufactures⁴¹. As a result, he was able to manage the different sectors synergistically without having to deal with other ministers.

In a letter to Colbert dated March 7, 1668, the intendant d'Infreville described a possible procedure for the launch. He proposed to create an special channel in the Esgoutier river and to drag the Royal Louisin this channel where there was sufficient water depth to reach the port and therefore the sea. Furthermore, d'Infreville also proposed to build a royal stage from where assist with the launching

³⁸ The lira was a coin made from a piece of metal from which precise a number of coins were made. Its value was therefore determined by the relationship with the weight of the metal. Since weights and measures often did not coincide in different areas of the country, coins with different values existed. To distinguish them, it began to combine the geographical place of origin with the common prefix *livres*. Among these, the two mainly used were the *livres paris* (lp) and the *livre tournois* (lt), where the proportion between the *livre paris* and *livre tournois* was 1.25. From 1667, the *livres paris* was eliminated from and, from 1720, with all ambiguity gone, the coin could simply be called *livres*.

³⁹ De Montaiglon, M. Antole. *Archives de l'art français. Recueil de documents inédits relatifs à l'histoire des arts en France*. Paris: J.-B. Dumoulin. 1855-6; p. 233-35.

⁴⁰ Hayet. *Description du vaisseau le «Royal Louis» Dédiée à messire Pierre Arnoul, conseiller du Roy en ses Conseils, intendant général de la Marine de Levant*. Marseille: Charles Brebion, 1677; p. 11.

⁴¹ La Roncière, Charles de. *Histoire de la marine française*. Vol. 5. Paris: E. Plon, Nourrit. 1899; p. 337.

procedures admiring the flagship sailing in the water⁴².

Contrary to what one might think, the life of this majestic vessel was almost free of war events. It was built for François de Bourbon-Vendôme duke of Beaufort, who was Henry IV of France (1553 - 1610) illegitimate grandson and Louis XIV's cousin, and it should have left for a naval campaign in the Mediterranean, but it remained anchored in the port. In 1677, the Royal Louis left for its only military campaign to the port of Messina to support rebels against Spanish control. After this, in 1691, it was taken out of service and renamed Royal Louis Vieux in 1692. Five years later, in 1697, it was finally demolished. The little activity carried out was also shared by the Soleil Royal, its alterego in the Atlantic. That can be justified if we think that these huge and highly decorated vessels had a very high cost for their maintenance, and the crew needed to arm and operate them made management costs exorbitant. In addition, the massive volume of the topside due to the decorations negatively affected the aerodynamics of these vessels, thus making them not even easily manoeuvrable.

However, even if not employed in combat, thinking this floating masterpiece could not find other reasons for use would be wrong. In 1672, Marie de Rabutin-Chantal marquise of Sévigné (1626 - 1696), well known for her private letters letter, wrote to her daughter Françoise-Marguerite de Sévigné, countess of Grignan (1646 - 1705):

« (...) Rien n'est plus romanesque que vos fêtes sur la mer, et vos festins dans le Royal-Louis, ce vaisseau d'une si grande réputation. »⁴³

It suggests that a part of the French aristocracy's social life was delighted also by exploiting these wonderful floating artworks, not used for naval combat.

⁴² De Montaiglon, M. Antole. *Archives de l'art français. Recueil de documents inédits relatifs à l'histoire des arts en France*. Paris: J.-B. Dumoulin. 1855-56; p. 236.

⁴³ Sévigné, Marie de Rabutin-Chantal. *Lettres de Madame de Sévigné, de sa famille et de ses amis*. Tome III. Paris: Hachette et Cie, Imprimerie de Ch. Lahure et Cie, 1862; p. 78.

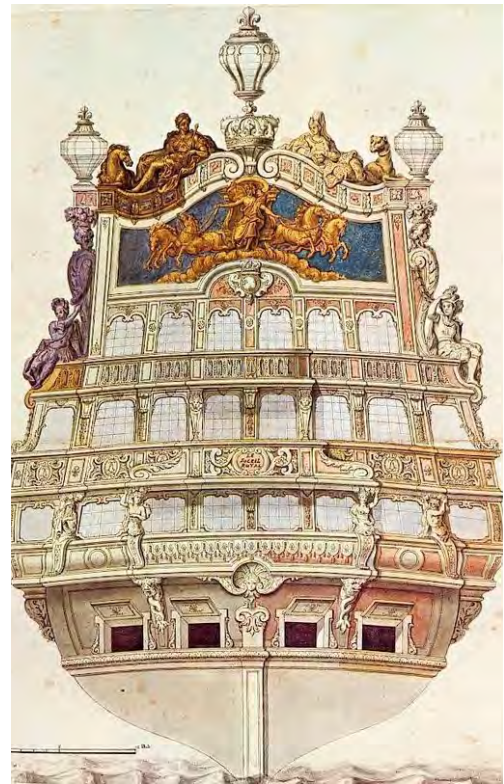


Fig. 4 (on the left) Pierre Puget. Poupe de vaisseau royal le Royal Louis. 1667. Preserved at: Ecole nationale supérieure des beaux-arts, Paris ; Fig.5 (on the right) Jean Berain. Poupe du Soleil Royal. 1669. Preserved at: Musée du Louvre, Paris, D.A.G. Paris. Credit: © Musée du Louvre, Dist. RMN-Grand Palais / Martine Beck-Coppola

Conclusion

Reflecting on the results obtained since the introduction of the figure of the artist in the arsenal, two important moments can be identified that deserve to be reminded. Referring to the largest vessels built in this era by the French Navy, as the flagship of the Mediterranean fleet *Royal Louis* (1668), and the flagship of the Atlantic fleet *Soleil Royal* (1671), we can assume that these richly decorated ships probably did not have great nautical qualities, since they often remained anchored to the port instead of being used in navigation under the command of the respective naval teams. It therefore appears that this exaggerated attention to decoration and visual impact was in some way the main thought in the creations of these ships. Overall, it could be said that the aesthetics were so important as to monopolize the scene, even at the expense of naval efficiency⁴⁴. This certainly does not mean that all the boats built in that period had bad nautical qualities, but only that, in the French case, it can be found that where there is the triumph of decorative aesthetics we can witness the defeat of navigation skills in parallel. Thinking that boats have always been “functional objects” par excellence, this seems almost paradoxical. In fact, the ship itself and every element on board derives from an evolutionary process linked to tradition that has selected the most functional or best forms for navigation over the centuries. Nevertheless, the long-term implication that this French phase brought must be reminded too. In fact, the advent of artists in arsenals opened the shipwrights and carpenters world to representation and design, making it possible over time to create new professional figures, no longer only artisans, but also architects and naval engineers. Thanks to new developments in construction technology and technologies, they were able to further innovation and development in shipbuilding. In this sense we can therefore find a positive aspect, so precious, in hindsight, that we can consider the advent of artists in arsenals a stimulus to the progress of the French shipbuilding industry.

Henri-Louis Duhamel du Monceau kept alive the heredity of Colbert’s successes by creating that discipline known as naval architecture. He was a botanist who studied carefully different wood drying techniques used for shipbuilding and he was appointed Navy inspector on August 1, 1739. Duhamel was determined to introduce mathematics in shipbuilding process allowing to calculate and solve stability and manoeuvring issues. In the 1741 he founded the l’École des ingénieurs constructeurs, which was one of the first European shipbuilding schools, then made official in the 1765 with the name École des ingénieurs-constructeurs des vaisseaux royaux.

Moreover, due to the high artists presence in French arsenals, new artists formation institutes were born. In the 1755, the Académie de Marseille, which was born in the 1752, started the project to create new artists intended to work at Provence French Navy arsenals. Doing that, the Marseilles academy was also dissolving the Parisian “monopoly” of artists professional training. Actually, the French capital already hosted the École des Beaux-Arts by 1648 thanks to Cardinal Mazzarino’s will and the Académie royale d’architecture born in 1671 and inspired by Colbert.

Therefore, following Colbert’s new cultural issues, not only referred to the Navy, eighteenth-century France was opening up to the écoles way of teaching, that is an institutionalized and systematized professional training, eradicating the knowledge from artisan workshops world, which had always served as centre for craftsmen, shipwrights and artists training.

⁴⁴ Stoll, Mathieu; Thierry, Sarmant. *Le grand Colbert*. Paris: Édition Tallandier, 2019.

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Drawing as a cognitive probe for the project

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Abstract

The drawing, with all its ambiguities and polysemic potential, allows for enclosing in itself the ability to design places through the act of re-signifying them. It can attribute to it as the primary tool of investigation for an organization of things, and at the same time a place that allows reading a complicated relationship made up of ontologies of relations of the elements that make up the project. The ability to use drawing as a predictive method of the form and, at the same time, a proposal to modify reality, makes it the place of possibility.

The article aims to illustrate some project experiences that characterized the search for a graphic representation that used drawing as a field of investigation of ontological relationships between elements of architecture and the environment and the concepts related to them. Giving this value to design has allowed us to shift the discussion from contextualized architecture to contextual architecture that weaves together and weaves meanings. In this sense, the design for the project is a tool for identifying new urban relationships and has become a cognitive probe of potential realities. The aim is to illustrate the design's ability to unfold through investigation and the definition of relationships. Resulting research passes from description of mathematical and abstract space to the spatial organization of different elements concerning each other.

Abstract

Il disegno, con tutte le sue ambiguità e potenzialità polisemiche, permette di racchiudere in sé la capacità di progettare i luoghi attraverso l'atto di ri-significarli. Si può attribuire ad esso il ruolo di strumento principale di indagine per un'organizzazione delle cose e contemporaneamente luogo che permette di leggere un rapporto complesso fatto di ontologie di relazioni degli elementi che compongono il progetto. La capacità di usare il disegno come metodo previsionale della forma e, allo stesso tempo, proposta di modificazione della realtà, fa sì che esso sia il luogo delle possibilità.

L'articolo intende illustrare alcune esperienze di progetto che hanno caratterizzato la ricerca di una rappresentazione grafica che ha utilizzato il disegno come campo di indagine di relazioni ontologiche fra elementi dell'architettura e dell'ambiente e dei concetti ad essi legati. Attribuire al disegno questo valore, ha consentito di slittare il discorso da un'architettura contestualizzata a un'architettura contestuale che tesse insieme e intreccia significati. Il disegno per il progetto, in questo senso, è strumento per l'individuazione di nuove relazioni urbane e si è fatto sonda conoscitiva di realtà potenziali.

L'obiettivo è illustrare le capacità del disegno di dispiegarsi tramite l'investigazione e la definizione delle relazioni. La ricerca che ne consegue passa dalla descrizione di uno spazio matematico e astratto, all'organizzazione spaziale di elementi differenti in relazione fra di loro.

Introduction

In the disciplines of the project –from product design to urban design –there is a long tradition in the use of different forms of representation. It can easily be said that they play an important role in the design process. Often, however, the quality, or rather the need, to graphically describe the properties of objects is attributed to drawing. Consider the same descriptive geometry that uses the drawing as a means to represent three-dimensional objects on a plane, in an effort to detect the appearance and shape of the peculiarities. This statement brings the design back to a concept of ontological reading of the intrinsic properties of the body, represented or imagined, bringing it back to an exercise capable of transforming itself exclusively into an objective science of reality (Valentino, 2020). It cannot be denied that this effort implemented through drawing is a fundamental act in the final part of the project –where the use of structured and highly codified forms of representation– allow to document the object before it can be transformed into a physical reality.

However, we must not forget all those antecedent phases that use different forms of representation to investigate not only the form, but also the relations between the parties. The early stages often make use of somewhat abstract diagrams –such as functional schemes– or less structured forms of pictorial representation –such as sketch– as well as apparently less abstract visualizations –such as collages and perspectives. Not always much attention has been paid to the role that these representations play during the design phases and to the cognitive processes that are involved in their use. As submitted Terrance Allan Purcell and John Gero “the process of developing pictorial and diagrammatic representations has traditionally been treated as a skill rather than an essential part of the process of thinking about a design problem and developing a design solution” (1998, p. 390).

Realistic Poetics and Utopian Politics

With the progressive affirmation of representation and digital drawing, analogue drawing techniques seemed increasingly destined to a nostalgic and obsolete vision of making architecture. In recent years, however, there has been a gradual return of design communication methods that refer to past techniques and graphic conventions, such as collage. However, although these refer to past instruments, they make use of the new digital instruments. Sam Jacob (2017) calls them Post-Digital Drawing. Drawings that –far from the realism of photorealistic renders– allow effectively to obtain images that are not real, but at the same time sincere and with a strong communicative impact (Scaglione & Eliche, 2019).

The collage and photomontage, born with the artistic avant-garde of the twenties of the twentieth century, had a widespread also in other art forms and were also adopted in architectural representation. These techniques, at first glance simple, allowed a conceptualization of the elements and offered the new potential for the project. In the first half of the last century this technique was widely used by some of the most important figures of Russian constructivism, Russian constructivism, such as Ivan Il'ich Leonidov or El Lissitzky, and of the modern movement, such as Frank Lloyd Wright, Le Corbusier and Mies van der Rohe.

In 2013 the exhibition at MoMA *Cut 'n' Paste: From Architectural Assemblage to Collage City* has brought to attention this technique, in the exhibition, there were several collages of architects such as Archigram, OMA and Superstudio, and included many collages by Mies, which opened new

perspectives on the work of the architect.

As is evident in his drawings –characterized by a sober and essential composition– it is noted how many collages are monochromatic and characterized by the presence of ample white spaces. Often it uses simple perspective grids to draw the horizontal planes, the floor and ceiling, and the vertical partitions made by marble slabs or Vasilij Vasil’evič Kandinskij’s and Pablo Picasso’s paintings. The graphic production of collages shows the ability to induce the sensation of a three-dimensional space while using purely two-dimensional elements. The collage series for the Resor House (1937-1943) appears emblematic, where the horizontal planes also disappear, and only the support columns remain sketched. In these Mies van der Rohe’s drawings (Figures 1a, 1b) continually faces an abstract ordering of the architectural space through the planar arrangement of the elements that transpose the glass towards the landscape. As Arthur Drexler states, Mies’ collages produce “a surreal juxtaposition by a montage of photographs with flat charcoal or crayon surfaces; these transform ideas into hallucinatory images, beautiful and urgent” (1960, p.17).



Fig. 1a Ludwig Mies van der Rohe, Resor House project, Jackson Hole, Wyoming (Landscape view from living room), 1937-1938, Pencil and photocollage on illustration board, (76.2 x 101.6 cm). Retrieved April 30, 2020, from <<https://www.moma.org/collection/works/130218>>



Fig. 1b Ludwig Mies van der Rohe, *Resor House project, Jackson Hole, Wyoming* (Interior perspective of living room and south glass wall), 1939, Graphite, wood veneer, cut-and-pasted gelatin silver photographs, and cut-and-pasted photo reproduction (of Paul Klee's *Colorful Meal*, 1939) on illustration board, (76.1 x 101.5 cm). Retrieved April 30, 2020, from <<https://www.moma.org/collection/works/749>>

As Vittorio Gregotti reminds us, drawing –in this case collage– is “the main instrument of investigation, rational and poetic together, for an organization of things and problems as materials for the constitution of the significant form of the work in which therefore its meanings of proposal to modify reality and its way of being in a place coincide, as well as its possibilities of use” (Gregotti, 2014, p. 21)¹.

Over the years, this representation technique has undergone a remarkable development and has come back into vogue in our days with Post-Digital Drawing actions. In the sixties and seventies with its utopias, from those Italian Radicali movements and that Japanese Metabolists, he saw an essential use of this type of representation. Think of Archizoom Associati's *No Stop City* (1970) or Kenji Ekuan's *Octa-dwelling over the city* (1965).

In the same years also Rem Koolhaas –with Madelon Vreisendorp, Elia Zenghelis and Zoe Zenghelis– elaborated a series of eighteen images (drawings, watercolours and collages) entitled *Exodus, or the Voluntary Prisoners of Architecture* (1972) which represent a walled city within

¹ Author's translation: “il principale strumento di indagine, razionale e poetica insieme, per un'organizzazione delle cose e dei problemi in quanto materiali per la costituzione della forma significativa dell'opera in cui quindi coincidano i suoi significati di proposta di modificazione della realtà e del suo modo di essere in un luogo, oltre che delle sue possibilità d'uso” (Gregotti, 2014, p. 21).

London. Although the reference to the work of groups of Italian radical architecture, such as Superstudio and Archizoom, is evident, the work does not attempt to portray a utopia. Indeed, as Antoine Picon states in his article Learning from Utopia: “Conversely, the influence radical architecture has exerted on designers such as Koolhaas or Tschumi tend to demonstrate that utopia is not necessarily a sterile concept, that it can steer architecture and provoke its renewal” (2013, p.17).

For example, if one compares the Continuous Monument: New York, project (1969) Superstudio with Exodus, or the Voluntary Prisoners of Architecture: The Strip (1972) Rem Koolhaas can detect some substantial differences.

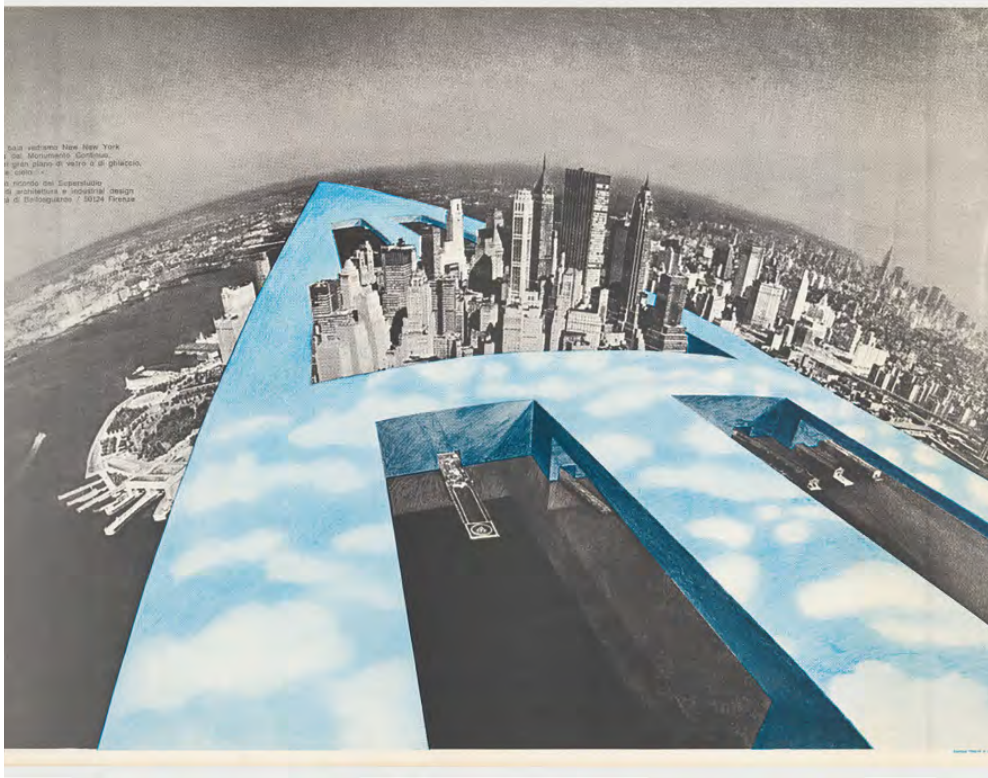


Fig. 2 Superstudio (Gian Piero Frassinelli, Alessandro Magris, Roberto Magris, Cristiano Toraldo di Francia, Adolfo Natalini), The Continuous Monument: New York, project, 1969, Graphite, colour pencil, and cut-and-pasted printed paper on board, (96,5 x 65,4 cm). Retrieved April 30, 2020, from <<https://www.moma.org/collection/works/221830>>



Fig. 3 Rem Koolhaas, Elia Zenghelis, Madelon Vriesendorp, Zoe Zenghelis, *Exodus, or the Voluntary Prisoners of Architecture: The Strip (Aerial Perspective)*, 1972, Cut-and-pasted paper with watercolour, ink, gouache, and colour pencil on gelatin silver photograph, (40.6 x 50.5 cm). Retrieved April 30, 2020, from <<https://www.moma.org/collection/works/221830>>

Even if in both images there appear impractical and unworkable urban architectures. In the first case (Figure 2) we are witnessing a speculative architecture, where the urban and environmental context denied by a checkerboard monument equal to itself, which runs along with the entire globe. In the second (Figure 3), however, the two perimeter walls cut out portions of the landscape in order to preserve it from the homogenization of global capitalism. If Continuous Monument is preserved the financial side of Manhattan, in the second, it is hidden one in London. The purposes of the two collages –despite an apparent similarity of technique and the use of perspective– show very different aims and design intentions.

If comparing these two images and Mies's collages taken up again, it can seem that the technique in the drawing does not imply a homologation of meanings and intentions. As Francesco Cervellini argues, drawing in architecture has the following: “the main purpose of the heuristic function [...] is to express an intention conjecturally, opening up, through it, the programmatic multiplicity of meanings of its product” (Cervellini, 2016, p. 49)².

² Author's translation: “fine principale della funzione euristica [...] quello di esprimere congetturalmente un'intenzione, dischiudendo, attraverso di essa, la programmatica molteplicità di significati del suo prodotto” (Cervellini, 2016, p. 49)

Form Drawing and Discursive Form

In design practise, it often begins with a schematic prefiguration of the developmental program, which gradually changes through more sophisticated and refined graphic representations. Many times, diagrams are created, or diagrams are transcribed into multiple workgroups before architecture takes shape. As Peter G. Rowe states in his book *Design Thinking*, we begin in the early stages of the project “trying to take a structural diagram, a functional diagram, and a circulation diagram and combine them” (1987, p. 15).

Bubble graphs or diagrams, which define space in a dimensionless way and without a precise structure, mainly seek to investigate, by breaking down functional problems, the spatial relationships between the parts. Proceeding with this type of design, the designers try to investigate generic architectural solutions that produce spatial and functional combinations, trying to capture the topological entities of the surrounding environment.

The conceptual diagrams, in the preliminary phases of the project, allow revealing spatial configurations, proportions and dimensions concerning the conception of the architectural work that will come.

In this regard, Louis Kahn –about the early stages of the First Unitarian Church and School project (1959-69) in Rochester– states that “I didn’t make an architectural drawing. I made a form drawing, a drawing which indicates the nature of something and something else. I can show you what the drawing is like. [...] This is a form drawing. It shows the nature” (Kahn 1998, p.43).

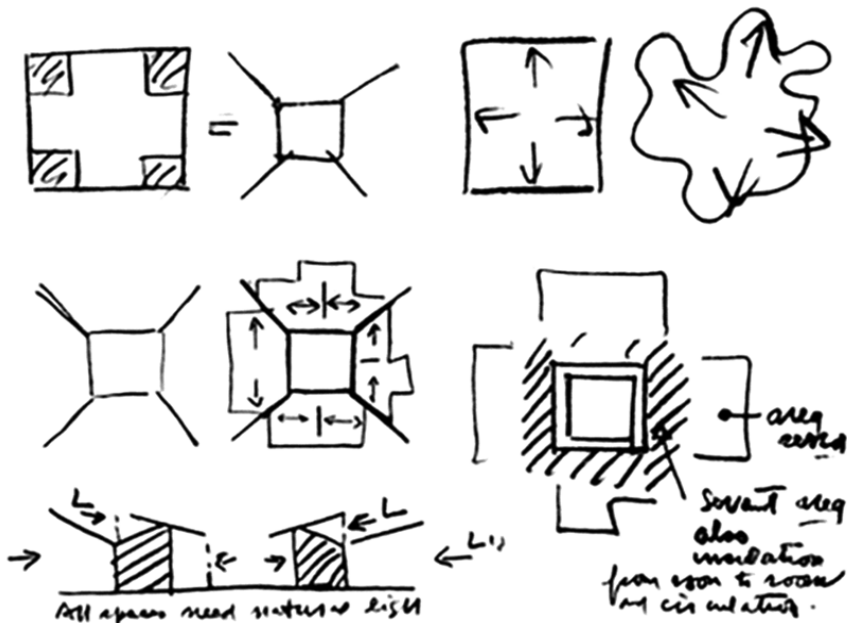


Fig. 4 Louis Kahn, Goldenberg House, (1959), Sketch. (C. Norberg-Schulz, 1980, p. 79)

The architect’s attitude to using diagrammatic sketches as Form Drawing manifested in several of his projects. An emblematic example appears the schemes for the Goldenberg House project (1959) which prefigure the nature of the space even before fixing its shape.

The use of simple geometric shapes –such as squares and arrows– accompanied by textual annotations, allow him to explore the layout of the various environments. The comparison between the square and the irregular shape always shows the four arrows, which will subsequently develop by opening the four corners of the house through the use of diagonals.

The same author in his text *The Value and Aim in Sketching* (Kahn 1931) recalls the importance of sketches in addressing project problems, arguing that not only are they a way of representation but that they represent a resource for the designer in the act of interaction with them and not only to crystallize thoughts on paper. In a way different from Kahn, in the sixties, Peter Eisenman begins an in-depth trial of the use of the diagram. The architect uses this representative tool –and interaction with it– to focus on an autonomous metamorphic process of architecture. His research deeply influenced by Noam Chomsky and his research on Cartesian linguistics, this reference becomes more evident when in the essay *Notes on Conceptual Architecture: Towards a Definition* (1970) borrows Chomsky's concepts to explain the semantic/syntactic contrast of his idea of architecture.

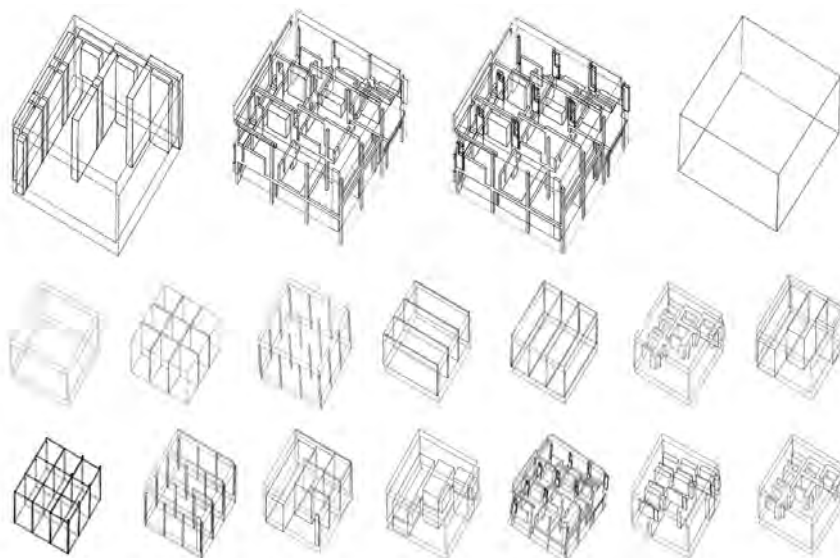


Fig. 5 Peter Eisenman, House II, Hardwick, Vermont, (1969-1970), Concept Diagram. Retrieved April 30, 2020, from <<https://eisenmanarchitects.com/House-II-1970>>

If observes the digraphs of Eisenman's houses series, collected in the book *House of Cards* (1987), can notice an essential evolution of the use of the diagram in his research. In his projects, the manifesto of the final project appears and the selection of products deriving from the various metamorphic diagrams. We move from the transformative and formative diagrams of the project to the narrative ones. In an interview about the use of diagrams in his work, Eisenman states that: "I used to build the series of transformational diagrams so that the project resulted from these diagrams and therefore contained the transformation process [...] House Six was more like a" movie "": there were the diagrams, but rather than being transformational they represented a narrative line and they were all contained in the final result of the project, in the house. [...] in the House X only diagrams describing the fragmented nature of the process to show its incompleteness [...] Then the 11th House or House El Even Odd: all these

projects only showed different types of diagrams outcome” (Gheri, 2007, p.83)³.

Unlike Kahn’s Form drawing –which investigates a relational form of the architectural elements with the context that will host them– Eisenman’s diagrams appear as a process system internal to architecture that investigates the ontological relationships of the elements rather than the contextual ones, which are absent.

Conclusion

The two architectural design modes presented in this essay offer complementary ways to obtain information on architectural design. As well as informing and describing, drawing allows us to read relationships that exist between the parties. As Mario Docci recalls -in an editorial in the journal *Disegnare Idee Immagini*- drawing is “a representation of objects and the space in which they are placed [...] performed with or without the intent of art”, but being at the same time “reading and synthesis of reality, allows [...] to memorize and grasp aspects that the simple observation does not allow” (Docci, 2014, pp. 3-4)⁴.

The proposed shift allows us to recognize a dynamic process of relationships. Existing relationships, not only between object parts represented, but also among the entities, as well as between the observer and the entities themselves. The meaning that attributed to objects composed through a dynamic process of relationships, a combination between object and observer through mechanisms of the signification of signals and not of symbols already codified. As Silvano Tagliagambe states, this type of ontology that based on relationships allows us to: “free ourselves from a setting guided by the rigid distinction not only of subject and object but also by the dichotomy and by the equally rigid contrast between oneself and the other [...]. For its characteristics of border space, of a ‘between’ that separates and at the same time unites the other dimensions of time and puts them in a mutual relationship, it seems reasonable to identify in the present and in the attitude [...] to cut so transversely the dichotomy between past and future, memory and project, but also between subjective and objective (Tagliagambe, 2008, pp. 66-67)⁵.

In this sense, drawing, as an act of drawing, allows us to recognize meanings and to attribute new ones through its more design dimension. A drawing, which from a planning perspective, does not read the properties of objects exclusively, but is capable of putting into the relationship between themselves and between himself and reality, present and future. A reality that mainly gathers the deepest cultural environments of the knowledge that produces them.

³ This interview published for the first time: F. Gheri (Ed.), *Nove argomenti per Peter Eisenman*, in “Controspazio”, n.1, pp. 2-3, Gangemi Editore, Roma, 1992. Author’s translation: Costruivo le serie dei diagrammi trasformativi in modo che il progetto risultasse da questi diagrammi e quindi contenesse in sé il processo di trasformazione [...] House Six era più come un “film”: c’erano i diagrammi, ma piuttosto che essere trasformativi rappresentavano una linea narrativa ed erano tutti contenuti nel risultato finale del progetto, nella casa. [...] in House X i diagrammi descrivevano soltanto la natura frammentaria del processo per mostrare l’incompletezza [...] Poi House 11^a o House El Even Odd: tutti questi progetti mostravano soltanto differenti tipi di esito dei diagrammi” (Gheri, 2007, p.83).

⁴ Author’s translation: “una rappresentazione di oggetti e dello spazio in cui essi sono collocati [...] eseguito con o senza intento d’arte”, ma essendo allo stesso tempo “lettura e sintesi della realtà, consente [...] di memorizzare e di cogliere aspetti che la semplice osservazione non permette” (Docci, 2014, pp. 3-4).

⁵ Author’s translation: “svincolarsi da un’impostazione guidata dalla rigida distinzione non solo di soggetto e oggetto, ma anche dalla dicotomia e dall’altrettanto rigida contrapposizione tra sé e l’altro [...]. Per le sue caratteristiche di spazio di confine, di un ‘tra’ che separa e nello stesso tempo unisce le altre dimensioni del tempo e le mette in relazione reciproca, sembra ragionevole identificare nel presente e nell’attitudine [...] a tagliare così trasversalmente la dicotomia tra passato e futuro, tra memoria e progetto, ma anche tra soggettivo e oggettivo (Tagliagambe, 2008, pp. 66-67).

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OB PORTUS

Landscape as medium and strategy for port city articulation

The case of Toronto, Rosario and Barranquilla

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Abstract

The present article argues that *landscape* configures the renewed planning and design model, capable of granting continuity and legibility to the port city articulation.

Landscape is understood as an open system, integrating the underlying biophysical systems with the built environment from an ecological point of view. In this sense, landscape becomes infrastructural and instrumental.

In most American cities, the geographic condition of natural port has been the main argument for the foundation of the city, becoming the basis for its spatial, economic and cultural configuration. In these cases, port, city and geography were initially intimately related. The port – as a natural waterfront extension – was a place of social and commercial activities, with no distinction between public and specialized spaces. However, along with technological transformations, a progressive separation between fields took place, and the port became a physical barrier that divided the shoreline from its citizens.

The port-city interface is presented as an area of opportunity –*ob portus*¹-. In this sense, it is stated that *landscape* has the potential to operate as *medium* and strategy to articulate and regenerate this territory. The case of three American port cities is presented: Rosario (ARG), Barranquilla (CO) and Toronto (CA). In the three of them, *landscape* has been the contemporary strategy to design the port-city shoreline. Recurrent characteristics found in the exploration of the cities are individuated as *theoretical keys*, becoming tools for future planning considerations for urban-port regeneration.

Abstract

Il presente articolo sostiene che il *paesaggio* configura il rinnovato modello di pianificazione e progettazione, in grado di garantire continuità e leggibilità all'articolazione tra porto e città.

Il paesaggio è inteso come un sistema aperto, che integra i sistemi biofisici sottostanti con l'ambiente costruito da un punto di vista ecologico.

¹ “Ob portus” comes from the Latin word *opportunitas*; which is composed of *ob*, which means “towards”, and *portus*, which means “port”. This word expresses the best combination of wind, current and tide to arrive to the port. Source: Glare, P. (2012). *Oxford Latin Dictionary*. United Kingdom: Oxford University Press.

In questo senso, il paesaggio diventa infrastrutturale e strumentale.

Nella maggior parte delle città americane, la condizione del porto naturale è stata l'argomento principale per la fondazione della città, diventando la base per la sua configurazione spaziale, economica e culturale. In questi casi, il porto, la città e la geografia erano inizialmente intimamente correlati. Il porto - come estensione naturale del *waterfront* - era un luogo di attività sociali, pubbliche e commerciali, senza distinzione tra spazi pubblici e specializzati. Tuttavia, con le trasformazioni tecnologiche, ebbe luogo una progressiva separazione tra i campi e il porto divenne una barriera fisica che divideva il litorale dai suoi cittadini.

L'interfaccia città portuale è presentata come un'area di opportunità - *ob portus*²-. In questo senso, si afferma che il paesaggio ha il potenziale per operare come mezzo e strategia per articolare e rigenerare questo territorio.

Viene presentato il caso di tre città portuali americane: Rosario (ARG), Barranquilla (CO) e Toronto (CA). In tre di essi, il paesaggio è stata la strategia contemporanea per progettare il litorale della città portuale. Le caratteristiche ricorrenti riscontrate nell'esplorazione delle città sono individuate come chiavi teoriche, diventando strumenti per future considerazioni di pianificazione per la rigenerazione dei porti urbani.

Introduction

About Landscape

Landscape is a fascinating and polysemic concept. The term "landscape" has at least two fundamental meanings: The first, is the perceptive-aesthetic one, linked to visual perception and sensations. The second is geo-ecological (Romani, 1994, 11-13) and derives its assumptions from physical geography and natural sciences. In the present article, the term "Landscape" belongs to the second family, assigning the aesthetic-figurative component a decidedly secondary role.

"Landscape urbanism" surge in the beginning of the 20th century as a theory of urban design supported on the research of Charles Waldheim, James Corner, Pierre Belanger, Alan Berger, Stan Allen, among others. They argued that landscape has become the more suitable medium to physically build the contemporary city as well as the preferential lens to observe it and understand its complex processes. Landscape understands that the city is constructed of interconnected and ecological field conditions, rather than in the arrangement of objects and buildings. In this sense, James Corner highlights that "the projection of new possibilities for future urbanisms must derive less from an understanding of form and more from an understanding of process -how things work in space and time-"³. In other words, landscape transcends the figurative dimension towards performative values, and deals with process over time, understanding the fluid or changing nature of any environment and the processes that affect them.

Landscape could be the more suitable medium and strategy to articulate the space of interactions between the port and the city, based on a broad framework that deals with uncertainty and negotiation, open systems and processes, allowing change over time.

² "Ob portus" deriva dalla parola latina *opportunitas*; che è composto da *ob*, che significa "verso", e *portus*, che significa "porto". Questa parola esprime la migliore combinazione di vento, corrente e marea per arrivare al porto. Fonte: Glare, P. (2012). Dizionario latino di Oxford. Regno Unito: Oxford University Press.

³ Corner, J., "Terra Fluxus", in Waldheim, Charles (ed), *The landscape urbanism reader*, Princeton Architectural Press, Nueva York, 2006, pp. 29

In this scenario, the waterfront appears as a multifunctional landscape, where port spaces of specialization are imbricated with public spaces, integrating economic, social and ecological issues, by design.

The port city interface

The port-city interface is a strategic area of transition; a complex and dynamic space configured over time through a continuous dialogue between economic, social and cultural interactions. A conflicting area where different functions and interests take place.









Stage	Symbol   City Port	Period	Characteristics
I. Primitive port/city		Ancient/medieval to 19th century	Close spatial and functional associaton between city and port.
II. Expanding port/city		19th - early 20th century	Rapid commercial/industrial growth forces port to develop beyond city confines, with linear quays and break-bulk industries
III. Modern industrial port/city		Mid-20th century	Industrial growth (especially oil refining) and introduction of containers/ro-ro (roll-on, roll-off) require separation-space.
IV. Retreat from the waterfront		1960s-1980s	Changes in maritime technology induce growth of separate maritime-industrial development areas.
V. Redevelopment from the waterfront		1970s-1990s	Large-scale modern port consumes large areas of land/water space; urban renewal of original core.
VI. Renewal of port/city links		1980s-2000+	Globalization and intermodalism transform port roles; port-city associations renewed; urban redevelopment enhances port-city integration.

Fig. 1 The interface model of Hoyle (2000), based on Hoyle (1988).

Historically, there have been different phases in the relationship between the port and the city. Hoyle’s (2000), synthetizes this evolution in a diagram (Fig. 1). Initially, the port and the city were closely related. The port – as a natural waterfront extension – was a place of social and commercial activities, with no distinction between public and specialized spaces. However, with the strengthening and expansion of the port, a progressive dissociation between it and the city took place. This process created a city-port dualism. The port became a barrier, losing its urban character, gradually becoming an *independent machine*, that creates marginalization and urban blight.

We cannot deny the significance role of ports in the identity of our cities, as well as the fact that they are a main driver of cities economies. Instead, we have to overcome the dualism development and conservation, towards the co-design of strategies and processes between both fields. In this sense, the project of the waterfront could be a matter of co-design between the city and the port. The way is to rethink the coexistence of both fields, so that the city can benefit from the port and vice versa, acknowledging that one cannot live without the other, and co-designing the space of interactions between them.

Integration and cross-sectorial strategies are the keywords for the design of these areas as a mixed used landscape.

In this regard, it is observed that some cities are redesigning their waterfronts, searching for new connections between the port, the urban tissue and the environment, from an ecological point of view. In this cases, the port city shoreline is conceived as a multifunctional landscape, an interdisciplinary project that creates public spaces intertwined with port functions. That is to say, rethinking the port's waterfront as a public space integrated to the city and its natural environment. A place where interstitial spaces become new open and accessible spatial devices, able to host urban related functions.

Methodology

Three case studies

The port city regeneration strategies in three American port cities are presented: Toronto (CA), Rosario (ARG) and Barranquilla (CO). In the three of them, *landscape* has been the contemporary strategy to design the port-city territory as a multifunctional system, allowing the coexistence of urban spaces, port functions and biophysical systems.

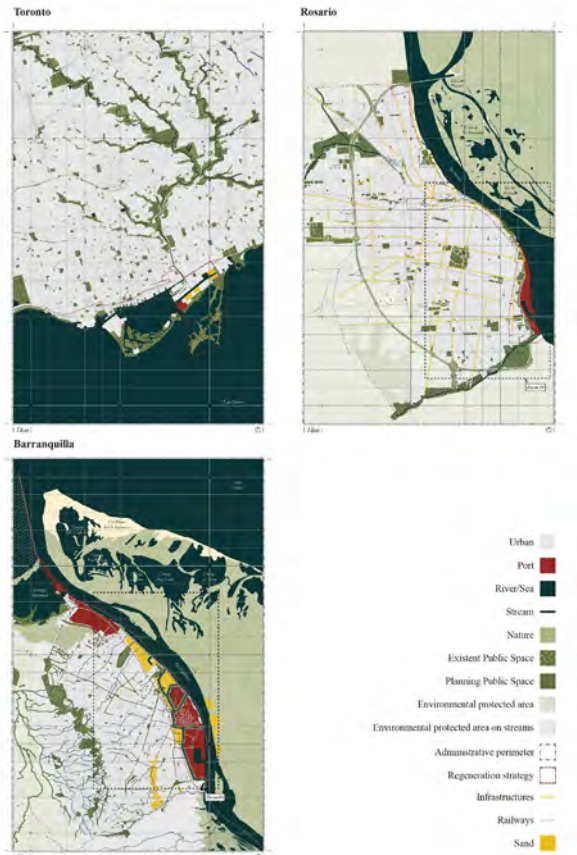


Fig. 2 Case study maps: Toronto, Rosario and Barranquilla. Self-elaboration.

Toronto

Toronto located on shores of lake Ontario, in the Great Lakes region, is a port city with one of Canadas largest inland ports that serves primarily as a bulk cargo destination. The regeneration strategy is an interesting case where the *postindustrial* waterfront became an opportunity to operate from an “ecosystem approach”⁴ to contribute to the ecological improvement and balance of the site.

In November 1999, the federal, provincial, and municipal governments announced an unprecedented cooperative plan to redevelop forty-six kilometers of Toronto’s waterfront. To oversee this new vision, the three levels of government joined forces to create a public development corporation originally named the Toronto Waterfront Revitalization Corporation (TWRC), a nominally public body whose planning and implementation work is driven by its private sector board, management team, and consultants. The ability to intersect interest of different Stakeholders was an interesting aspect of the redevelopment.

In 2001 TWRC was named Waterfront Toronto (WT). The organization was directed to support many different goals, from the redevelopment of “brownfields”, the contaminated land cleanup, the ecological recuperation of the Don River, to the growth of a competitive and sustainable economy based on a compact growth.

A main strategic area of the regeneration plan is the *Port lands* located in the mouth of the Don River, which hosts a working port. The area consist of 800 hectares of underutilized land that support primarily civic and city-serving uses such as light industrial uses, salt storage, as well as natural enclaves such as the Cherry Beach, the Leslie Spit and Tommy Thompson Park.

The strategy will conduct the re-naturalization and re-routing of the Don River as well as enhancing the mix-used of the territory. In 2007, WT, launched an international competition to determine a vision to regenerate the Lower Don Lands area. The objective of the competition was to produce a unifying concept to merge the natural and the urban fabric into an integrated community. The design teams were asked to produce a concept that uses the Don river as a central element, renaturing its entrance to the harbour and creating a continuous coastal park, while providing new developments in an integrated system with the rest of the city. The MVVA⁵ team won the competition. In the proposal, the transforming engine is an intense repositioning of natural systems, landscape systems, transport systems and architectural environments. A renewed recognition of the functional benefits and experience of the river ecology allowing a sustainable approach to flood control and river hydrology. Therefore, the river becomes the symbolic and spatial center around which a new neighborhood is built. This master plan gathers methodologies of transformative landscapes with innovative scientific approaches for natural recovery and makes them operational at the scale of the city, integrating the regional ecological system.

⁴ The “ecosystem approach” as it was called promised to together in one development model “the long term promise of a healthy environment, economic recovery and sustainability, and maintaining a livable community” (Royal Commission on the Future of the Toronto Waterfront 1992: 16-17)

⁵ Michael Van Valkenburgh Associates.



Fig. 3 Toronto waterfront redevelopment. Lower Don Lands, Toronto, Canada: Source: <http://urbantoronto.ca/database/projects/lower-don-lands-redevelopment>



Fig. 4 Toronto Waterfront Regeneration Strategy. Source: <http://blog.waterfronttoronto.ca>

Rosario

Rosario is located in the center of the most productive agricultural region in Argentina. Its 15 km of shoreline on the Paraná river determined its configuration and development. Its privileged geographical position -in the center of the bi-oceanic corridor and the Paraguay-Paraná Waterway- offers Rosario a main role as a port-city.

From the origins, the port-city relationship constituted the axis of the configuration and transformation of Rosario. This relationship has always been characterized by a conflictive dialectic, given that on the one hand the port role is considered the *raison d'être* of the city, and on the other, the liberation of these facilities was demanded in order to reconnect the city with the river. In this sense, the port-city regeneration has been a central theme of urban planning since the first decades of the 20th century. Nevertheless, it could only be activated after the democratic return in 1983 and it was due to the continuity of urban plans and policies that the renewal of the waterfront was possible, as well as the consolidation of the port system in the southern area of the city.

The waterfront regeneration of Rosario put emphasis on public space, ensuring a continuum of parks along the river together with the recycling of patrimonial buildings.

In the “Updating of the Regulatory Plan and documentary bases for the revision of the Urban Code”⁶ of 1991, the waterfront regeneration and the port reconversion were proposed as the first and second point of the structural operations.

The document stated that “The operation promotes the full use of the coast, claiming and reaffirming the coastal character of the city, making its productive port role compatible with the recreational development and micro-regional tourism of the riverside and the disadvantaged sectors of port activity”⁷(Municipality of Rosario, 1991, TII: 17).

In this sense, the central area is released from the rail-port uses and the port infrastructure of the southern lowland is modernized; the riverside is transformed in a new continuous front of landscape and the link with the main East-West urban corridors is established simultaneously. This road-rail restructuring, begun in the second half of the 1980s, represents one of the first actions to reverse the view of Rosario as a city with its back to the river.

Subsequent to the presentation of the New Master Plan, the Program for the Development of the Coast⁸ was created in 2003 in order to reaffirm and advance into the guidelines of the previous plans with a criteria of territorial redistribution and environmental preservation.

In 2016, with the Environmental Plan⁹, Rosario proposes the coexistence and harmonization of the productive city with the built and natural environment. In this sense, the emphasis is on preserving the Paraná river wetland ecosystem, which forms a significant natural infrastructure for ecological functions and mitigation to climate change. In this regard, the port has to implement a guideline for the protection and preservation of these eco-systems in order to improve the governance and management of these areas.

⁶ “Actualización del Plan Regulador y bases documentales para la revisión del Código Urbano”, 1991.

⁷ Original text in spanish: “La operación promueve el aprovechamiento integral de la costa, reivindicando y reafirmando el carácter litoral de la ciudad, compatibilizando su rol productivo-portuario con el desarrollo recreativo y de turismo micro-regional de la ribera y de los sectores desafectados de la actividad portuaria” (Municipalidad de Rosario, 1991, TII:17).

⁸ Original name in spanish: Programa para el Desarrollo de la Costa, 2003.

⁹ Original name in spanish: Plan Ambiental de Rosario, 2006.

Barranquilla

Barranquilla is a port city located in the Colombian Caribbean with its shores on the Magdalena river. This river has been essential for the spatial, symbolic and economic configuration of the city. Until the mid-20th century, the city was closely related to its river, and the port was a natural extension of its waterfront. However, as a consequence of the urban and port transformations of the mid-20th century, the city turned its back to the river and its port.

In the 21st century, Barranquilla started to rethink new connections between the city and its river. In this sense, in 2000 the “Territorial Plan of the Special, Industrial and Port District of Barranquilla”¹⁰ was approved, pursuing to position Barranquilla in a global context, through the consolidation of an image of a contemporary city, which seeks to renew the link with the Magdalena river and the Caribbean sea, valuing its natural ecosystems and its strategic geographic position.

In this sense, a landscape renovation between the city, the port and the river was proposed. The waterfront was defined as one of the two strategic operations included in the Plan, with the intention of developing this area in a balanced way, taking into account its strategic location as a pole of competitiveness, attending to its economic potential through the mix of uses, and respecting the rich ecosystem. Therefore, this area is conceived as a multifunctional space that values the conservation of environment, as well as the creation of public space for the citizens.

Operating on the port-city interface is a complex equation that must synthesize the visions and interests of different actors, often antagonistic. Vergara and Foulquier (2012) state that in Barranquilla, the port is interested in the longitudinal connections towards the hinterland (national connections) and towards the Caribe (international connections), while the city is interested in the reinvention of perpendicular links to reconnect the urban tissue to the river.

To reach an agreement on the future of this territory, dialogue and cooperation are essential requirements for satisfying both the city and the port.

The new waterfront area “Avenida del Río” goes along the riverbank, in the interstitial spaces between the port infrastructures, reconnecting the city to the Magdalena river, sharing views with the working port. This area officiates as a medium between the city and the river, and between the port and the city, conferring continuity and legibility to the relationship between them.

In Barranquilla, landscape appears as an engine of the planning model, as a device that induces spatial, social and economic regeneration, valuing void as “architectural material”, transforming the port-city interface into a naturalized waterfront integrated into a larger scale system.



Fig. 5 Rosario Waterfront. Source: Terraza, H., Pons, B., Soulier, M., Juan, A (2015), pp. 20

¹⁰ Original name in spanish: “Plan de Ordenamiento Territorial (POT) del Distrito Especial, Industrial y Portuario de Barranquilla”, 2000.



Fig. 6 Barranquilla Waterfront. Source: <https://www.eltiempo.com/colombia/barranquilla>

Conclusion

Three case studies in America have been discussed. One in North America (Toronto) and two in South America (Rosario and Barranquilla).

Each case faced a significant transformation of the waterfront. Each city constitutes a different landscape –environmentally, politically, financially and in scale- and each regeneration strategy presents different approaches. However, some recurrences could be found as conceptual principles of planning from a landscape approach.

In all of them, landscape and public space became driving forces to rethink the port system, defining the waterfront not only as a working machine, but as an actual space of urban identity, re-connected to the city.

In the case of Toronto, the port-city regeneration consists of a public system of natural interconnected spaces in an ecologically sensitive urban territory in which the urban fabric is regenerated with a stock of buildings of different uses (cultural, recreational and commercial). It is based on an innovative re-naturalization of the Don River and resilient measures to mitigate the climate change in the banks of it. On the other hand, in the South American cases (Rosario and Barranquilla) the waterfront regeneration projects are based on the reconnection between the river and the urban tissue with emphasis on the configuration of a linear public space system that runs parallel to the river. In Rosario, the postindustrial waterfront left obsolete infrastructures and vacant space to build a continuum of parks along the riverside together with the recycling of patrimonial buildings. In Barranquilla, the interstitial space between the port areas is utilized to build a new public spatial connection between the city and the Magdalena river. As shown in the case studies, landscape could be the suitable medium and strategy to articulate the space of the interactions between the port, the city and the biophysical systems.

Based on the analysis of the three regeneration strategies, theoretical principles (conceptual keys) are individuated as tools for future considerations on landscape oriented port city regeneration.

Conceptual keys

a. Multifunctionality

The port's waterfront is seen as a multifunctional landscape, where infrastructural elements related to port functions are combined with the urban and ecological ones. It is an interdisciplinary project that allows the coexistence of mixed uses purposes. This implies changing the perception of the port as a barrier, towards the perception of an integrated port to its waterfront and to the city, a territory where specialization spaces are interwoven with open spaces that are accessible to the public.

In addition, understanding the port city interface as a multifunctional landscape is based on a double condition of the landscape. On the one hand, it is based on its dynamic condition, as a sufficient flexible space to allow its configuration to vary over time. On the other hand, on clear and powerful principles that prevent the loss of its basic characteristics, which configures its identity or substantial immobility, a concept that will be developed later.

b. Mutiscalarity

On the one hand, thinking over port-city relations aims at working on different dimensions, physical and immaterial. The complexity of port activities today is perceived and reflected in the breadth of the networks of relationships that connect, at different levels, the operations of the physical exchange of goods and the immaterial exchange of information, plus the logical transport infrastructure of different type and modality. Thus, over time, a new figure has been formed, a 'meta-network'¹¹, that is, a 'network of networks', the result of the superposition of numerous layers, each one describing a specific function within the universe of relationships that they link, of different sizes, both nationally, internationally and intercontinental.

On the other hand, the concept of landscape refers inevitably to a trajectory between scales. Landscape oscillates between the giant and the infinitesimal (Fig. 7 "Powers of 10"). It links the geographical scale of an ecological system (i.e. a river), to the individual scale of a person. Thus, landscape implies a systemic and multiscale approach.

In this sense, the area of opportunity between the port and the city, could potentially participate in a network of landscapes at various scales, generating a system of green infrastructures with ecological and civic values. In this sense, the waterfront, as a structuring piece of the city could be part of an integrated metropolitan system, as a set of re-naturalized spaces, configuring a new geography of the city, an ecological reserve of the metropolis, and an outer space open to citizens.

c. Landscape as fiction

Landscape "(...) is the connective urban tissue of the territory, staying that it only exists if a story gives meaning to it, if a narrative is capable of inducing reactions and meta-stories (...)"¹² Landscape is indeed, the result of overlapping stories and fictions on the territory. The waterfront of the cities configures significant landscapes that have been built on the basis of a succession of narratives. Any contemporary project, in order to be able to operate with consistency, should recognize all those fictions.

¹¹ Brutomesso in Converti, R. (2019). La Ciudad y el Puerto de Buenos Aires Manual de Buenas Prácticas para la creación de un nuevo distrito urbano. PID / Proyecto de Investigación y Desarrollo / A18S08, pp 20.

¹² Conference of *Fábrica de Paisaje* at Facultad de Arquitectura, Diseño y Urbanismo, Universidad de la República, UdeLAR, Montevideo, Uruguay. March, 2015. <https://www.fabricadepaisaje.org/>

From the analysis of port-city regeneration practices, the intention for revealing the traces of their relationship through history is recognized. It is recurrent to find cases that choose to preserve the industrial port memory. Furthermore, there is a common interest in the urbanism field to revitalize the original geography of the place “making visible the landscape phenomena that every place contains or may contain”

Understanding the identity of a place, the substantial immobility¹³ is also a designing decision that implies reinventing the place; transforming it by “listening” to its vocation¹⁴, to know their own laws and establish the criteria for intervention, no longer as an imposition but as a dialectic synthesis between man and nature.

d. Co-Planning

In the port-city interface, multiple actors and interests coexist. This fact makes this space a place of tensions and conflicts. To reach an agreement on the future of this territory, the port cannot ignore the presence of the city and its dynamics, nor the wonderful landscape of the coast, nor can the city turn its back on the port and ignore its functional requirements and the consequent economic benefits that implies for itself. It is essential to transcend the barriers and establish a port-city dialogue, based on functional respect for the economic dynamics of the infrastructure and the possibility of conquering new public spaces associated with the coast. Hoyle (2000) proposes that for a renewed link between the city and the port, the city should be involved in new strategies to continue taking advantage of the presence of the port, while on the other hand, the port authorities should promote a dialogue with the city. Dialogue and cooperation are essential requirements for satisfying both the city and the port.

e. Liminality

The port city interface is a liminal space, a space defined by the interactions between the port and the city, in a particular geography. It is not a clear boundary between two defined places. Instead, it is the space in-between, a transitional space, a waiting area between two particular domains. The space of the possibilities between what exists, what used to exist and what could exist (Angelo Turco, 2000).

In this sense, the port city interface is a complex and dynamic territory defined not by a physical borderline, but through the interactions between fields¹⁵. The project of this threshold is challenging and landscape could be the more suitable medium and strategy to articulate the liminal space of interactions between the port and the city, based on a broad framework that deals with processes, uncertainty and negotiation, allowing change over time.

¹³ Borhers, J. in Moneo, Rafael. “El murmullo del lugar”. *Revista Circo*, n. 24. 1995. p. 634-640.

¹⁴ Cfr. with the verses that Alexander Pope composed in his Epistle to Lord Burlington of 1731, in which he names the “geniuses of the place” of Virgilio in the Eneida (V, 95) as the true counselors of both the architect and the landscaper.

¹⁵ Cfr. Allen, S: Field Condition in Allen S. (1999). “Infrastructural urbanism”. In: *Points + Lines: Diagrams and Projects for the City*, New York: Princeton Architectural Press, pp. 46–59.



Fig. 7 Power of ten. Source: Images from Documentary Film Power of ten. Charles and Ray Eames, 1977

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Neo-Priamàr. New shapes for the Border Heritage

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Abstract

The continuous alterations experienced - within the border between water and land and along more than 8,000 kilometers of the Italian coast – have profoundly changed the image and use of this interface, squeezed between nature and artifice. These landscapes consist of a sequence of emerging artifacts and recurring values. Apparently inconsistent and irregular, these architectures are emblematic episodes of the urban-port condition. Hinged between the city and the coast, the Priamàr Fortress in Savona is part of this heterogeneous but compact system. Built in 1500 as a huge military complex, it is the result of subsequent additions over centuries, until the abandonment immediately after the Second World War and its recovery in the late Nineties.

Coordinated by Full Professor Architect Carmen Andriani, the Coastal Design Lab 6 (hereafter CDL#6¹) worked on design hypotheses aimed at triggering regeneration dynamics in the surrounding contexts and in the historic center. The CDL#6, divided into two parallel seminars, developed projects for both the external and internal areas of the fortress. The planned interventions proposed a unitary strategy pointed at the spatial and functional reconfiguration of the entire building. The graphic result of the overall work is an integral part of the strategic approach here adopted: the intervention actions, in fact, were coordinated from the choice of formal solutions to their graphic representation.

Abstract

I continui cambiamenti vissuti – lungo gli oltre 8.000 km delle coste italiane – dal margine tra l'acqua e la terra hanno profondamente cambiato l'immagine e l'uso di questo complesso territorio di interfaccia

¹ *Coastal Design Lab*, active since 2014, is an Integrated Design Studio of the Master Architecture Program of the Polytechnic School of Genoa (IT), dAD Department Architecture and Design. *CDL* is coordinated by Full Professor Architect Carmen Andriani with the collaboration of researchers Arch. Davide Servente, Arch. Beatrice Moretti and Arch. Luigi Mandraccio. Parallel to the teaching activity, *CDL* develops autonomous projects, such as publications, conferences and exhibitions.

tra natura e artificio. Questi paesaggi presentano una sequenza di beni emergenti e di valori ricorrenti. Le architetture presenti, apparentemente incoerenti e irregolari, sono episodi emblematici della condizione urbano-portuale.

Posta a cerniera tra città e litorale, la Fortezza del Priamàr a Savona è parte di questo sistema eterogeneo ma compatto. Realizzata nel 1500 come imponente complesso a carattere militare, è il risultato di aggiunte successive nel corso dei secoli, fino all'abbandono subito dopo la Seconda Guerra Mondiale e al suo recupero alla fine degli anni Novanta.

Coordinato dalla Prof. Arch. Carmen Andriani, il Coastal Design Lab 6 (CDL#6) ha lavorato a ipotesi progettuali e azioni d'intervento finalizzate ad innescare dinamiche di rigenerazione dei contesti limotrofi e del centro storico. Il sistema rappresentativo degli esiti del lavoro costituisce parte integrante dell'approccio tenuto rispetto al tema e al percorso svolto dagli studenti. Il Laboratorio, suddiviso in due seminari, ha sviluppato progetti sia per le aree esterne che per quelle interne alla Fortezza. Gli interventi previsti, rientrando in una strategia unitaria rivolta alla riconfigurazione spaziale e funzionale dell'intero manufatto, sono stati coordinati nella loro totalità, dalla scelta delle soluzioni formali alla loro rappresentazione.

Introduction

Redesign the Existing Heritage

In 1932, the Municipality of Savona launched a competition of ideas for the restoration of the Priamàr Fortress. Once the Fortress has lost its defensive role and was deleted from the register of fortifications of the State, its ownership passed, in 1909, to the Municipality of Savona. Considering its historical value and its strategic position between the historical center and the port, Savona aimed to start a complex redevelopment that would integrate the artefact in the urban plot. The competition asked the participants to imagine a new design of the internal and external areas, of the moats and its fortifications: a new public space that could integrate with the city and, in particular, with the nearby seafront. New public buildings, connections to the main roads and new green areas were planned.

The Fortress was built between 1542 and 1544 by the Genoese as a representation of their dominion over Savona. With its construction, the oldest part of the city was razed to the ground, including the main religious buildings and a substantial portion of the town. The area on which the Fortress was built was already inhabited from 1600 B.C. onwards and was consolidated over the centuries until the Genoese occupation. Between the seventeenth and eighteenth centuries, the Fortress was enlarged several times to strengthen its defensive capacity, until it became a prison in the mid-nineteenth century, since it has already lost its military purpose.

In 1932, the competition was won by the engineer Renato Benistalli, who proposed the construction of three monumental buildings and the redesign of all exterior spaces with a geometric pattern, altering the military nature of the complex and transforming it into a contemporary *acropolis*. All the proposals suggested the demolition of the buildings inside the Fortress, the general redesign of the external spaces and the use of the forms and architectural language of the regime in case new buildings were planned. Among the eight submitted proposals, one was made by a young Franco Albini (whose placement allowed only a mere refund). Albini's project did not involve the construction of new buildings but the complete redesign of the external areas, following the different altimetric heights, converting them to places for walking and events. His proposal was clearly against the monumental rhetoric of the time in favour of a much sober constructive and functional essentiality: a discreet project, made up of precise interventions, aimed at sewing the different areas of the Fortress with the city.

Few traces of the competition remain, including an article from 1934 in the magazine “Urbanistica” by Sandro Molli and the reproduction of the competition panels in the volume *La fortezza del Priamàr* (2006) by Pasquale Gabbaria Mistrangelo. Of considerable interest are the type of works and the graphics used to represent the projects. All the proposals, in addition to the planimetric drawings, have preferred perspectives at human height, underlining how the only way to understand the volumetric and altimetric complexity of the Fortress was to walk through it. In particular, Albini’s drawings are characterized by the contrast between the strong *chiaroscuro* of the fortifications, to highlight their organic appearance, and the line-drawing of the slender added parts, walkways, canopies and small pavilions [Fig. 2]. The difference in representation between the pre-existing structures and the elements of the project reveals the attention to not distort the building and to underline how the added parts aimed to the re-functioning of the entire complex.



Fig. 1 Gerolamo Gustavo, *Pianta della Fortezza di Savona*, 1782 (Genova, Archivio di Stato)

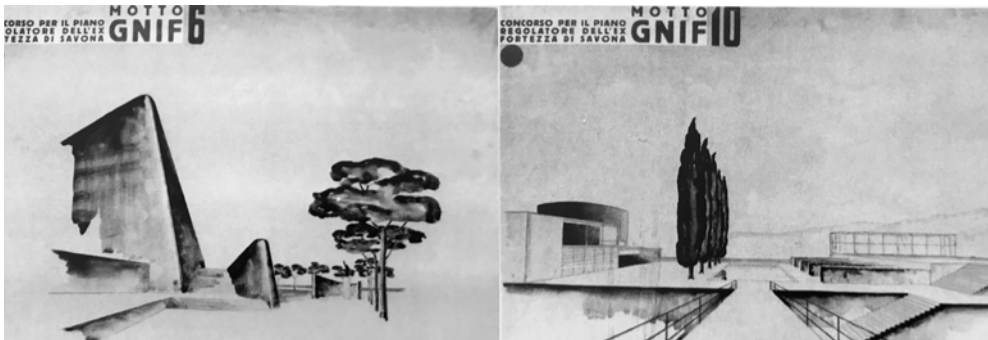


Fig. 2 Franco Albini, Paolo Clausetti, Giancarlo Palanti, Giovanni Romano, *Concorso per il Piano Regolatore Dell'Ex Fortezza di Savona*, 1932

With the advent of the Second World War, the competition stopped and the Fortress regained its military function. Subsequently a long period of abandonment, in the 1960s, a series of projects and recovery actions began, which gave to the Fortress a new urban role at the end of the 1990s. Today the Fortress contains the Archaeological Museum, the Sandro Pertini e Renata Cuneo Museo, spaces for temporary exhibitions, a conference room, craft activities and municipal offices, while the external areas above the fortifications are used as a public space and display events.

The Priamàr is the superimposition of all material and non-material signs that have stratified over the centuries. Projects made in 1932 for the competition are part of these traces, contributing to define a new identity and suggesting useful tools to draw the Fortress's future.

Since October 2019, the sixth edition of the Coastal Design Lab – coordinated by Full Professor Architect Carmen Andriani² – developed a strategy for the reuse and enhancement of the external and internal spaces of the Fortress. The projects focused on the development of the historical heritage of the Fortress in relation to its urban context, on the improvement of tourist reception and leisure and on new functions related to teaching, research and edutainment.

Methodology

Designing through Deconstruction, Overlapping and different Temporalities

As a remarkable episode of the infinite and dispersed urban landscape of the coast, the Priamàr Fortress offers a vast sample of spatial situations, a palimpsest of barriers, discards, margins, of temporal and material signs intensely overlapped. The complexity of the Fortress – in terms of functional heterogeneity, scale, management, investment opportunities, etc. – offers a first field of reflection and requires the recognition of the uncertainty concerning the future economic, demographic and urban developments. For that reason, CDL#6 tried to develop design-techniques which are able to deal with variable temporalities and, at the same time, to ideate a different methodology which had immediate repercussions on the organization of the design studio and, consequently, on the project outcomes.

According to this approach, the twenty-two students worked divided into two parallel seminars, two equivalent design groups focused on different but complementary themes and similarly led by the group of teachers and assistants. The main ambition of this methodology was the development of an overall project for the Priamàr: a single proposal articulated into fifteen specific projects capable of deconstruct issues and constraints derived from the context and then to recompose/overlap them in a unique scenario sensitive to dissimilarities and adaptive in the short, medium and long term. Another purpose, of a more didactic nature, was to provide Master students with a professional experience in terms of content but also of responsibility towards the project and the interpersonal relationship on which it descends and depends. The system experienced by CDL#6, in fact, simulates and re-proposes the organization of a professional studio, a design team or *atelier* in which the individual components collaborate in a continuous process of interaction and theoretical-practical cooperation.

From a programmatic point of view, the collaboration with local municipal authorities³ has ensured

² About the research conducted by Carmen Andriani on the Border Heritage, the relationship between infrastructure and landscape, the regeneration of fragile Mediterranean territories, see the references at the end of the text.

³ The projects objects of the present article are the results of the architectural and urban design studio of the second year of the Master of Architecture of the University of Genoa (Prof. Arch. Carmen Andriani) and preparatory for the scientific research "Regeneration of Asset Systems along the Ligurian Coast. Definition of Guidelines for the Reuse and the Enhancement of the Priamàr Fortress in Savona" financed by a grant from the Municipality of Savona, the De Mari Foundation and ANCE Savona (National Association of Building Constructors).

exchange and the identification of precise work goals. Firstly, the enhancement of the historical heritage in relation to the urban context, the improvement of tourist reception and leisure-time equipment, and finally, the inclusion of new functions related to research, teaching and edutainment. To achieve these intents, CDL#6 has identified two intervention strategies that, besides, define the specific work fields of the two seminars.



Fig. 3 CDL#6, *New functions on the Border*.

The first intervention strategy – *New functions on the Border* (Seminar 1) – recognizes the role of the border as a separation system but also as a potential connection [Fig.3]. The linear artifact of the walls surrounding the Fortress, in fact, turns from a defensive device into a connecting and redevelopment tool towards the surrounding areas of the city and the port.

The second strategy of intervention – *The Fortress's Heritage* (Seminar 2) – supports actions within the architectural complex to acknowledge new connections with consequent greater permeability and ease of crossing [Fig.4]. At the same time, an increase in the cultural offer through the construction of new architectures to support existing functions, new internal paths and the redesign of public spaces were imagined.

The final project intertwines the two strategies giving rise not a discontinuous building but a *single structure*, overlapping the site's existing features and articulating new activities. A new archaeological museum equipped with operational structures for scholars on the S. Domenico's existing areas, spaces for artists (Palazzo della Sibilla) directly connected to existing art museums (Museo Sandro Pertini e Renata Cuneo) or research laboratories (Padiglione Pelagos), spaces for sports and outdoor activities, walkways between different levels and reactivation of the underground accesses, equipment for landing and bathing activities are just some of the new functions and cultural devices designed for the Priamàr. Overall, the various interventions, set with temporary and mobile structures in case of different needs during the year, enhance the role of the Fortress as a *hinge* between land and sea, in the belief – following Deridra's 'deconstruction' theories⁴, for instance – that is the context to orchestrate the program and not the function.

⁴ Coyne, R. (2011), *Deridra for Architects*, London: Routledge.

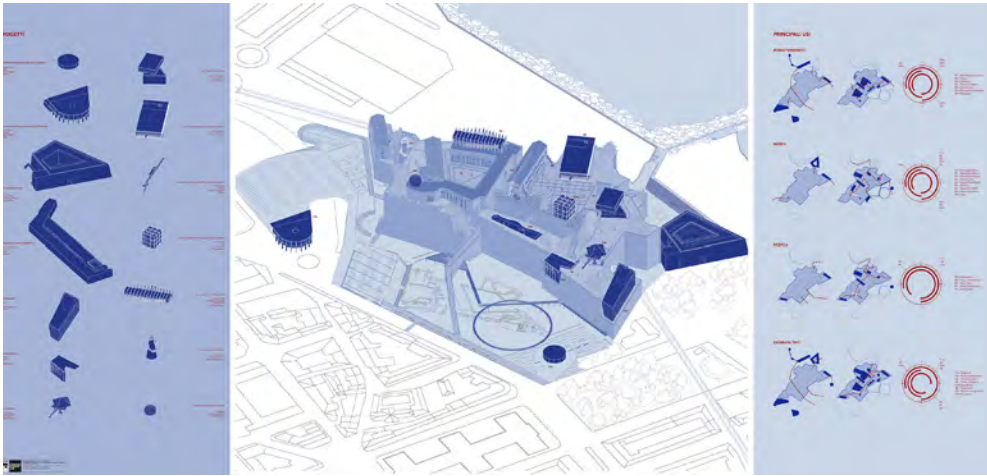


Fig. 4 CDL#6, The Fortress's Heritage.



Fig.5 CDL#6, New Functions on the Border and the Fortress's Heritage: general model.

Conclusion

Coordination of Strategy and Representation

Intervening on the Priamàr Fortress without aspiring to establish a single function means accepting to deal with a certain type of complexity. The discussion within CDL#6 established a unique overall design strategy, expressed in a series of action proposals deeply intertwined and shared operationally by the students. The CD#L6 worked according to the principle that the design strategy must firmly link the logical structure of the project and its representation. Carlos Martí Arís compares «the relationship that exists between the supporting beam and the arch in a constructive process, with what should be established between theory and practice in the field of architectural design».⁵ Within a design course, this kind of relationship occurs between ideas, primarily through theory, and the only possible expression: not construction, but representation. The goal is to maximize the value of the chosen design strategy and the solutions that have been achieved, paying attention to promote citizens' understanding.

All students built their operational knowledge of the Priamàr Fortress, both by making the necessary drawings through the reworking of the available sources and by making direct experience of those places through the inspection – then communicated through video of critical interpretation. The key to understanding the condition of the fortress, shared by all CDL#6, was that there could be no solution that did not consider it globally. The project developed by the two seminars – external and internal – do not arise from independent exercises, but from the intertwining of themes and formal solutions, above all concerning the connections/paths system – logical though physical.



Fig. 6 CDL#6, *New Functions on the Border: new pedestrian paths in the archeological gardens.*

The next step was to choose how to “frame” the fortress. For the plans, three heights have been established: the general plan of the roofs, a minimum and an intermediate level. The same happened about the sections, identifying three “cuts” of the volume. These choices aimed to represent, on the

⁵ Martí Arís, C. (2016). *La cèntina e l'arco*, Milan: Christian Marinotti Edizioni, p. 11. Translation by the author.

one hand, the most critical points of the current state of the fortress and on the other, enhance the projects developed in this regard by the students. The interventions were mounted on these six drawings throughout the process of their development. The completion of these works took place together with the others at the end of the course.

The intensive Winter Workshop at the end of CDL#6 was decisive to condense all the efforts and therefore define the final results of the work. «The specific features that involve the work process in a workshop help clarify the distinct working phases: from the analysis and understanding of the place and the restrictions, to defining the principles of the proposal, verifying and developing those principles, and producing elements for presentation».⁶

The preliminary phases of the design process were summarized in two large graphic panels; the first on the analytical, urban and functional reading of Savona; the second was a schematization of the interventions proposed by the Laboratory, starting to show the functional/formal solutions produced. So, we started the work on the graphic design, background/pattern and colours. Hierarchies arose looking at elements in terms of both general interest within the urban fabric and specific interest factors for the Laboratory. The main topic was to highlight the relationships and connections between the different points, to understand the urban dynamics underway.

Next to the existing tracks, we added the signs of the project. The six drawings were finished according to the same logical and representative scheme that guided the setting of the first two large panels, already verified for the specificity of the technical-communicative purposes of the project. Three general models joined the overall eight graphic panels, created by combining the techniques of laser cutting, hot wire cutting and 3D printing [Fig.5]. The execution of these models was followed by one group of students. The materials were coordinated with the chosen colour palette; the main components of the project were printed in blue, which is the underlying colour.

A public exhibition was scheduled at the end of CDL#6, and it took place on the first floor of the Palazzo del Commissario, inside the fortress [Fig.8]. The exhibition project was conceived to underline the unitary nature of the concept of the whole process. The first room returns, through the photos of Gian Luca Porcile, the present state of the fortress. Below are the analytical reading of the city and the schematization of the interventions proposed by the CDL#6, including a first model of state of the art and an abacus of the elements added by the projects. The large summary model of the project, including substantial fragments of the surrounding context, was placed in the main room, together with the six complex drawings of the project, which show all the solutions proposed on the whole fortress. Two other rooms are dedicated to the detail of these solutions, which house both hanging panels and specific models on a larger scale.

⁶ Barros Matos, J. - Mendes, R. (2014). "Il workshop in architettura. Un processo di apprendimento in progress". *FAMagazine*, n. 26, 2014. p. 55.



Fig. 7 CDL#6, The Fortress's Heritage: new spaces for artists on the roof of Palazzo del Commissario.

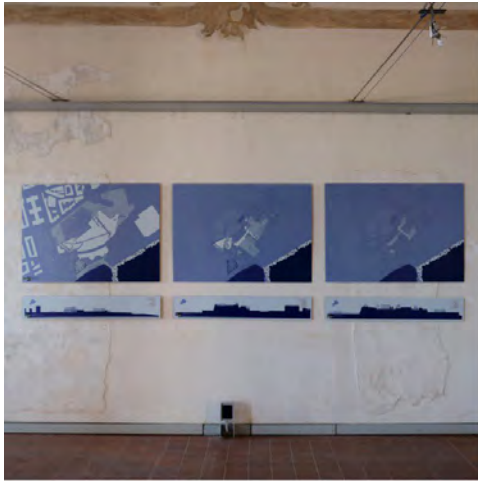


Fig. 8 CDL#6, exhibition set-up in the Priamàr Fortress.

Note to Text

The Chapter *Introduction. Redesign the Existing Heritage* is by Davide Servente.

The Chapter *Methodology. Designing through Deconstruction, Overlapping and different Temporalities* is by Beatrice Moretti.

The Chapter *Conclusion. Coordination of Strategy and Representation* is by Luigi Mandraccio.

COASTAL DESIGN LAB #6 (CDL#6), 2019/2020

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From confined spaces to infinite spaces: the representation in screen-mediated games

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Abstract

The field of research about video games has paid a lot of attention to the issue of spatiality in the last few years. If in fact the thematic and structural categories, such as goals, genres and prizes, have remained almost unchanged, the set of environments, scenery and visual languages is rapidly changing and becoming increasingly complex: in other words, the video games innovation is taking place in their representation of the space. The spatial representation is always screen-mediated, as well as in the other visual media; the screen, in fact, is a constant of the visual culture, from the Renaissance paintings to the films of the 20th century: being in the physical space but acting on the simulated one, it is able to enclose a virtual space into a real environment, thus ensuring the coexistence of two totally different spaces. The video game screen, however, no longer contains static spatial images, but it includes explorable places that, being dynamic and interactive, have their own distinctive features. Therefore, the research sets out to investigate the specificities of the spatial representation in video game and the evolution of its relation to the screen: we will analyze games in which the screen forms both the visible and the spatial border, other games in which it coincides with the visible border but it does not match with the spatial limit, until reaching the pervasive games, in which the screen loses its peculiarity of border to fit itself into the real space.

Abstract

Negli ultimi anni, l'ambito della ricerca sui videogiochi ha dedicato grande attenzione all'analisi della spazialità. Se infatti le classi tematiche e strutturali, quali obiettivi, generi, premi, sono pressoché rimaste invariate, è l'insieme di ambientazioni, scenografie e linguaggi visivi a mutare rapidamente, divenendo sempre più complesso: l'innovazione nei videogiochi, cioè, sta avendo luogo nella loro rappresentazione spaziale. Come per gli altri media visuali, la rappresentazione dello spazio è sempre mediata da uno schermo; la cornice, infatti, dai quadri rinascimentali fino al cinema del XX secolo, è una costante della cultura visiva: esistendo nello spazio fisico ma agendo su quello simulato, essa è in grado di racchiudere uno spazio virtuale all'interno dell'ambiente reale, garantendo così la coesistenza di due spazi totalmente differenti.

Lo schermo nel videogioco, tuttavia, non contiene più immagini spaziali statiche, ma luoghi esplorabili che, essendo dinamici e interattivi, hanno propri caratteri distintivi. Per questo motivo, la ricerca si propone di indagare le specificità della rappresentazione dello spazio nel videogioco e l'evoluzione del suo rapporto con lo schermo: si analizzeranno giochi in cui la cornice costituisce il confine sia visibile che spaziale, altri in cui essa coincide con il confine visibile ma non con quello spaziale, fino ad arrivare ai games pervasivi, in cui lo schermo perde la peculiarità di confine per integrarsi con lo spazio reale.

Introduction

The research about the analysis, the design and the representation of the spatiality in video games has proved as one of the main issues among scholars belonging to the sphere of the ludology, in the last decade; this is because the spatiality is regarded as a necessary component for the understanding of dynamics, aesthetics and mechanics related to gameplay. The space constitutes, not by chance, the only category accepted concordantly as the key issue for researchers in game studies: according to Arseth, in fact, «more than time (which in most games can be stopped), more than actions, events and goals (which are tediously similar from game to game), and unquestionably more than characterization (which is usually nonexistent) the games celebrate and explore spatial representation as their central motif and *raison d'être*»¹. Also the American academic scholar Henry Jenkins adopts a similar approach talking about a parallel between game design and narrative architecture: according to him, «game designers don't simply tell stories; they design worlds and sculpt spaces»² that are necessary to tell them; for this reason, video game cannot be considered as the creation of a story, but rather the design of a space where it is possible to build some stories. Ernest Adams defines the game space «as an imaginary space, it is necessarily constructed by human beings, and therefore may be thought of as the product of architectural design processes»³; if the game space design can be likened to the architectural design, it is consequential that the final image of this space, with which every player comes into direct contact, can be examined as a representation of the space, since it is the designer himself who decide subject, modes and techniques of representation. The video game, therefore, introduces a new type of spatial representation that, while it incorporates some typical features of other media belonging to the visual culture, has its own visual code that deserves to be inquired not only by the game studies, but also by the scientific area of the representation; video games, that is, «are not only a social phenomena, they are the essential crossroads of a redefinition of our relation to the narrative world in images»⁴. In line with Thomas Kuhn who believes that the paradigms of a medium can change only when the new paradigm is able to assimilate the central elements of the previous media⁵, the research starts from those elements that have been not merely reiterated in video games, but rather reinterpreted and redefined. The screen, first and foremost, has a determinant role in the relationship between the space of the visual representation and the physic space where it is located: the screen, in fact, is a constant of the visual culture, from the Renaissance paintings on up through the films of the 20th century to videogames. The

¹E. Aarseth E., *Allegories of Space: Spatiality in Computer Games*, in "Cybertext Yearbook 2000", University of Jyväskylä, 2000, p. 161.

²H. Jenkins, *Game Design as Narrative Architecture*, in Wardrip-Fruin Noah, Harrigan Pat, "First Person: New Media as Story, Performance and Game", The MIT Press, Cambridge MA, 2004, pp.120-121.

³E. Adams, The construction of ludic space, in "DiGRA '03 - Proceedings of the 2003 DiGRA International Conference: Level Up", 2003, Vol. 2, 2003

⁴E. Higuinen, C. Tesson, *Éditorial. Chinèphiles et Ludophiles*, in "Cahiers du Cinéma", n. special, p. 5, 2002

⁵T.S. Kuhn, *The structure of scientific revolutions*, University of Chicago Press Ltd, London, 1970

main purpose of the screen is to separate and to distinguish two spatial worlds, the virtual world and the real world; this function – already contained in the root of the Italian word ‘schermo’ (derivation of ‘schermire’, from the Germanic *skirmjan*, with the meaning ‘to protect’) – allows the coexistence and, so, the relationship between two spatial contest, while ensuring the differentiation and the diversity of their typological and topological features thanks to its interposition. The function of the screen, over the centuries, is often dual and opposed: it is used as a closure element in relation to the represented space but also as an opening element toward the real space, operating both as a border in order to ensure its own existence in the physical world, and as a place access to the virtual world on which it can act. However, the characteristic of being both ‘spatial container’ and ‘spatial content’ has undergone some variations in the different media, changing the relation between virtual and real space. The role of the screen in painting and in photography is to contain static spatial images: they represent immutable spaces that can only be contemplated; although placed in real environments, they create, in the best of cases, a harmonious relation but a minimal dialogue between the two spaces. With the birth of the cinema, the screen gains the ability to include dynamic spatial images, and their movement create a new contact with the real space (one thinks of the shaking of the spectators at the short film’s premier ‘L’Arrivée d’un train en gare de La Ciotat’⁶ thinking that the train could come off the screen); however, this movement is endured passively by the spectator, who has not the ability to act on the represented space. With the advent of video games, the role of the screen is, once again, modified and revolutionized: it includes not only dynamic images, but also manipulated and interactive spaces; so, it is not about spatial images anymore, but about a space created through images, where the player, with its movement, become an active part in the construction and in the signification of the space because he has the possibility to handle, to modify and, in recent games, to navigate it. Against this background, the present research has as its objective to investigate the representation of the space in screen-mediated games, analyzing the evolution of its role, specifying how the different modes and techniques of the spatial representation may influence it and defining how the screen can modify the relationship between represented space and real space.

Methodology

The attention to the topic of the spatiality was declined through different aspects and features according to the various theories belonging to game studies⁷. In particular, two researchers have focused their studies on the issue of the visual representation in screen-mediated games. The first scholar to consider this issue was Wolf who tried to related the visual specificities of different video game dividing them into eleven categories, ranging from the text-based space to the interactive tridimensional environments⁸; Wolf’s classification, although is able to map the historical evolution of game space through a spatial taxonomy, presents not only a time limit, dating back to 1997, but also it looks incoherent and confusing in some aspects, also due to the large number of distinctive factors taken into account, for example the spatial depth, the navigation, the graphic interface. After some years, Boron, considering the rapid development of video games, extends Wolf’s observations critically by introducing three new spatial

⁶ It is an 1895 French short black-and-white silent documentary film directed and produced by Auguste and Louis Lumière

⁷ Cfr. S.P. Walz, *Approaches to Space in Game Design Research*, in “DIG-AREC Lectures 2009/09: Vorträge am Zentrum für Computerspielforschung mit Wissenschaftsforum der Deutschen Gamestage/ Quo Vadis 2008 und 2009”, Postdam Up, Postdam, 2009, pp. 228-254.

⁸ M.J. Wolf, *Inventing space: Toward a taxonomy of on- and off-screen space in video games*, in “Film Quarterly”, 51(1), 1997, pp. 11–23.

categories⁹. This study has the objective to realize a new and different classification, in order not to replace the older but with the intention to offer a different point of view that comes from an analysis purely linked to the representation and the drawing of the space and not including the game mechanics. Also the evolutionary process of which games were protagonists recently is taken into account, because today they have acquired new features that do not fall into the Wolf's and Boron's categories. The relation with the screen is used as the only key factor for the subdivision of the categories, which then will be detailed according to the different spatial typologies that modes and techniques of representation make possible. This classification distinguishes three types of screen-mediated games: Video games in which the screen forms both the visible and the spatial border; Video games in which the screen forms the visible border but not the spatial border; Video games in which the screen forms neither the visible nor the spatial border.

Video games in which the screen forms both the visible and the spatial border

The first category concerns video games in which the screen forms both the visible and the spatial border; the represented space, therefore, coincides with the existing space because it contains and makes immediately visible all the spatial elements on a single graphic screen: the on-screen space represents the entire virtual space. We can distinguish two main subclasses within this category: the first relates to video games in which the limits of the screen are inviolable and the spatial relationship between different elements is strictly kept within them; the second relates to video games in which the limits of the screen are traversable and the spatial relationship between different elements are not clearly marked by the screen borders. Specifically, the limits of the screen perfectly match the limits of the space in the first subclass. Video games as Pong or Space Invaders (fig.1) fall into that category: despite their different representation of the space, that is seen from above in the first game, while in the second is seen from the front, the relationship with the screen is similar: the one screen frames the whole spatial context; the screen borders limit the actions on screen and quash the chance of repercussion of the actions off screen. This is particularly evident in two factors: on the one hand, the movement in space is limited and permitted only along an axis, which may be the vertical axis as in Pong or the horizontal axis as in Space Invaders; on the other side, the actions, going out of the screen, have no consequences on the space, for example, in Pong, the exiting of the ball from the screen does not transform the space but only serves to assign a point to the player or to the computer, while in Space Invaders, the exiting of the missiles fired from the screen led to no spatial change but only a close miss to the invading aliens.

⁹D. J. Boron, *A short history of digital gamespace*, in Friedrich von Borries, Steffen Walz & Matthias Bottger (eds.). "Space Time Play. Computer Games, Architecture and Urbanism: The Next Level", Birkhäuser Publishing, Basel, 2007, pp.26-31.

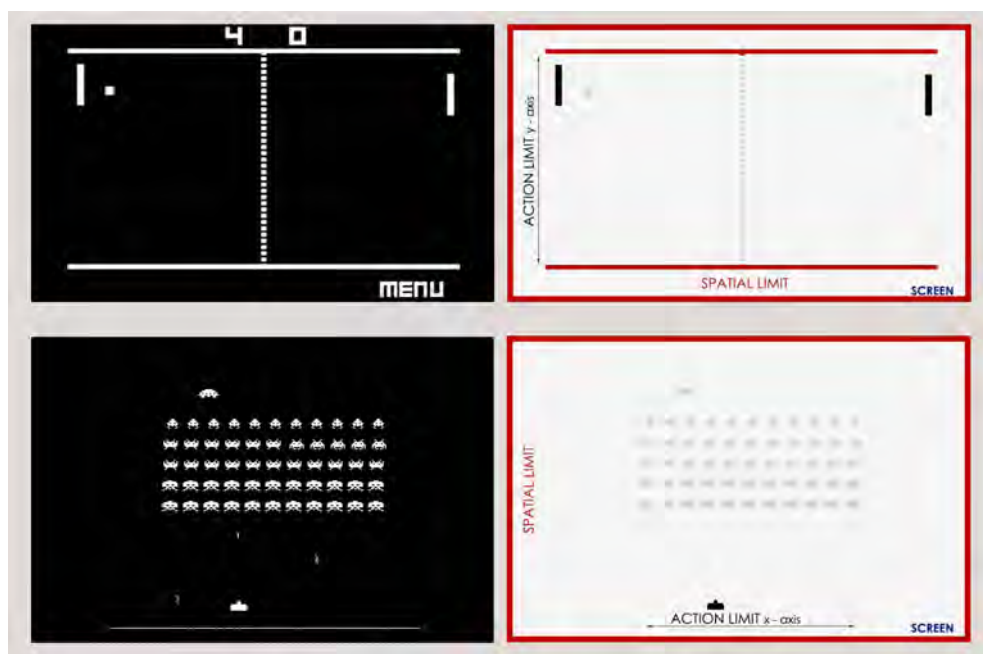


Fig. 1 The limits of the screen and those of the space match in Pong and in Space Invaders (1st category, 1st subclass)

The limits of the screen, in the second subclass, include the whole virtual space but they do not coincide with the real limits of the space but only with their representation on a two-dimensional surface. This is expressed in video games like Combact or Asteroids. The latter is a really explanatory example: the virtual space in Asteroids is cylindrical, but it is represented through a planispheric drawing; such consideration is based on the observation of the scrolling field of spatial elements: player's pointer, asteroids and spacecraft can exit the frame following a diagonal trajectory and reappear on the opposite side of the screen. The space is represented as unrolled on the screen, even though this is actually wrapped, because «the top and the bottom of the screen 'wrap around' to meet»¹⁰. In this case, according to the comments made by Wolf in his studies, «there is really no off-screen space to speak of»¹¹ because «objects leaving the top of the screen immediately reappear on the bottom, maintaining their same speed and trajectory»¹²: the representation shows all the existing space but it does through the flattening of the space on a plane corresponding to the screen surface.

¹⁰ M. J. Wolf, *op. cit.*, p.14

¹¹ M. J. Wolf, *ibidem*

¹² M. J. Wolf, *ivi*

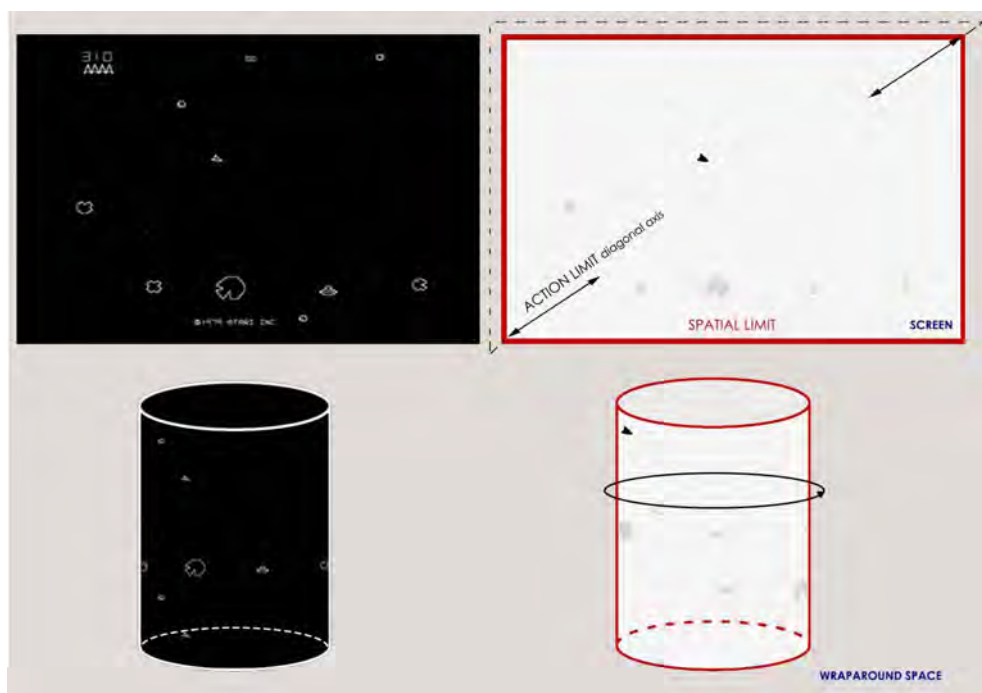


Fig. 2 The limits of the screen match with the representation of the space but not with its real limits in Asteroids (1st category, 2nd subclass)

In conclusion, the screen in the video games belonging to the first category, the represented space constitutes a stand-alone system that incorporate a virtual space that is totally different from the real space, because it has its original and distinctive features. For this reason, the relation with the real space is based on the coexistence but not on the dialogue, because the spatial configurations and the spatial relations in the virtual space deviate from those of the physical space, and this is accentuated even more in the use of qualities such as the abstraction and the reduction of details.

Video games in which the screen forms the visible border but not the spatial border

The second category concerns video games in which the screen forms the visible but not the spatial border; the represented space, therefore, contains and makes visible only a part of the existing spatial elements, thus constituting a portion of the entire virtual space that can be visualized on the screen only partially. We can distinguish two subclasses even in this category. The first subclass relates to video games in which the visible limit of the space is represented and it coincides with the borders of the screen, while the spatial limit, although not matching the sides of the screen, can only be deduced but it is not represented. This subclass is very close to that one earlier investigated to which Asteroids belongs, but the substantial difference is that the space continues outside the screen, even if it is not visible to the player. Emblem is the representation of the no-Euclidean space in the video game Pacman: the protagonist of the game, seen from the side, traversing a labyrinth that is visualized from above, can exit from some spaces that are not represented such as closed areas, passing from side to side of the screen; the passage of Pacman, as opposed to Asteroids, does not happens quickly, but it takes a few seconds to arrive to the other side.

The configuration of the space, although not totally visible, leads to hypothesize the presence of a tunnel or a corridor off screen, slightly longer than that visible on screen, by which the player can move Pacman. In this case, the space is closed and limited, but it is not possible to understand its specific limits; the action takes completely place within the screen, but the spatial relations off screen become essential to understand the entire space. The video game Donkey Kong is a variation of the same theme: in this case, the game is not composed of one screen, but it focuses different spaces in different screens, corresponding to the game levels; the represented spatial elements are not the same when switching from a level to the other, but rather they are clearly differentiated in location, in the orientation, in the representation of the construction techniques (e.g. floor made of brick/ floor made of steel) and of colors (e.g. red stairs/ cyan stairs). The mismatches between a space and its next, however, does not negate the perception of a single and continuous space, also thanks to the fact that the space is always seen from the front and it is used with vertical movements, simulating a space in height. This game induce to hypothesize that the visualized spaces are connected, even if they are not immediately consecutive in the representation of the spatial sequence and, therefore, it leads to believe that some spatial areas are never showed in the game screen. However, in contrast to Pacman, where the crossing in the tunnel is operated by the player, in Donkey Kong the passage from a space to another is automatic when the player reaches the area closer to the upper boundary of the screen.

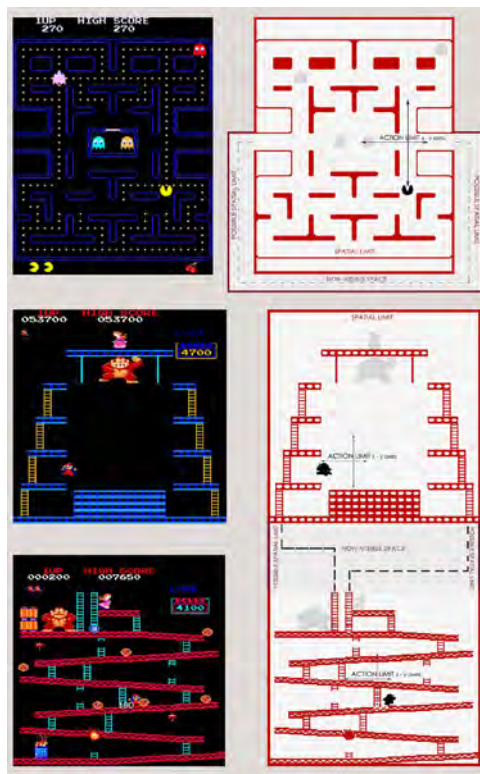


Fig. 3 The spatial limits go beyond the screen but they can only be deduced in Pacman and Donkey Kong (2nd category, 1st subclass)

The second subclass relates to video games in which the visible limit of the space is represented and it coincides with the borders of the screen, while the spatial limit, although not matching the sides of the screen, will be deducted through them, only systematizing all the different spatial views that are represented from time to time within the frame. The screen, therefore, focuses the attention on different parts of the same space, giving importance both to the visible space and to the space that has not been visualized yet. This subclass is the most complex, with the possibility of create infinite variations of representation; for this reason, it is divided in three main cases according to the method and to the technique used for the representation of the space. The first case concerns video games in which the representation of the space is two-dimensional; these games make an active use of the off-screen space through the ‘scrolling’¹³: this is a technique of animated graphics that use the independent movement of the background image to that adopted for the foreground image in order to simulate the crossing of an environment bigger than that contained on screen or to anticipate the vision of the next space. We talk about horizontal scrolling in video games like Super Mario Bros, because the visualized space advances toward the right of the screen but the background image moves on the left; instead, the scrolling in video games like Xevious is vertical, because the visualized space, seen from the air, advances upward of the screen, while the image of the space situated on the ground level moves downwards. The video game Defender is a particular case in which the horizontal scrolling is bidirectional, allowing the movement both to the right and to the left; in addition, the presence of a little map in the upper part of the screen clearly shows that the virtual space is larger in size than that visualized on the screen.

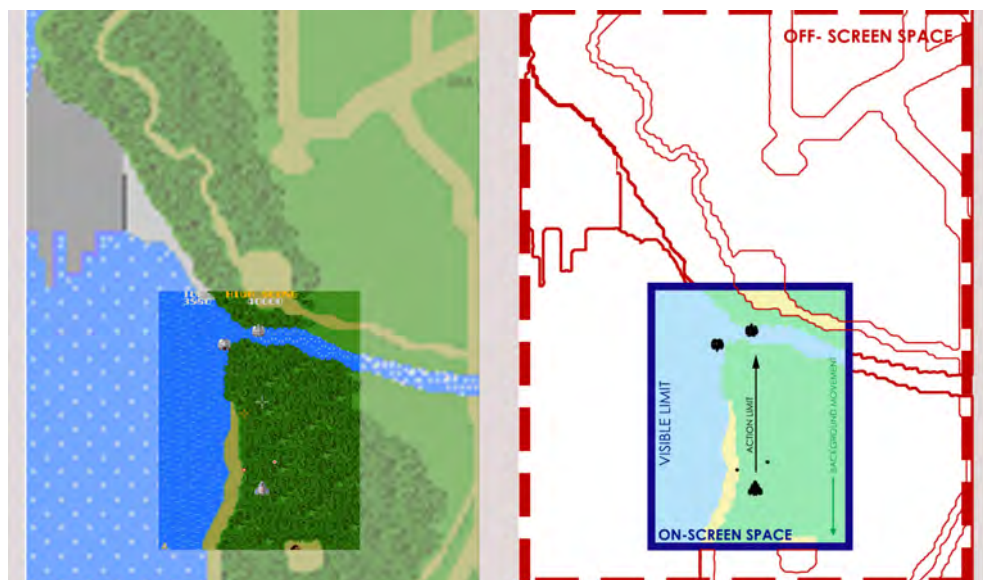


Fig. 4 The spatial limits go beyond the screen and they are represented in Xevious (2nd category, 2nd subclass, 1st case: the use of the scrolling in two-dimensional space)

¹³ M. J. Wolf, *op. cit.*, p.15

The second case concerns video games in which the depth of the space is simulated although the representation is two-dimensional; these games make an active use of the on-screen space in order to give greater importance to the off-screen space. Some games use the simulation of a 3D space through the use of different methods of representation: video games like *Age of Empire* and *Sim City* use the dimetric axonometry, others like *Zaxxon* use the isometric axonometric projection, still others like *Out Run* use a perspective view from below; other video games use different techniques to give the space the sense of the depth: games like *Moon Patrol* or *Beyond the Forbidden Forest* use the parallax scrolling, a technique similar to the scrolling for the use of opposite direction of movements between different layers, with the addition of a different speed for the background images, that are slower than the ones in the foreground; others use the 2.5D techniques, called also 'pseudo-3D', which introduce two-dimensional element on a 3d background, as it happens in *The secret of Monkey Island* or *Wolfenstein3D*.

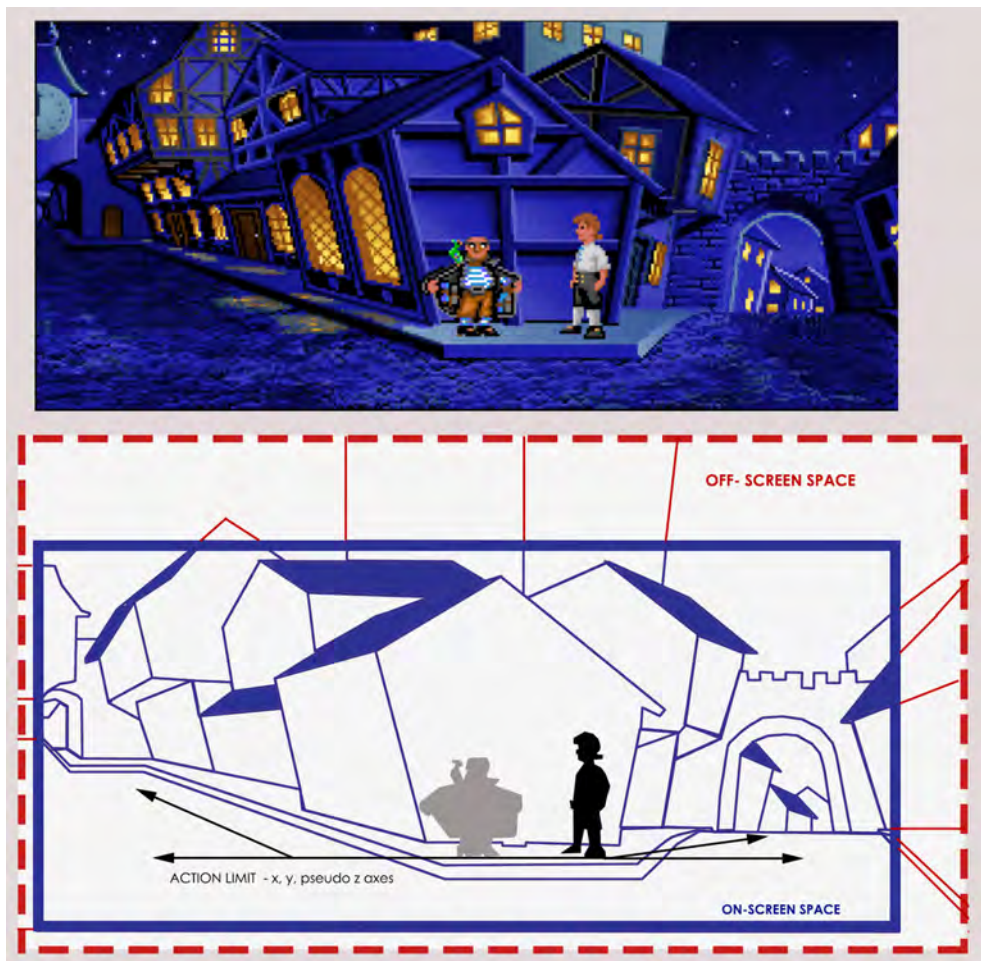


Fig. 5 The spatial limits go beyond the screen and they are represented in *The Secret of Monkey Island* (2nd category, 2nd subclass, 2nd case: the use of 2.5D technique)

The third and last case belonging to the second subclass includes the video games in which the representation of the space is three-dimensional; the space on-screen and the off-screen are equivalent, because the volumetric design allows to have an overall view of the space that is navigable and manipulable by the player; in fact, he can decide what to see and how to move himself in the space. From the first 3D games like *Alone in The Dark* or *Star Fox* to the latest open world games like *Assassin's Creed*, *Red Dead Redemption* or *Dishonored*, the screen starts to overlap and to replicate the human eye's field of vision in the perception of the space. This case includes the vast majority of video games realized in recent years, all with a representation very realistic and full of details: these features make the screen a invisible and highest border at the same time, because the virtual space is autonomous but very similar to the real space.

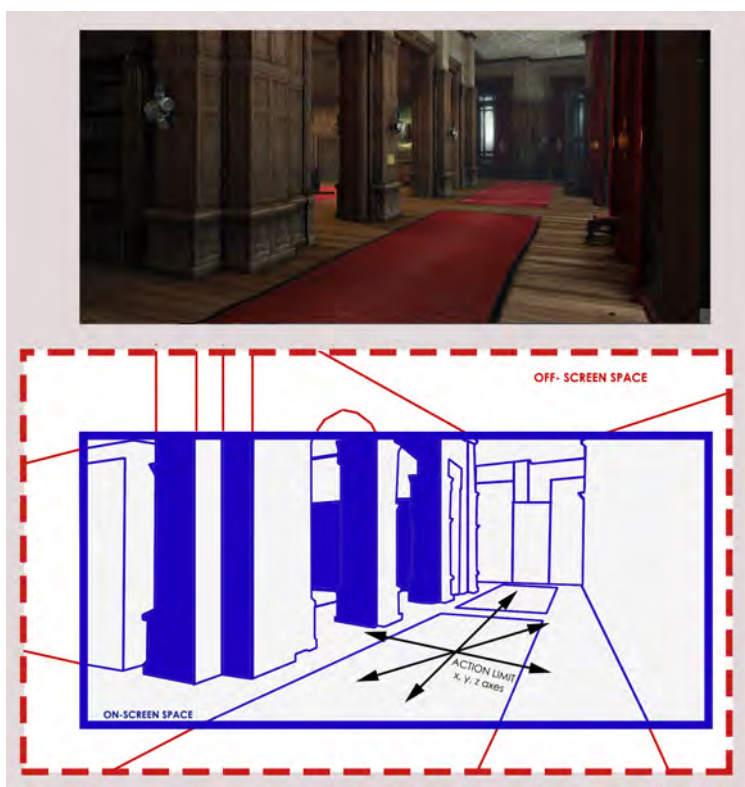


Fig. 6 The spatial limits go beyond the screen and they are represented in *The Secret of Monkey Island* (2nd category, 2nd subclass, 3rd case: the use of 3D technique)

In conclusion, the function of the screen in the video games belonging to the second category changes very rapidly, losing increasingly its feature of spatial limit; from two-dimensional scrolling game to 'pseudo-3d' games, the screen incorporates a virtual space that starts to recreate the dynamics and the visual perception of the real space, but it is still embryonic and distinguishable from it; the culmination of this process arrives with the 3D video games, in which the use of great realism and the drawing of all the details and the particulars make the features of the virtual space more and more like those of the physical space, tending to replace it and to annul it.

Video games in which the screen forms neither the visible nor the spatial border

The third category concerns video games in which the screen forms neither the visible nor the spatial border; the represented space, therefore, contains and makes visible only a part of the existing spatial elements; the remaining part is no longer in the virtual space, but is located in the real space. The screen, that is, becomes an intermediary between the virtual and the real elements, so creating a new hybrid game space. This category includes all the pervasive games¹⁴, in other words those that «regard the entire world, the architecture we live in, as a game board»¹⁵; although these game are described in various words, such as 'digiplace'¹⁶, 'digital ground'¹⁷, 'hybrid spaces'¹⁸, it is always evident the connection between world of atoms and world of bit, which are integrated not in opposition but in cooperation, because the actions in the on-screen space have an impact on the off-screen space, and vice versa. These video games take into account all the opportunities offered by present-day technology, such as the GPS system and the augmented reality, as you can see in PokemonGo or Human Pacman, in which only the player's movement in the real space allows to continue the game in the virtual space. The attention, in this case, is constantly relocated between on-screen and off-screen, which not only interact, but also are interdependent and necessary for each other.



Fig. 7 The hybrid space in PokemonGo (3rd category)

¹⁴ S. Björk, J. Peitz J., *Understanding Pervasive Games through Gameplay Design Patterns*, in *Situated Play*, Proceeding of the DiGRA 2007 Conference, Tokyo, Japan, 2007, pp.440-448.

¹⁵ C. Magerkurth C., *Concepts and Technologies for Pervasive Games: v. 1: A Reader for Pervasive Gaming Research*, Shaker Verlag GmbH, Aachen, Germany, 2007

¹⁶ M. Zook, M. Graham, *Mapping DigiPlace: Geocoded Internet Data and the Representation of Place*, in "Environment and Planning B: Planning and Design", 34(3), 2007, pp. 466 – 482

¹⁷ M. McCullough, *Digital ground: architecture, pervasive computing, and environmental knowing*, MIT Press, Cambridge (MA), 2004

¹⁸ E. Kluitenberg, J. Seijdel, L. Melis, 2006. *Hybrid space: how wireless media mobilize public space*, Nai Publishers, Rotterdam, 2006

In conclusion, the screen in the third category, increasingly small and less and less material, lose its previous feature of visible and spatial limit in order to assume a new role as a medium through which it is possible to create a new game space. This new space, consists of both represented and physical elements, has its own innovative configuration and presents new meanings and functions: it is no longer contained within the virtual space nor it is an alternative to the material world. The two symbiotic spaces, therefore, generate a potentially unlimited and infinite gamespace with innovative and distinctive features.

Conclusion

The growing interest of game researchers in spatiality and the rapid and constant change of environments, scenery and visual languages in video games, invite also the scholars of the drawing to reflect on the different modalities of spatial representation developed by the new medium. This research aims to propose another classification of video games, in order to not replace those previous, but rather to create a different point of view that takes account of the evolution of the characteristic features of the space in the visual culture, namely the relationship between screen and space. This classification clearly shows that the screen is a determining factor in establishing relations with the on-screen and the off-screen space: in one-screen video games, it has the same function as that in existing media, acting as a separation between two spaces that are totally different from each other and endowed with distinct features; its role changes in the transition from flat to 3D space, increasingly assuming the role of container of a virtual space that appears to annul the real space; finally, it gets to a turning point with pervasive games, becoming an element of mediation and integration between virtual and real space, so generating a hybrid game space, that is totally new and packed with its own innovative features.

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Designing with personal data A parametric visual experience at TEDxGenova

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Abstract

As we dive deep into the so-called era of datafication (Cukier and Mayer-Schonberger, 2013), defined as quantification and subsequent transformation of our reality into data, we see a shift in the design discipline. Data can be used in different areas of the world of the project in order to define new meanings and highlight new perspectives on our world. Practically, they can define the value of a project by becoming parameters for algorithms whose output depends on the variation of the inputs that they receive. In this scenario, process is more important than outcome (Mau, 2001) and users' input and participation (in the form of data) is vital to the design outcome.

The paper discusses a case study of a parametric visual experience developed to engage participants of TEDxGenova 2019 during the event. By answering a few questions about their personal beliefs and biographical information, participants were able to generate a unique version of the event's key visual, a geometric mandala controlled by simple mathematical operations.

Abstract

Mentre ci immergiamo nell'era della così detta datafication (Mayer-Schonberger e Cukier, 2013), definita come quantificazione e conseguente trasformazione della nostra realtà in dati, vediamo un'evoluzione nella disciplina del design. I dati possono essere utilizzati in diverse aree del mondo del progetto al fine di definire nuovi significati ed evidenziare nuove prospettive sul nostro mondo. In pratica, possono definire il valore di un progetto diventando parametri per algoritmi il cui output dipende dalla variazione degli input che ricevono. In questo scenario, il processo è più importante del risultato (Mau, 1998) e l'input e la partecipazione degli utenti (sotto forma di dati) sono vitali per il risultato del progetto.

Il paper discute il caso studio di un'esperienza parametrica sviluppata per coinvolgere i partecipanti di TEDxGenova 2019 durante l'evento. Rispondendo ad alcune domande sulla propria ideologia personale e fornendo alcune informazioni biografiche, i partecipanti sono stati in grado di generare una versione unica del key visual dell'evento, un mandala geometrico controllato da semplici operazioni matematiche.

Personal data as project input

Mayer-Schonberger and Cukier claim that we are living in the era of datafication (2013), understood as quantification and relative transformation of reality into data. For the first time in history we have access to an immense quantity of information of the most varied typology, in particular concerning the personal sphere of individuals and their personal data; such data can be collected via web and mobile applications, wearable devices and networked products and appliances.

This amount is destined to grow, following the implications of Moore's law (Schaller, 1997). At the same time, this massive amount of data provides computers with the material on which to base their evolution; artificial intelligence bases its potential on incredible ability of computing huge masses of data, and the consequent possibility of recognizing in these data patterns and insights that would be impossible for a human mind to manage.

In this context, visual design has found in data a new unexplored material to be used as input for the project. Depending on how massive the amount of data being used and what the goal of the specific design is, tools in use may vary enormously, from the hand-drawn approach of the famous Dear Data experiment (Lupi and Posavec, 2016) to complex algorithm-based systems (Bohnacker et al., 2012). The goal in using data inside a project of visual design or branding may not be to allow to gather insight from them, as a data visualization would do, but rather to invest artifacts with new deeper meanings. Every project of this kind defines its own encoded language that needs to be interpreted to decode the designer's choices (Van Nes, 2012).

Users' participation in data collection

If data undoubtedly represent value and opportunities for the designer, the ethical discourse has to be taken into consideration when referring to personal data being collected ubiquitously by all the devices that surround us during our daily activities. There has to be developed a culture of data and a deeper comprehension by users of what kind of information they are sharing, mostly unknowingly, and what purpose those are used for (Gambetta, 2018).

Design on these matters can help build a common ground and educate users to understand the complete process of evolution of a project, and how data are used in it. The principles of Human Centered Design and the Open Source philosophy have shifted the designer's focus from finished products to the increasingly participatory design processes, involving figures with different skills and, above all, the end users to whom the design itself is aimed. That is the context in which experiences of participatory design can co-exist with transparent data collection, with users willingly share their information and can follow it in the journey of analysis and representation. This kind of designing activity values process over the outcome (Mau, 2001) and may lead to unexpected results in users' engagement.

Generative approach in visual design

The concepts discussed so far adapt very well to the practise of dynamic branding, which is not new, as first examples of successful living brands can be found already in 1980s, with the famous MTV logo as frontrunner. A dynamic identity is made up of the same elements of a regular one: logo, colour, typography, graphic elements, imagery and language. Making it alive means to assign more than one variable to one or more of the aforementioned elements, while fixed elements help users to recognize the brand and give consistency to variability (Van Nes, 2012).

A peculiar approach to dynamic branding comes from generative design, an area of the world of the project that involves more than visual design and can be defined as an iterative process that involves a

program that generates outputs that meet certain constraints defined by the designer, whose role is not to create the final artefact, but rather to program a system, a set of procedural rules with some degree of autonomy, contributing to or resulting in a complete product (Galanter, 2003).

Applied to branding and data-driven design, this means that one or more elements of the identity are influenced by external data of any kind – we have great examples that used weather conditions (e.g. Visit Nordkyn), real time online activity of users (e.g. High Tech Campus Eindhoven) and more.

If users, and consumers, nowadays desire experiences and brands that share and support their own values, we can assume that embedding their unique data into artefacts design for them and with them can only increase the depth of the relationship and level of appreciation and trust between them and the brand.

TEDxGenova: a dynamic event branding case

The particular case study hereby discussed regards the 2019 edition of the divulgation event TEDxGenova.

TEDx events are a grassroots initiative of TED, a Californian non-profit born in 1984 as a conference where Technology, Entertainment and Design converged, created in the spirit of the overall mission to research and discover ideas worth spreading. TEDx brings the spirit of TED to local communities around the globe through events organized by passionate individuals that work independently under a free license granted by TED. Event organizers agree to abide by TED format, which includes live speeches of 18 minutes maximum. More than 3000 events are currently held annually worldwide.

TEDxGenova was born in 2015 and has steadily grown to have an audience of 750 participants at the event of 2019, which theme was X Kind of Magic, as the ideas being brought to stage were so incredible that they could almost seem unreal.



Fig. 1 A moment of the event that took place in Genova on February 23rd, 2019.

For the occasion, the design team created a key visual based on a parametric model to generate geometric mandalas. Mandala in Sanskrit means centre, circle, magic ring. These drawings are present in several Eastern cultures and are used in meditation practices to focus and represent the inner sphere of the individual.

In order to give a contemporary shift to this concept and offer an extra experience to the public of the event, it was decided not to design only one key visual representing a static mandala, but rather define a logic, an algorithm able to generate countless different designs according to the input parameters that it receives. Such parameters were in fact numbers tied to the response of participants and speakers to a list of questions about their ideals, conception of magic and technology and some personal data such as age, level of education and so on.

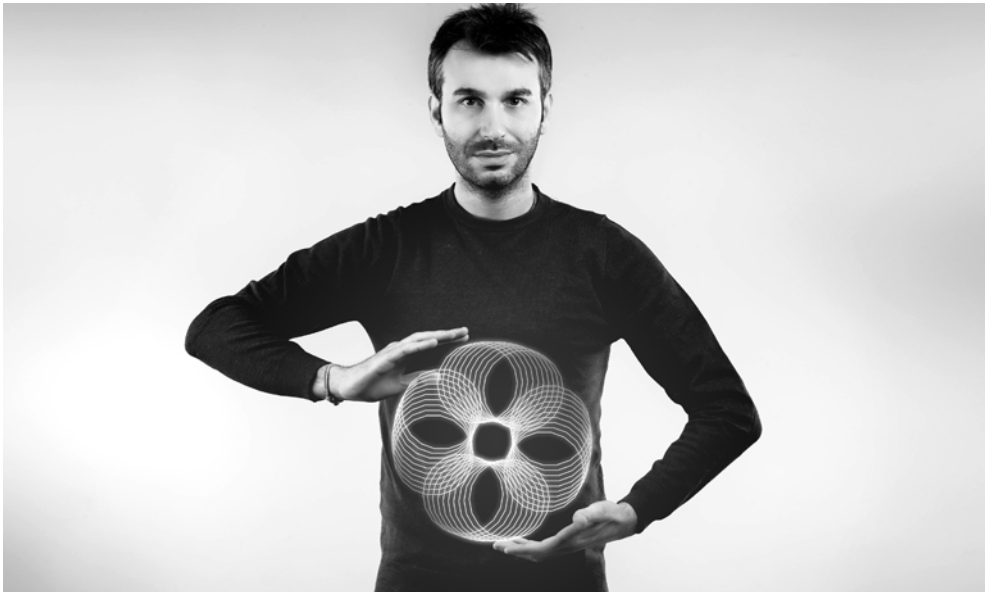


Fig. 2 Andrea Facco, one of the speakers, in a promotional image with his personal version of the mandala

Mandalas were generated by rotating one polygon shape around a circumference. The main geometrical parameters that were edited to create unique results were the sides' count, the radius and number of iterations of the same polygon and the distance of the main polygon from the centre of the shape. In some cases, answers allowed to have mandala consisting of a double crown of polygons (Stevens, 1981). Despite not being a static key visual, but showcasing instead a collection of several different geometries, the 2019 key visual kept its consistency and appeal, by inserting in all communication and marketing material, plus stage setting, various mandalas threaded with TED official branding elements, such as colours and fonts. These were enough to tie the different images together and create an organic imagery for the event.

The experience of generating a personal drawing was embedded during the event. A simple web app was designed together with Pane e Design studio, and was online for one day, to be used with the personal code on the ticket. Structured as a sort of personality test, the app would show the geometrical modification to the shape of the mandala every time that a new answer added detail to it. In the end, the reward was a unique key visual to be saved, shared on social media and used as screen saver.



Fig. 3 The interface of the web app used to generate mandalas at TEDxGenova 2019



Fig. 4 The merchandising of the event showcasing a collection of different mandalas

Conclusions

The use of generative design and collaborative data collection during a divulgation event has proved itself to be a stimulating, valuable experience for the public.

On a quantitative point of view, the experience was completed by more than 300 participants, basically half of the people present at the event, whose profiles can be deduced by their answers. More than half of the users is 30 years old or younger and 75% of them was at their first TEDx experience.

The most fascinating answers came from questions about ideals and beliefs: 39% of the users believes that cooperation is key to a sustainable future for our world, which is the main concern of 43% of them, even more than science developments and human rights recognition.

50% of them have their best ideas working in groups rather than alone and 57% asserted to be more fascinated by human connection rather than AR experiences, Artificial Intelligence developments and space exploration.

Qualitatively, the experience of TEDxGenova 2019 has demonstrated a general fascination of users towards the chance to unleash their creativity and be involved in participative processes of design. It has to be taken into consideration that TEDx participants are a particular open-minded type of public, well informed on technology advancements and eager to discover new stimuli. The widespread presence of social media in our lives and the constant desire to share our experiences on public platform also plays a prominent role in inspiring people to conclude a task that generates an original and aesthetically pleasing content to be shared. Thus, the result of this experiment was for TEDxGenova to receive a positive feedback and engagement increase both in loco and online. Similar and even more engaging activities have been developed following the one hereby presented, that will be discussed in further publications.



Fig. 5 Some of the mandalas generated by the participants of TEDxGenova 2019

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The map: a graphic representation tool for service design A co-design approach to help the minor to orient himself and express his needs in the refugee camp space

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Abstract

We live in the «Century of the Fields».¹

The camps, to whose generic and cumulative category of camps belong: humanitarian camps, refugee camps, temporary refugee camps, up to the more discreet and very current detention camps for migrants and asylum seekers are «surrogates of impossible homelands»²

Are internment facilities for a “48-hour stay” that extends over a period of years, although there is a tendency to define such facilities through sentences that accentuate their absolute temporariness: temporary emergency places, temporary protected areas, attention zones, detention/temporary reception centres.

It is with this contingent problem of individual-spatial alienation that we must confront ourselves as designers and planners, adopting effective, versatile and immediate analysis tools to give voice to the needs of individuals “confined” within these spaces, overcoming ethnic-linguistic barriers.

We must respond to this alienation in an ethical and as inclusive way as possible, putting aside our Western culture to respond to cultural needs different from our own.

What tool can be versatile and customizable to allow the designer and the designer to return a graphic image to the spatial needs of the inhabitant confined in it? Which graphic tool is the most suitable to outline and then create spaces that promote processes of humanization, integration and inclusion?

¹ Kotek, S., Rigoulot, P. (2000). *Le siècle des camps*, Paris, J. C. Lattès; trad. it. (2001) *Il secolo dei campi*. Mondadori, Milano

² H. Arendt, (1966). *The Origins of Totalitarianism*. New York, Harcourt, Brace & World; trad. it. (1963) *Le origini del totalitarismo*. Edizioni Comunità, Milano

Abstract

Viviamo nel «Secolo dei campi».

I campi, alla cui categoria generica e cumulativa di campi appartengono: campi umanitari, campi profughi, campi profughi temporanei, fino ai più discreti e molto attuali campi di detenzione per migranti e richiedenti asilo, sono «surrogati di patrie impossibili».

Sono strutture di internamento per una “permanenza di 48 ore” che si estende ad un periodo di anni, nonostante si tenda a definire tali strutture attraverso frasi che ne accentuano l'assoluta provvisorietà: luoghi temporanei di emergenza, aree protette temporanee, zone di attenzione, centri di detenzione/accoglienza temporanea.

È con questo problema contingente di alienazione individuale-spaziale che dobbiamo confrontarci come designer e progettisti, adottando strumenti di analisi efficaci, versatili e immediati per dare voce alle esigenze degli individui «confinati» all'interno di questi spazi, superando barriere etnico-linguistiche.

Dobbiamo rispondere a questa alienazione in modo etico e il più possibile inclusivo, mettendo da parte la nostra cultura occidentale per rispondere a bisogni culturali diversi dai nostri.

Quale strumento può essere versatile e personalizzabile per consentire al progettista e al disegnatore di restituire un'immagine grafica alle esigenze spaziali dell'abitante confinato in essa? Quale strumento grafico è il più adatto per delineare e poi realizzare spazi che favoriscano processi di umanizzazione, integrazione e inclusione?

Introduction

In recent years the flow of refugees and migrants in Europe has reached unprecedented levels, representing the largest exodus of children and adolescents since the Second World War. In the last two years there has been a decline in arrivals by sea, but in parallel there is an increase in the number of formal and informal camps.

68.5 million people worldwide have been forced to flee their country. Of these, some 25.4 million are refugees, more than half of them under the age of 18.

Attention as designers needs to be paid to this social group. Many children and adolescents undertake long and dangerous journeys, are exposed to harsh weather conditions and the risk of falling victim to traffic and/or the explosion of ordnance.

These are minors who need an appropriate refuge where they can rest and feel welcome, a safe space where they can play and learn, adequate nutrition and safe toilets. Many of them need psychological support and medical assistance, as they are traumatised and physically exhausted by the long journey. Of the more than 638,000 asylum applications made in 2018 in European countries, 19,700 were made by unaccompanied foreign minors, representing 10% of the applications made by those under 18.

They represent one of the categories most at risk and, for this reason, adequate protection is required for them first of all by the Governments of the countries of departure, transit and destination and, more generally, by all the competent authorities.

It is necessary that architects and designers can be figures able to provide low cost and effective design solutions to improve the conditions of stay inside these.

Although considerable progress has been made over the last three years across Europe to improve conditions in public reception centres, there is still a need to support the provision of services for refugees and migrants and to strengthen child protection systems so that refugee and migrant children can be protected and their needs as future citizens can be met easily and immediately.

The arrival in destination countries is often the beginning of a new journey for migrant and refugee children and adolescents: they have to settle into a new context and in addition to linguistic and cultural barriers they often have to deal with the distrust of their surroundings.

In some refugee camps, the internal presence of associations and NGOs dealing with minors allows for educational, training and recreational activities that allow children and adolescents to better fit into a social and territorial context, allowing them to perceive their environment as a less hostile and confined place. A place that allows them to overcome a concept of physical and psychological limes, helping them to bypass the related traumas.

In other refugee camps, however, this condition does not occur. Being totally absent NGOs and associations, minors are isolated from their surroundings in a perennial physical and psychological waiting condition. A situation of spatial and emotional confinement that is attempted to overcome through the use of social platforms such as: Whatsapp, Instagram, Facebook to get to know the outside world and keep in touch with friends and family.

It is necessary to return to inclusive and co-designing processes with minors that allow them to carry out activities that can train the adult of tomorrow, developing a sense of self-esteem.

The school, which has always been the main meeting place, has a crucial role in promoting the full inclusion of migrant and refugee children and adolescents and in facilitating the overcoming of prejudices. What can be the role of co-design within a fragile and precarious territorial context? The drawing and design on the territory of spaces intended for training and play activities, conceived by the children themselves and traced by designers. Spaces included in the planning and destination of use.

Which tool can therefore help the designer? A territorial representation through a simple and immediate graphic elaboration: the map.

Methodology

The essayist and historian of cartography Piero Falchetta gave a definition to the ancestral need of the child to map the territories from above to observe them from within:

«The representation of the territory is a very remote instance in the history of mankind, which probably has its roots in the need for a look from above - a naturally “cartographic” look - that would allow us to locate dangers, places, opportunities; a man of the beginnings, we can only imagine him: climbing a tree, looking at and controlling the territory around him, in search of dangers, places, opportunities».³

The child yearns, in fact, to find climbing trees, from the top of which to throw on the surrounding space a cartographic look that allows you to internalize the environment by measuring it. Map in order to satisfy a biological thirst for perceptive-spatial curiosity.

It is from this consideration that the research theme is developed.

Cartography can help designers and psychologists to plan activities and spaces that promote inclusion and socialization by giving voice to the recreational and educational needs and desires of children, related to the current territorial context and origin: «Maps inevitably embody a cultural system.

Cartography has never been an autonomous and hermetic instrument of knowledge, and neither can it be considered above policies concerning the construction and control of knowledge, for this reason, we

³ P. Falchetta, *Spazio, luogo, mappa*. (con una postilla) in *Cartografie dell'attualità*. Per una critica della ragion spaziale – Philosophy Kitchen, anno 2, N. 2 – 2015. ISSN 2385-1945 – pp. 35-46

should begin to deconstruct the map».⁴

The representation of a map drawn by the minor, as a graphic interpretative transposition of the places perceived as familiar within the camp, is fundamental to know the points where minors meet within the camp and whether they are perceived as places of reception and protection, in order to co-plan educational and training activities in them.

A trace of the space of everyday life that translates into the geography of the appropriation of a space, a trace that provides the designer with precise information: «a fundamental characteristic of maps is their adaptability to the context and their versatility as a means of transmitting specific information. In the process of abstraction thanks to which geographic knowledge is put on paper, in addition to providing a representation of space, the cartographer formulates a series of statements about his beliefs and the cultural environment in which he lives. Rarely do maps have the sole purpose of describing a portion of space: mapping, selecting, abstracting and cartographing is a part of the work, even when it is not admitted that this is the case. On the contrary, it is true that when a map offers its messages to the reader at the same time it asks for a tacit acceptance of the parameters used, of the cause/effect relations, of its implicit rules».⁵

The lack of which services emerges from the map outlined by the minor? What is the perception of the lived space?



Fig. 1 Map of Zaatari Refugee Camp, Jordan. Co-designing of space wishes

The imaginary in the formation of childish thought and abstraction does not have a marginal role, to quote engineer and philosopher Alfred Korzybski: «the map is not the territory, it produces a telluric shock in the idea of objective experience of the world. (...). The relationship between map-territory, its rocky conformation will open new ways by placing the problem of reality and relations from another

point of view. This paradoxical game represents an essential point of our reasoning because it offers the cue within which to draw our childhood maps, not so much with the intention of faithfully representing the reality of the concept but rather to enter into a paradoxical activity that we typically find in the game, in art and in childhood».⁶

A map that highlights the needs of children and adolescents on paper, becoming a response to these needs in the digital format duo. The idea was born of a map in digital format that maps the spaces in the camp where it is possible to carry out activities with ngos and associations, spaces in which children can carry out extra-school activities and recreational recreational activities proposed by them and that have received a minimum consensus of participants. Not only does the digital map make it possible to physically map the place, informing new minors of the location of the space for the activity, but if associated with a calendar, it also makes it possible to update in real time the information concerning that activity: timetables and materials that the association makes available for the activity.

Luigi Ferrauto says that: «maps are artifacts that help us to make decisions, since they organize data and information in space; their purpose is to bring to our knowledge what they make visible, understandable and usable. Since ancient times they have proved to be tools that reflect the beliefs and habits of the people who produced them. At the dawn of mankind they were used to overcome fear, organize the world, try to gain some control over reality».⁷

The latter becomes an indispensable tool to express a need/desire. Through the game of digital and analogue map (for those who are not equipped with a digital device), volunteers of associations and NGOs operating within the camp are able to plan weekly activities aimed at maximum inclusion of participants. The map, through its graphic language, is a powerful means to overcome language barriers by promoting co-participated phenomena of linguistic-cultural integration between minor-volunteer and minor-minor and processes of creative stimulation, essential for the improvement of the psychological conditions of the minor: «the map, like the labyrinth has always kept a privileged place in the imagination».⁸

Conclusion

«The planning process must feed not only on the pseudo-Enlightenment source of scientific knowledge, but above all on an articulated system, interacting with the community, of uncertain and powerful knowledge. There is, in fact, a symbolic and non-verbal knowledge contained in the territorial palimpsest and in the mosaic of local histories, often conveyed through cultural identities and traditions, and transferred to the customs of communities. It is associated with «a local and identity knowledge produced by the concrete experience of the city and the territory reflected in the community: a knowledge produced from within the places, the result of an emotional compromise with them, the result of the development of the multiple identity plots that the places express in function of the increasingly plural communities that use and animate them».⁹

So in the century of the fields the map can be the graphic element with which to return to orientation in that constant input of stimuli that Maurizio Carta describes as follows: «we live immersed in multiplicity: of ideas, information, cultures and communities. And the increasingly argumentative and

⁶ M. Foucault, *Eterotopia*, Mimesis, Milano-Udine. In merito proprio con questa prospettiva spazio-politico filosofica la rete insieme di pratiche filosoficamente autonoma crea spazi e luoghi altri (www.philosophyforchildreningioco.it)

⁷ P. Corraini, P. Cox, L. Ferrauto, G. Lupi, *Minds, Maps and Infographics*, Corraini/Moleskine, 2016, p. 13

⁸ A. Antoniazzi, *Labirinti elettronici*, Apogeo, Milano, 2007, p. 39(TNR8e, Bompiani, Bergamo, 2014)

⁹ M. Carta, pubblicato in *Le Nuove Frontiere della Scuola*, n.34, 2014

relational dimension within which urban planning acts has amplified the need for cooperation between different competing disciplines (economic, social, estimative, transport, fiscal, energy, etc.), between knowledge and plural interpretations (formal and informal) and between increasingly panoptic subjects (transcalari, public and private)». ¹⁰.

A map becomes again the useful element to move in a territory or rich of stimuli like the urban one or without them like the one of the refugee camp. This element can be the starting point to overcome a concept of limes intrinsic to the idea of refugee camp and informal camp, to overcome the internal ethnic-cultural barriers often projected on the minor by the adult but can be considered surmountable through the art of play and co-design.

Through a simple graphic elaboration, the designer can translate the needs of the minor into a design element, redefining at the same time the responsibility of the latter to respect the territory-scenography of which he is actively part and which he will put at the service of the activities proposed by him. Through such an artifact, the physical and spatial design of a context translates into an ethical value of respect for the needs of the individual and the community that surrounds him, reiterating the importance of the civic value of community in a heterotopic field and detached from the territorial context in which it is easy to forget this right and duty.

Consequently, at the basis of the redesign process of urban planners and designers lies the semiotic process of understanding and interpretation of the territory, no longer as a set of predefined rules and assumptions, but as the result of a process of learning, education and listening to the territory that is inhabited in order to restore urban discursiveness.

A co-participative process that is able to bring to light the appreciation of a fluid world that is not manipulated by social and media and the models constantly proposed by the latter, but by self-proposed models starting from individuals in a community that, aware of the paradigm of complexity, is able to evolve continuously, appreciating what the sociologist Zygmunt Bauman defines as a «liquid modernity». ¹¹— explaining its symbolic value, discovering its cultural dimension, enhancing its socio-spatial dimension.

We need to return to drawing maps and to stimulate minors and new generations to exercise this graphic discipline, not only to clarify the territory we live in, becoming active protagonists of it, but to return to really understand it.

¹⁰ *ibid.*

¹¹ Z. Bauman, *Modernità Liquida*, Editore Laterza & Figli S.p.A, Roma, 2011



Fig. 2 Map of Zaatari Refugee Camp, Jordan. Co-designing of daily activities

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Natural or artificial? Esthetic and purpose of green building envelopes

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Abstract

Vertical greening systems are among the recent technologies used to increase and improve the performances of building envelopes; they can be classified as green façades and living wall systems, depending on plants use: climbing, potted or even growing hydroponically. The stratification that defines the system and the choice of plants determine different functional performances: mainly aesthetic, hydrothermal or for improving air quality. Also, the conceptual role given to the system can be different: it can be conceived as an aggression by lush greenery that tends to transfigure the building forms; or as a vegetation system that replaces, at least visually in an orderly way, the external protective layer of the building; or, finally, as a real high tech element. This paper presents some case studies to explore links between the green envelopes functions and the message contained in their formal expression.

Abstract

Tra le più recenti tecnologie impiegate per diversificare e modificare le prestazioni degli involucri edilizi, ci sono le facciate verdi e i *living wall*, ove in genere la differenza tra le due è legata al modo in cui le piante sono sistemate, rampicanti, poste in contenitori e persino gestite idroponicamente. La stratificazione che definisce il sistema e la scelta delle piante determina diverse prestazioni funzionali: principalmente estetiche o anche igrotermiche e di miglioramento della qualità dell'aria. Inoltre, diverso è il ruolo concettuale dato alla facciata vegetata: può essere concepita come una 'aggressione' da parte di vegetazione lussureggiante che tende a trasfigurare le forme dell'edificio; o come un sistema vegetale che sostituisce, almeno visivamente, in maniera ordinata e regolare, lo strato protettivo esterno dell'edificio; o, anche, come un vero e proprio sistema *high tech*. L'articolo mostra alcuni casi studio al fine di esplorare le connessioni tra le funzioni delle facciate vegetate e il messaggio implicito nell'espressione formale.

Introduction

Observing the clear aesthetic complacency in the use of greening systems and green technologies in many examples of contemporary architecture, even by big brands, architects can think, in a dissociated way, that the ecological culture of the project has finally come out of the limited world of experimentation to spread widely as a status symbol. At the same time, a such exposed and uncritical pervasive embrace is too imperious not to be either naive or dishonest, or in any case superficial.

According with Gianfranco Marrone, who proposes a sort of «Farewell to Nature» (2011), a critical detachment is needed to rethink the meanings and ways of the man-nature relationship (if a real difference between them exists).

«Among the oddities of this bizarre era, there is one that is hardly understood [...]: this is the enthusiasm for Nature. [...] An enthusiasm determined in purpose, but vague in content» (Marrone, 2011, p. 4).

In our present, where every cultural trend is minimized and reduced into slogans before we can fully grasp its deep meaning (Giachetta, 2013, chap. 4), the aesthetic and superficial celebration of the bond that we have as humans with nature, also through the construction of our living spaces, does not take place to safeguard it, but primarily to continue our supremacy over it. If scientists say that it is necessary to change, immediately we are running to find the design shape of this change, but this attitude – albeit understandable – is risky in terms of substance, not only in relation to the fundamental principles of change, but also with respect to the meaning of architectural aesthetics itself (fig. 1)



Fig. 1 Temporary installation of a vertical greening system in Milan (Italy)

«The current aesthetic of nature is not based on a theory of beauty and aesthetic experience, but on a generic aesthetic of respect for the environment and on an absolute, implicit dependence on the cognitive outcomes of scientific practices» (Marrone, 2011, p.24).

Considering the current success of sustainable architecture, it would be simplistic, if not totalitarian or both in the worst-case scenario, to claim that what seems right to us is also beautiful. We do not consider beauty on a formal, compositional and geometric level, not even on the constructive-technological and functional level, we just consider a fashionable socio-political trend. This so far overlooked issue begins to prompt deeper reflections. Today's aesthetic of nature – not only in architecture – is far from the balanced Greek imitation or the medieval mysticism (even if these new dark times are dangerous). It seems in fact a very strange and improvised mixture of naive romanticism and neo-positivism.

We are willing to be moved by the image of an abused nature that we would like to keep untouched, by the lonely bear on the melting ice, by the porn-ecological «lion at sunset» (La Cecla, 1991, p. 63), by the «third landscape» identified by Gilles Clément, as an area that survived the general ruin because was forgotten (Nicolin, 2012, p. 83); but, at the same time, we are ready to imagine super technological flowery meadows that cover a city of skyscrapers (Giachetta, 2013, ch. 5), as a magical solution to all our problems (but is it like sweeping dust under the carpet?).

If «love for nature was an invention of romanticism» (Bondi, La Vergata, 2014, p. 160), it was then able to produce, mixed with Calvinism and Puritanism, the desire for disobedient escape in the wilderness for the American transcendentalism, for Ralph Waldo Emerson, David Henry Thoreau and John Muir. In Enlightenment thought, on the contrary, wild and indomitable nature was nothing but a repugnant spectacle (Bondi, La Vergata, 2014, p. 158); even natural landscapes, like Alps, did not seem sublime to travellers of the late eighteenth century, like Georg Wilhelm Friedrich Hegel who, by crossing them, even came to feel «disgust for landscapes that showed no trace of the active presence of man» (Bondi, La Vergata, 2014, p. 158). The problem is that these two historical, antithetical and, therefore, legitimate positions both coexist in our contemporary vision of nature and in its image. There is still a desire to reconquer an Eden, but it is not known if it will have the shape of a forest or an Italian garden, and now we are too cynical to fully desire it. Even our vision could be legitimate, albeit ambivalent, if it were the result of an aesthetic thought, which instead does not exist or rests only on historically fragile – but scientifically solid – bases which are those of environmental alarm and limit of resources.

If, for once, we forget the very important and recent ecological story of architecture, slightly widening the horizon, we could realize how confusedly intertwined the historical roots of the modern relationship between nature and architecture are.

Just one example among the many. The first building that fully represents aesthetically, socio-politically, the collective, technological, constructive, productive, aesthetic-perceptive imaginary, from the industrial revolution onwards, is paradoxically Joseph Paxton's gigantic greenhouse, the Crystal Palace, which was however conceived on the model of a structure created for the artificial control of nature (Strike, 1991). Obviously, it could be a coincidence that the maximum aesthetic expression of the Enlightenment culture is a greenhouse transformed into a universal exhibition, and we could leave it out, considering that architectural inspirations have always been the most diverse and unthinkable. However, it is not really possible, given the symbolic aspect assumed from that moment on by the concept of dome-greenhouse as a phantasmagorical space of preservation. The dome protects human ambitions even in a hostile environment, thanks to the socio-political and technical control of the atmospheric survival conditions (Sloterdijk, 2015). It allows us to safeguard nature from our own delusion of omnipotence here on Earth, as on future planets, where we will force ourselves to escape. Just to mention some of the most famous Paxton's descendants architectures, expression of these meanings: the megastructures of the Archigrams, in particular the Underwater City of Warren Chalk of 1963, as well as their capsules, for example Living Pod of David Greene of 1966; the geodetic domes of Rich-

ard Buckminster Fuller, and in particular the one on Manhattan of 1968; Biosphere 2 by billionaire Ed Brass and Space Biosphere Ventures from 1987; the Eden Project by Nicholas Grimshaw & Partners of 2001; the imaginative (although Norman Foster is already working on it) survival greenhouses from movies, like *The Martian*. These are just a few of the many examples of a poised conception of an architecture-environment relationship, which is far from being linear, rather it is multifaceted, contradictory, especially on the symbolic-expressive level. There is a path marked by a wilderness as a mirage of escape possibilities, on the other side, one marked by a desire for bio-political control of living conditions on the planet (Nicolin, 2012, chap. VII); nature can be understood as freedom and disobedience from the rigid patterns of the Modern, but freedom can be disobedience from the laws of nature; we can follow the contemporary claim of architectural organicism and mineralisation of green in constructed forms; run from a nature interpreted as immaterial or as architectural matter; design vertical forests, but it is not yet clear whether they are green built city islands, or concrete forests.

Given this multiplication and overlapping of contradictory meanings, if we want to begin to face more concretely the aesthetic relationship between architecture and nature, we have basically two possibilities.

If we choose to consider, in architecture as in art, a conception of beauty that autonomises itself by standing monumental and solitary, nature can be understood as a further opportunity for aesthetic experimentation (Emery, 2007, p. 12). In this case, the contradictions (which in fact can be useful) are of little importance, but it is necessary, however, to accept that nature is a passing opportunity that can set as soon as its time has passed. However, an aesthetic of architecture based on nature could pass as soon as green is no longer in fashion. Why has it to last, if our era has not so far been able to build its own aesthetic identity around this epiphenomenon and is far away from the rigor with which others have measured? (E.g. the Greek conception of beauty).

If, instead, «the project is inscribed in the overall teleology that poses well-being, the promotion of a qualitatively good life, as the end of any meaningful practice» (Emery, 2007, p. 11), then «design means orienting what we do for this ultimate purpose» (Emery, 2007, p. 11). The beautiful works – according with Plato – will be those works that offer themselves a «breeze that blowing from solid countries brings the invigorating breath of health» (Emery, 2007, p. 11 citing Plato, Republic, 401 b).

By following this second approach, the risk is surrendering to a somewhat naive scientist aesthetic of sustainability which recognizes, sometimes a little simplistically, that what is good is also beautiful. To face (or ride) this risk, architects must be less architects of form to avoid a crisis of meaning that opens up «when a form of doing loses the essential causes for which it exists and for which it should act, the principles are lost. Hence the possibility of rationally legitimizing one's own doing is lost» (Emery, 2007, p.28). However, accepting this second option is not easy.

Does an ecological beauty exist?

The repercussions, linked to the concept of sustainable development in architecture, have led to focus the attention on the relationship between what is good and what is beautiful, called by Sutton (2014) as 'ecological beauty'. In a certain cultural context, all the technical solutions deriving from strategies for reducing environmental impacts are therefore considered to be capable to positively characterize buildings and even energy production infrastructures, from an aesthetic point of view. However, it is evident that this value system is not shared by all. Referring to the constraints on the application of photovoltaic panels on historic buildings or on the installation of wind turbines on the ridges, it's clear

how historical testimonial and landscape values are considered, at least in our Country, with higher value than renewable energy production.

Aesthetics, therefore, has to go through an evaluation process.

Even within the same sphere, different functional and aesthetic variables can be considered as green solutions – and in particular the use of vegetation which modifies environmental quality and/or reduce energy consumption for the buildings' air conditioning –. Considering the vertical greening systems, these are commonly divided into three macro categories in relation to their support structure: direct green facades, indirect green facades and living walls. Within each category there may be variants related to the type of plants used – in relation to the performance required but also, and above all, to the climatic conditions in which they must survive – with different leaf densities, morphology, colour and, consequently, aesthetic outcome.

But if perception can be defined as an evaluation of what is sensory detected, the evaluation, as a cultural gesture, tends to be subjective. Sutton (2014), with the differentiation between Enjoyable Beauty, Admirable Beauty, Ecological Beauty, underlines that subjectivity depends above all on the detachment from the context of the object contemplated. The evaluation will depend on the culture and on the 'history' of the perceiving subject. Changing his knowledge about a subject will change his perception. Sutton proposes some criteria to discuss how Nature Based Solutions (NBS) such as facades and green roofs can be increasingly considered 'beautiful', summarising: 1) facades and green roofs must be evident in quantity and appearance; 2) involvement and participation are useful to improve knowledge; 3) the concept of care connects knowledge, objectives and commitment; 4) biodiversity must be increased, avoiding stereotyped solutions in the choice of plants; 5) it is necessary to design differently, combining function and attention with perceptual aspects.

While several studies investigate how some characteristics of green facades can influence their acceptance by citizens (presence of insects, presence of flowers, etc. e.g. Magliocco et al., 2015), what seems really interesting for an architect, is how the configuration of greening system can characterize or transfigure a building. Scientific journals debate on the ability of the different species to retain fine dust, to reduce the thermal load on the facades, to lower the temperature of air incoming in the building's ventilation systems (Peréz and Perini, 2018). Architects, instead, often experiment forms and solutions in the prevailing ignorance of functional aspects, taking advantage of the trend that what is green is perceived as healthy, good and therefore beautiful.

Dezeen webzine (tag: green walls) shows a large number of projects with a green facade and it is easy to notice how different they are from each other. The residential building designed by MVRDV in Sint-Michielsgestel, the Netherlands, is characterized by a large number of planter boxes, some of which are out of scale. On the other hand, in Sheppard Robson's project for the multifunctional building Citicase House in London – for which he declares that it will be the

«largest living wall in Europe» aimed at improving air quality – the plants faithfully follow the structural elements of the facade drawing a lozenge grid. Finally, looking at Stefano Boeri's project for the 'vertical forest' in China in the centre of Nanjing: the buildings seem completely attacked by vegetation (at least in their intentions), like abandoned temples.

Aesthetic and evolution

Biophilia should be defined as «the innate tendency to focus on life and lifelike processes» (Wilson, 1984), this legacy suggests that humans are innately attracted to nature. For example, the appearance of the natural world, with its rich diversity of shapes, colours, and life, is universally appreciated. This appreciation is often invoked as evidence of biophilia. Human divergence from the so-called natural world appears to have occurred in parallel with technological developments, especially during 19th and 20th centuries, which fundamentally changed human interactions with nature. However, this attitude remains and seems to be the same that linked humans to green, citizens to green technologies inside the city, especially vertical greening, which can be more appreciated by people, at a ground level, in comparison to green roof.

According to Wilson, the Biophilia concept is based on the ethic and innate relationship that humans have with nature. His notion of environmental stewardship drew on different issues, including the practical dependence of humans on nature, which centres on the ecological services provided by nature and that are becoming increasingly important because of the threat of climate change and the impoverished urban environmental quality; secondly the satisfaction derived from direct interaction with nature, easier with a green façade, and consequently, the physical appeal of nature, as a cultural services, cannot be underestimated; finally, they are a sources of emotional connections to landscapes and animals, which can be other biotic elements hosted by green technologies in addition to plant species.

The artificial use of green is directly connected with innovation technologies. The meaning of innovation generally refers to a modification of what we usually associated with known objects, actions or behaviours. It is something completely new, even though not necessarily an invention, which can modify something that already exists. Thus, the adoption of a new technological innovation can bring new aesthetics in architecture. This evolutionary process also occurred for the use of green in architecture. If we start from the most ancient examples of the use of green, we find the green roofs and the semi-hypogeal buildings of the northern countries (fig.2), which were the result of a design attitude attentive to the climatic context but not yet technologically advanced. The purpose of these technologies was the performance and tied to necessity rather than aesthetics, as, in the contrary, happened in the past, for example, in the design of gardens. But nature and green are too complex to be considered only at functional or aesthetic level.

In its projects like the Forest Showroom and Richmond in Virginia (1980), the SITE group for open spaces wants to underline the organic nature of the concept of home, the relationships between architecture and environment, society and psychology (Pisani 2006). James Wines says that nature is primitive, metamorphic and infinitely ambiguous. It is rich in associations and the only totally universal source of symbolism in art. It is a regenerative source of content that eliminates redundancies and constantly reveals new information. Through its infinite complexity, nature is endowed with an instructive and inspirational force that can advance the language of architecture and confirm humanity's inalienable right to try to save a place on this planet before it is too late.



Fig. 2 Traditional green roof in Iceland

The mission now in the art of building, as in all human endeavours, is to recover these fragile threads of connection with the earth that have been lost for many centuries now. The key to an environmentally sensitive architecture for the next millennium relied on the creation of bridges that combine technological conservation, ecology, based on philosophical ideas, and their incarnation in the vision of a new language (Wines in Pisani 2006).

The integration of a greening system is often related also to an explicit desire to improve the image of a city and a building, often of little value, against which there is a deep refusal. The Wohnpark Alterlaa in Wien (fig.3) designed by Harry Glück, is a residential complex of the Nineties, which tries to combine the residential tower-type in reinforced concrete, with the use of greenery. The layout of the apartments follows Harry Glück's concept of "stacked single family house" in the form of apartments with a terrace. Complementing this concept, there are sowing tanks of almost 4 m² up to the 12th floor, which also act as a privacy screen and a small garden. A more sustainable aesthetic belongs to Venticinque Verde in Tourin, where we find again terraces and vases, but combined as a sort of forest of giant-scale gardens (fig. 4). The use of green facades therefore plays a fundamental role in the city, and as previously underlined, technological innovation and the improvement of urban comfort stimulate researchers and designers towards complexity and solutions that can also be technologically very advanced.



Fig. 3 The Wohnpark Alterlaa in Wien, by Thomas Ledl - Alterlaa Pflanztröge CC BY-SA 3.0



Fig. 4 Venticinque Verde, Tourin (Italy)

Among the more complex solutions we find Patrick Blanc's living wall solutions (fig. 5), highly expensive, with intermediate solutions, as in the experience of the green facade in Sestri Ponente on Inps building (fig.6). Finally, there are particular solutions for structures in outdoor areas and parks, such as the case of the MFO park in Zurich (fig. 7), where a large metal pergola structure, a sort of glassless industrial greenhouse, is covered with climbing plants. In this design choice, beyond the motivation linked to the control of the microclimate, an aesthetic force linked to the industrial world is clearly legible, from which in a certain sense we started with the example of the CrystalPalace.



Fig. 5 Musée du Quai Branly, Paris (France)



Fig. 6 INPS green façade, Genoa (Italy).



Fig. 7 MFO Park, Zurich (Switzerland)

Conclusion

The first examples of a designed green facades arise from a need to mitigate phenomena related to the control of the microclimate and heat dispersion, up to the need to mitigate the excessive quantity of cemented surfaces in our cities. Secondly, there is a more tied approach to landscape design, with extreme results in Patrick Blanc's solutions, driven by a merely formal intent.

Today designers have taken over green as the main material to be used in sustainable architecture, exactly as it happened for timber, of which both physical and aesthetic-formal characteristics can be exploited. The use of green can be more or less technologically advanced, but necessarily complex and artificial due to the vision of man.

In architecture, the introduction and development of a technological innovation, a green one in our case, depends on the predisposition or the necessity to accept the changes offers. The more the environmental issue has become a worldwide problem, the greener technologies started being applied to the construction industry. The spread of greening systems, which has increased over the past ten years, is attributable, on one hand, to a more sustainable approach to construction, improving building performance and environmental conditions, on the other hand to an aesthetic intentionality linked to green as an ecological material par excellence (Perini, 2013).

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A Sensorial Approach to Natural Landscape

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Abstract

Architecture education experiences involving first year students are constantly shifting from basic “how to” discourse towards “what if” type design processes and form finding, in relation with artistic creation conceptions. The first Design Studio project, a *Sensorial Pavilion in a Park*, brings forward the subject of merging the exterior and the built environment, by integrating architecture into the natural landscape and the natural landscape in a multi-sensorial space. The main stages of the project emphasize creativity and personal approach: documentation through drawing; a first development of the idea through several study models followed by a number of different space-compositions stimulated by several composition-exercises at the Form Studies discipline (a complementary artistic approach). A specific characteristic of the project - its multi-sensorial features - generate a number of ingenious ideas that create particular scenarios of the pavilion and its environment: form a *visual* angle certain perspectives were firmly cut from the general context; form a *hearing* angle, scenarios involving the raining sound were imagined; the creation of particular paths in the proximity of certain natural features entail specific smells; while the pavilion’s materials relate to different *tactile* experiences.

It’s a well-known fact that people understand the environment (either built or natural) through all senses. A first contact with an architecture project and a design process that systematically emphasizes this approach highlights ideas and scenarios with very particular concepts, while the relationship with the natural environment happens in imaginative ways (from all sensory aspects involved).

Abstract

Le esperienze di educazione all’architettura che coinvolgono gli studenti del primo anno si spostano costantemente dal discorso “come fare” di base verso i processi di progettazione di tipo “what if” e il reperimento di forme, in relazione alle concezioni della creazione artistica. Il primo progetto del Design Studio, un Padiglione Sensoriale in un Paesaggio Naturale, porta avanti il tema della fusione tra l’esterno e l’ambiente costruito, integrando l’architettura nel paesaggio naturale e il paesaggio naturale in uno spazio multisensoriale. Le fasi principali del progetto sottolineano la creatività e l’approccio personale: la documentazione attraverso il disegno; un primo sviluppo dell’idea attraverso diversi modelli di studio, seguito da una serie di diverse composizioni spaziali stimulate da diversi esercizi di composizione-esercizi della disciplina Form Studies (un approccio artistico complementare).

Una caratteristica specifica del progetto - le sue caratteristiche multisensoriali - generano una serie di idee geniali che creano particolari scenari del padiglione e del suo ambiente: da un angolo visivo alcune prospettive sono state saldamente tagliate dal contesto generale; da un angolo uditivo, sono stati immaginati scenari che coinvolgono il suono della pioggia; la creazione di particolari percorsi in prossimità di alcuni elementi naturali comporta specifici odori; mentre i materiali del padiglione si riferiscono a diverse esperienze tattili.

È noto che le persone comprendono l'ambiente (costruito o naturale) attraverso tutti i sensi. Un primo contatto con un progetto di architettura e un processo di progettazione che enfatizza sistematicamente questo approccio mette in evidenza idee e scenari con concetti molto particolari, mentre il rapporto con l'ambiente naturale avviene in modo fantasioso (da tutti gli aspetti sensoriali coinvolti).

Introduction

In the educational context, during the first design processes, it is important for students to exercise the ability of seeing and thinking space in an architectural way. This article describes the story of the first project of the first year students, starting from the (maybe slightly risky) premise that stimulation of a creative-way of spatial thinking is a necessary step to take in the beginning, before other specific representations.

The first year students, to whom this project is addressed, came to study Architecture from an educational environment (pre-university) in which the creative side is hardly stimulated by specific disciplines. Their passion and preparation for pursuing a specific training in Architecture was developed outside this environment, in very different and particular ways, for each student.

On the one hand, specific disciplines they studied (especially in the science programs) and the way in which they were thought, focusing on information, memorization and application - led to a specific type of reacting to a creative task. As in their previous training, their approach is based on rational logic and mechanical use of already acquired knowledge and it less involves their sensitivity and a space-decoding based on their senses. Considering this, after a complex perception of space, exploration and understanding - new space structures are being designed, in a sensorial relationship with human, nature and the built environment. On the other hand, the general orientation of architecture education towards information, functionality, techniques and new technologies has made this sensorial layer of design to be often perceived as a prerogative of architectural image, through eccentric and unique forms, especially focused on visual perception, while understating its relation to people's senses. The *Sensorial Pavilion in a Park* project-theme lines to the idea of Juhani Pallasmaa's Sensitive Space – which addresses the public through several ways of reading architecture, challenging the reader to see that “The ultimate meaning of any building is beyond architecture; it directs our consciousness back to the world and towards our own sense of self and being.”¹ With this project-theme we wanted to challenge the first year student to discover and understand man's relationship with nature and the space environment, through all senses, beyond current information and views regarding architecture.

¹ Pallasmaa, Juhani, *The Eyes of the Skin: Architecture of the Senses*, John Wiley And Sons Ltd, 2008, p.11.



Fig. 1 Sensorial Pavilion in a Natural Landscape – project expressions

This topic under discussion advances the subject of exploration the natural environment - human - built environment connection, by imagining a Sensorial Pavilion in a park, designed to contemplate nature. As the theme launches the subject, this imaginary pavilion is a non-functional, experimental space that draws attention to all the sensations that architecture can offer (visual sensations - through forms, meaning and light, tactile sensations through materiality and texture, olfactory sensations through natural elements in the vicinity, auditory sensations through nature's sounds`- captured, amplified or blurred), by designing forms and spaces in nature, integrating nature in space, according to the biophilic design. This sensitive space can further generate a sculptural space, it can generate various ideas, compositions and expressions in the project approach.

Theoretical context of the contemporary space-conception

The opportunity and actuality of this topic can be read in the current heterogeneous theoretical and built landscape. We are now witnessing, undoubtedly, at some increasingly trends of re-evaluating the boundaries between the architectural object and its exterior (interior space-functions exceed their limit, interior spaces borrow surrounding features). These current tendencies can be seen in the negotiation between private and public spaces, in the (spontaneous or planned) formation of intermediate spaces that emphasize multi-sensorial experiences.

Following this, some features that define the contemporary space-conception can be read at the basis of the project-theme. The evolution of architectural space-conception in the 20th century has fundamentally influenced current morphologies. Regarding space-forms, in modern architecture there can be observed several formulas of extension of the object or generation of new fields of interest. The limit of the object is not the same as the limit of the load-bearing structure; the space is thus torn apart (De Stijl). Regarding people`s relation to modern architectural space, this dynamic space is one in which movement becomes a part of its reading and representation. Modern space cannot be read from a static perspective, but through movement (see the architectural promenade of Le Corbusier or the movement of forms in Peter Eisenman`s architecture)².

Regarding current trends, as we have witnessed in the architecture of the last decades, contemporary practice apparently follows the volumetric ideas previously developed, under the influence of more and more dynamic ideas and concepts. A tendency of integration/camouflage of the object in the surrounding context is achieved by an almost total dematerialization of the exterior enveloping.

² Moțu, Andreea, *Spații de tranziție în arhitectura contemporană* [Transition spaces in contemporary architecture], PhD thesis, PhD Coordinator Prof. PhD Arch. Adriana Matei, Cluj-Napoca, 2015 (unpublished), Cap.4. *Concepții spațiale ale sec. al XX-lea* [Space conception in the 20th Century] pp.69-102.

Limits become more difficult to observe. Overlapping transparent plans reflect the environment and create ambiguity regarding the boundary (see the Cartier Building, Jean Nouvel or the Museum of Fine Arts by Ibos Vitart Architects in Lille). Another interesting tendency (regarding the *Sensorial Pavilion* theme) can be read in the development of an architecture designed as a path / as a route. This type of space-conception can generate several configurations that highlight the human component (the role of man in the inner configuration).

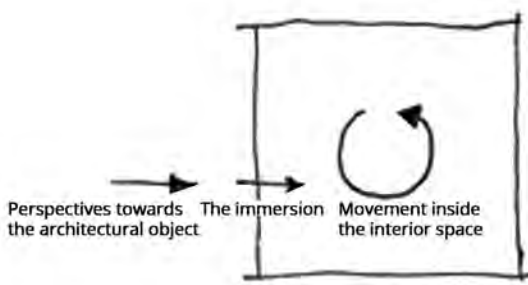


Fig. 2 Structure of movement

Following motion as a potential aesthetic experience of the individual³, within a structure of movement (perspectives towards the object, immersion in the interior space and movement inside the object) several scenarios can be defined:

The first stage – perspectives towards the object – brings to the center of attention people perceiving the architectural object, through a gradual approach. Two situations can be read: the opaque object (it relies on sensorial and tactile experience - Peter Zumthor's architecture) or the transparent one, with a rather ambiguous enclosure that is gradually discovered and understood (examples of dematerialization/transparent layers of the facade). In both situations, beyond a visual approach, tactility can be seen as a way of reading and perceiving the presence of the object.

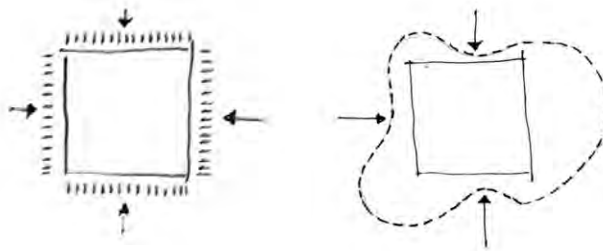


Fig. 3 Perspectives towards the object / approaching the boundary of the architectural object

³ Careri, Francesco, *Walkscapes. El andar como práctica estética*, Gustavo Gili, Barcelona, 2003, p.24.

The next stage of movement is the first contact with the interior. Immersion inside space by means of a *filter* highlights the internal horizon of the object. The space-filter appears as a stance of *direct immersion*, which emphasizes the individual's experience, relying on his physical presence in a space and the possibility of intuitive-sensorial reading of other nearby spaces - exterior or interior. The second approach of immersion in an interior space can be seen in terms of a *gradual immersion*. This type of immersion can be read in Bernard Tschumi's vision of motion seen as a fluid body that shapes space as a malleable substance⁴. Various examples of contemporary architecture emphasize a fluidity of movement and a definition of a free, suggested outline of the object and the interior space (especially in the case of pavilion-type structures).

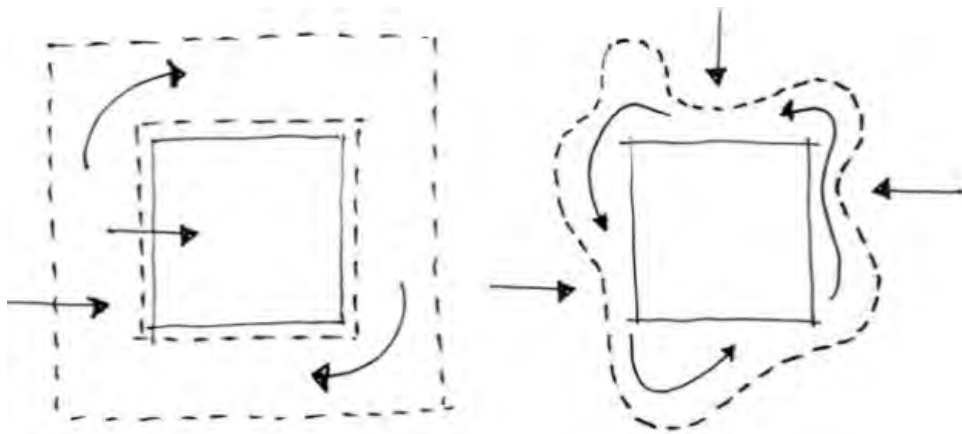


Fig. 4 Immersion inside the interior space

The third sequence of movement (in the interior space) can be viewed as the labyrinth-like space. Among the three possible configurations (the classic, the mannerist and network type - as Umberto Eco describes⁵), the mannerist labyrinth (in which multiple paths can be approached, allowing a wandering in the interior space) and the network-type (in which there can be a direct connection between any two points of a space), these two scenarios can be a real interest in the context of contemporary architectural spaces. The first type of movement in the (mannerist) labyrinth is a sequential movement, of short perspectives – interior space is thus configured. The individual follows an internal promenade (either towards a landmark or for the pleasure of internal wandering and a certain pleasure of confusion). The second type of labyrinth - the network type - illustrates an arbitrary, continuous movement. Various examples of contemporary spaces emphasize the fluidity between exterior and interior and reflect space configuration of *infinity* (continuous exploration of spaces with multiple connections may suggest the possibility of a theoretical unlimited expansion).

⁴ Tschumi, Bernard, *The Manhattan Transcripts*, Academy Group LTD, London, 1994, pp.XXII-XXIII

⁵ Eco, Umberto, *De la arboris spre labirint. Studii istorice despre semn și interpretare [Dall'albero al labirinto: studi storici sul segno e l'interpretazione]*, ed. Polirom, Iași, 2009, pp.50-52

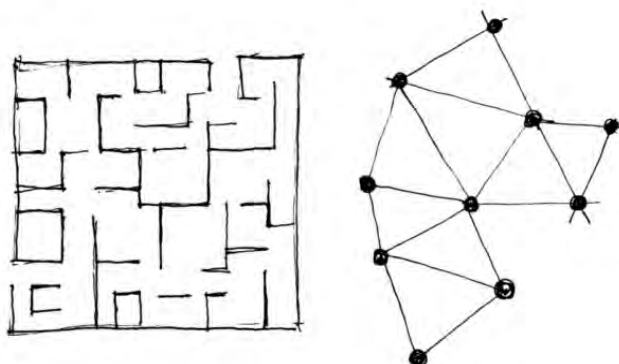


Fig. 5 The mannerist and the network-type labyrinth

Following this movement as an aesthetic experience, one of discovering contemporary spaces, we can highlight several types of movement in relation to the internal configuration of the object. A direct or gradual movement can be observed; linear, or that of a fluid body; an arbitrary-sequential or continuous movement. Each type of such movement, read in the space-configurations framework can reveal distinct experiences: the ambiguity of a partially defined space, confusion or the pleasure of internal wandering, on the contrary.

Sensorial Pavilion in a Park - educational approach

This way of reading and understanding the object of contemporary architecture is a basic point in formulating the project-theme of the Sensorial Pavilion. The project proposes the creation of a pavilion built in a natural setting, which integrates in nature and in integrates the natural environment in the interior. *"The project thus proposes the imagining of a sensorial pavilion built in nature, a pavilion that is in a special relationship with it, a pavilion that manages to stimulate all human senses by integrating both architecture in nature and nature in architecture. The purpose of this pavilion is to create a space for contemplating nature, as a metaphor for the relationship that must be established between environment, man and architecture."*⁶ (Excerpt from the project-theme). The aim of the project is the development and practice of skills of: understanding, decoding, analysis and interpretation of a given framework (an imaginary park, with various scenarios), through sketches and study models; the creation of a space-configurations through successive exercise and the understanding of the relationship between the architectural space and the existing natural context.

The Faculty of Architecture and Urban Planning curriculum consists of several theoretical and technical disciplines that are being presented courses in the amphitheatre, in front of students, weekly. Its content approaches important cultural and technical information that are further applied in the Design Studio. The open space Design Studio is organized in four areas, according to the four groups guided by two teachers each. After launching the design theme, each student is guided to go through a design process that previously programmed in several stages: documentation involving search for similar topics,

⁶ Excerpt from the project-theme *Sensorial Pavilion in a Park*. Assoc.Prof.PhD Arch. D. Opincariu, T.Assist.PhD Arch. A.Motu

completed projects that are being studied through sketches and perspective drawings, informative texts that reveal key-features, conceptual, compositional-volumetric, functional, material and textural, contextual characteristics of each documented example. Following this stage, in the conceptual stage each student begins to imagine his own project, based on data imposed in the theme, on the tectonics of the site, micro and macro-environment in which the pavilion is realized, its surface, functional scheme etc. This stage is usually the most difficult because, on the one hand the creative impulse must be stimulated, on the other hand, specific data imposed in project-theme limit the possibilities generated by this creative impulse. This negotiation (between reality and imagination, between the possible and the impossible) is a lesson that students have to learn throughout their study in architecture. Through many attempts, sketches and student-teacher dialogue, the initial idea develops its valuable elements and generates the architectural concept involving all the contextual *ingredients* of the project-theme and the newly generated ones. A new architectural object, a unique universe is created, a story through shapes, spaces, textures and sensations generated by all of them together. After the concept development through sketches and hand drawings, the realization of a working-model emphasizes a better understanding of the project and reveals possible inconvenient, that can be eliminated until the final stage. The final project ends with the creation of a graphic representation of each student's choice, as expressive as possible, a representation that highlights the essential features of the initial concept. A model of the project further presents in three dimensions the imagined pavilion.

Case studies: mechanisms for practicing multi-sensorial architecture

The projects realized in the *Sensorial Pavilion in a Park* theme were extremely varied regarding the form - context in the park relation, the inside - outside (interior experiences and exterior experiences), the light - shadow relation, the form - materiality, form - movement relation, the nature - construction and object - contemplation relation. The following examples are some of the most relevant projects, which prove this diversity in approach and also reflect the learning stages of the design process.



Fig. 6 “Camouflage” pavilion, arch.stud. Sut Dan

“Camouflage” pavilion: the concept starts from the study of a location chosen in the area of the park, between two high stone formations and it also starts from the shape study of natural elements such as vegetation, fallen leaves on the ground that naturally camouflage in the landscape. The curved and soft pale forms of the pavilion are similar to the shape of a fallen leaf to the ground. The volume reveals its interiority in the space between the rocks, the hidden access being visible only up close. Its

placement between the rocks, the creation of an architectural object at a lower level than the level of the access alleys, camouflages the object, thus becoming an element of surprise as one moving towards the pavilion. The light and shadow are visible by means of three cylindrical formations at the level of the leaf platform, which is also accessible to pedestrians, for contemplating nature. The introverted interior space as a natural shelter offers a lot of tactile, auditory and visual sensations from the inside, while integrating concrete walls with natural rock, in a unitary composition.

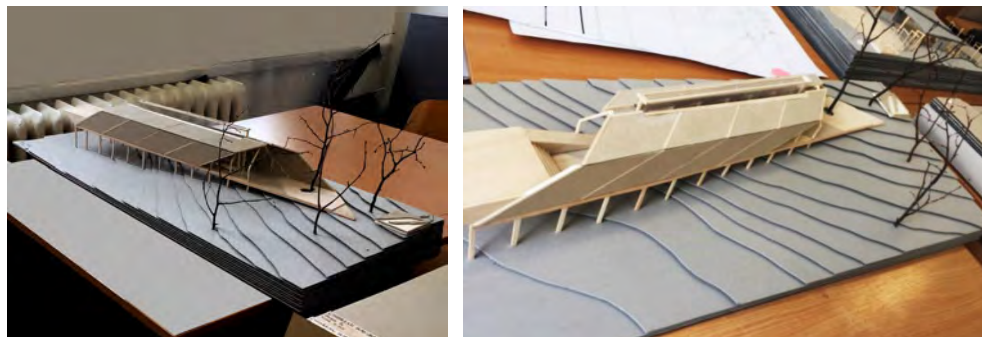


Fig. 7 “Millipede” pavilion, arch.stud. Danciu Tudor

“Millipede” pavilion: This pavilion, characterized by a linear composition, is defined by its an access in a forested area and its orientation towards the edge of the forest, with a direct perspective - opening towards the lake in the park. Its multi-sensorial features are highlighted by the elongated, narrow space, defined by a lot of vegetation, opened at its top, a space located on the central line of the pavilion. This area, surrounded entirely by glazed surfaces, is the defining element of the pavilion. The aim of this insertion emphasizes the auditory experience of the raindrops falling. In their absence, the linear vegetal element is emphasized, in a completely dark-opaque space of the side edges. The placement of the pavilion on the slope of the land by means of pillars - structural elements associated with the elongated composition of the house, as the shape of a myriapoda, is a sign of movement and displacement, mobility of the pavilion.



Fig. 8 “Wave” pavilion, arch.stud. Herdelau Cora

“Wave” pavilion: The serpentine – like, wavy shape of this concept is visible from the platform level. Its space is created in form of a sinuous route that allows the perception of the landscape from the proximity, through various perspectives. To the same extent, the parallel arches that run through the serpentine shape of the platform simulate the shape of sound waves and also creates a different perception of sound when the wind passes through these arches. In the interior, the experience of crossing this space offers isolation in a few black boxes - with sitting platforms and large digital screens informing about the nature: aspects related to botany and biology, local fauna and flora. This “wave” volume is placed like a horizontal platform over the unevenness of the ground, while at the end of the space, a dark interior enclosure is placed. An “oculus” that allows light to penetrate this space in different moments of the day, in different ways, imposed by the geometry of the skylight cut, offers unique experiences through movement, rest and contemplation of sound, light and visualization of nearby natural elements.



Fig. 9 “Skin” pavilion, arch.stud. Muresan Alexandra

“Skin” pavilion: The pavilion in the image above brings forward the idea of the filter (a perforated brick closure) as a two-dimensional surface through which an individual moving along perceives the external visual environment, through the perforations of the surface and due to the absence of closure. The mechanism of creating a fragmented plan emphasizes short perspectives in the pavilion. A vertical space, configured around a central core is imagined as a pocket-type of space of the interior. This shape dividing the outside and inside, through a thin shell – perforated wall like skin and the pores on its surface, generates unusual experiences of man’s relationship with nature and the built environment.

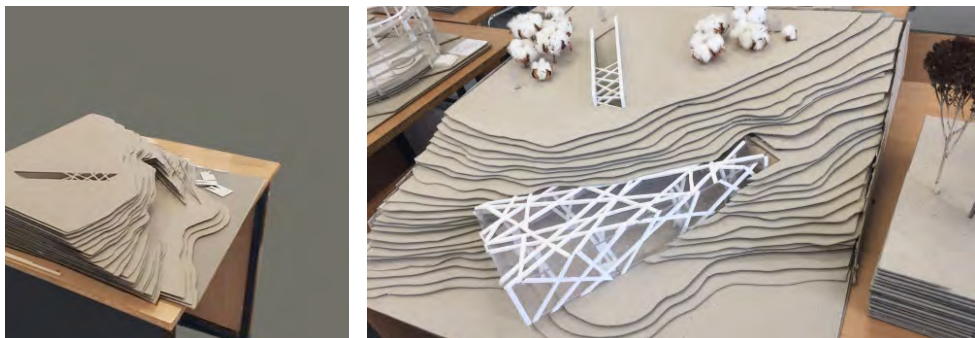


Fig. 10 “Network” pavilion, arch.stud. Corutiu Mara

“Network” pavilion: This pavilion reveals the concept of a volume embedded in the rock. The access to this nest is made through a ramp carved in the ground, a distance - access in the pavilion, through a tunnel in the rocky terrain. At the end of this tunnel, a large space confined with glass, offers a light-bath filtered through the eyes of a concrete network. This network is also perceived from a distance, as a wire that ties up and covers the glass box of the pavilion. In the interior space, in addition to the panoramic view of the glass box, a set of linear elements such as piles acts as a sitting platform-type of structure. This network that covers the entire glass volume creates a dynamic space during a day, depending on the position of the sun in the sky.



Fig. 11 “Domino” pavilion, arch.stud. Matran Ana Maria

“Domino” pavilion: The space of the pavilion above is a linear space (defined as a path in which shapes change permanently, like the natural environment). Each panel/gate through which the individual passes is different from the others – each panel is cut according to a particular contour that figuratively (with cuts taking forms of trees and their branches) resumes a passage through the forest. This mimetic interpretation of the natural setting is occasionally broken by the movement of these panels that, by short rotation, open perspectives towards the park. Although this pavilion highlights visual aspects of the natural - anthropic framework, the repetition of seemingly changing images determines an ambiguous character, the interior space being created by successive passages - sequences through a variety of panels. These planes seem to be virtually interconnected; they seem as a Domino game in a fragile balance, in contrast to the massiveness and stability of the material in which they are built. These examples illustrated in the article are some of the ideas and approaches of the first year’s students. Because of a rather free character of the project-theme, architectural solutions were very diverse; the expressions of the multi-sensorial character had many particularities.

Conclusions

In order for students to be able to see the diverse character of the solutions, the evaluation at the Design Studio is thought of as a final exhibition, an exhibition that illustrates the atmosphere of the project in everybody's perspective. One can see various interpretations that each student perceived through this topic and read different trends, directions, compositions, at the level of the whole group. It can also be noticed that, in a rather intuitive, semi-guided manner along the way, many solutions emphasized a fluidity of the proposed spaces.



Fig. 12 Final exhibition of the Design Studio

When students learn to design, the initial approach (so far) has been one of learning through reproduction - learning how to read and represent a project, a reference of the contemporary architecture. The project in question represented a change through which we aimed to emphasize the essential - human component. How does one see space? How does he feel it? How does an individual hear space (within the natural context)?

In architecture education, learning through a project – design represents a general-extended method of learning. However, a project-theme can open a specific way of thinking (Procedural knowledge)⁷. Beyond the specific objectives or requirements practiced by students, learning how to think of a space can start from the very beginning, towards sensations that architecture imprints through its gestures (like someone learning to swim by jumping directly into the water).

“These exercises have an experimental character relying on the fact that they are not unique, having an innovative character. They programmatically stimulate creativity, offering great conceptual and technical freedom in representation. These exercises did not suggest a “correct” solution, according to previous learned models, but determined the stimulation of inexperienced creativity. One of the main challenges of the project, of experimental value, is related to the development of students’ ability to move from an education based on information memorization specific to pre-university education, towards an education based on experiences and creative objectives, in a creative environment (the Design Studio), so that students acquire new thinking systems specific to architecture.”⁸

⁷ Curry, Terrence, SJ. A theoretical basis for recommending the use of design methodologies as teaching strategies in the design studio. *Design Studies*, Vol. 35, No 6, p.634.

⁸ Opincariu, Dana, *Formă și structură*, UT Press, Cluj-Napoca, 2010, p.96.

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From the “Smokey Blues” of the *Grand Carré* in the Tuileries Garden to the ornamental spontaneous grasses in the Aeolus’ Gardens in Paris

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Abstract

The care of urban greenery and the use of herbaceous plants is particularly developed in France, where the inspiration for the sophisticated choice of species to be used in the flowery borders can come from a work of art.

In the spring-summer 2019, the flowerbeds of the *Grand Carré* in the Tuileries Garden were designed by the master gardeners of the National Estate of the Musée du Louvre and Tuileries Garden, referring to a famous painting by Leonardo da Vinci, to commemorate the 500th anniversary of the artist’s death. The gardeners chose a palette of plants with flowers dominated by the blue color and dotted with white, pink and violet, to compose the “Smokey Blues”.

In the suburbs of Paris, Aeolus’ Gardens, designed by the landscape architect Michel Corajoud, completely overturn the way to use the herbaceous plants, creating an innovative contemporary park, in which the gravel garden is in the centre: it focuses on the ability of spontaneous plants to self-seed, with bloomings throughout the year, creating a very different effect, of naturalness, in continuous renewal, proposing a model of ecological management of the urban public space, very distant from traditional formal gardens.

These two different approaches to plant design, two different interpretation of the use of herbaceous plants, represent as many different points of view on the design of contemporary urban space, which we can insert in a broader research perspective towards a sustainable management of public parks.

Abstract

La cura del verde urbano e l’uso di piante erbacee è particolarmente sviluppata in Francia, dove, addirittura, nei Giardini delle Tuileries a Parigi, ci si ispira ad un’opera d’arte per la sofisticata scelta delle specie da utilizzare nei bordi fioriti.

Nella primavera-estate 2019 le fioriture del Grand carré sono state concepite dai “giardinieri d’arte” del Domain national du Louvre et des Tuileries, riferendosi ad un celebre dipinto di Leonardo da Vinci, per commemorare il cinquecentenario della sua morte.

I giardinieri hanno scelto una palette di piante i cui fiori hanno il blu come colore dominante, con tocchi di bianco, rosa e violetto, per creare gli “Smokey Blues”.

Nella periferia urbana di Parigi, i giardini di Eolo, progettati dal paesaggista Michel Corajoud, capovolgono completamente il modo di usare le erbacee da fiore, disegnando un parco contemporaneo innovativo, con al centro il giardino di ghiaia: si mostra la capacità delle piante spontanee di riseminarsi in modo autonomo, con fioriture lungo tutto l’arco dell’anno, creando un ben diverso effetto, di naturalità, in continuo rinnovamento, proponendo un modello di gestione ecologica dello spazio pubblico urbano molto distante dai giardini formali tradizionali. Due approcci differenti al progetto con le piante, due diverse interpretazioni dell’uso delle piante erbacee, che rappresentano altrettanti differenziati punti di vista sul progetto dello spazio urbano contemporaneo, che possiamo inserire in una più ampia prospettiva di ricerca verso la gestione sostenibile dei parchi pubblici.

A painting by Leonardo da Vinci as inspiration

In the spring-summer 2019, the disposition of plants in the most formal part of the Tuileries Garden, the central Grand Carré¹, took inspiration from the famous painting by Leonardo da Vinci, “Saint Anna with the Virgin and the Infant Jesus” (1503-1519)², to foretaste the exhibition scheduled at the Louvre Museum from 24 October 2019 to 24 february 2020, to commemorate the 500th anniversary of the artist’s death.

In a soft light, the cold tones of the painting are concentrated in the background, which represents a huge mountain landscape, wrapped in a bluish atmosphere that fades into very clear tones (due to the effect of the aerial perspective). A cold colour is also used for the Madonna’s blue-gray coat, amplifying, through contrast, the plasticity of the central group, painted in the warm colors of the close-up landscape, and of the clothes and the bright incarnate of the depicted subjects. The selection of ornamental herbaceous intended to reproduce the same “Smokey Blues” of the picture.

Touched by the brightness, sweetness and finesse of the work, the gardeners chose a palette of plants dominated by the blue color and dotted with white, pink and violet. Petunias, verbenas and blue sages were selected to create this effect, together with Cosmos and ornamental tobacco.

A story-telling panel helps the visitors to understand the reference to the painting and to some particular species (Petunia fleur double “Tumbelina Maria”, Salvia farinacea “Big Blue”, Verbena bonariensis, Verbena ibrida “Obsession”, Salvia coccinea “Summer Jewell”, Cosmos sonata, Nicotiana tomentosa “Variegata”).

Another flowerbed has been dedicated to reproduce the “Silent Sorrow” of the same painting, using pink, purple and blue flowers or leaves to reproduce the contrast between the sweetness and delicacy of the atmosphere around the three figures and the dramatic disease of the Mother, foreseeing her son’s destiny (Petunia “Wave F1 Pearly”, Cosmos bipinnatus “Pink”, Nemesia “Karoo”, Dahlia “Mystery Day”, Dahlia impression “Fabula”, Ricinus communis “New Zealand”³, Salvia farinacea “Candle Midnight”).

This work, made by the master gardeners of the National Estate of the Musée du Louvre and Tuileries

¹ The historic Tuileries Garden (it was the royal garden of a disappeared palace, wanted by Caterina de Medici and transformed over time), designed by André Le Nôtre, is part Louvre Museum heritage from 2005. The Museum is engaged in a vast project of renewal, revitalization and enhancement of the garden. The *Gran Carré* is the heart of the garden, with its lawns and water basins, enriched by coloured flowerbeds and works of art, from different periods, including modern and contemporary examples of great value.

² Leonardo da Vinci, “The Virgin, the Infant Jesus and Saint Anne”, 1503-1519, oil on wood, 168x130 cm, Louvre Museum, Paris.

³ Note the use of a plant for its foliage in both the compositions, the *Nicotiana* and the *Ricinus*, among the flowering herbaceous.

Garden, is a clear example of the sophistication and of the maintenance capabilities that characterizes the French school tradition of public gardens management and the trends in the design of contemporary parks, where the more advanced techniques and contemporary taste for mixed herbaceous flowerbed/borders are shown. In the most representative garden of Paris, the design of these flowerbeds reveals hints from the contemporary studies about herbaceous plants for public areas, but also it takes roots in the tradition of Landscape Architecture and in the History of Gardens and Parks.

The use of mixed herbaceous plants

The great accuracy of the maintenance of green areas in France crosses modern and contemporary history of making gardens, starting from the first experiments relating to herbaceous plants, from the experiences of the “hardy flower borders” for the private garden, linked to the expressionist taste, like in the Monet’s garden in Giverny, where the use of soft colours and the brush-like strokes are applied to plantings, or in the remarkable works by Gertrude Jekyll and Vita Sackville West⁴, in the 19th century. These realizations, characterized by the need for very high maintenance, will be source of inspiration for other hypotheses of the use of Herbaceous plants, which, through innovative researches on the selection of plants better suited to the specific characteristics of the studied place, will come to be protagonist even in urban public areas. In this way, it is possible to propose spaces that will be characterized by groupings of especially native plants, able to withstand particular local needs, arriving to choose plants that are able to tolerate extreme conditions of aridity or soil poorness. The appearance of these areas is very different from the rigor of formal gardens, often underlined by evergreen plants to delimit spaces. Using herbaceous plants, a different image is proposed, much more tied to softness and changeability, which often intends to represent greater wealth, in terms of biological diversity and variability over time, suggesting an impression of wider “naturalness”. The most significant experiments concerned the bands and groupings of different species, with herbaceous and graminaceous plants, initially as enrichment of groups of shrubs of different heights, to then involve large surfaces with the “pictorial meadows” and flowery meadows (with annual wild flower mix, perfect to attract bees and butterflies). The ornamental grasses lend themselves in an interesting way to represent lightness and ability to be moved by the wind, because of the mobility of their fronds, and have decorative aspects of the plant⁵ even when dry, in autumn and winter, to create fascinating effects of colours and shapes, even interacting with frost or snow. The ornamental grasses can be used on their own or together with perennials, annuals, and shrubs to add visual interest and texture.

The theory of the moving garden, by Gilles Clément⁶, presents a strongly effective image for the cultural diffusion of some fundamental ecological messages: the seeds of some plants, transported by the wind, can determine the movement of plants, that the gardener is able to guide in an ever-changing scenery, by observation and cooperation with nature. This theory, shown in some realization (like in a wide parcel

⁴ Gertrude Jekyll (1843-1923) was a British horticulturist and a garden designer, reference exponent of the Arts and Crafts Movement; Vita Sackville West (1892-1962), English novelist and poet, she also was a garden designer, founder member of the National Trust’s garden committee. Their subtle, painterly approach strongly influenced garden and landscape design and its cultural diffusion, through their frequent writing about the garden on books and important garden magazines and newspapers (Eberle I., 2011).

⁵ In her blog and books, Nancy Ondra tells that ornamental grasses breathe new life to the garden: “with their subtle color variations over the seasons, their supple, undulating bearing in the breeze, their ability to capture the play of light make them, among other qualities, exceptional plants” (Ondra N., 2003; www.hayefield.com).

⁶ Gilles Clément develops with his works a philosophical reflection, centered on the role of the gardener in relation to biodiversity in the moving garden (Clément G., 1991), but then extended into the famous concept of planetary garden and Third Landscape, that today are accepted and applied by all researchers.

of the Citröen Park, in Paris, inaugurated in 1992), had a deep influence in the change of contemporary landscape design and in people's perception of a garden or park, allowing wandering herbaceous plants to represent a different idea of a representative but variable public green area.

The revaluation of herbaceous plants is influenced by the New Perennialism⁷ and in particular by some very famous works by Piet Oudolf, like the planting design for the Lurie Garden⁸ in Chicago (2004) and for the High Line Park⁹ in New York (2006), in which he expressed a wilder aesthetic, attuned to ecology, to capture nature's emotion.

The design is informed by a preliminary study, looking across, into, and through the landscape, considering the rhythms and the existing connections, to introduce such elements as echoes, linkages, and repetitions in the composition. Inspired by naturally occurring habitats, such plantings are designed landscapes composed by a series of interwoven plant layers, forming a community, abstracting the patterns and rhythms found in nature.

In the Millennium Park in Chicago, the Lurie Garden is one of the world's largest green roof. In the heart of the garden, near to a dense part with many shadowing trees, the enlightened planted area, which represents the city's future, with sun-loving prairie plants, such as grasses, coneflowers and prairie-smoke, showing their mutation over different seasons, takes on the central role instead of a mowing lawn. In the High Line Park, perennials, grasses, shrubs, and trees were chosen for their hardiness, sustainability, and ever-changing textures and colors in all four seasons, reflecting natural cycles of life and death, and to evoke the feelings of being in a wild space.

In recent years the use of herbaceous has been enlarged to a wider scale, as alternative to walkable lawns, for interesting flowery meadows.

An impressive example of the "Pictorial" Meadow has been tested in the London Olympic Park¹⁰, where Nigel Dunnett and James Hitchmough¹¹ demonstrate their new approach to the design and management of public landscapes, with an implementation techniques in a neat planting design toolkit, combining ecology and sustainability with a very strong aesthetic. The planting design concerns a selection of species with so few demands on irrigation and other natural resources, that comes from the understanding of the local wild plant communities and of their behavior in garden situation. They developed a naturalistic style, marked by successional waves of colorful, long flowering but especially rich in spring pollen and nectar supply, perennials and elegant grasses.

The use of wild flowers highlights on one hand the necessity of survival of the pollinators and on the other the anemophilous diffusion of the seeds, which allow the survival of peculiar ecosystems and which become as many contents that the project of public space must be able to transfer to citizens.

⁷ Main themes to guide the design: reduce garden inputs, recycle garden outputs; design with biodiversity & maintenance in mind; group plants by common habitat; work with the site-conditions; invite spontaneity; use plants as a living mulch to cover ground; in fall, leave plants to stand and amend in their own debris; above all, experimentation is the key to learning.

⁸ The Lurie Garden was designed by Gustafson Guthrie Nicol Ltd, with Piet Oudolf for the Perennial Planting Design.

⁹ The green promenade of the High Line, designed by Diller-Scofidio and the Landscape Architects Team James Corner Field Operation, is the reuse of a dismissed section of an urban elevated railway. The High Line's planting design, by Piet Oudolf, is inspired by the self-seeded landscape that grew wild for 25 years after the trains stopped running.

¹⁰ The Queen Elizabeth Olympic Park in London, opened in 2012, was designed by a consortium of landscape architects (LDA Design with Hargreaves Ass.), with great attention to sustainability. The planting design for large-scale "pictorial" meadows and strips along the river Lea were arranged by Professors N. Dunnett and J. Hitchmough. After the success of the opening, in 2012, the maintenance needs can be studied over the years.

¹¹ They established a body of research and practice relating to the use of 'designed plant communities' in a wide range of urban contexts. The approach, aiming to high public appeal, and to biodiversity richness, has come to be known as 'The Sheffield School' of planting design (Dunnett N., 2019).

Gravel gardens and ecological sustainability

A particular deepening in garden design, that is strictly tied to hard site-condition and plant site-specific selection, is to be found in the examples of Gravel Gardens. One of the most known is Beth Chatto's Gravel Garden, created in a very dry and most windswept piece of soil, where she created an unirrigated garden, applying the principals of ecological gardening, demonstrating the possibility to face water shortage and poor soil, like a message of hope to stand global change and climatic challenges. Many other gravel gardens have succeeded in the exploitation of a sustainable design: in these gardens, the gravel can accommodate plants, in some periods or particular conditions, but there is not necessarily a total ground cover. This can be associated to some xeric gardens, always representing solutions to very difficult conditions and limited resources. In the contemporary debate, landscape architects are trying to present this particular garden as a new potential poetic to change the image of perfect green lawns, that cannot respond to a sustainable answer in Mediterranean climate. Gravel gardens can also participate to urban drainage and suit very well poor wasteland and abandoned railways, where transported by wind seeds can develop unusual gardens. This reference to a natural spreading of life, over poor tassels of abandoned wasteland of carved materials, can become an interesting element for new landscape design, aiming to stage the possibility of rebirth and redevelopment.

One Italian example is the "Park of the dancing herbs"¹², in Paratico (BS) along the lake Iseo, where the border towards the water is signed by a gravel strip, between the remaining train tracks, with perennial herbs, with low maintenance and water supply requirements, trying to promote culture, curiosity and biodiversity; plants that rise light and offer flowers willing to move incessantly, driven by capricious airflows: hence the name of the park.

The Aeolus' Gardens by Michel Corajoud

Inaugurated in 2007, with a surface of 4,2 ha, on the brownfield left by the dismantling of a dismissed railway area¹³, close to the *Rue d'Aubervilliers*, designed by the landscape architects Miche and Clairel Corajoud and Georges Descombes, the "*Parc d'Eole*" brings into play an important environmental approach, in an area with few green spaces, but above all is an experimentation of social consultation and integration. The project stems from an interesting participation¹⁴ process and is characterized by its capability to adapt to the ever-changing needs of users, while maintaining the readability of the spatial composition. Located between 19th and 18th *arrondissement* of Paris, in a narrow and long lot, next to the railway, it contrasts sharply with the representative space of the Tuileries: it represents the most current trends in landscape architecture design, example of rigorous and clear methodology and project outcome.

The ecological, social and compositional attention define an innovative, adaptable and experienced urban park: a new generation park, with a permanent concern to integrate both the ecological-environmental approach and social demand.

Maintaining the "connivance" relationship between users and place of life requires following the social evolution of the neighborhood.

¹² Designed by Cristina Mazzucchelli, the Park follows an abandoned railway; it was inaugurated in 2010.

¹³ The name of the park, "Parc d'Eole", refers to the god of winds, but also recalls the E line of the RER railway, which passes on the edge of the park (Est Ouest Liason Express) and is also the name of an association that strongly supported the creation of the park.

¹⁴ In 2002 the Municipality of Paris opened a limited competition for the design and the realization of the park "la court of Morocco", because the area is located at the end of the Morocco street, in a neighborhood with many social conflicts. The winning project team was joined by a sociologist. During the study phase (2003-2005), the project was presented to a wide audience and gained very high support. During the construction phase (2005-2006), the sociologist played as intermediary to inform the future park users in a very precise manner about the different places and equipment that will be made available to them.

The possibilities of different uses of the diverse spaces must adapt to the needs of the inhabitants, while keeping the original spirit of the park.

The whole area is accessible for all kind of users, and proposes diverse sizes of aggregative places, playgrounds, picnic and resting areas. The creation of various ecological environments, such as gravel garden, planted canal, large meadow and flowery lawn, grove trees and shrubs, garden of grasses, is enriched by actions in favor of fauna, from the plant choice favorable to biodiversity, the installation of nest boxes for birds, to an ecological gardening, with differentiated management (for example: leaves preserved in shrubs).

The landscape composition, the management of water¹⁵ and the recovery of materials allow the inscription of the project in the history of the site.

In the plan drawing, two rectangular parts can be distinguished, preceded by a space of mediation towards the road, which constitutes a more solid, mainly paved esplanade, a margin of connection with the built context. In this “porous and alive” edge, two buildings are symmetrically located, with respect to the perpendicular *Rue du Maroc*, hosting the Municipal Collective Nursery, on the left, and the School of the “Second Chance”, at the right of the main entrance, at the centre. In this filtering part towards the road, there are also a drinking water fountain, the “*Gran Parquet*” Theatre and a community garden. Beyond this articulated border on the road, there are the two rectangular main elements, different in morphology and altimetric levels, the prairie and the hillside, separated by some paved meeting areas, in the middle of the park, at the outlet of the *Rue du Maroc*, facing the lawn of the southern part, with the terraced northern hill, with seats for collective events, at the back. In particular, the most representative part, characterized by a large flat open space at a lower level, has a large freely accessible lawn, in which the strip of the Gravel Garden, dedicated to the wind, is inserted, accompanied by a water channel. The lawn is crossed by a single oblique path that delimits the large cut lawn from the more naturalistic one, where herbaceous can bloom. The other part is signed by a more complex morphology, divided into stripes and modelled terraces¹⁶ rising up to the north, underlined by hedges of shrubs and rows of trees, along paths on parallel or oblique¹⁷ lines. Here there is a sequence of different playgrounds for sports and recreational activities, in a stripe located along the railway tracks. This part is completed by a connective area, reaching the *Rue Riquet*, marked by a higher density of trees. The border along the railway is marked by an elevated pedestrian walkway. The wise use of scattered trees, freely arranged (on the green areas as on paved ones) to enrich the different spaces, makes the perception of the different spaces very fluid and connected, breaking the rigidity of the geometries, with a large degree of visibility and openness¹⁸.

The main figurative element (referring to the wind and to Aeolus) is the stripe of the Gravel Garden, welcoming spontaneous ornamental flowering grasses that naturally disseminate. It is constantly renewed according to the spread of the seeds. It is possible to walk in the middle, trying to respect the plants. This rustic environment for ruderal species needs little maintenance and little water. Among the plants that colonize this space, hosted by gravels, there are for example the hollyhock (with pink flowers), the dandelion and the mullein (with yellow flowers) and the *Gaura* (with whitish/

¹⁵ The water channel has a closed circuit, the surface runoff water is collected and reused for irrigation needs.

¹⁶ Construction site debris from the Defense district (which was clearing away) was used for the modeling of the terraces.

¹⁷ In this part the oblique lines, underlined by a row of trees, originate from the main entrance, at the centre of the area, at the ending of the *Rue du Maroc*.

¹⁸ The need for security was a fundamental need for this park. A night lightning system, with different-colored lights, was installed to give to the inhabitants an “ultra-public” but “ultra-domestic” area, as extension of domestic spaces (see Newman A., 2015).

pink flowers). Observing an aerial photo, it is easy to understand the reference to the condition of the abandoned railroad, from which the park marks a new urban step towards a livable daily space for the inhabitants of the residential neighborhood. The striped Gravel Garden remembers the linear tracks of the dismissed railroad and creates a relationship with the similar environment that still is among the other tracks in the very near existing railway area. This element is underlined by a frame of walkways and is marked by a water channel, with hydrophilic plants, towards the eastern side border, at a higher level. The two different parts of the park create a multiple dialogue and double matches, balancing each other despite the differences in the composition: in the one dedicated to a free use of the space, nature can be protagonist in the Gravel Garden, creating continuous changes; in the other part, where different levels can be reached by linear ramps and ways, the protagonist is the movement an dynamic activity of people.



Fig. 1 The flowerbeds in the Grand Carré of the Tuileries Garden, in Paris, summer 2019. (Photo by A. Gherisi)



Fig. 2 Detail of one flowerbed in the Tuileries Garden, in Paris, summer 2019, with the structuring varied foliage of *Nicotiana*, among the flowering ears of Sage and the lighter mass of *Verbena bonariensis*. (Photo by A. Gherzi)



Fig. 3 The panel about the “Smokey Blues” flowerbeds, reproducing Leonardo’s painting, in the Tuileries Gardens (summer 2019).



Fig. 4 From the aerial photo, the two rectangular parts: one is the meadow, with the gravel garden, and one is an articulated morphology (ending with a more dense area towards the northern Rue Riquet), with the sport playgrounds stripe. In the border toward the main street: F- drinkable water fountain; T- theatre; N- Nursery; S- “Second Chance” School; C- community garden.



Fig. 5 The edge of the Gravel Garden, with a walkway and the water channel, with hydrophilic plants. (Photo by A. Ghersi)



Fig. 6 The gravel garden, with Malva and Gaura in bloom, with the hill with the steps in the background. (Photo by A. Ghersi)



Fig. 7 View from the central paved area towards the Gravel Garden and the free meadow. (Photo by A. Gherzi)

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Digital cataloguing of the painted façade decoration

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Abstract

The pictorial decorations of the facade, as an expressive architectural/artistic mode, developed and continued to be enriched, according to the functional and stylistic needs of the past, with new design and chromatic forms from the end of the fifteenth century until the beginning of the twentieth century. The urban landscape in these five centuries has changed its appearance, through the continuous creation of shapes and compositions sought after by architects and artists and handed down in workshops and construction sites by decorators.

The decorative apparatus, an inseparable part of the architecture itself, is realized with specific intentionality and references to the classical architectural order, highlighted by the continuous relations between factory and static, structural and compositional contents. This relationship is highlighted, in its completeness with the entire urban scene, both from a perceptual/formal point of view and from a communicational point of view, through the representation of historical/cultural events and according to the decorative taste of the time.

The proposed research has as its objective the digital cataloguing by images of the pictorial decoration of the facade of the historic center of Genoa, in which they define the decorative categories for executive techniques and their possible historical evolution.

The cataloguing of this artistic and cultural heritage, so rich in decorative facade decorations, is of fundamental importance as a symbol of identity expression of the whole Liguria, to be safeguarded and protected from possible loss and as a cognitive basis for future recovery interventions.

Abstract

Le decorazioni pittoriche di facciata, come modalità architettonica/artistica espressiva, si è sviluppata e ha continuato ad arricchirsi, secondo le esigenze funzionali e stilistiche del passato, di nuove forme disegnative e cromatiche dalla fine del quattrocento fino agli inizi del Novecento. Il paesaggio urbano in questi cinque secoli ha modificato le sue vesti, tramite la continua creazione di forme e composizioni ricercate dagli architetti e dagli artisti e tramandate nelle botteghe e nei cantieri dai decoratori.

L'apparato decorativo, parte inscindibile dell'architettura stessa è realizzato con specifiche intenzionalità e riferimenti all'ordine architettonico classico, messo in evidenza dalle continue relazioni tra fabbrica e contenuti statici, strutturali e compositivi. Rapporto che si evidenzia, nella sua completezza con tutta la scena urbana, sia da un punto di vista percettivo/formale sia da un punto di vista comunicazionale, attraverso la rappresentazione degli avvenimenti storici/culturali e secondo il gusto decorativo dell'epoca.

La ricerca proposta ha come obiettivo la catalogazione digitale per immagini della decorazione pittorica di facciata del centro storico di Genova, in cui se ne definiscano le categorie decorative per tecniche esecutive e la loro possibile evoluzione storica.

La catalogazione di questo patrimonio storico e culturale, così ricco di apparati decorativi di facciata, risulta di fondamentale importanza in quanto espressione identitaria simbolo di tutta la Liguria, da salvaguardare e tutelare dalla possibile perdita e come base conoscitiva per i futuri interventi di recupero.

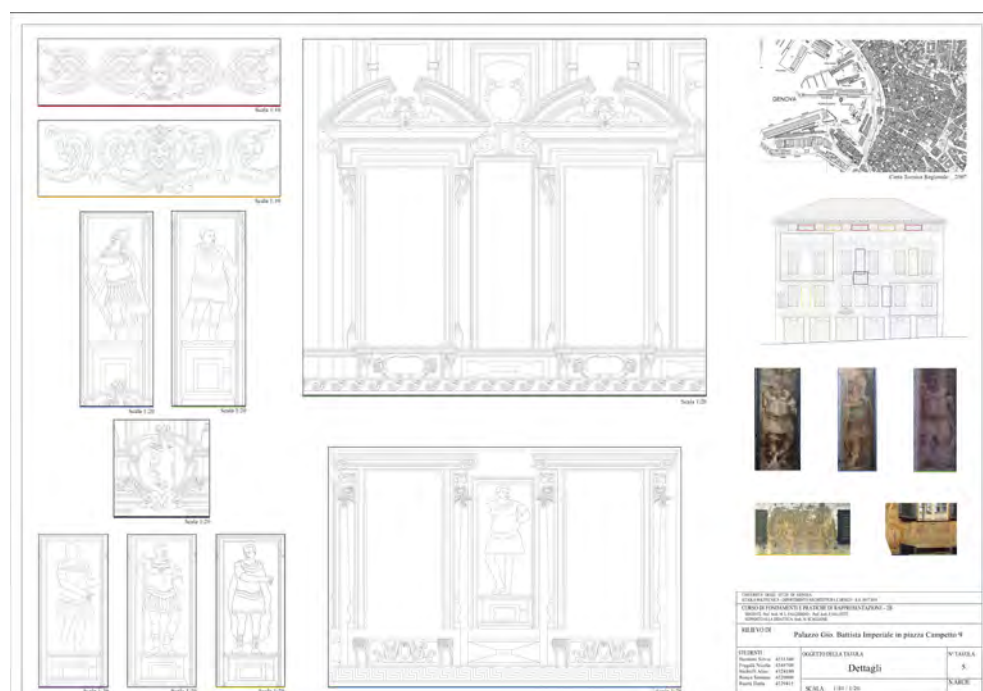


Fig. 1 Gio Battista Imperiale, studies about painted façade's details

Introduction

From the end of the fifteenth Century until the middle of the sixteenth Century, private residences are characterized on the façade by architectural elements in relief decorated or simply painted, which through geometric perspective drawings imitate the structure and depth, often enriched by decorations and figures.

This mode of decoration, testifies the importance given to the visual perception of buildings used to welcome and impress important and powerful visitors of the time.

If we consider the painted façades as an overall phenomenon that unifies the relationship between architecture, colour, material and the context in which it is located, this can be read as a transposition of the type of building, its size and its aesthetic value on the urban area constituting its formal and spatial characteristics.

As stated by Clara Palmas Devoti during the Conference in Rome in 1984, the Genoese historical centre presents some fundamental elements for the reading of painted façades: the first highlights their value at an urban level in a historical sense as a building development in the city and as a sense of decorum of the urban context; the second introduces the analysis of the complexity of the chromatic component in the historical centre by identifying three aspects, the basic building, the painted architecture of monumental facades and the decoration of facades of the late nineteenth and first half of the twentieth century.

Painted Façades in Genoa

The Genoese painted facades, designed to harmonize and embellish buildings of bare nature, must be considered as a phenomenon inseparable from the morphology of the territory.

The relationship between painted façades and architecture is linked to the sixteenth-century building development of the city that with its evolution in urban transformations and individual buildings gives the identity of the painted finishes, making Genoa “a point of maximum phenomenal concentration”, (Giulio Carlo Argan, Genoa Study Conference, 1982)¹.

The particular location of the city, in fact, has led to the exponential spread of the taste for painted façades, as the natural boundaries between mountain and sea have forced urban development in a small portion of land, stratifying the same and leading to the construction of narrow spaces that the painting aims to expand allusively.

The problem of the gap between theory and practice in the study of painted façades leads to the consequent double interpretation of the same: on the one hand they are recognized as figurative arts, on the other as intrinsic portions of architecture. As mentioned in numerous essays, the intervention of Prof. Paul Philippot at the Study Conference held in Genoa in 1982 put particular emphasis on the fact that in Genoa the mock frescoed architectural elements of the façades of buildings are constantly and closely connected to the architectonic structure and have a function of illusory extension of the architectural dimension of buildings in the whole urban space².

In the specific case of Genoa therefore it is convenient to consider the phenomenon as urbanistic-architectonic, because the Genoese palaces had to renounce to the strong protrusions of the plastic

¹ Conference of Studies about the problems of conservation and restoration of paintings, promoted by the Superintendencies of Artistic and Historical Heritage and the Environmental and Architectural Heritage of Liguria, the University of Genoa, the Liguria Region, the Province of Genoa and the Municipality of Genoa, held in Genoa from 15 to 17 April 1982, in which Giulia Carlo Argan was its President.

² Art Bulletin “Color plasters and coloring in historic buildings” Proceedings of the Rome Conference, 25-27 October 1984; Istituto Poligrafico e Zecca dello Stato.

decorations so in vogue in the other cities, for lack of space, replacing them with the paintings. Also in the possibility where the surrounding space allowed the insertion of architectural decorations, the tendency of the representation of what is plastic as wall painting on the facade was so strong to characterize its frequent use.

The painted facade, moreover, in the Genoese case, became a unifying element of the fourteenth-sixteenth century modifications. The manifestation is to be considered a cultural, social and political fact even before it is architectural one, because it was the rich merchant aristocracy that started the transformation of the medieval centre, unifying the buildings, redistributing the spaces and closing porticoed areas. From here comes the need to intervene on the little graceful changes with appropriate pictorial operations. The phenomenon is clearly visible in many cases in the whole area of the historical centre of Genoa and in particular in the area behind the Ripa Maris.

A scenographic “open-air museum” where architecture, decorations and painted figures are connected [...]. A painted apparatus that wants to create and simulate architecture becomes architecture itself [...].³

Surveys and historical catalogs

To date, this phenomenon, very important for the historical architectural memory and the community as a whole, is not collected and catalogued digitally. From the archival surveys conducted only ancient publications in which the geometric survey of some selected Genoese buildings are represented in detail.

The oldest collection of these drawings, including plans, elevations and sections, was produced and published at the beginning of 1600 by Pietro Paolo Rubens, later printed in the volume “I palazzi moderni di Genova” in 1622 and taken from other reprints with the implementation of further buildings. Also worth mentioning is the volume produced by Martin Pierre Gauthier, “Le plus beaux édifices de la ville de Genes et de ses environs”, printed in Paris in 1818, which publishes a collection of accurate surveys of Palaces and refined decorative details on the façade. The publication is of fundamental importance not only because it allows to underline the existence and persistence of the phenomenon of painted facades, but also to be able to compare the transformations occurred over two centuries. Still in 1878, the architect and painter Giuseppe Berlandis publishes in Milan the “Collection of the best factories and ornaments of the city of Genoa”, in which the great care in the surveys carried out following representations in which many valuable details are highlighted in the richness and fineness of the drawing not only of the pictorial panels but also of the single elements such as frames, portals, capitals, pilasters.

Another very interesting collection is the one published in 1886 by Robert Reinhardt entitled *Palast-Architektur von ober Italien und Toscana Vom XV. Bis XVII. Jahrhundert*. GENUA. Berlin, in which some surveys of Genoese palaces are represented finely detailed among which villa Giustiniani Cambiaso already taken over in 1818 by P. Gautier.

From the above mentioned Conference of Studies held in Genoa in 1982 derives the presentation of an Exhibition of which if it has the publication of the Catalogue in which some examples of Genoese painted façades were taken over and represented analogically. The Catalogue has subsequently become a reference and updating point for the photographic and descriptive cataloguing of n.27 Genoese

³ Proceedings of the Conference: “Color Architecture Environment - Outcomes, problems, knowledge, conservation and design of painted finishes and color, in the historic city and in the modern city, in Italy and in Europe” by Patrizia Falzone, Kappa 2003 editions.

buildings events painted facades, conducted in 2008 by the Superintendence of Cultural Heritage of Liguria and never completed, for a renewed discovery and a proposal for the recovery of painted façades.

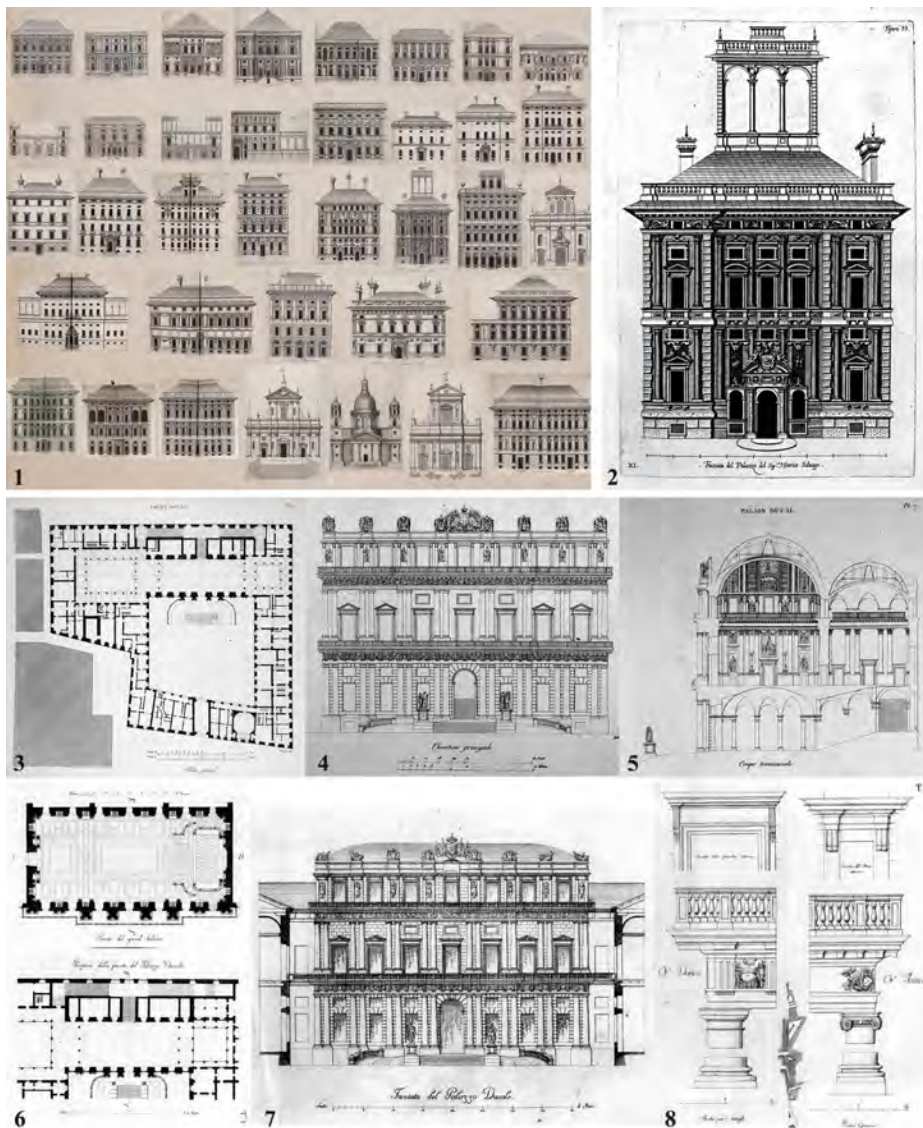


Fig. 2 1/2 Collection of Palaces represented by Pietro Paolo Rubens, in the catalog "The Modern Palaces of Genoa" in 1622. 3/4/5 Plans prospect and section of Palazzo Ducale (Genoa), represented by Martin Pierre Gauthier in «Le plus beaux édifices de la ville de Genes et de ses environs», printed in Paris in 1818. 6/7/8 Plans elevation and details of Palazzo Ducale (Genoa), represented by G. Berlendis in "Raccolta delle migliori fabbriche ed ornamenti della città di Genova" Milan 1878.

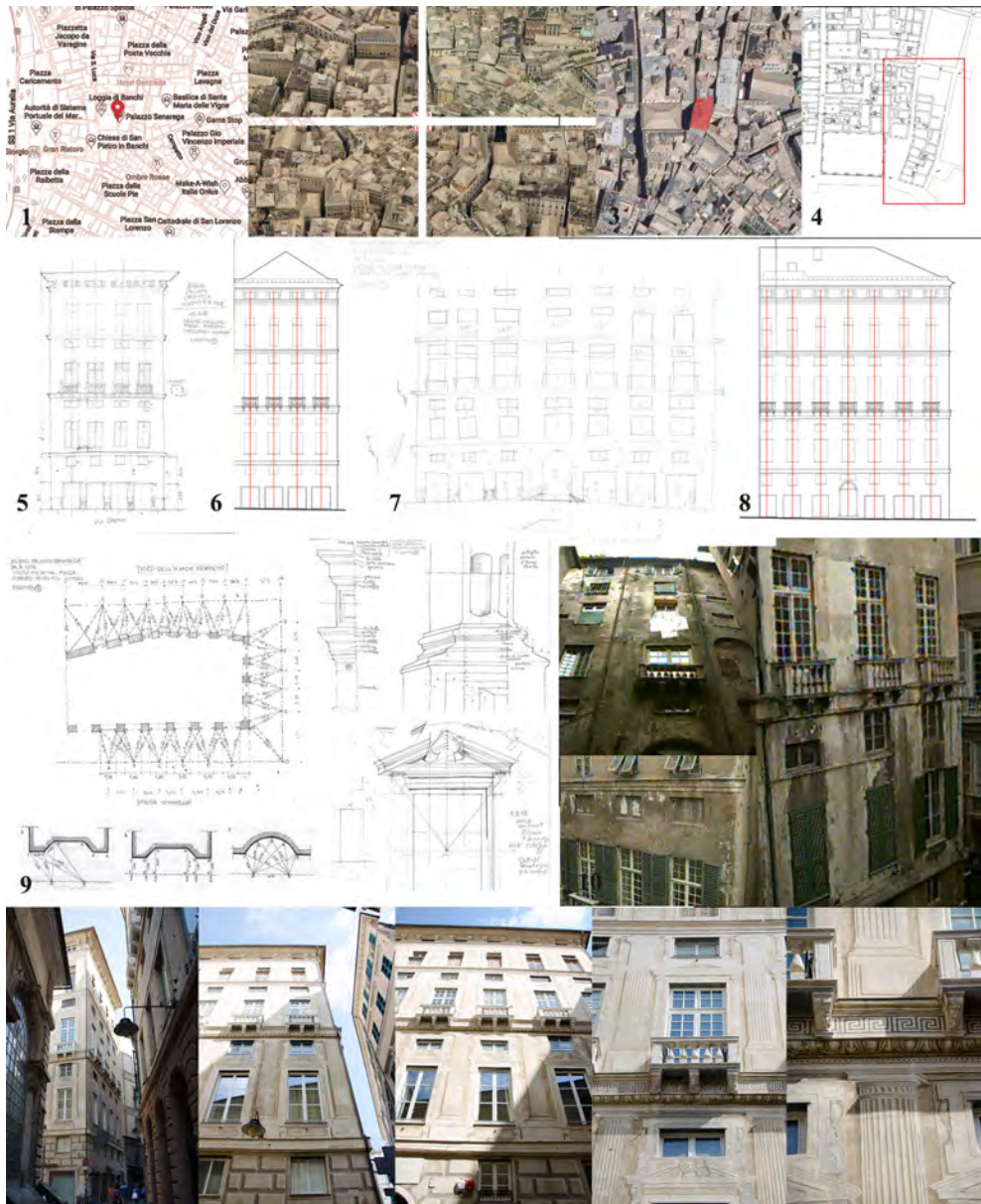


Fig. 3 1/2/3/4 Urban location of the Palace Senarega in Genoa; 5/6/7/8 Eidotypes of elevations for the project of relief, study of geometries and vertical axes in the façade; 9 Project of survey with trilaterations of the plan and detail; Eidotypes of detail; 10 Photographic images of degradation of the façades before the restoration; 11 Photographic survey at urban, building and detail scale.

Methodology

Digitized cataloging

State of the Art_ SIGECweb

The General Information System of the Catalog (SIGECweb), accessible at www.sigecweb.beniculturali.it, is a web-based platform that manages the entire cataloging flow, from the production and dissemination of cataloging standards, to the assignment of codes univocal catalog, to the cataloging of assets (archaeological, architectural and landscape, demo-ethno-anthropological, photographic, musical, naturalistic, numismatic, scientific and technological, historical and artistic), to the publication of the catalog cards for use on the site of the general catalog of assets cultural

In this way, it is intended to address the issue of cataloging as an essential element for the management and enhancement of cultural heritage and as a support for the promotion and implementation of educational, dissemination and research activities, as well as an incentive for the production of open data. between the different administrative levels.

The increase of the General Catalog of Cultural Heritage is underway, while at the same time starting a reflection on the ways in which the data of the regional information systems are merged into the Information System of the General Catalog. On this occasion, the new developments of the SIGECweb platform and in particular the new cartographic module will be presented and the beta version of the new platform for viewing and sharing the Catalog data will be previewed. A section will also be dedicated to the ontological models of the ArCo project that ICCD has developed in collaboration with the Institute of Cognitive Sciences and Technologies (ISTC) of the CNR to make available the data of the General Catalog of cultural heritage according to the paradigms of Linked Open Data (LOD).⁴

Proposal for digital cataloging of painted decorations

Although currently General Information System of the Catalog (SIGECweb), is increasing the acquisition of data, this research proposes a data acquisition methodology that has provided for indirect investigations of a historical, archival, iconographic and direct geometric/metric surveys and photogrammetric survey with the consequent digital restitution aimed at defining decorative apparatuses and executive techniques as a basis for the study of historical evolutions.

Le immagini degli apparati decorativi analizzati e riprodotti in elaborati grafici di dettaglio sono il frutto non solo dei rilievi effettuati sul campo ma dal reperimento di fonti di archivio citate precedentemente che ne hanno evidenziato i rapporti di continuità geometrico-spaziali e il rapporto fortemente simbiotico con l'architettura costruita che li ospita.

The acquisition of images through very high resolution cameras and elaborated with the most advanced technologies of digital representation, has allowed the creation of two-dimensional graphics, geometrically measurable, unique synthesis of the artistic sign inserted in the architectural spaces of the building.

The images of the decorative apparatuses analyzed and reproduced in elaborate graphic of detail are the result not only of direct and indirect surveys but also of the retrieval of archive sources mentioned above that have highlighted the spatial geometric continuity and the strongly symbiotic relationship with the built architecture. For the reconstruction of the compositional design of the façades, marked by the coexistence of geometric shapes and modularity indispensable to the decorative elements of inscribed details, the overlapping of multiple information with the straightened images.

Often we still have visible traces of these scores in the signs of direct engraving on the façade that through appropriate photographic and lighting technology were detected for a correct reproduction not only of the sign but also of the remaining colour fragments.

The acquisition of these images in 'high resolution' expressed in terms of pixels/mm were of fundamental importance for the transcription of the signs and to support subsequent investigations of comparison of the stylistic, geometric and compositional characteristics of the decorative apparatus. The digital cad representation was the most demanding operational part, particularly from a design point of view. Some of the decorations, of which there are very faint traces, have been proposed design solutions that could fill the gaps. This operation was carried out through the study of archival sources but also taking into consideration techniques and drawings recurrently present in that particular historical period.

The importance of creating an archive for images of the survey and high-definition photos of façade decorations allows to fully appreciate the compositional and technical skills of the simulation of reality. Knowledge through the direct photogrammetric punctual survey put into evidence the relationship between scale, geometric modularity, cataloguing of the compositional rules and the way of use of the historical/figurative repertory, from a methodological and technological point of view. The insertion in the façade of the painted decorations, even if it took place after the time of construction, is the result of a historical process that assumes a symbiosis with the building construction in specific reference to the vertical structure.

The visualization of the decorations is highlighted as a cultural document with a strong identity character made usable specifically by integral graphic systems that characterize the most valuable parts such as the painted decorations.

The cataloging of the most recurrent decorations are fundamental not only for their continuous study and deepening but also as a knowledge base for the restauration of the façades.

This study reports the first results of a census, in continuous implementation, of the decorative façade apparatus of some buildings in the historic center of Genoa. Here we propose a methodology of digital cataloging from a typological, historical, technical, dimensional and chromatic point of view of the painted decorations in an overall reading that includes the entire façade and the richness and refinement of the graphic and chromatic sign of the single detail. Investigation aimed at the designed and chromatic recovery of decorations as a scientific and knowledge base. Following the selection of some cases that have been of particular importance from a historical point of view.

Conclusion

This study is part of a wider line of research that wants to fill the gaps not only of the knowledge of the graphic signs typical of the painted decorations of the historic center of Genoa, but through the reconstruction and representation of the same in digital format to provide an operational tool of immediate usability.

This turns out a further strategic step, that involves the scientific community of the different disciplinary fields, for the recovery and the historical cognitive memory on archival base of all the painted decorations of façade heritage, for its continuous implementation and extension of the research.

The photographic and survey cataloging of the painted decorations is an operational methodological documentation for the restauration of the painted facades.

FACADE DECORATIVE ELEMENTS						CARD N.
						0/D
LOCALIZZAZIONE						
Nationality			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
City						
Georeferencing						
HISTORICAL PERIOD						
AUTHOR						
DECORATIVE TYPE	SUBJECT		SURVEY		DRAWINGS	
Middle Ages Type	<input type="checkbox"/>	Phytomorphic	<input type="checkbox"/>	Direct	<input type="checkbox"/>	Eidotype <input type="checkbox"/>
Lombard Type	<input type="checkbox"/>	Zoomorphic	<input type="checkbox"/>	Indirect	<input type="checkbox"/>	Analogical <input type="checkbox"/>
Stories Type	<input type="checkbox"/>	Human Figures	<input type="checkbox"/>	Drone <input type="checkbox"/>	<input type="checkbox"/>	Digital <input type="checkbox"/>
Architectural Type	<input type="checkbox"/>	Geometric	<input type="checkbox"/>	SFM <input type="checkbox"/>		
Mannerist Type	<input type="checkbox"/>	Architectonic	<input type="checkbox"/>	Laser Scanner <input type="checkbox"/>		
			<input type="checkbox"/>	Rectifier software <input type="checkbox"/>		
ORIGINAL DRAWINGS	<input type="checkbox"/>	TYPE	Original coll.		Actual coll.	
STATE OF CONSERVATION	Good <input type="checkbox"/>		Medium <input type="checkbox"/>		Bad <input type="checkbox"/>	
ANNOTATIONS						
TYPE OF FINISH						
Traditional painting (fresco technique / tempera)	<input type="checkbox"/>	Lime paint				<input type="checkbox"/>
Modern Painting	<input type="checkbox"/>	Paste plaster				<input type="checkbox"/>
STATE OF CONSERVATION OF THE FINISH						
Good <input type="checkbox"/>	Medium <input type="checkbox"/>	Bad <input type="checkbox"/>	Other <input type="checkbox"/>			<input type="checkbox"/>
TYPE OF DECORATION						
Nail	<input type="checkbox"/>	Fresco		Other		<input type="checkbox"/>
Graffito	<input type="checkbox"/>	Dry				<input type="checkbox"/>
PAINTED (D) AND / OR PLASTIC (P) DECORATIVE APPARATUS						
PLINTH (P - D)			BASAMENTO			
Monochrome	<input type="checkbox"/>	Molded	<input type="checkbox"/>	Monochrome	<input type="checkbox"/>	Ashlar <input type="checkbox"/>
Intonaco	<input type="checkbox"/>	Stone	<input type="checkbox"/>	Porticato		<input type="checkbox"/>
Faade(D)			ANTERIDS/LESENE			
Monochrome	<input type="checkbox"/>	Ashlar	<input type="checkbox"/>	Monochrome	<input type="checkbox"/>	Bichrome <input type="checkbox"/>
Panels	<input type="checkbox"/>	other	<input type="checkbox"/>	Ashlar	<input type="checkbox"/>	other <input type="checkbox"/>
STRING COURSE BAND			WINDOW SILL BAND			
Monochrome	<input type="checkbox"/>	Decorated	<input type="checkbox"/>	Monochrome	<input type="checkbox"/>	Decorated <input type="checkbox"/>
UNDER WINDOW BAND			UNDER CORNICE BAND			
Monochrome	<input type="checkbox"/>	Decorated	<input type="checkbox"/>	Monochrome	<input type="checkbox"/>	Decorated <input type="checkbox"/>
Panels	<input type="checkbox"/>	other	<input type="checkbox"/>	Panels	<input type="checkbox"/>	other <input type="checkbox"/>
Simple window cornice (D)			Moulded window cornice			
Monochrome	<input type="checkbox"/>	Decorata	<input type="checkbox"/>	Monocroma	<input type="checkbox"/>	Decorated <input type="checkbox"/>
MOLDED WINDOW FRAME WITH GABLE			UNDER WINDOW PANEL			
Monochrome	<input type="checkbox"/>	Decorated	<input type="checkbox"/>	Monochrome	<input type="checkbox"/>	Decorated <input type="checkbox"/>
CORNICE (P - D)			VOTIVE NICHE			
Monochrome	<input type="checkbox"/>	Decorated	<input type="checkbox"/>	simple	<input type="checkbox"/>	Decorated <input type="checkbox"/>
DEGRADATION TYPES						
NorMal Recommendations - 1/88. Macroscopic alterations of stone materials: lexicon (CNR-ICR, 1990, Rome)						
Chromatic alteration	<input type="checkbox"/>	Alveolization	<input type="checkbox"/>	Concretion	<input type="checkbox"/>	Crust <input type="checkbox"/>
Deformation	<input type="checkbox"/>	Differential degradation	<input type="checkbox"/>	Surface deposition	<input type="checkbox"/>	Disgregation <input type="checkbox"/>
Detachment	<input type="checkbox"/>	Efflorescence	<input type="checkbox"/>	Erosion	<input type="checkbox"/>	Exfoliation <input type="checkbox"/>
Cracking	<input type="checkbox"/>	Incrustation	<input type="checkbox"/>	Gap	<input type="checkbox"/>	Stain <input type="checkbox"/>
Lack	<input type="checkbox"/>	Patina	<input type="checkbox"/>	Biological Patina	<input type="checkbox"/>	Film <input type="checkbox"/>
Pitting	<input type="checkbox"/>	Pulverization	<input type="checkbox"/>	Presence of vegetation	<input type="checkbox"/>	Swelling <input type="checkbox"/>
Scaling	<input type="checkbox"/>					
Forms of visual degradation						
Cracking	<input type="checkbox"/>	Partial coloring	<input type="checkbox"/>	Patch of plaster	<input type="checkbox"/>	Anthropic degradation <input type="checkbox"/>

Fig. 4 Compilation Cards for the digital cataloging of the painted facade decoration

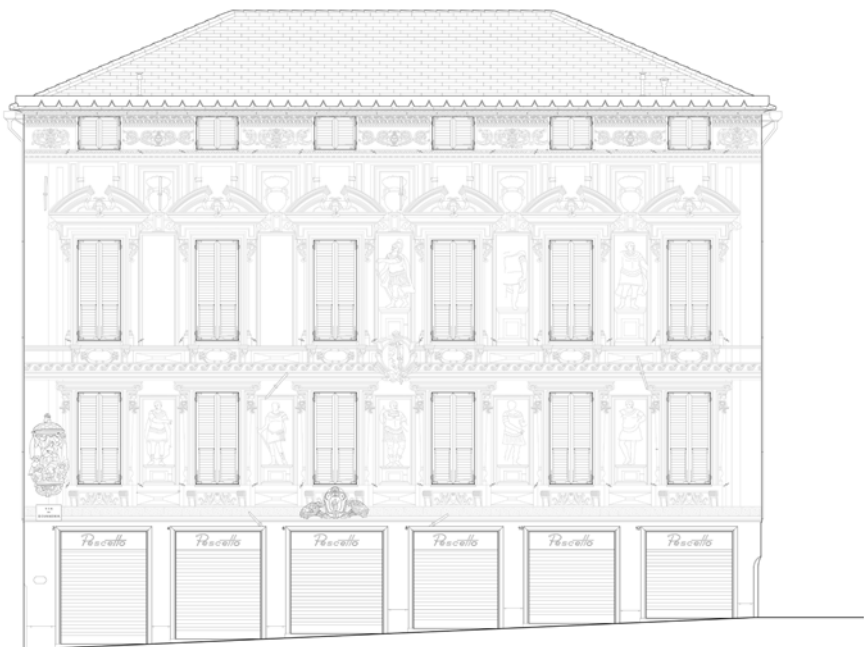


Fig. 5 Palazzo Gio' Battista Imperiale in Piazza Campetto in Genoa. Drawings by S.Bandoni, N.Fragalà, A.Alice, S.Ronca, I.Ruatti

FACADE DECORATIVE ELEMENTS				DRAWING	
				O/D	
LOCALIZATION					
Nationality					
City					
Georeferencing					
HISTORICAL PERIOD					
AUTHOR					
DECORATIVE TYPE		SURVEY		DRAWINGS	
Modern Age Type	<input type="checkbox"/> Phytomorphic	<input type="checkbox"/> Direct	<input type="checkbox"/> Indirect	<input type="checkbox"/> Isotype	<input type="checkbox"/>
Modern Type	<input type="checkbox"/> Zometorphic	<input type="checkbox"/> Indirect	<input type="checkbox"/> Analogical	<input type="checkbox"/> Analogical	<input type="checkbox"/>
Modern Type	<input type="checkbox"/> Human Figures	<input type="checkbox"/> Direct	<input type="checkbox"/> Digital	<input type="checkbox"/> Digital	<input type="checkbox"/>
Architectural Type	<input type="checkbox"/> Geometric	<input type="checkbox"/> SPA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manmade Type	<input type="checkbox"/> Architectonic	<input type="checkbox"/> Laser Scanner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ORIGINAL DRAWINGS		TYPE		Actual cell.	
		Original cell.			
STATE OF CONSERVATION					
Good <input type="checkbox"/> Medium <input type="checkbox"/> Bad <input type="checkbox"/>					
ANNOTATIONS					
TYPE OF FINISH					
Traditional painting (stucco technique / tempera)					
Modern Painting					
STATE OF CONSERVATION OF THE FINISH					
Good <input type="checkbox"/> Medium <input type="checkbox"/> Bad <input type="checkbox"/> Other <input type="checkbox"/>					
TYPE OF DECORATION					
Wall <input type="checkbox"/> Fresco <input type="checkbox"/> Other <input type="checkbox"/>					
Graffiti <input type="checkbox"/> City <input type="checkbox"/>					
PAINTED (D) AND / OR PLASTIC (P) DECORATIVE APPARATUS					
PUNTH (P - B)		BASAMENTO		CORNICI (P - B)	
Monochrome	<input type="checkbox"/> Mosaic	<input type="checkbox"/> Monochrome	<input type="checkbox"/> Mosaic	<input type="checkbox"/> Monochrome	<input type="checkbox"/> Decorated
Polychrome	<input type="checkbox"/> Stucco	<input type="checkbox"/> Polychrome	<input type="checkbox"/> Stucco	<input type="checkbox"/> Polychrome	<input type="checkbox"/> Decorated
FACED (D)		ANTEROS/LENE		VOTIVE NICHE	
Monochrome	<input type="checkbox"/> Mosaic	<input type="checkbox"/> Monochrome	<input type="checkbox"/> Mosaic	<input type="checkbox"/> Monochrome	<input type="checkbox"/> Decorated
Polychrome	<input type="checkbox"/> Stucco	<input type="checkbox"/> Polychrome	<input type="checkbox"/> Stucco	<input type="checkbox"/> Polychrome	<input type="checkbox"/> Decorated
STRING COURSE BAND		WINDOW SILL BAND		DEGRADATION TYPES	
Monochrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Monochrome	<input type="checkbox"/> Decorated	Non-Material Recommendations - I/B/A. Macroscopic alterations of stone materials texture (CORNICI, FINE, Rame)	
Polychrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Polychrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Chromatic alteration	<input type="checkbox"/> Mineralization
UNDER WINDOW BAND		UNDER CORNICI BAND		<input type="checkbox"/> Detachment	<input type="checkbox"/> Differential degradation
Monochrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Monochrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Cracking	<input type="checkbox"/> Pollution
Polychrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Polychrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Lack	<input type="checkbox"/> Intrusion
Simple window cornice (D)		Mosaic window cornice		<input type="checkbox"/> Fitting	<input type="checkbox"/> Patina
Monochrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Monochrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Scaling	<input type="checkbox"/> Biological Patina
Polychrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Polychrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Forms of visual degradation	<input type="checkbox"/> Presence of vegetation
MOULDED WINDOW FRAME WITH SABLE		UNDER WINDOW PANEL		<input type="checkbox"/> Cracking	<input type="checkbox"/> Fading of color
Monochrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Monochrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Fading of color	<input type="checkbox"/> Fading of plaster
Polychrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Polychrome	<input type="checkbox"/> Decorated	<input type="checkbox"/> Fading of plaster	<input type="checkbox"/> Antiseptic degradation

Fig. 6 Palazzo Senarega in Genoa- Decorative details card

FACADE DECORATIVE ELEMENTS										CARD N°					
LOCALIZZAZIONE										0/D					
Nationality															
City															
Georeferencing															
HISTORICAL PERIOD															
AUTHOR															
DECORATIVE TYPE		SUBJECT		SURVEY		DRAWINGS									
Middle Ages Type		Phytomorphic		Direct		Sketches									
Lombard Type		Zooomorph		Indirect		Analogical									
Gothic Type		Human Figures		Sketch		Digital									
Architectural Type		Geometric		3D											
Modernist Type		Architectonic		Laser Scanner											
ORIGINAL DRAWINGS		TYPE		Original coll.		Actual coll.									
STATE OF CONSERVATION		Good		Medium		Bad									
ANNOTATIONS															
TYPE OF FINISH															
Traditional painting (Devoto technique / tempera)										Lime paint					
Modern Painting										Paste plaster					
STATE OF CONSERVATION OF THE FINISH															
Good										Medium		Bad		Other	
TYPE OF DECORATION															
Wall										Fresco		Other			
Graffiti										Dry					
PAINTED (S) AND / OR PLASTIC (P) DECORATIVE APPARATUS															
PUNTH (P - S)		BASAMENTO		CORNICE (P - S)		NOTTIE NICHE									
Monochrome		Mosaic		Monochrome		Decomposed		Simple		Decorated					
Enochrome		Stucco		Pavimento		Monochrome		Simple		Decorated					
Facciate(S)		ANTERIORE/LENE		CORNICE		Monochrome		Simple		Decorated					
Monochrome		Archit.		Monochrome		Bichrome		Simple		Decorated					
Enochrome		Archit.		Enochrome		Bichrome		Simple		Decorated					
STRING COURSE BAND		WINDOW SILL BAND		CORNICE BAND		CORNICE BAND		CORNICE BAND		CORNICE BAND					
Monochrome		Monochrome		Monochrome		Monochrome		Monochrome		Monochrome					
UNDER WINDOW BAND		UNDER CORNICE BAND		UNDER CORNICE BAND		UNDER CORNICE BAND		UNDER CORNICE BAND		UNDER CORNICE BAND					
Monochrome		Monochrome		Monochrome		Monochrome		Monochrome		Monochrome					
Enochrome		Enochrome		Enochrome		Enochrome		Enochrome		Enochrome					
Single window cornice (S)		Moulded window cornice		Moulded window cornice		Moulded window cornice		Moulded window cornice		Moulded window cornice					
Monochrome		Monochrome		Monochrome		Monochrome		Monochrome		Monochrome					
MOULDED WINDOW FRAME WITH GABLE		UNDER WINDOW PANEL		UNDER WINDOW PANEL		UNDER WINDOW PANEL		UNDER WINDOW PANEL		UNDER WINDOW PANEL					
Monochrome		Monochrome		Monochrome		Monochrome		Monochrome		Monochrome					
CORNICE (P - S)															
Monochrome										Decomposed		Simple		Decorated	
NOTTIE NICHE										Simple		Decorated			
DEGRADATION TYPES															
Non-Material Recommendations - I/S/S. Macroscopic alterations of stone materials lesions (ENR-ICC, 1995, Rome)															
Chemical alteration										Salinization		Carbonation		Cracks	
Deformation										Differential degradation		Surface degradation		Disaggregation	
Detachment										Efflorescence		Discoloration		Discoloration	
Cracking										Infiltration		Stain		Stain	
Lack										Patina		Biological Patina		Stain	
Hitting										Pulverization		Presence of vegetation		Swelling	
Forms of visual degradation															
Cracking										Partial coloring		Patch of plaster		Anticlastic degradation	

FACADE DECORATIVE ELEMENTS										CARD N°					
LOCALIZZAZIONE										0/D					
Nationality															
City															
Georeferencing															
HISTORICAL PERIOD															
AUTHOR															
DECORATIVE TYPE		SUBJECT		SURVEY		DRAWINGS									
Middle Ages Type		Phytomorphic		Direct		Sketches									
Lombard Type		Zooomorph		Indirect		Analogical									
Gothic Type		Human Figures		Sketch		Digital									
Architectural Type		Geometric		3D											
Modernist Type		Architectonic		Laser Scanner											
ORIGINAL DRAWINGS		TYPE		Original coll.		Actual coll.									
STATE OF CONSERVATION		Good		Medium		Bad									
ANNOTATIONS															
TYPE OF FINISH															
Traditional painting (Devoto technique / tempera)										Lime paint					
Modern Painting										Paste plaster					
STATE OF CONSERVATION OF THE FINISH															
Good										Medium		Bad		Other	
TYPE OF DECORATION															
Wall										Fresco		Other			
Graffiti										Dry					
PAINTED (S) AND / OR PLASTIC (P) DECORATIVE APPARATUS															
PUNTH (P - S)		BASAMENTO		CORNICE (P - S)		NOTTIE NICHE									
Monochrome		Mosaic		Monochrome		Decomposed		Simple		Decorated					
Enochrome		Stucco		Pavimento		Monochrome		Simple		Decorated					
Facciate(S)		ANTERIORE/LENE		CORNICE		Monochrome		Simple		Decorated					
Monochrome		Archit.		Monochrome		Bichrome		Simple		Decorated					
Enochrome		Archit.		Enochrome		Bichrome		Simple		Decorated					
STRING COURSE BAND		WINDOW SILL BAND		CORNICE BAND		CORNICE BAND		CORNICE BAND		CORNICE BAND					
Monochrome		Monochrome		Monochrome		Monochrome		Monochrome		Monochrome					
UNDER WINDOW BAND		UNDER CORNICE BAND		UNDER CORNICE BAND		UNDER CORNICE BAND		UNDER CORNICE BAND		UNDER CORNICE BAND					
Monochrome		Monochrome		Monochrome		Monochrome		Monochrome		Monochrome					
Enochrome		Enochrome		Enochrome		Enochrome		Enochrome		Enochrome					
Single window cornice (S)		Moulded window cornice		Moulded window cornice		Moulded window cornice		Moulded window cornice		Moulded window cornice					
Monochrome		Monochrome		Monochrome		Monochrome		Monochrome		Monochrome					
MOULDED WINDOW FRAME WITH GABLE		UNDER WINDOW PANEL		UNDER WINDOW PANEL		UNDER WINDOW PANEL		UNDER WINDOW PANEL		UNDER WINDOW PANEL					
Monochrome		Monochrome		Monochrome		Monochrome		Monochrome		Monochrome					
CORNICE (P - S)															
Monochrome										Decomposed		Simple		Decorated	
NOTTIE NICHE										Simple		Decorated			
DEGRADATION TYPES															
Non-Material Recommendations - I/S/S. Macroscopic alterations of stone materials lesions (ENR-ICC, 1995, Rome)															
Chemical alteration										Salinization		Carbonation		Cracks	
Deformation										Differential degradation		Surface degradation		Disaggregation	
Detachment										Efflorescence		Discoloration		Discoloration	
Cracking										Infiltration		Stain		Stain	
Lack										Patina		Biological Patina		Stain	
Hitting										Pulverization		Presence of vegetation		Swelling	
Forms of visual degradation															
Cracking										Partial coloring		Patch of plaster		Anticlastic degradation	

Fig. 7 Palazzo San Giorgio a Genova- Decorative details card

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Colour and Urban Architecture
The Luso-Brazilian Azulejaria (17th-20th centuries),
annotations for a critical investigation

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Abstract

The Luso-Brazilian azulejos are a material that closely combines art, craftsmanship, and architecture. Their extraordinary flexibility made possible to create a conceptual framework useful for understanding the relations between the structural and volumetric configurations, also through the use of color as a connotative factor of the environment. The structure of this material and its peculiar color scheme have shown extraordinary constancy over time with a continuity that has lasted for five centuries. From a geographical point of view, their use has spread on the two sides of the Atlantic, between Portugal and Brazil, initially due to the relation between the motherland and the overseas colony. In the last two centuries, there has been a progressive differentiation in the use of this material and its relation with architecture, moreover, its intrinsic flexibility has allowed it to be used consistently even with buildings fully adhering to the ideals of the modern movement.

Abstract

Gli azulejos luso-brasiliani sono un materiale che combina strettamente arte, artigianato e architettura. La loro straordinaria flessibilità ha permesso di creare un'intelaiatura concettuale utile a comprendere la relazione tra le configurazioni strutturali e quelle volumetriche, anche attraverso l'uso del colore come un fattore connotativo dell'ambiente. La struttura di questo materiale e il suo particolare schema cromatico hanno dimostrato una straordinaria costanza nel tempo con una continuità che dura da cinque secoli. Da un punto di vista geografico il loro utilizzo si è diffuso sulle due sponde dell'Atlantico, tra Portogallo e Brasile, inizialmente in ragione del rapporto tra madrepatria e colonia d'oltremare. Negli ultimi due secoli si è assistito ad una progressiva differenziazione nell'utilizzo di questo materiale e nel suo rapporto con l'architettura, inoltre, la sua intrinseca flessibilità ne ha permesso un utilizzo coerente anche in edifici pienamente aderenti agli ideali del movimento moderno.

In the history of the arts, there are numerous researches aimed at defining cultural 'areal' - a term taken from a wide range of disciplinary fields, ranging from linguistic studies to biological taxonomies - which can be related to architectural typologies, formal choices, use of materials, and building technologies. A possible and serious misunderstanding - as pointed out at the time by George Kubler - can, however, originate if we consider political geography as a mechanistic determinant of artistic geography, given that the second can follow its own and different association rules, perhaps even in contradiction to institutional aspects.

Portuguese azulejos are a category of materials that closely combine architecture with art; they also create a relation between the volumetric and structural configuration with the use of color as a 'connotation factor' of the environment (through both the external and internal decoration of a building). Their use was extended in situations where it was important to give dignity to a public space, as in the case of street furniture complements (road pavements, fountains, etc.), but in many cases, they were used with a character of expressive dominance even on a large architectural scale. Therefore, azulejos gain a peculiar value closely connected to the definition of a particular cultural areal, given their intensive diffusion from the motherland to the overseas colonies, with a temporal range extended to the entire eighteenth century.

The use of azulejos defines the boundaries of a transoceanic areal that extended from the whole Portugal to the entire Brazilian coast, through the intermediate stages of the Azores Archipelago and the Island of Madeira. The diffusion of these artifacts beyond the Atlantic Ocean allows us to define, at an organizational level, a bi-univocal link with the monoculture of the sugar cane produced in the Nordeste provinces. The ships destined for this trade routes departed from the ports of Lisbon and Porto stowed not only with products destined for the colonial market but also ballasted by loads of azulejos or entire stone facades, organized in prefabricated and numbered blocks, which were then assembled once the material had reached its final destination. On the return route to Europe, the same ships were loaded almost exclusively with sacks of sugar.

The building practice of prefabrication was practiced with considerable skill by the Portuguese and applied also in the exceptional case of the commission (1740), by King João V, of the walls of the chapel of San Giovanni Battista for the church of San Rocco in Lisbon, which was designed by Luigi Vanvitelli and Nicola Salvi and built in Rome by a hundred of workers - among different categories of craftsmen, bricklayers, and laborers - to be transported by ship and easily assembled in the Lisbon church in 1750. The case of greater evidence among the Brazilian ones is offered by the *Basílica de Nossa Senhora da Conceição da Praia* (around 1750, in the typical *Alentejo* style).

The commercial traffic of the azulejos respected the same procedures: in the Lusitanian workshops, skilled artisans produced - according to the plans and measures dictated by the clients - with the same shapes and colors as those intended for clients in the motherland. When the tiles arrived at their destination, the tiling was assembled according to numbers, pieces, and guidelines of the drawings. In the event of breakage of particular unique pieces or loss of part of the load, tiles were used that could, from a distance, create a visual compensation for the gap.

The types of architectural decorations were numerous: they could occupy the entire framing of the walls or create peculiarly shaped panels, cutting the tile according to the original design to be freely highlighted. Some, exemplary, cases of this first style are in the cloister of the cathedral of Porto, in the interior of the Marian Shrine of *Nossa Senhora de Nazaré*, or *Santa Maria a Óbidos*. In Brazil, the sanctuary of *Nossa Senhora dos Prazeres* in Recife is particularly worth mentioning. While among the numerous examples of the second case, the Portuguese ones of *Santa Cruz* in Coimbra and the

Brazilian ones of Salvador de Bahia (cloisters of the Ordem Terceira do São Francisco; the convent of São Francisco; salons and staircase of the rectory of the cathedral) and of the numerous monasteries of Olinda. A minority was the use in the exterior decorations: in Lisbon, it is important to mention the garden pavilion of Quinta des Marqueses de Fronteira. Equally rare was the use in roofing as in the polychrome roof of the Miracle Chapel in Nazaré.

With the independence of Brazil (1822) the use of tiling continued its fortunes, but the supply of tiles turned to the United Kingdom and other European states for the lower cost of industrial production. However, this geographical change also involved the use of colors, with the introduction of yellow, green, red and others, which had been almost minority, if not extraneous, to the typically Lusitanian tradition of blue figures on a white background. The introduction of industrially produced materials, so different from the production of artistic-craftsmanship, was destined to have repercussions also for the complexity of the figurative choices for the prevalence of abstract decorations. However, the prolonged fortune of the tiles is evidenced, both in Portugal and in Brazil, by entire facades covered with colored tiling (ad example in Recife, Olinda, Salvador, Porto, and Lisbon).

However, a further divergence between the two sides of the Atlantic, although within the persistence of this tradition, occurred during the twentieth century. In Portugal, the white/blue azulejos were the subject of a true revival, personified by the painter Jorge Colaço (1868-1942), especially in São Bento railway station in Porto (1905-1916), where he experimented with the translation of contemporary stylistic ways, while he returned to baroque forms in the Sports Pavillon in the Eduardo VII Park in Lisbon (1922). However particularly pregnant, from the monumental point of view, it was the return to the neo-baroque in the decoration of entire facades of fronts and external sidewalls of churches within the architectural frames made of exposed stone, as - in Porto - with the churches of the Carmo (Silvestre Silvestri, 1912), the Capela das Almas (1929), and Santo Ildefonso (Jorge Colaço, 1932).

Of great interest is the fortune of the azulejos in the context of the peculiar Brazilian attitude to incorporate local elements in the broader framework of the modern movement in architecture. During the twentieth century, the South American country proved to be fertile ground for the development of modern architecture, demonstrating its originality with respect to both European models and North American metropolises. In particular, modern Brazilian architecture is characterized by a great ability to express an original character without having to resort to vernacular, classicist, or traditionalist stylistic elements.

The relation between blue and white is, therefore, a characteristic element of a significant part of modern architecture in that country. In many cases, it is a translated reference in which this chromatic scheme is transposed with paintings or, even more indirectly, with the peculiar relation between the white surfaces of the buildings and the blue of the sky, which becomes part of the architecture through the reflection on bodies of water or glass surfaces. However, there are not a few cases in which tile panels, directly referring to the history and tradition of azulejos, become an integral part of the architecture. In Brazil, therefore, a particular synthesis is created: the traditional absence of ornament that had characterized the canonical forms of the modern movement is replaced by greater expressive freedom which, however, it is not intended to be a regress towards eclectic, or classicist, forms of expressions.

The white/blue duotone allowed architects to enhance the character of openness and brightness, as well as the relation between interior and exterior, which remains a fundamental character of modern architecture. Tiled surfaces can follow geometric patterns or incorporate different degrees of abstraction starting from natural forms. If, in previous centuries, the azulejos had been used to create decorations whose contours could also be free, with respect to the square shapes of a wall, in a modern architecture

they blend harmoniously with the freedom of the creative gesture that characterizes Brazilian architecture of the twentieth century. Many examples testify to the multiplicity of solutions adopted by Brazilian architects and artists in the use of this material.

An early example can be found in the *Palácio do Ministério da Educação e Saúde* (*Palácio Gustavo Capanema*), designed by Lúcio Costa and started building in 1937, where the panels of Candido Torquato Portinari are located. There are also numerous examples of buildings designed by Oscar Niemeyer, such as, for example, the church of *São Francisco de Assis* in Belo Horizonte (1943), and the *Igrejinha de Nossa Senhora de Fátima* in Brasília, 1958 (with azulejos by Athos Bulcão). Athos Bulcão can be considered as the central figure for the renewal of the azulejos tradition in the context of truly modern architecture, as evidenced by his collaboration with the most important Brazilian architects such as Lúcio Costa (as in the *Torre de TV de Brasília*) and Oscar Niemeyer (as in the *Palacio Itamaraty* or *Palacio de los Arcos*).

Overall, the azulejos allow us to define a rich areal of reference of historical, economic, and artistic nature that transcends the usual historiographic categories that tend to fragment the understanding of artistic phenomena. Their use, over several centuries on both sides of the Atlantic, creates an ideal connection between urban spaces and architectures built in different eras and allows us to define an original point of view on the complexity of the phenomena that contribute to determining the characters of each architecture.



Fig. 1 From top to bottom, from right to left

1. Lisboa, Museu Nacional do Azulejo, shaped figure
2. Porto, Cloister of the Sé (cathedral)
3. Santuário de Nossa Senhora da Nazaré, Capela da Memoria, interior, detail N. 1
4. Santuário de Nossa Senhora da Nazaré, Capela da Memoria, interior, detail N. 2
5. Santuário de Nossa Senhora da Nazaré, Sacristy, detail N. 3



Fig. 2 From top to bottom, from right to left

1. Salvador (Bahia, Brasil), Sacristy of the Sé, shaped figure
2. Salvador (Bahia, Brasil), Sacristy of the Sé, corner tiles
3. Olinda (Pernambuco, Brasil), 19th century single family home
4. Salvador (Bahia, Brasil), Ordem Terceiro de São Francisco, staircase, rotation of the tiles
5. Santuário de Nossa Senhora dos Prazeres, Recife (Pernambuco, Brasil), insertion of sacred furnishings



Fig. 3 From top to bottom, from right to left
 1. Porto, Igreja de Santo Ildefonso (Jorge Colaço, 1930)
 2. Porto, Capela da Almas (Amandio Silva, 1929), lateral façade
 3. Porto, Igreja do Carmo, lateral façade (Silvestre Silvestri, 1912)
 4. Porto, Estação de São Bento, interior (Jorge Colaço, 1930)
 5. Porto, 19th-20th century housing



Fig. 4 From top to bottom, from right to left

1. Oscar Niemeyer: Igreja do São Francisco de Assis in Belo Horizonte (1943)
2. Lúcio Costa: Pálacio do Ministério da Educação e Saúde (Pálacio Gustavo Capanema) with the panel by Candido Torquato Portinari, detail
3. Lúcio Costa: Pálacio do Ministério da Educação e Saúde (Pálacio Gustavo Capanema) with the panel by Candido Torquato Portinari
4. Oscar Niemeyer: Igrejhna de Nossa Senhora de Fátima in Brasília, 1958, with azulejos di Athos Bulcão
5. Athos Bulcão: Pálacio di Itamarati (1982), detail of azulejos

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The 'Green' as Element of Regional Identity

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Abstract

A green area, a public park should always represent the *genius loci* of the locality in which they are located, in many cases they represented the element of change of a place until it became its most important, if not the protagonist, the development engine of that site.

This is valid not only for public spaces built in the past, but also in the present, among the ancient examples the transformation of historic walls into important public avenues or coastal walks with palm and other exotic trees, in the contemporary the High Line is the pivot of a new cool neighborhood in New York.

In this study we want to demonstrate the importance of using autochthonous 'plants' in creating a green area. Based on numerous scientific studies, invasive exotic plants must not be introduced, but rather native ones for an ecologically sustainable project of an open and urban public space. Through examples of successful applications and not, the in-depth analysis will be mainly on herbaceous plants starting from Oudolf theory on the chromatic, formal and dimensional alternation of them. The intent is to provide guidelines, through the two case studies in New York and Rotterdam, for a sustainable architectural composition of herbaceous plants, with the use of native species easily available in situ.

Abstract

Un'area verde, un parco pubblico dovrebbero sempre rappresentare il *genius loci* della località in cui si trovano, in molti casi hanno rappresentato l'elemento di cambiamento di un luogo fino a divenirne la caratteristica più importante, se non addirittura il protagonista, il motore di sviluppo di quel sito. Questo è valido non solo per spazi pubblici realizzati nel passato, ma anche nel presente, tra gli esempi antichi la trasformazione di antiche mura in importanti viali pubblici o passeggiate rivierasche con palme ed altri alberi esotici, nel contemporaneo la High Line cardine di un nuovo quartiere cool di New York.

In questo studio si vuole dimostrare l'importanza dell'utilizzo di 'piante' autoctone nella realizzazione di un'area verde; per un progetto ecologicamente sostenibile di uno spazio aperto pubblico urbano non si devono introdurre piante esotiche invasive, ma soprattutto native, come dimostrato da numerosi studi scientifici.

Attraverso esempi di applicazioni riuscite e non, l'approfondimento è soprattutto sulle piante erbacee a partire dalla teoria di Oudolf sulla alternanza cromatica, formale e dimensionale di esse. L'intento è quello di fornire delle linee guida, attraverso i due casi studio di New York e di Rotterdam, per una composizione architettonica sostenibile delle piante erbacee, con l'utilizzo di specie autoctone facilmente reperibili in sito.

Introduction

A green area, a public park should always represent the genius loci of the locality in which they are located, in many cases they represented the element of change of a place until it became its most important, if not the protagonist, the development engine of that site.

This is valid not only for public spaces built in the past, but also in the present, among the ancient examples the transformation of historic walls into important public avenues or coastal walks with palm and other exotic trees, in the contemporary the High Line is the pivot of a new cool neighborhood in New York.

Very often the plants used have given the character of the new public space, to the point that in many cases the getting sick or even the loss of a plant species has caused the transformation, up to the loss of identity of that landscape (the historic walls of Lucca, the Riviera delle Palme in western Liguria...).



Fig. 1 Villa Agnelli, Levanto, The twentieth-century landscape of the palm trees (image: M. Manfroni)

Methodology

Character of a place

Identity of a public open space: design and composition of artificial and natural elements

"If it was up to me to design the Louis XV square where it is, I would have been careful not to cut down the forest.

I would have liked the dark depth between the columns of a large peristyle to be glimpsed.

Our architects have no imagination, they don't know what accessory ideas are awakened by the environment and surrounding objects" Encyclopédie, D, Diderot

The phrase of the Encyclopédie perfectly focuses on the importance of green in a public open space, not surprisingly at the gates of the Enlightenment in France Jean-Baptiste Colbert creates the Boulevards, the first Parisian tree-lined avenues, characterized by axes tending to infinite prostheses from the city towards the countryside and organized, both for the population's walk and for the transit of carriages. Shortly before in England in 1637 in Hyde Park, one of the royal London estates, the public was allowed to enter the park and in 1665 a part of the population took refuge there to escape contact with the plague epidemic.

The first green public spaces were born in this way, from which all the nineteenth-century parks connected with industrial development derive. The goal is to allow the population to enjoy themselves in the open air when they move from the countryside to the city, from peasant life to working life with completely different rhythms and hygienic-sanitary conditions. The transformation of the ways of life of new citizens, the birth of free time, the need to carry out actions in the open air, walking, playing sports ... is strictly connected to this epochal change.

The public park until that moment did not exist and in its realization, it is inspired in many cases by the English landscape garden. It intervenes in the transformation of pre-existing places that are no longer useful, such as disused historical walls such as the Ring of Vienna, the Acquasola park in Genoa or quarry areas in abandoned to be recovered, such as the park of Buttes-Chaumont in Paris on an ex chalk quarry.

The character of these green public spaces today appears to us as a classic element, but in the moment of their realization it represented an innovation, a real revolution. Its design recalls that of the so-called English park and the plants used are the same as the landscape and / or fashionable parks at that time. Today the ways of experiencing the city have changed, as well as the boundaries between public and private spaces, between work and leisure. In order to function, an open public place must support this trend, it works if it is possible to work, study, have fun inside.... The contemporary open space has a new identity, which is the result of a renewed composition both in the artificial part and in the natural part. The architectural design characterizes the park or square often through landmarks or furnishings, floors, colors, a light motif that is repeated and that characterizes that particular space. For example Superkilen created in 2012 in Copenhagen from the collaboration between the landscape architects Topotek1 and the artists Superflex has managed to restore harmony and balance in a neighborhood that had hitherto degraded, through a contemporary interpretation of the 'universal garden', with the inclusion of objects international, representative furniture and decorations from all over the world, in which each inhabitant recognizes himself in his own way. Color also plays an important but different role, because it characterizes the three functional areas of the park: the red dedicated to sport, the green to the playground and the black to food. The living part (vegetation) has a fundamental role in characterizing the public open space, not only a park, but also a square or an avenue; reference is not made only to trees, but also to herbaceous and shrubby plants. For trees, the main problem is related

to their ‘slow’ growth, which means that at its inauguration a park never appears similar to three-dimensional visions of the project. This depends on the achievement of the so-called ‘ready-effect’, the realization of which is very expensive, because in the case of planting a large quantity of plants, this must be programmed well in advance through the cultivation of trees in the nursery. Significant examples are Expo 2015 with trees transplanted after being planted for over two years or the National September 11 Memorial & Museum. In this case, more than 400 Swamp white oak trees (*Quercus bicolor* Willd.) were planted, oaks of the North American forests symbol of rebirth, chosen both for their longevity and for the spectacular coloring of the leaves, which had been grown within a radius of 500 miles from the World Trade Center. For shrubby and herbaceous plants, the main contemporary problem is that of their maintenance, because after the realization of an open public space, obtained with the urbanization charges, the next phase of care often does not have the same attention due to lack of funds.

Plant species

The plant species used in the project strongly contribute to creating the identity of a place, they can have a strong emotional impact on the visitor and remain in his memory. Just think of the rows of cypresses (*Cupressus sempervirens* L.) which immediately refer to a typical Tuscan landscape, which are instead the result of the early 1900s project of the entrance path of Villa La Foce, in Val d’Orcia, by the English landscape architect, of Uruguayan origin, Cecil Ross Pinsent.

Plants can leave a mark and identify a place for many reasons. The main ones are:

- *historical and evocative*: some plants can be associated with a place or the image of it; they can arouse memories and emotions; they can be linked to the traditional use of these species or to their use in historic gardens.
- *ecological*: the choice of species in accordance with the environmental conditions can underline the characteristics of a habitat and contribute to its correct functioning; moreover, they can create a strong connection with the surrounding areas.
- *technological and innovative*: some species can be used for phytoremediation, improving or mitigating degradation and pollution situations; other plants, since unusual or with unusual morphological or phenological characteristics, can give a new identity or create an identity to places that do not have it.



Fig. 2 Entrance of Villa La Foce, Val D’Orcia (image source: www.flickr.com)

Trend in act

An ongoing trend that has now originated gardens with a new identity is the 'naturalistic planting design' (garden inspired by nature), which originated in late '800 England, with the Irish writer and gardener William Robinson. The latter successfully promotes the idea of a beautiful and easy garden thanks to the naturalization of spontaneous plants or from countries with similar climates, contrasting with the fashion of expensive annual flower beds.

The link between garden and environment is consolidated in other countries, in particular in Germany, Holland and the United States; in some cases, the garden is seen as a place to recreate associations of plants inspired by the natural environment in connection with studies on the geographical distribution of plants, in others a national identity finds in wild nature a strong distinctive element. For example, Jens Jensen, a Danish-born landscape architect, in the first half of the 1900s proposes the landscape of the prairie in parks and gardens created in the Chicago area, emphasizing the typical horizontal trend, or Karl Foerster (1874-1970), German nurseryman works on this theme, but with ferns and grasses.

The turning point that today leads us to use herbaceous plants in an innovative and sustainable way is with the new theorists of the contemporary landscape / garden. This method is initially applied to their garden property, subsequently to private spaces and finally to many open public areas. This has happened for Gilles Clement considered the most innovative garden philosopher of the last century for having highlighted the intrinsic concept of evolving landscape through the slogans of planetary garden and third landscape. His work based on the concept of man's collaboration with nature has changed the way we relate to the garden, shifting interest from aesthetics to the concept of biodiversity. All of this began in the late 70s, when Clément bought an abandoned land in La Vallée in the center of France in a sparsely populated area, where he built his totally self-sufficient house and transformed it into a *paraiso* (ancient term to define the garden) with the use of spontaneous vegetation, to grow insects and avifauna. The goal of the landscape designer is to enhance what was already present without destroying anything; thus was born the garden in movement, where the gardener no longer imposes a shape, but adapts to the pre-existing ones of nature, allowing the energy of the place to run its course, continuously changing the surrounding landscape.

A little later in 1982 the landscape painter Piet Oudolf buys land in Hummelo, in the Dutch countryside where in collaboration with his wife to develop his research he creates a garden nursery, thus starting to apply some of the concepts that will make him famous in the whole world.

As always in the historical evolution, in this particular case of parks and gardens, these are reinterpretation interventions, not real inventions, derived from the love and deep knowledge of herbaceous plants, from which their use resulted innovative. In particular if Clement prefers abandoned spaces, such as the edges of roads, embankments, railway lines, residual areas, marginal places, undecided fragments of landscape as a refuge for the majority of spontaneous vegetation, because they are natural, spontaneous and welcome much of biodiversity urban. Piet Oudolf designs an idealized spontaneous nature, through a dynamic process where the associations of plants change and evolve over time; uses poor plants: shower heads, daisies, spikes and weeds resistant and low maintenance, as beautiful as ornamental plants. Oudolf argues that we must not focus only on the blooms, but also on the shape and structure of the plants, so that they look beautiful even in winter. The Dutch landscape designer also undermines the classic concept of pruning, connected to a certain period of the year, but according to his idea, a good flowerbed should look interesting even when it is dead and a plant should be pruned only when you begin to be bored.

Plant species selection criteria: natives vs exotics

In recent years in the gardens and green areas design (especially in urban areas), environmental issues, climate change and the growing sensitivity of public opinion to the issues of nature conservation and to the impact on human health of pollution, have promoted the choice of plant species effective in improving environmental conditions, in reducing pollutants and in providing ecosystem services, placing their aesthetic value in the background (Niemelä et al., 2010; Baró et al., 2014; Demuzere et al., 2014; Maimaitiyiming et al., 2014; Mohammadi & Mohammadi Limaiei, 2014). Many authors speak about sustainable green, especially in the urban area (Birch & Wachter, 2008; Mell, 2009; Cucca, 2012; Dawson et al., 2014; Wachsmuth & Angelo, 2018), but the issues relating to the correct choice of species for the creation of a sustainable green are little treated. For a correct choice of the species, in our opinion, the main criteria are the following:

1. *Coherence with the ecological and environmental characteristics of the place* - macro- and microclimatic characteristics, exposure, brightness, availability of water, structure, texture and pH of the soil... A species coherent with ecological conditions will be able to adapt better and faster to the place, will grow stronger and more luxuriant, will be less subject to pathologies and failures, will make abundant blooms and fruitings;
2. *In urban areas, resistance to pollution and stress; pollutants abatement, storage and heat island mitigation* - in cities, above all, air pollutants represent a major problem for human health and cause stress for plants. Therefore, in urban areas it would be appropriate to select species that are able to resist the stresses caused by pollutants, often amplified also by summer water stress. In addition, efficient species can be selected for the assimilation and storage of CO₂, reduction of PM-10 and low VOC emission, which causes an increase in the concentration of O₃ in the lower layers of the atmosphere. The planting layout will be very important to amplify the efficiency of each individual species and to help mitigate the heat island and noise pollution;
3. *Ecological connection, biodiversity implementation and invasive exotic species restrain* - in species selection, consideration should also be given to the connection of the new green area with the existing neighboring ones. The creation of a network of green areas is fundamental, especially in the urban area, to create a resilient and efficient system for the provision of ecosystem services. A complex ecosystem is more resilient if rich in species and biodiversity; the species chosen for the project and their planting layouts, therefore, will have to guarantee an increase in biodiversity and so invasive alien species, that tend to simplify ecosystems and depress biodiversity, will be avoided;
4. *Low maintenance* - both in economic and management terms, the choice of species that satisfy the three previous points allows to limit irrigation, pruning, substitutions for failures and pathologies;
5. *Ease of supply in nurseries* - this will lower project and management costs and facilitate plant replacements.
6. *Historical, evocative and aesthetic value* - the species selection will also take into consideration the historical and evocative and aesthetic value, but as mentioned above it will not be the only or dominant criterion. The aesthetic appearance, beauty and pleasantness of the place can be enhanced through the design and composition of the project.

The issue of the use of native or exotic species in landscape design has long been debated (Oudolf & Kingsbury, 2013; Dunnet, 2019). The use of native species is undoubtedly privileged in the application of NBS, such as rain gardens, street swales and green roofs and in projects for the restoration and environmental recovery in suburban areas (Dunnet & Kingsbury, 2013; Dunnet & Clayden, 2007; Tallamy, 2009; Steiner & Domm, 2012; Harding Hooper et al., 2008). However, we believe that the

use of native species should be privileged in all landscape projects. Indigenous species are often the best choice in the design of a green space (from the small flowerbed to the large park), because they fully meet the criteria indicated above. Indigenous species answer better to ecological variations (for example, alternating conditions of aridity and humidity of the soil), require less maintenance, fertilizers, pesticides and water. Native species support natural habitats, increase biodiversity and provide food for local fauna: birds, insects, butterflies ... Native species are less competitive and invasive, therefore containment and pruning operations will be less. Eventually, some ornamental and exotic species can be added to the native species. If you opt for the use of exotic species, it is necessary to verify that they still meet the six criteria set out above and avoid invasive exotic species, which reduce biodiversity, are extremely competitive and require constant containment and maintenance.

Critical analysis of two case studies with identification of a working methodology for the use of herbaceous plants in a garden or park

The intent is to provide guidelines, also through case studies, for a sustainable architectural composition of herbaceous plants, with the use of native species easily available in situ. The concept of plants suitable for a given climate and place is the foundation for applying this methodology in another context, where herbaceous plants suitable for those climatic and environmental conditions will have to be used.

Through two examples of application of the theory of Piet Oudolf the High Line in New York and the Leuvehoofd, Rotterdam riverside, the in-depth analysis will be mainly on herbaceous plants on the chromatic, formal and dimensional alternation of them (Oudolf and Kingsbury 2013). The comparison allows to identify a working methodology for the use of herbaceous plants in a garden or park. In his garden the design of the plants is free, trying to imitate natural shapes. The garden is sustainable because it is designed with a view to collaboration between the plants used. The starting point is the study of the qualities of herbaceous plants, which are also inspired by wild plant communities:

Intermingling - plant communities are obviously composed of densely mixed species.

Diversity - The range of species varies greatly from one sort of plant community to another, but in most cases the is more diversity than meets the eye. The more you look, the more you see, particularly in grassland habitats.

Complexity - Imagine trying to count the number of species present in a square meter of grassland, not to mention the number of individuals per species. Part of the problem is the sheer intensity of the mixed relationships of the plants present.

Change - Complexity is not evenly distributed. Walking through the grasslands reveals a constant change in the distribution of species, or even their presence or absence. A change that varies with the seasons of the year and with the years (due to the natural dynamism of the vegetation).

Inspired by wild plant communities, through the appropriate choice of species and their spatial distribution, is a perfectly achieved goal in the New York High Line project; however, not only native species were used in the project but also some ornamental species, to emphasize the aesthetic aspect. The mistake that can be made, is to think that this type of vegetation has low maintenance: if you want to keep the initial design idea, you must prevent the vegetation from evolving by manually eliminating the invasive and unwanted species and pruning the shrub species. A continuous job to be carried out with skilled workers and with high costs. The alternative is to let the garden change, it evolves naturally, moving away from the initial project: Clement's moving garden ... The maintenance costs of the Rotterdam riverside project are even higher, because the arrangement of the species in regular groups (a blocks, as Oudolf says), requires constant work to keep the shape unchanged. Maintenance

costs rise further, if the choice of plant species is wrong, by inserting invasive exotic plants or plants not consistent with the ecological context, which must be irrigated and fertilized. This error is very frequent in projects, which, inspired by the works of Oudolf, use the same plants used by Oudolf but in a completely different climatic and territorial context. It is correct to be inspired by the great landscape architects, but by completely inserting the project in the place, not forgetting the identity of the place, the *genius loci*.



Fig. 3 High line, New York (image source: www.flickr.com)



Fig. 4 Leuveoohfd, Rotterdam (image: M. Manfroni)

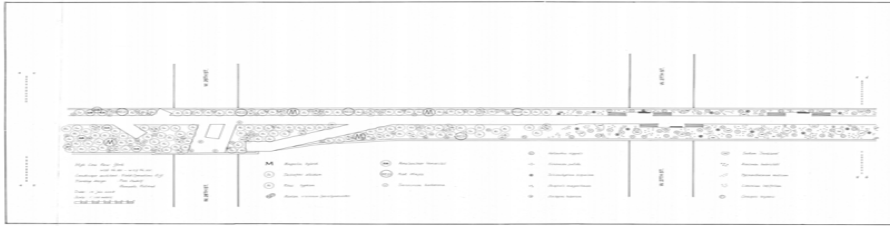


Fig. 5 High line, New York Design of Piet Oudolf (image source: <https://oudolf.com/garden/highline>)

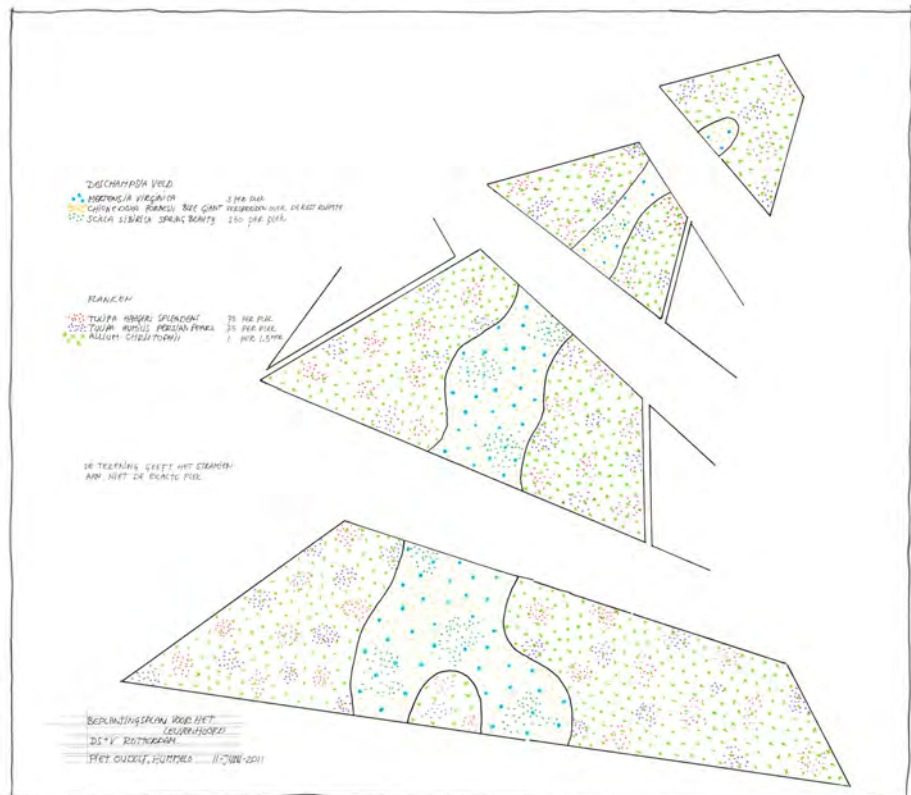


Fig. 6 Leuveoohfd, Rotterdam Design of Piet Oudolf (image source: <https://oudolf.com/garden/leuvehoofd>)

Conclusion

The use of Oudolf plants gives a new identity to the places for which he designs and plants them. On the High Line the character is that of the reconquest of the plants on the former infrastructure in Rotterdam is that of the block that recalls the regularity of the docks of the port city. The transposition and decontextualized use of these principles has opposite effects to those of defining a new identity. Often the effect obtained is striking with the context for which it was created, as well as not being sustainable.

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Traces, rituals, narrative

Design for the territory

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Abstract

On 11 December 2019, the UNESCO World Heritage Committee proclaimed the transhumance intangible cultural heritage of humanity. A tradition that has its roots since prehistoric times, an important recognition that confirms the social, economic, historical and environmental value of pastoralism in Italy. An immaterial heritage, which materializes through heterogeneous traces and objective evidence of tools, clothing, iconographic, photographic, biological and archival sources.

In this paper, we intend to focus on the role of design in the narration of this material heritage, which becomes a story and legacy of a Ligurian territorial tradition. The design role is to mend relationships and gaps through the traces that have overlapped in the history of our territory, through sensitive storytelling that can also become a stimulus for a revival of tradition in a contemporary key.

The Interreg Italy-France Maritime Programme, led by Regione Liguria, in the project Cambio Via-Cammini Biodiversità Valorizzazione Itinerari e Accessibilità della Transumanza is an opportunity to rethink strategies for Ligurian Parks as Beigua, Antola, Aveto.

The aim is to use the project as a tool for interpreting the values of the territory through communication, products and services that can promote land policies capable of supporting resilient communities that operate and live in fragile areas.

Abstract

L'11 dicembre 2019 il comitato del patrimonio mondiale dell'Unesco, ha proclamato la transumanza patrimonio culturale immateriale dell'umanità. Una tradizione che affonda le sue radici sin dalla preistoria, un riconoscimento importante che conferma il valore sociale, economico, storico e ambientale della pastorizia nel territorio italiano. Un patrimonio immateriale, che si materializza attraverso tracce e testimonianze eterogenee di carattere oggettivo riguardanti utensili, abiti, fonti iconografiche, fotografiche, biologiche e archivistiche.

In questo paper si intende approfondire il ruolo del design nella narrazione di questo patrimonio materico e materiale, che diviene racconto e testimonianza di una tradizione territoriale ligure. Il ruolo del design è quello di ricucire relazioni e contrasti con le tracce che si sono sovrapposte nella storia del nostro territorio, attraverso una narrazione sensibile che possa divenire anche stimolo per un rilancio della tradizione in chiave contemporanea.

Il Programma Interreg Italia-Francia Marittimo, con capofila Regione Liguria, nel progetto Cambio Via-Cammini Biodiversità Valorizzazione Itinerari e Accessibilità della Transumanza, diviene occasione per ripensare strategie di valorizzazione all'interno dei Parchi liguri interessati: Beigua, Antola, Aveto. L'obiettivo è quello di utilizzare il progetto come uno strumento di interpretazione dei valori del territorio attraverso comunicazione, prodotti e servizi che possano favorire politiche territoriali capaci di sostenere le comunità resilienti che operano e vivono su aree fragili.

*Si scendeva verso la pianura
e la pianura non veniva mai,
i monti partorivano altri monti.
Sopra gli Appennini la nostra carne era dura,
come le tegole, come i muri.
L'aria di febbraio era così sottile
che si spezzava come si spezza un capello.
Da lontano le vacche erano vacche
e gli uomini farfalle
Svegliarsi nella paglia dopo aver sognato
la casa fresca di buon mattino,
spazzata appena con rami di rosmarino.
Andare e poi tornare, questo era il mestiere:
cucire una terra all'altra col filo del fiato.
[Franco Arminio, Trasumanze, 2017]*

Introduction

Including transhumance in the intangible UNESCO list means to recognize its precious contribution to the cultural heritage of humanity, from which we benefit today and we will transmit to future generations as an inestimable source of life and inspiration.

The issue of inheritance inevitably leads back to responsibility and impact.

Responsibility means the duty to preserve virtuous practices, to take care of the territory that hosts us, to respect it and to highlight the values that are reflected in the interactions between man and the environment, in which balance and well-being produce zero impact.

Environmental impact is the measurement of sustainability and it refers to the systemic conditions by which human activities - at the planetary and regional level - do not disturb the natural cycles they are based more than the resilience of the planet allows. At the same time, they haven't to ruin the natural capital that will be transmitted to future generations (Manzini & Vezzoli, 2007).

UNESCO tends to exalt and preserve local specificities sedimented over time, in contrast to the growing trend towards the universality of places. Therefore transhumance inevitably refers to a universal and ancient practice, which provides one of the first human forms of nomadism to moving flocks, herds, cattle to find the best habitats and pastures during the changing seasons. All the effects it produces on communities, cultures and traditions are deeply local and sometimes rooted in very restricted areas, creating a mixed palette of rituals.

Primarily transhumance may seem to be a very specific and delimited area to the zootechnic sector, but deepening the subject many repercussions on various sectors emerge (fig.1) such as botany, environment, landscape, anthropology, sociology, history, food, folklore, architecture, art, self-production, craftsmanship, all elements that create territorial culture. Transhumance shapes relations among people, animals and ecosystems. It involves shared rituals and social practices, caring for and breeding animals, managing land, forests and water resources, and dealing with natural hazards. Observing today's rural landscapes and inland areas crossed by sheep tracks, it is hard to find traces of these narratives. Territorial signs are often covered by negligence and abandonment, and cultural traces are almost hidden or diminished as if they were relegated to the past. The material culture formed in the pre and post-war agricultural tradition of Italy survived immune to the global languages of modernity still lives in some backwaters of the Italian hinterland. It constitutes a very precious depository and a resource that we should know and observe with new eyes. A culture only apparently archaic gives us back an iconographic heritage full of memories and still very current because it is linked to the roots of our past.

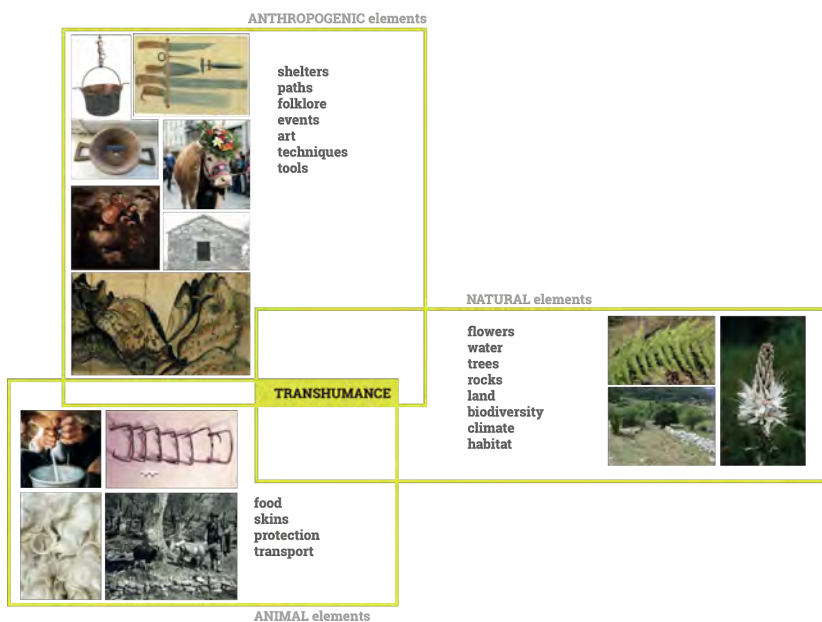


Fig.1 Transhumance as a reservoir of natural, animal, human resources

The Ministry considers transhumance to be protected as a “cultural element with a strong identity component” that over time “has been able to create strong social and cultural links” between countries those have practised it and crossed, and as “sustainable economic activity”, based on a link between man and nature. The importance of intangible heritage, in fact, lies “in the wealth of knowledge and skills that are passed on from one generation to the next”, explains UNESCO (Spadaro, 2018). A fundamental issue generated innumerable repercussions in Western culture, from its most distant Greek-Roman origins: it has considered the mankind as the master of nature, thus allowing him to perceive the environment as an object of domination susceptible to violence.

Never before have we witnessed the power of nature in the face of human precariousness committed to re-establishing priorities and balanced relationships with contexts, so transhumance becomes a reference based on a stable and millenary balance between man and the environment, preserved from changing customs, scientific and technological discoveries until a break occurred in the twentieth century.

Through the European programme Interreg Italy-France Maritime, specifically in the project Cambio Via-Cammini Biodiversità Valorizzazione Itinerari e Accessibilità della Transumanza, the aim is to develop transversal territorial strategies, but also a direct comparison with local communities.

The lead partner Regione Liguria works with the University of Genoa with other local subjects of the territory, together with the regions of Tuscany, Sardinia, Corsica, in order to elaborate synergic lines of intervention through acupuncture actions that can bring benefits to the wider system.

The research, started in July 2019, aims to build a model of territorial cooperation based on local communities that are guardians of biodiversity in marginalized areas at risk of abandonment. The Research Group¹ intends to contribute to the achievement of the general objectives by intervening with its 'know-how' on three different axes:

GOAL	METHOD	ACTIONS
quality food repositions on the market	visualization and communication of the supply chains	creation of narrative packaging
interest towards material culture and rites that distinguish internal territories	updating and re-designing some artefacts belonging to rural life, to raise people's awareness of a more balanced relationship between nature, raw materials and products.	designing artefacts from local materials, techniques or traditions.
development of itineraries slow tourism network	creation of experiences and tourist attraction system, linking traces, rituals and communities in ecosystem services and new paths of tradition	wayfinding, communication and different channels promotion

Table 1 Cambio Via – The role of Design: goal, method, actions (by authors)

The interest in an underestimated and often discredited field can be revitalized by creating a new aesthetic of the imperfect based on the authenticity of raw materials, the poetics of tradition and the strong territorial component.

More than ever we need to rediscover and rebalance this link with the landscape and start again from the inner areas, from the effort and sacrifice of resilient communities to protect important parts of our culture, identity and history.

Designing territory means recognizing and preserving the identity of local culture in a close link with the territory and the community that induced it. Identity is, therefore, the starting point of any territorial planning hypothesis (Cristallo et al, 2017).

Repositioning of food products

The project aims to promote an economic model for the hinterland based on social and environmental values; to enhance typical products, places of production and connected routes to reach high quality markets; to build virtuous relationships and networks with urbanized areas and the most attentive consumers, to achieve a cultural, economic and social redemption of inner areas communities.

The inland areas that overlook the coast of the eastern Ligurian coast are parks, enclosed within narrow limits, but open to the infinite number of opportunities. They are Parks of Aveto, Antola and Beigua (fig.2) recognized with the law on protected areas (L.R.12/95). Hidden lands, forgotten reality from which many people have escaped.

Lands that bear witness to stories of tenacity and mutation, even though they are reluctant to renew their projects. Lands where seems to be nothing, where roads are few and narrow, connections are inaccessible, isolated houses, the network missing, villages not equipped and poor services. Where sometimes discomfort has become a defence against conformism and a generator of genuineness.

Lands where nothing can be everything, revealing not only the wonder of nature but also of a Mediterranean lifestyle. The research proposes to deepen and enhance the active supply chains, the stories of young heroic entrepreneurs who decided to invest in biodiversity and authenticity of their products, in the methods of production, diffusion and communication of food, but also in the values of the territories.

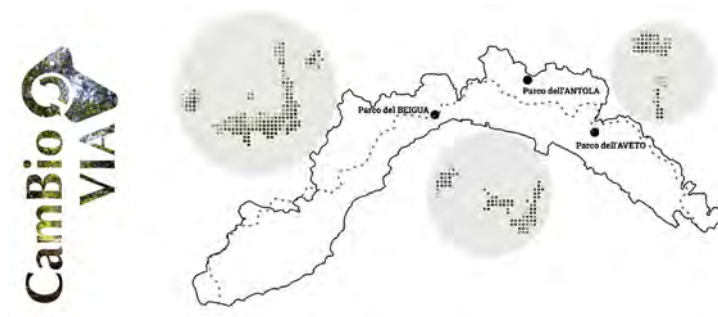


Fig. 2 Parks interested in Interreg CamBio VIA research

The challenges of these companies are against wolves, natural disasters, but also against the ruthless market that floods small businesses with the industrial competition.

The first project's strategy was to interview and get to know directly the farmers in their territories, to listen and see the difficulties they have to daily overcome, and the different methods developed.

There are two main supply chains, milk and meat. If milk is more transparent, meat is unknown even to the farmers themselves, who often do not know the distribution and final retailers of their products.

Three categories of people emerge from this investigation phase: the 'prostheses', the 'established' and the 'weak'. The 'prostheses' are those people who have made the choice to change their lives in the first place, energetic people who are curious and driven to improvement and innovation. The 'established' are often those who have run the family business for generations and try to confirm a balance, are not very prone to change, are more inclined to the status quo. Finally, there are the 'weak' companies, which struggle to survive, but do not know how to recover and they also have lost the confidence and passion for the work they do.

The sense of disorientation of the most fragile ones highlights the lack of network producers that can work both internally to create a system of actors generating a high biological value from the Park, and externally to present themselves as organized and consolidated systems, giving proof of reliability.

The proliferation of self-produced brands of each park to catalogue food products from protected green areas, it is certainly a good idea to clarify and order the regulations of labels, but above all to accompany the history of products that can certainly not be sold silently.

The role of design is to study methods of tracking and visualizing production processes, to make packaging more attractive and tell the stories that originated them, to reposition products on the market and get the right recognition for the high quality offered (fig.3).

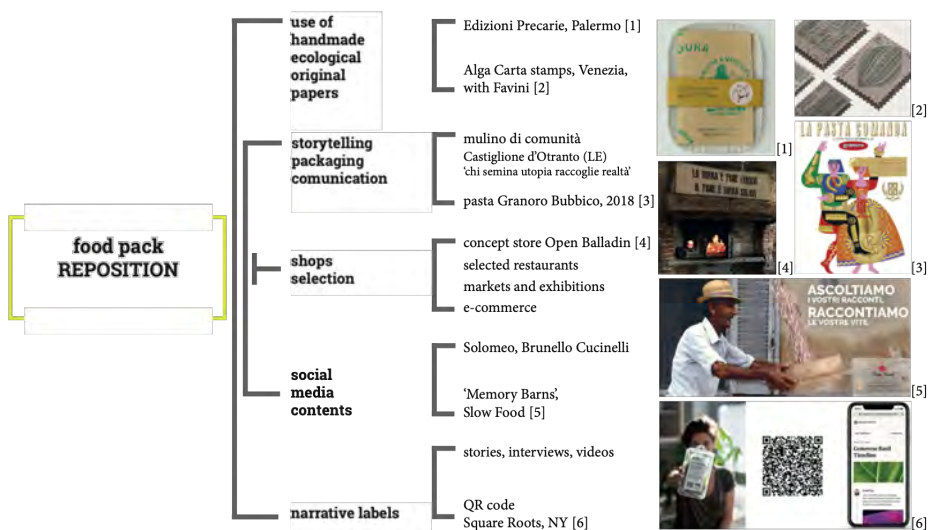


Fig. 3 Intervention strategies to develop new packaging

Rather than adding another brand, increasing the system complexity, it seems more useful to add a narrative label that provides precise information on producers, their companies, the plant varieties or animal breeds used, cultivation, breeding and processing techniques, animal welfare and territories of origin.

In fact, chemical, physical and taste analyses are not enough to evaluate the quality of a product. Any technical approach does not consider what is behind a product - its origin, history, transformation technique - and does not allow consumers to understand if a food is produced in respect of the environment and social justice.

Besides, the communication that accompanies the products is often mystifying: it refers to peasant worlds full of poetry, presumed traditional techniques, vague references to ancient flavours, this is the case for example of Mauro Bubbico's project for Granoro pasta. It includes three postcards and a stamp that represent all the values of the artisan product, strongly identified, described through the representation of love and urgencies such as work, the values of the couple and family, through the idea

of collective celebration, hospitality and conviviality.

Another element to rethink the packaging can be the material itself like papers or wrappings with strong relevance to the territory. Edizioni Precarie² in Palermo works on food letter papers, to recreate a journey in the historical markets where papers are used to wrap meat, fruit, cheese, and the idea is to use them as writing papers, ideal to wrap thoughts, ideas, drawings and to preserve their freshness. In 2016 the EP are selected for the Compasso d'Oro as a project of cultural sharing and graphic research with peculiar elegance design. A different experiment is that of the designer Pablo Dorigo who uses Alga Carta, in collaboration with Favini³, taking up the paper patented for the first time in Italy in 1992. At the time the government had asked the company to find a reuse solution of the polluting algae that were now irreparably damaging the ecosystem of the Venetian lagoon, so a philatelic edition is proposed.

The project 'Granaries of Memory'⁴ is a multimedia archive to collect interviews that reconstruct small universes that are disappearing through the direct testimonies of farmers, workers, artisans, entrepreneurs, etc.

Seeing these videos, we come across memories of realities, of universes that have been denied the word many times. Memories intended not only as a look at our past but as an instrument for rethinking and reshaping the future.

The Slow Food project was born from the need to transmit that the food quality and its narrative, starting from the origin of the product (the territory) and including the cultivation and processing techniques, the preservation methods and, of course, the organoleptic and nutritional characteristics. Only the narrative can restore the product's real value (Slow Food Foundation⁵).

Material culture and artefacts

Peasant cultures have a very different relationship with objects than that one we are accustomed to: the farmer built most of his objects himself, took their behaviours directly from nature, adapting them to their use, to their physical characteristics and aesthetic. At the very end, he completely owned the object, because he knew it in each detail and all its functional and formal implications. He always conceived the artefact as a natural material, as a piece of nature to which he had given a form. The relationship with the object was in this case of such complete knowledge and (therefore) mastery. Risks of a reversal relationship didn't have to happen. The artefact remained first of all a material. When the purpose for which it had created was exhausted, it lost its status as an object and became matter again. It was transformed or recycled or abandoned to nature. (translated from Frassinelli, 2019 p.111).

The description proposed by Frassinelli in Design and Anthropology invites us to recover this virtuous relationship between artefact, man and nature to create contemporary projects that can seduce and create new attention towards the rural world.

The challenge we want to take up is to recompose an inventory of material heritage to testify the countless repercussions not only on the immaterial level of identity, culture, tradition and rituals but also on the material level of artefacts, techniques, tools, self-production to rediscover their forgotten traces.

² <https://www.edizionipecarie.it/> (view on 4 may 2020)

³ <https://www.favini.com/news/storia-riuso-creativo-favini-carte-ecologiche-upcycling/> (view on 4th may 2020)

⁴ <https://www.granaidellamemoria.it/index.php/it/archivi/presidi-slow-food> (view on 4th may 2020)

⁵ <https://www.fondazioneSlowFood.com/it/cosa-facciamo/etichetta-narrante> (view on 4th may 2020)

In this framework, the discipline of design can help to decode the meaning of certain elements and the processes that define them. It can help to understand the individuals who use them, the contexts that provoke their emergence, and it can help to re-insert the residual parts deactivated by social conflict into the contemporary world.

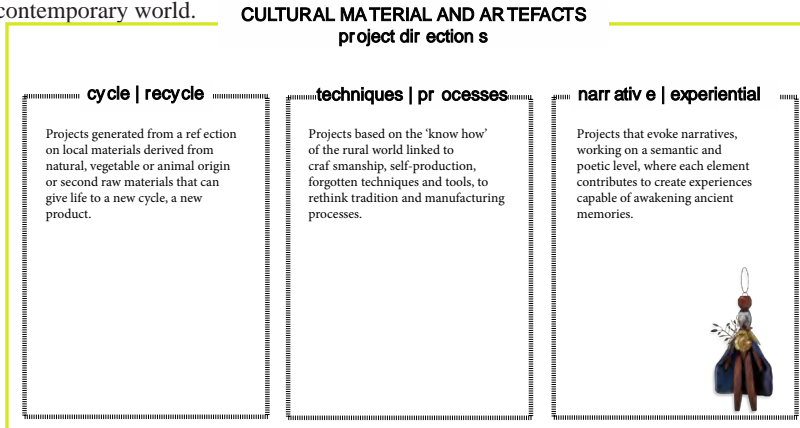


Fig. 4 Design approaches of contemporary artefacts in relationship with material culture

The most explored design lines can be summarized in three attitudes (fig.4).

The first focuses on the material cycles coming from the territory, where waste and residues can give new life cycle including the original context they were produced from. The interesting projects exhibited at Ventura during Milan Design Week 2016 explored the tactile sensations transmitted by materials produced by reusing unsold milk waste and pine needles, both considered waste and re-evaluated in a new perspective.

The second one looks at techniques and manufacturing processes that are reinterpreted with freshness and respect: Roberto Sironi, for example, wins the Compasso d'Oro with the project Madre Pane revisiting the moulds of Matera to mark the bread with a symbol and bake it in the municipal ovens. Formafantasma's Autarchy is a tribute to simplicity and everyday life, with a collection of containers, vases and lamps dried naturally or cooked at low temperature, with a bio-material composed of sorghum flour, agricultural waste and natural lime.

The third one evokes rituals and traditions by the narrative component, like 'Furniture' designed by Sovrappensiero: a project to rebalance the relationship between the global and local inspiration of the product and the link between products and buyers.

These are a series of incomplete objects, aesthetically anonymous and stateless, but custodians of functional intelligence, which can be activated by users through the addition of natural elements found in a specific place and chosen according to their tastes, needs and link with the territory.

Antonio Aricò proposes the Calabrian identity elements in a puppet he calls Nirù, a small Moor in ebony holding an olive branch in brass, with a purple cloak and a blue velvet skirt evoking the Mediterranean. These project lines are traces for the development of projects that will take part in the exhibition 'On the footsteps of the shepherds. Transhumance and Biodiversity in Liguria' which will open on 16th September 2020 in the State Archive of Genoa, organized inside the CamBIO VIA research programmes with the collaboration of the Department of Antiquities, Philosophy and History and the Department of

Architecture and Design

The exhibition will offer an opportunity to see a review of heterogeneous elements directly related to the world of transhumance, from iconographic to archival, botanical data, photographs, clothing, sculptures and tools, to retracing the signs left in the territories, in history, tradition and identity.

The historical section will be accompanied by experiments and reflections that can involve a broader system of relationships in which innovation of meaning and contemporary design reactivate the surviving cultural fragments of popular civilizations.

This contamination with the languages of modernity, in the respect of their cultural, historical and social derivations, can represent the multiple and molecular character of communities, as Ezio Manzini said (2018, p. 42).

The exhibition will host projects that work and relate the idea of nomadism typical of the shepherd with that of the contemporary nomad, thinking about solutions of clothing and accessories that become shelters, protections and devices for comfort. Besides, tools and elements of tradition and work will be rethought to give voice to the new generations that dedicate their lives to preserve these practices and others that reinterpret details or artefacts in a contemporary key.

Design can leverage its technical tools and meanings to give back to the contemporary an intercultural comparison through research and production of artefacts, to represent them both as still active elements and as parts of contemporary phenomena.

To make it possible, however, the design must not stop at the surface, formally reproducing a traditional project by updating it through a contemporary production process, but must have the ability to interpret it deeply, bringing to the surface above all its residual evocative capacity of identity links (Carullo, Labalestra, 2019).

The documentation and analysis of pre-industrial creative processes not only can give a key to historical interpretation, of a culture that is excluded from official history and that is on the way to extinction, but also reveals a little-known and forgotten creative capacity. In pre-capitalist culture, a field of activity don't isolate itself from the other. Each reality was totally integrated into a complex of material and immaterial, social and personal operations and activities. It is in this enormous heritage of knowledge that we can trace the direct relationship between man and nature, an activity in which design, construction of use and recycling coincide (Natalini et al., 1983).

Slow tourism experiences

"Until now it can be said that folklore has been mainly studied as a "picturesque" element [...]. It should be studied instead as a "conception of the world and life" of certain strata (determined in time and space) of society, in contrast (also mostly implicit, mechanical, objective) with the "official" conceptions of the world, that have followed one another in the historical development (Gramsci, 1948, 2014, p.2311). Gramsci's Folklore observations then require us not to deal with artefacts, but with contextual relationships: the texts we are used to considering as the raw materials of folklore are the only partial document of human behaviour that develops instead in depth (Bauman, 2001, p. 99).

The events related to transhumance, are part of an ephemeral heritage that stages the tradition and everyday life of the past to involve a wide audience in a process of emotional immersion that turns into knowledge and awareness.



Fig. 5 Transhumance day in Val d'Aveto, 27 October 2019, credits Matteo Paolillo

The aim is to organize the activities that enhance the tourist attraction of the parks by adding the experiential component linked to processes, the preparation of the second raw materials, the self-production, stories and rituals combined with cooking.

The offer would integrate the naturalistic and cultural fruition in what we define slow tourism.

Slow tourism promotes quality and experience by contrasting with mass, fast and consumer tourism which does not give value to the typicality of a place. Slow tourism becomes a further way to enhance the Italian territories less known by international tourism and sustainably relaunch them. It fosters innovative travel experiences, knowledge and discovery of organic and zero-km food, a propensity to authentic destinations where to live the authentic traditions and appreciate the synergies with the landscape.

This trend must be fostered by a networking of the already existing offers for the creation of thematic and adequately communicated itineraries through wayfinding projects in the affected area, but also by dissemination and promotion outside the local context.

This system also includes the calendars of heterogeneous festivals spread on territories and events that evoke past rituals and attract many visitors, who are often fascinated by the spectacle and pay little attention to the contemporary relevance and repercussions generated by tradition.

One of the most interesting Ligurian festivities is in Santo Stefano D'aveto (fig.5) conceived and organized by a local breeder Pietro Monteverde, who proposes the ceremony of the cattle return to the village in an adorned parade after the period of transhumance.

In this sense the community becomes the guardian, taking care of the protection of the seeds, the harvest, the agriculture, the breeding, also to protect rites and celebrations that we risk forgetting, but which are fundamental roots of our past.

Conclusion

Cambio Via proposes an action-research project: a methodology that combines - and then reworks - theoretical phases with those on field experimentations.

Theories, in action-research, are not independent assumptions that are applied to practice; they are validated through practice, they are carried out in a “real context” with a dual purpose: to improve the conditions of that particular context and to generate, at the same time, new scientific knowledge for the target community. It is a flexible methodology that often changes the program during the course of the work.

The action-research, born in the social sciences, looks at the processes of communication and socialization of knowledge between the actors involved in the project as very important. Due to its social character, action-research uses tools for the collection of qualitative information, that it analyses and eventually uses for experimentation. It is a cyclical process that starts with the definition of the problem(s) of the research and ends with a conclusive redefinition elaborated with the research process. (Villari 2005)

The Design approach deals with local development is certainly not new, it is a tested and open field since Miur MeDesign research (2004). With this research, as introduced in the text, we will experiment and apply actions and practices to contribute, with the actors of the territory, to bring back a value, a sense and a better quality of life to these territories viewed as minor, but rich in knowledge, stories, products to be enhanced.

Around the table of experts and communities, the designer sits down to listen and absorb the salient features of the technical processes to provide a transversal glue capable of collecting the uneven traces and to create a coherent and cross narrative plot able to give suggestions for the implementation of territorial policies.

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The paper is the joint reflection result of the two authors. Despite this, the paragraphs 'Introduction' and 'Food reposition' are to be attributed to Chiara Olivastri, while 'Material culture and artefacts', 'Slow tourism experience' and 'Final considerations' were elaborated by Raffaella Fagnoni.

Maps from public space to relational space

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Abstract

In the last 30 years the contemporary city has experienced fundamental changes associated with technological evolution and the digital/informational revolution.

The approach to a new conception of public space synthesizes this paradigm shift towards a new, more complex condition -multiple and multilevel- of the city.

From the traditional public space we have moved to a new relational space.

From the ancient representative dimension (figurative or evocative) to an interactive dimension. From one-dimensional drawing to a multidimensional conception. From the ancient vocation of public space as a fund for action to a new vocation of relational space as a virtual interface, active device and activator.

The growing development of new information technologies brings us exponentially closer to a reality recorded in a precise and immediate way, opening an immense repertoire of possibilities in the field of the combination of materiality, sociality and spatiality and information (tiona)lity, from a more efficient, responsible, convivial and qualitative mutual collaboration (in and with urban landscapes).

Abstract

Negli ultimi 30 anni la città contemporanea ha sperimentato cambiamenti fondamentali associati all'evoluzione tecnologica e la rivoluzione digitale/informazionale.

L'approccio ad una nuova concezione dello spazio pubblico sintetizza questo cambiamento di paradigmi verso una nuova condizione più complessa –multipla e multilivello– della città.

Dello spazio pubblico tradizionale siamo passati a un nuovo spazio relazionale.

Dell'antica dimensione rappresentativa (figurativa o evocativa) a una dimensione interattiva. Dal disegno unidimensionale a una concezione multidimensionale. Dell'antica vocazione dello spazio pubblico come un fondo per l'azione ad una nuova vocazione dello spazio relazionale come virtuale interface, dispositivo attivo e attivatore.

Il crescente sviluppo delle nuove tecnologie dell'informazione ci avvicina esponenzialmente a una realtà registrata in modo preciso e immediato, aprendo un immenso repertorio di possibilità nel campo della combinazione tra materialità, socialità e spazialità e informa(tiona)lità, da una collaborazione reciproca (in e con i paesaggi urbani) più efficiente, responsabile, conviviale e qualitativa.

Operative Landscapes

The Metapolis Dictionary of Advanced Architecture (Gausa-Guallart-Muller-Morales-Porras-Soriano, Actar Publishers 2003) provides a cryptic definition of the term Operative Landscapes:

Landscapes, operative : See 'lands 1: land-links', 'lands 2: land-arch' and 'lands 3: lands-in-lands'.¹

The terms land-links, land-arch and lands-in-lands defined a new territorial and urban multi-scalar conception of the landscape: hybrid, natural, and artificial, surpassing an attachment to the old notion of "gardening architecture."

The adjectival of the notion of "landscape" with the voice "operative" proposed a new vision for the traditional idea of the landscape, assimilating it to the concept of a "system": an operative system was conceived not only as an eco-structure, but also as an infra-structure, an intra-structure, a trans-structure and a processing urban-territorial "info-structure."

While the garden landscapes of the early twentieth century were designed as "pseudo-natures," the Terrains Vagues of the late twentieth century were conceived of as latent voids or plots, announcing a vocation as "city" or "urban places" (more than "augian non-places")². By comparison, the new operational landscapes of the late 1990s and 2000s sought to formulate new hybrid devices (urban-natural, geographical-territorial, social-environmental, dilated and dense, topological and topographic, etc.).

This new vocation of the landscape as an urban-territorial active agent was born alongside the pioneering digital revolution, and an understanding of the dynamic and uncertain dendritic geometries and patterns that conformed the cities themselves, including their "full-void-linked", occupational, interlaced and diffused structures.

The landscape as a new operational device was not yet the old residue of an essential and substantive full, but a new conjugative actor able to give a new type of elastic, cross-linkable and infiltrated order, reconfigurable and recyclable, reactive or reversible, in a city that had manifested its growing and fractal condition as a complex "system of systems," contingent and chaotic (in the most scientific sense of the term); multiple, heterogeneous, and undetermined.

The landscape, interpreted in an activist way, could become the real "building" of the new city: the structuring system of a possible multi-level order, more flexible and weighted, and no longer the "extra" possibility of the old planning.

The landscape was then, an open order capable of "meshing," relating and redirecting the casual, irregular and wild developments of current urban structures, generating more versatile—and non-imposing—relationship systems in resonance with the metropolitan dynamics themselves; their diffuse evolutions would tend to generate interstices, residual lands, border spaces or large omission reserves operating "in negative" and in implicit and subjacent matrix networks. That possibility, of course, had been favored by the transfer of a generation obsessed by the relationship between architecture and city (the city as a stable scenario, the result of the building) to another more sensitized by a new hybrid contract with a hybrid nature (artificial, functional, cross-bread or wild, rather than domestic and bucolic).

New dynamics between architecture, urbanism and landscape conformed a strange mixed vocabulary in

¹See M. Gausa, V. Guallart, W. Muller, J. Morales, F. Porras, F. Soriano, *The Metapolis Dictionary of Advanced Architecture*, Actar Publishers, New York-Barcelona, 2003

²With "augian" we are using a neologism from the Non-Places of Marc Augé. See M. Augé, *Non-Places: An Introduction to Anthropology of Supermodernity*, Le Seuil, Paris, 1992

which the action on the place would start from a new type of a-typologic contract between old taxonomic and divided categories, no longer continuing to create – as Le Corbusier signified – “beautiful volumes under the light” but rather, “ambiguous fields under the sky.”

Operational landscapes; relational enclaves capable of generating their own energy; informed fields within other reinforced fields (fig.1).



Fig. 1 Barcelona, Parc Agrari del Baix Llobregat, at Smart Agro-Parc: Mapping new territorial and informational strategies (Gausa+Raveau Arquitectura - Gic-Lab, 2014, F.Cicccone, I.Meta, V. Fonnesu, V. Croci, E. Toreia, A. Calabró, colls.). Activations of physical structures and thematic networks

From public space to digital space

Today, in the time of globalization, the way of representing public space is changing, or rather the potential of approaching these spaces is changing. New tools and new technologies make it possible to map and process data of people flows and more intangible or material data, such as weather events, urban mobility data, intangible data of users' expenditure. With all these data today it is possible to read differently the habits and customs of city dwellers and try to transfer them into a new vision of the space people live in. However, it is not always possible to transform this data into something directly connected to a space, we are not in conditions or spatial projects where data can automatically become a form or function as in the early nineties it started to happen with some architectural and spatial projects. These data are now much more complex, they work on very different layers, they talk about a multitude of information and even if we could select them we would have many layers of interpretation.

The digital age we live in is putting available a huge amount of data that we can use to improve the resilience of our cities and territories. The Big Data are in fact becoming a dominant theme, not only in the business world, but at every level of social organization, and in particular in the pursuit of environmental sustainability of cities of the future. The knowledge made available by processing big data, if properly used, will make us more responsive to change and able to adapt more quickly to the opportunities and pitfalls of the complex multi-experiential space in which we orient ourselves (fig2).

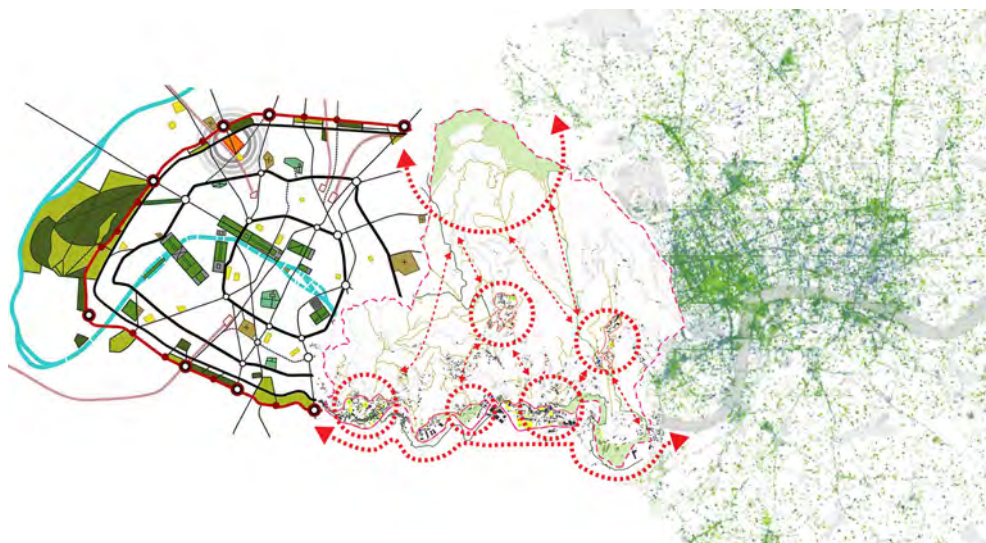


Fig.2 From map to maps a digital collage (Gausa+Raveau Arquitectura: Paris, périphérique(s), Go-Up: Moconesi PUC, Twitter: London data map)

The open data generated by social networks and platforms not only allowed a bottom-up urban planning, but also allowed to give voice to complex and interdisciplinary phenomena, such as migration phenomena. In this case, the social networks, healing the loss of a physical and emotional bond with their country of origin, have allowed the generation of millions of dates, while offering institutions and local governments the opportunity to closely understand the problems of an interdisciplinary, changing and complex phenomenon. Open data have offered answers and solutions, generating a new concept of “home” and “daily life”, have changed the geography of movements within the city, with the consequent birth of new traces and urban geographies. This is how social networks shorten distances: between citizens, and between them and the administration. This is a radical change of scenery: the citizen, from recipient and consumer of services, has become a co-designer of services, dialoguing more and more directly with the administration. For this reason, the observation of the psychological relationships and reactions of the community through the study of social networks is increasingly a marker for the purposes of community participation in the redesign of an urban space and context. By increasing transparency and the involvement of all stakeholders in public life, the potential of this tool as a symbol of democracy is thus confirmed.

The Network becomes the new urban agora, symbol of the nascent Open-source Urbanism. Through open data it is possible to co-design services with and for citizens, improving the quality of life of individuals and communities; observing the social dynamics of the physical, emotional and virtual tissues of urban space, promoting continuous interaction between permanent and temporary inhabitants, deepening the connections, discontinuities, relationships and syntaxes that are created within the city. The study of open data fosters the involvement and conscious growth of the community which, by developing public value through the regeneration of spaces and social regeneration, makes its way between regional policies in a fully active way by communicating to local bodies the identification of key issues to be addressed.

In the city of data the risk is to pass from a physical and relational space to a digital space.

From public space to relational space

One of the most celebrated clichés of recent Barcelona urban planning - and, at the same time, one of the most limited in its approach - has indeed been that of the treatment of public space.

If the definition of Barcelona's public space was to be based for many years on the subtle recreation of the old historical paradigms (the Piazza Italiana, the Rambla, the Boulevard, the Garden, etc.), it was to be based on the treatment of the public space.) as a typological and figurative, aesthetic and aesthetical vision of a civic space, conceived between the micro-monumental (a fixed and stabilised space, meticulously finished, by "compositively" designed) today this Platonic recreation of an idealised space, often supported by a hard design, The fact that the building is closed - that is to say, in an image that evokes the pseudo-Mediterranean plate - has ended up suffering, for the most part, from the effects of time and vandalism associated, often, with the limited capacity to ensure a vital, expressive, stimulating and pleasant scenario, open to active interaction with the users.

All the controversy - already somewhat distant in time - of the hard squares and the famous recovery of the "Mediterranean" space (recreated, in the case of Barcelona, through the protagonism of an essentially "paved" floor and the lyrical design of an atmosphere halfway between the scale of the domestic "living room" and the evocation of the "solid plate", of strong neo-traditional connotations) would lead to the systematic elimination - generally justified in terms of cleaning and maintenance factors, if not simple aesthetic "purity" - of any hint of gardening, flowerbeds or plantations that are not always of a good formal quality.

Today, however, new landscape and environmental formulations are required, as well as new spatial concepts that go beyond a form or design, correctly neat and elegant but finished in themselves, to entrust the idea of the collective to more open approaches, sensitive to change and interaction: generators of energy and activity.

In which the manipulation of the floor itself is combined with a new playful and experiential functionality. More than domestic rooms, it is about conceiving active landscapes. Multi-programmatic.

Generators of life and activity capable of combining direct, flexible, imaginative plastic expression with the decisive integration of facilities, whether stable or temporary, for leisure, shared sport, small cultural activities, associations and, in short, the projection of the citizen. But also sensitive to the capture of passive energies and their local reintegration in the form of lighting, irrigation, etc.

From the old public space we have to move to the relational space.

An active space that is representative; soft - yes, decidedly soft, that is to say, green, spongy, sensory, expressive, more than austere "hard"; not only conceived by "contemplation" and "representation" but for collective enjoyment and recreation.

That is, for authentic social exchange.

We must avoid the cliché that Barcelona does not like green.

From a hyper-constructed city we have to move on to a renaturalised city in terms of landscape; rearranged, re-spaced and collectively vital.

Both from the conception of this possible green scheme for the city and the Eixample, and from the rethinking of contemporary public space and its definition as a new relational space, we have sought to work on the proposals presented here.

The present study is intended as a corollary to some of the works aimed at deepening and completing some of the intuitions and/or arguments set out above, especially in the fields of conception and design of new spaces for coexistence associated with the generation (and/or regeneration) of new eco-efficient urban environments: the decisive importance of criteria linked to sustainability in the fields of planning,

construction and building and in those of the culture of a new information society and, therefore, of intelligent interaction with the environment - and between people - forces us to rethink, in effect, many of the traditional urban and town-planning parameters, notably with regard to the relationship between roads and conviviality, mobility and spatiality.

Several recent experiences and researches have shown this willingness to promote new models of coexistence and new qualitative and environmental proposals at different scales aimed at influencing the fields of urban planning and building and the conception of new/old spaces of relationship and activity beyond the traditional disciplinary inertias.

These initiatives have promoted a wide range of reference material, for study, debate and reflection in relation to issues of growing methodological importance.

In the area of a new urban eco-conception, the study *Cap a un Habitatge Sostenible* (CADS, Generalitat de Catalunya, 2009-2011) recently proposed several measures among which it is worth highlighting, in reference to the work that concerns us here:

- In the area of mobility and viability: to favour integrated mobility models based on weighted parameters of accessibility, proximity and urban (inter)connectivity, supporting collective transport and its intermodality, reorganising and limiting (without collapsing) the use of the car in the city centre and recovering spaces for life, recreation and relations, foreseeing the intentional conception of green networks, pedestrian networks and/or the generation of specific circuits of urban and/or landscape quality.

- In the field of the relationship with the environment, the context and the landscape: to favour processes of qualitative interaction / integration, favouring correct equations between built spaces and free spaces (empty and full, volumetries and surfaces), integrating landscape architecture into planning, proposing parameters of synergy with the environment (stairs, visual rhythms, textures, etc.) incorporating possible pre-existing assets (heritage, landscape, anthropological, archaeological, historical, sensory, etc.).

- In the area of social interaction and citizen participation: to ensure an adequate social dimension so that the urban project is socially experienced (and valued) based on the creation of collective spaces of relationship, coexistence and mixicity, favouring programmatic, social and functional mixicity, combining residential spaces with productive and leisure spaces, proposing new facilities for social and cultural meetings as well as the creation of new networks of public spaces with an active and relational vocation (sports, leisure, educational, etc.). Encouraging a new generation of playful spaces for children and adults, integrated into a landscape and global concept of public space, promoting eco-efficient solutions in material and constructive designs, at all levels.

The theme of the relational or convivial city raises, then, that transfer of the old public space, representative or univocal, to the current relational space, more multifaceted, interactive and ambivalent. The analysis of this transfer is basic today to facilitate the generation of new eco-environments not only proposed from normative or technological tools but, mainly, from the conjugation of a new type of scenarios of social, landscaping and environmental interaction but, also, cultural and creative (fig 3)



Fig.3 Barcelona Eixample-New Multistring Green Centrality. (Gausa + Raveau actarquitectura, Gic-Lab, 2011), basic mesh of limited traffic and recovery of the green central rope strip, detail of the strategic map and the model (MAXXI Rome- 2011)

Performing Systems

Today, at the beginning of the 21st century, the combination INTERACTION + INFORMATION is assumed as the great space-cultural revolution of our new era. For many of the new actors implicated in these dilated processes of research, what was happening during the transfer of centuries was the pioneer explosion of a new “operational logic,” definitely innovative in its own idea of order, form, geometry and materialization or organization. A relational logic associated with the assumption of the complexity, the transversality, and the capacity for interaction between dynamic conditions and evolutionary processes, are called to create intersections, encounters, hybridizations, mixtures and interchanges³ not as mere “compositional” episodes, but as adaptable and strategic-tactical systemic “devices” destined to combine, from simultaneous global dynamics and local information⁴.

If the strength of the iconic event-element would continue to still be present in the urban cultures of the beginning of the century, in the most symptomatic research this eventual condition was combined with a clear vocation of multi-scalar transfers and interactions between places, times, programs, users, activities and spaces, aimed at generating relational environments rather than simple design objects⁵.

In the twenty years after the first pioneering insights of the 1990s, the first decades of the new century have experimented the exponential development of new technologies, opening up a new era of ever more ubiquitous and increased capabilities. The emergence of the digital and informational universe of networked exchanges, parametric conceptions, digital and differential fabrications, environmental sensorizations and online applications coincide with the appearance of new generations of actors more familiar with the premises of a new space-time-information logic⁶.

³See F. Asher, *Métropoles ou l'Avenir des villes*, Odile Jacob, Paris, 1995

⁴See M.Gausa, *Open-Espacio-Tiempo-Información*, Actar Publishers, New York-Barcelona, 2010

⁵See chapters 4, 5, 6 and 9 M.Gausa, *Open-Espacio-Tiempo-Información*, Actar Publishers, New York-Barcelona, 2010.

⁶See M.Gausa, *City Sense: Territorializing Information* in “V.V.A.A.: City Sense, 4th Advanced Architecture Contest”, Actar – IAAC, Barcelona, 2015

In the second decade of the 21st century, the first multi-scalar (and a-scalar) complex and transferring operations combined with a new type of more reactive and responsive, synergic and empathic (“natural” and spontaneous) approach capable to combine not only “sense and sensitivity”, but, also “sensorization” and “sensibilization.”

In the exploration of this new advanced logic of information and interaction, the pioneering architecture of simultaneity has given way to the architecture of instantaneity: an architecture of direct responses, of the moment rather than of the “monument” (the object-event) that seems to want to combine a new “common logic” (active and activist, optimized or simply positive) generated, on the whole, beyond the “exceptional.”

We are talking about an architecture correlated with a new sociocultural eco-mediation, in which the natural and technological, sophisticated and spontaneous are conjugated, combining (beyond aesthetic prejudices or stylistic filters) the optimization of the “simply necessary” with a responsive and responsible vocation, without linguistic claims or conventional aesthetic strains.

Many of the most innovative and “common” architectures that occur today tend to make prevail the efficient management of information (in all senses, data, indicators, programs, conditions) and its immediate optimized “formulation/resolution/translation” in possible efficient and synthesized scenarios (more spontaneous or more sophisticated, more “parametric” or more “filio-ethic”). The appearance of a new type of social-environmental sensitivity and direct action linked to an architecture of the immediate, the instantaneous, the imposterable (unpostponed), connected to the force de frappe of the active and the activist, is marking the interest of new generations, involved with this performative and collective sensibility (and the lesson of the Latin American and Hispanic experiences - from Madrid to Quito, from Caracas to Medellín – are, in this sense, absolutely explicit and decisive).

Boarding approaches generated by “performative devices,” (strategic deployments or “tactic guerrillas”, without rhetoric or spectacular gestures, but with a strong sense of commitment and of engagement) these dynamics provide solutions with imagination, fantasy and intensity; proposals generated beyond typological standards or conventions.

The exploration of a new positive mediation (synergistic) to define our habitats, as well as a new sensitive interaction (empathic or eco-empathic) to deal with increasingly social complex scenarios, marks many of the essays produced today, in a time associated with global deficit situations related to conflicts and multiple threats linked to critical geopolitical (and geo-economic) oscillations. These are also, of course, related to climate changes that have devastating effects on the most vulnerable populations (risks, environmental problems, housing deficits, pollution, ghettoization, increase of poverty thresholds, etc.).*

New formulations in/with a milieu and in/with a reality not only distributed but also augmented in its own capacities of co(II/nn)ective hyper-connection and sensorization, capable to combine social and technological conditions, through more performing systems (and/or landscapes) oriented to favor augmented an enjoying dynamic relations between citizens and environments, settlements and statements.

This direct, precise, dynamic and “instantaneous” urban-answering (where the old systemic definition of the fixed “element” gives often way to a new epistemic condition of a real-time “moment”) continues to call, today, to the abilities of design but, above all, to the search of new shared informational/convivial processes, encouraging – incontestably – land-system-spaces definitely associated with the assumption of a new eco-medium and a new eco-mediation; spaces destined to exponentially expand this potential of exchange between conditions and situations, information(s) and solicitations, in the form of different

formats, trajectories and variable contexts.

The increasing development of the new information technologies brings us exponentially closer to a reality recorded in a precise and immediate way, opening up an immense repertoire of possibilities in the field of the combination between materiality, sociality and spatiality and informa(tiona)lity, from a mutual collaboration (in and with the urban landscapes) that is more efficient, responsible, convivial and qualitative.

Hence, the concept of interaction (of a positive exchange between environment, society and information) gains importance in relation to a more sustainable new development, not only as an ethical and socio-economic responsibility but also as a coherent consequence of these cultural-informational/relational revolution, today in course⁹.

⁹See A. Barricco, *The Game*, Einaudi, Torino, 2018

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Slow tourism weaves crafts and tells the story of the identity of the territories

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Abstract

The contribution aims to analyze the contribution that design can give to the promotion of territorial identities related to the current theme of slow tourism. Italy, in fact, in addition to the great routes that every year register thousands of tourists, boasts a large network of minor itineraries that cross almost unknown territories and embrace semi-forgotten traditions and crafts. These are unique realities, not contaminated by tourism, imbued with a cultural heritage ready to be discovered and enhanced. In this panorama, designers play a role of fundamental importance for the creation of new opportunities aimed at enhancing the stories, traditions and areas by creating concrete opportunities and experiences aimed at changing user behavior. Stefano Follesa in his text "Design & identity. Designing for places" hopes for the development of a strategy focused on returning to places and promoting all those differences that represent an element of recognition for our country worldwide. To make this happen it is attractive to invest in the cultural and artistic background which often appears hidden and difficult to grasp, but which has a lot to tell and allows the development of new languages and expressions of doing. In the final part of the content, some strategic lines are outlined in terms of design and enhancement, aimed at meeting today's challenges through the creation of collaborative and strategic networks between institutions, designers and territorial realities.

Abstract

Il contributo mira ad analizzare l'apporto che il design può dare alla promozione delle identità territoriali poste in relazione con l'attuale tema del turismo lento. L'Italia, infatti, oltre alle grandi vie che ogni anno registrano migliaia di turisti, vanta un'ampia rete di itinerari minori che attraversano territori quasi sconosciuti e abbracciano tradizioni e mestieri semi-dimenticati. Si tratta di realtà uniche, non contaminate dal turismo, intrise di un patrimonio culturale pronto ad essere scoperto e valorizzato. In questo panorama i designer esercitano un ruolo di fondamentale importanza per la creazione di nuove opportunità tese a valorizzare le storie, le tradizioni e gli ambiti creando opportunità concrete ed esperienze mirate a cambiare il comportamento degli utenti. Stefano Follesa, nel suo testo "Design & identità. Progettare per i luoghi", auspica allo sviluppo di una strategia incentrata sul ritorno ai luoghi e sulla promozione delle diversità che rappresentano per il nostro Paese un elemento di riconoscibilità in tutto il mondo. Per far sì che ciò accada, risulta attraente investire nel background culturale e artistico che spesso appare celato e difficile da afferrare, ma che ha molto da raccontare e consente lo sviluppo

di nuovi linguaggi ed espressioni del fare. Nella parte finale del contenuto sono tracciate alcune linee strategiche in tema di progettazione e valorizzazione, volte a raccogliere le sfide odierne attraverso la creazione di reti collaborative e strategiche tra istituzioni, progettisti e realtà territoriali.

Introduction



Fig. 1 Bernardo Bellotto (il Canaletto), Capriccio Romano, oil painting, 1742-1747. The work is kept at the National Gallery of Parma

The study trips made by the sons and daughters of the wealthiest families with the aim of increasing their culture date back to the Middle Ages. In that historical moment the opportunity to move to other cities to immerse oneself in different realities was an ambitious and concrete way to lay the foundations of prestigious careers and pursue the dream of holding important public offices. The foundations of what were later called the Grand Tour in the 18th century can be traced back to that period. The wish to explore the history read in books and the curiosity to enjoy the places and the legacy left by the great civilizations of the past, pushed travellers to set off. But to talk about tourism, we have to wait until the first half of 1800, when the first travel agency in the world was founded in England. In Italy 1919 marked the birth of the National Tourist Board and the following year the Italian Tourism Company was inaugurated *Compagnia italiana del turismo*¹.

At the end of the Second World War the spread of travel grows, and the peninsula is a very popular destination for tourists from all over the world and in 1970 the World Tourism Organization sees it in first place with more than 290,000 admissions in a year². In the following years the concept of “holiday”, practiced especially in summer, became widespread, embodying the sense of belonging to a privileged lifestyle and pushing families to move towards the sea, in the cities of art, on the hills or in the mountains. Then, continuing on the red line of time, you can trace the advent of organized holidays and, at the end of the 90's, the self-organized journey. Taking a step back and dwelling on the evolution that has involved the sector, a conceptual parallelism between the Grand Tour and contemporary cultural tourism comes to mind. At the end of 2018, MiBACT's³ proposal was born to set up a year dedicated to slow tourism, with the aim of enhancing the lesser known areas, promoting travel experiences far from the frenzy, designed to be lived with peace of mind and with a careful respect for the environment. Nature walks, horseback riding tours within the walls of ancient villages, food and wine tours in uncontaminated areas, represent some examples of approach that can be adopted for the (re)discovery of rural scenarios. A logic that highlights the social actors, the logics that have stratified over time and the interweaving of physical and virtual spaces. In this panorama, designers play a role of fundamental importance for the creation of new opportunities aimed at enhancing stories, traditions and environments, creating concrete opportunities and experiences for the users' fruition.

Methodology

In the scenario described, the designers are called, in the first place, to elaborate new strategies and communication methods aimed at protecting and enhancing the network of minor routes that cross Italy preserving semi-forgotten knowledge and traditions. It takes into consideration that set of exclusive realities, not mapped by tourist guides, steeped in a cultural heritage that lends itself to be reinterpreted and enhanced. The search for places and traces that belong to the collective identity fuels a deep and growing interest in the exploration and re-appropriation of memories, architecture, artistic and craft objects, as well as the most sedimentary traditions, which represent a glue between past and future and

¹ *Compagnia Italiana del Turismo S.p.A.* was an Italian company operating in the tourism sector. Established in 1927, it was founded with the aim of promoting Italy as an international tourism destination and organizing the tourism of Italians abroad. (source: www.wikipedia.org)

² Official data UNWTO (World Tourism Organisation): specialised United Nations agency based in Madrid that deals with the coordination of tourism policies and promotes the development of responsible and sustainable tourism. (source: www.unwto.org)

³ MiBACT is the Ministry of the Government of the Italian Republic responsible for the protection of culture, entertainment, and the preservation of the artistic and cultural heritage and landscape (source: www.beniculturali.it).

embody the chronology of the territories. Geographies play a strategic role, becoming indispensable vectors for the study and system of cultural deposits. Stefano Follesa, in his text *Design & identità. Progettare per i luoghi*⁴, he hopes for the development of a strategy focused on the promotion of diversities that represent for Italy a strong element of recognition throughout the world. A set of products and places that, thanks to their cultural, geographical and material characteristics, have fed the peculiarities that have been consolidated over time over the course of history. In order to make this happen, it is attractive (and appropriate) to invest in the cultural and artistic background that often appears hidden and difficult to grasp can allow the development of new languages and expressions of doing. It is possible to observe the emergence of a new perspective, which does not clash with industrial design, nor with modern digital technologies and which can be found in the book *Futuro Artigiano* di Stefano Micelli⁵. The author fits into the folds of these themes with an eye towards the Italian productive reality and a clear reference to the evolution that has involved the design world in the last decade. The Italian industries that are most successful in the world every day are mainly linked to material culture, which still has its roots in ancient crafts that have been modernized by a new attitude and a contemporary narrative ability. In recent years an ethical and aesthetic sensitivity has spread. This makes the concept of craft become contemporary and attractive and re-actualizes it in the light of an art of work that continues to update and that puts emphasis on the relationship between objects and places. «It is not the craft we must pursue, but the profile and characteristics of the artisan: his passion for the quality of work, his desire for improvement in the exercise and deepening of techniques, his rootedness in the community of socially recognized practices». These are the words of Richard Sennet, professor of sociology at the London School of Economics and New York University, taken from his essay *L'uomo artigiano*⁶. In the text, the author focuses on the importance of knowing how to make the objects of everyday life well, fully satisfying one's personal pleasure and harmoniously combining the refinement of the mind with the precision of the hand, so that real practices can meet thought. In this regard, a considerable contribution on the subject should be recognized to Ugo La Pietra, who in 1995 dedicated the first overview of the discipline that is internationally known as craft and is not recognized enough in our country. The event, hosted by the Milan Triennale and named "Fatto ad Arte" (Made to Art), involves scholars and design historians with the aim of drawing attention to the culture of making and starting the exploration of that thematic area which does not coincide with art, is far from industrial design and cannot be assimilated to traditional artistic craftsmanship. The need that is slowly spreading is not born from a nostalgic drive, but from the desire to study new languages, tools and methodologies aimed at enhancing, consolidating and promoting the prerogatives that characterize the different geographical areas of Italy. It is, in fact, the continuation of a process that was triggered as early as the mid-sixties, by some designers, including La Pietra himself, who began to question the evolutionary history of things and developments in design. In the following years, in 1973, Archizoom Associati, Remo Buti, Casabella, Riccardo Dalisi, Ugo La Pietra, 9999, Gaetano Pesce, Gianni Pettena, Rassegna, Ettore Sottsass Jr, Superstudio, Ufo and Zzggurat, presented in Florence the Global Tools

⁴ Stefano Follesa professor at the University of Florence/Faculty of Architecture and the Free Academy of Fine Arts Florence, in 2014 publishes the text *Design e identità. Progettare per i luoghi*, published by Franco Angeli Edizioni.

⁵ Stefano Micelli is Professor of Economics and Business Management at Ca' Foscari University in Venice. For several years he has been studying the transformation of the Italian industrial system and is author of several articles and volumes. With Marsilio in 2011 he published *Futuro Artigiano. L'innovazione nelle mani degli artigiani*, winner of various awards, including the ADI Compasso d'Oro in 2014.

⁶ Richard Sennet, professor of sociology at the London School of Economics and New York University, is the author of the book *L'uomo artigiano*, published in 2008 by Feltrinelli.

movement, a system of laboratories designed to encourage the use of natural techniques and materials. Today we can compare this establishment to modern Fab labs, the same ones that are mentioned by Giuliano Da Empoli in his text *Contro gli specialisti. La rivincita dell'umanesimo*⁷, The revenge of humanism, within which the author focuses on the change of direction that has affected progress and new ways of approaching design. Today a generation that breaks down barriers between disciplines and identifies new points of innovation in the boundaries returns to the fore. According to La Pietra, today's society appears increasingly shattered for ethnic, cultural and economic reasons. It is necessary to avoid marginalization by doing ways of exalting one's own being in relation to material culture and the desire for improvement. These are the motivations that can push the younger generations to get closer to the manufacturing workshops and it is also the same feelings that have always induced craftsmen to try, make mistakes and try again. A positive push towards the creation of products that are beautiful, effective, satisfying and (above all) made with love. In this scenario, the aim of the survey is to strengthen and make more fluid the links between the world of craftsmanship and the design system, starting a process of sharing know-how aimed at the strategic development of the management process of goods. This takes place within a context that sees the figure of the designer becoming more and more deeply established in the study and design of services and infrastructures aimed at the implementation of itineraries and cultural events. In the university system, for example, there are many researches focused on the theme and an important example can be represented by the Manufatto project, a set of experiences implemented by the University of Turin and promoted by the Piedmont Region, in the years 2006/2008. The objective of the project, curated by Claudia De Giorgi and Claudio Germak, is the promotion of local production systems and the definition of strategies for the relaunch of the territory. On a national scale, on the other hand, it is impossible not to mention the project Borghi più belli d'Italia, founded by the National Association of Italian Municipalities, with the aim of bringing together small villages of historical, artistic, cultural and environmental value within a single major brand of recognition. But the evaluation of quality also looks at the structural endowment offered, to welcome visitors and to enhance the resources. Borrowing the considerations of Eleonora Lupo, taken from her publication *Il design per i beni culturali*⁸, it is possible to notice among the folds of contemporary design a peculiar attitude to the specialized-strategic development of the sphere not only of design, but also of management and systemic. «The job that young designers will do is only partly linked to the product project but will mainly refer to the profile of the art director, the strategic consultant, the communicator, the promoter, the researcher». These are the words of Andrea Branzi, taken from the conference *Sette gradi separazione* within the exhibition *The New Italian Design. Il paesaggio mobile del nuovo design italiano*⁹.

⁷ Giuliano Da Empoli, italian essayist, president of the think tank Volta and editorialist at Il Messaggero, in 2013 publish with Marsilio the volume *Contro gli specialisti. La rivincita dell'umanesimo*.

⁸ Eleonora Lupo, Professor at the Politecnico di Milano, in 2009 he published with Franco Angeli the volume *Il design per i beni culturali. Pratiche e processi innovativi di valorizzazione*.

⁹ The Triennale Design Museum in Milano in the year 2007 hosts the exhibition *New italian design. Il paesaggio mobile del nuovo design italiano*, direct by Andrea Branzi.

Conclusion

Starting from what we have said so far, it may be interesting to invest in the relationship between the digital society, manufacturing excellence and the Italian hospitality system, tracing and knotting new policies, and forging a cultural movement that devotes more attention to small areas and connect them with a dynamic and effective tourism network. Italy's historical roots are based on a symbiotic relationship with the territory and this peculiarity, which for many years has been put aside, can now be stimulated to create continuity. Tourism is carefully observing the new changes and some regions are already working in this direction, promoting experiences and activities that fully embrace the desire for knowledge of the territory and its customs. The re-appropriation of the social sphere based on manual skills consolidated with experience, the cultured use of materials and the preservation of traditions, can allow Italy to create an inclusive system that is extremely attractive for the revival of internal areas and local microeconomies. In this panorama the role of design is strategic, because through the skills of designers it is possible to structure a plan of effective connections, aimed at the growth of a system that can allow the peninsula to be a forerunner and make its salient features the starting point for a new future. «Experience design, that is the applied methodology that combines architecture, design, new technologies, can allow us to enhance the emotional and sensory flow that comes from any testimony or evocation of our culture and our territory, and can be the technique through which to trigger a virtuous process of recovery, protection, enhancement, dissemination and projection into the future of our immense heritage », these are the words of Claudio Scajola, taken from the book *(Re)design del territorio. Design e nuove tecnologie per lo sviluppo economico dei beni culturali*¹⁰.

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¹⁰ Il libro *(Re)design del territorio. Design e nuove tecnologie per lo sviluppo economico dei beni culturali* incentra il suo focus sull'importanza che ricopre il ruolo del design e delle nuove tecnologie nella valorizzazione culturale e creativa del Made in Italy.

The perception of rivers in dense urban areas

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Abstract

The relationship between city and water, especially between city and river is often a frontal, dialectical, relationship along the bank. City on one side, river on the other. Dry land versus water, anthropic world versus nature.

It is relatively frequent practice to highlight the need for a less rigidly protective transition space, which undermines the stability of the banks, in favor of greater flexibility of border spaces and greater dynamism. These operations are successfully carried out in delta cities such as Rotterdam, with the development, for example, of programs such as “The river as a tidal park”. These strategies are not always possible, especially in highly urbanized contexts, where the integration of river and urban systems must often start again from the educational and perceptive aspect. The contribution proposes a reflection on the perception of watercourses within urban areas, focusing on the need for greater awareness of citizenship of the presence of the river ecological system. The anthropocentric interpretation of connectivity between city and river, and how cities interact with waterways, does not coincide with the values of ecological connectivity. There is therefore the need to find a new way of communicating and understanding these values too. This attention helps inhabitants to be aware of the presence of the river as a complex ecological system; to be aware of both the human impact on the ecosystem and the risks associated with the presence of the river itself.

Abstract

La relazione fra città e acqua, soprattutto fra città e fiume, è spesso ridotta a un confronto frontale, dialettico, lungo la linea d'argine. Città da un lato, fiume dall'altra. Terra ferma versus acqua, mondo antropico versus natura.

È ormai pratica relativamente frequente evidenziare la necessità di uno spazio di transizione meno rigidamente protettivo, che metta in crisi la stabilità degli argini, a favore di una maggiore flessibilità degli spazi di confine e di un maggiore dinamismo. Tali operazioni sono portate avanti con successo in città-delta come Rotterdam, con lo sviluppo, ad esempio, di programmi quali “The river as a tidal park”. Non sempre queste strategie sono applicabili, soprattutto in contesti fortemente urbanizzati, dove l'integrazione dei sistemi fluviale ed urbano deve spesso ripartire dall'aspetto educativo, e percettivo.

Il contributo propone una riflessione sulla percezione dei corsi d'acqua all'interno delle aree urbane, focalizzandosi sulla necessità di maggiore consapevolezza della cittadinanza della presenza del sistema ecologico fluviale.

L'interpretazione antropocentrica della connettività fra città e fiume, e di come le città interagiscano con i corsi d'acqua, non coincide con i valori di connettività ecologica. Vi è allora la necessità di trovare un nuovo modo di comunicare e comprendere anche questi valori, perché gli abitanti siano coscienti della presenza del fiume come complesso sistema ecologico; siano consapevoli sia dell'impatto umano sull'ecosistema, sia dei rischi legati alla presenza del fiume stesso.

Introduction

Dilip da Cunha, in the book "The invention of rivers", claims the non-existence of rivers. What exists are, however, the territories of water, unstable situations produced by the relationships between the bodies of water and the soils where they spread out (Cunha, 2018). If in nature the boundary between running water and dry land is unstable, the rivers then appeared with the drawing of two parallel lines on the maps that delimit that margin. Cunha questions about the origin of rivers, as a conceptual category first, and then geographical and cartographic; he identifies them as human simplification, cultural and then spatial construction of the frontier between water and earth (Cunha, 2018).

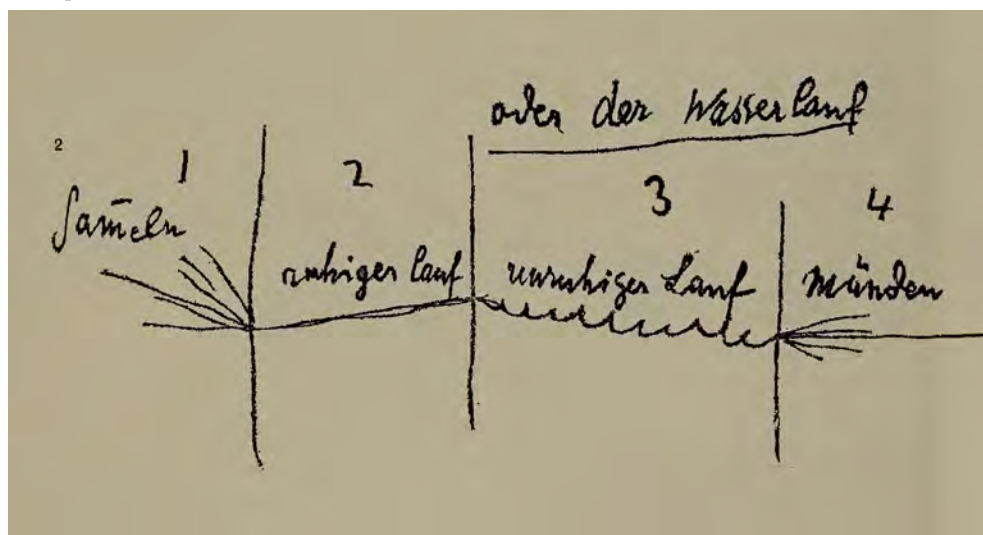


Fig. 1 (1. Aggregation, 2. Quite course, 3. Un-quiet course, 4. Mouth) "By expanding the conceptual field, I create a higher whole that may be perceived. I set new and farther limits to representation [...]". Water Course drawing from Paul Klee Notebooks, Vol2. *The Nature of Nature*. New York: George Wittenborn, 1964, p.75, New York

Annalisa Metta, reflecting on the words of Cunha, reports how the act of separation and regimentation reduces the wealth of opportunities that reside in overlapping and comparison; the areas in balance are the most fertile and vital. She says that the only remedy to prevent the effect of floods is to undermine the rigidity of the banks, which overlap a fixed geometry to geographies with intrinsic instability. (Metta, 2017).

On a global scale, in the last twenty years, there has been a change of approach, from the previous single built engineering solutions, toward a more multifaceted approach, which integrates with the

previous, wider, adaptive and resilient territorial strategies. (O'Neill, Brereton, Shahumyan, Clinch, 2016). Berruti and Moccia (2016) evidence the necessity to design dynamic landscapes that consider variable features over time, related to climate conditions, temporality and seasonality; they also wonder how to redesign the borders between spaces able to adapt to the presence of water and rigid spaces, that will not change over time.

These solutions, focused on the redesign and renaturalization of river banks, to be effective also as a not artificial response to flood risk, includes a wider approach to stormwater management in the urban fabric, and Nature-Based Solution to increase soil permeability (Berruti, Moccia, 2016).

Rivers are fundamental natural corridors that connects the patches of the landscape mosaic (Ingramo, Voghera, 2016), but they are also places where the effects of climate change are increasing the conflicts between the natural dynamics of the water ecosystem and the city; it is in this context that the urban and landscape design of the last twenty years operated, shifting its attention towards a more adaptative design (Sendzimir et al. 2007).

Experience with increasing flood episode, in Europe, led to the introduction of European Floods Directive¹¹, entered into force on November 2007, requiring the establishment of flood-risk management plans at the river-basin scale and reinforcing the rights of the citizens to access information and being part of the planning process. Before the Flood Directive, the European directive 2000/60/CE¹² (Water Framework Directive), that, beside all the guidelines, required the classification of waterbodies into types (based on geographical, climatic and geological descriptors) set an essential focus on water quality, to avoid deterioration and, if possible, to improve all kind of waters in Europe.

"Cultural requirements and natural properties meet directly at riversides in urban areas." URBEM, 2004.

The URBEM project (Urban River Basin Enhancement Methods¹³) evidenced the need of knowledge of the interrelations between urban conditions and the state of waters and its management, for a sustainable development; it also highlighted the importance of this interrelation in nations where much of the population live in cities and towns. In the same project a particular attention is given to the word enhancement, preferred to the word restoration, for her wider viewpoint, that includes the social, economic and aesthetic properties; moreover, restoration to a natural condition is not always possible in urbanized areas. Water rehabilitations that involves cultural approach, as well as ecological issues in urban areas, considering social, economic and aesthetic aspects, need the participation of all stakeholders to ensure public acceptance of river enhancement and population awareness (Cengiz, 2013).

The integration processes of watercourses and urban areas, in the direction of greater resilience and mutual adaptability, are long and complex paths, which are particularly successful when approach before the civitas and then act on the urbs, using a wider speculative approach that includes the sensibilization of awareness in citizens about the river dynamics and ecosystem.

Fundamental, in these multi-scalar strategies within different urban and territorial systems, can be the studies on the perception of the river and the flood-risk perception of the citizens.

¹¹ The Directive 2007/60/EC, on the assessment and management of flood risks, can be consulted at: https://ec.europa.eu/environment/water/flood_risk/

¹² The WFD Directive 2000/60/CE, (Water Framework Directive) can be consulted at: https://ec.europa.eu/environment/water/water-framework/index_en.html

¹³ All the reports are available at: <http://www.urbem.net/>

In heavily populated urban contexts in which, for the widely consolidated urban fabric, it is difficult to undermine the rigidity of the banks, as Metta suggests (2017), it is even more important to develop and study projects that improve the perception of the river ecosystem and processes.

The contribution proposes a reflection on the perception of watercourses within urban areas, focusing on the need for greater awareness of citizenship of the presence of the river ecological system, presenting four cases where the projects use the perception to improve the territorial identity and awareness.

Methodology

Toward a common ground connectivity

Rachel May (2006), studying urban rivers, investigates one of the terms most frequently used: “connectivity”. She reported that the use of this word has different and often conflictual connotations, depending if used in the context of urban waterfront planning or river ecology. While in the first case the term indicates the effort to integrate the life of the city with its riverfront, from the ecology point of view, the term connectivity represents an important indicator of the health of river ecosystems referred to biological diversity. The two use are, for different aspects, conflictual and really difficult to combine. May explores the possibilities to find common ground between them through what she defines a “cognitive connectivity,” referring to “educational interventions that allow urban dwellers to experience their place in the urban watershed in ways that do not jeopardize its ecological systems” (May, 2006, 487). She recognizes, eventually, the need of a new way of communicating and understanding the values of ecological and hydrological connectivity, in order to integrate it in our ideas of how cities engage with rivers.

“In the end every time we visit a place, we bring with us this freight of the already experienced and already seen, but the effort that we find ourselves having to make everyday is that of finding a way of looking that sweeps away habit; not so much in order to see with different eyes as because of the need to get our bearings all over again in space and time.”

Luigi Ghirri, *Paesaggio italiano*, Italian landscape, 1989.

Ecologically designed urban projects should not hide their nature but be themselves the message for sustainable behaviour; implemented in partnership with ecological education efforts they can create cultural meanings and ecological values that results fundamentally local (Eisenstein, 2001).

Four cases are presented below which, although very different from each other, are brought together by the construction of a territorial identity through a process of perception and awareness of the river, its nature and the risks associated with it.

Living Water Garden, Chengdu, China: an “Eco-revelatory” design.

In Chengdu, in the Sichuan province of China, between 1996 and 1998, a water quality education park has been realised. The project developed a surface of 2.4 ha public park, along the Fu and Nan, rivers that have been central to the culture of the city but are also severely compromised by industrial pollution (France, 2005).

The park was designed by the environmental artist Betsy Damon, with the landscape architect Margie Ruddick, and built in the framework of The Chengdu Fu & Nan Rivers Comprehensive Revitalization Project, a five-year plan to rebuild Chengdu’s infrastructure to support its growing population for the following 200 years. Not only the design of the Living Water Garden was an opportunity to build an entire urban park focused on water, but it is also a fully functioning water treatment plant: every day 200 cubic meters of polluted water, coming from the river, are cleaned (enough to be drinkable) moving through the natural treatment system. Of course, the amount of water treated is not enough to affect the

water quality of all the river, but the aim of the project was to show possibilities, to teach and to restore a lost perception of the water dynamics¹⁴.

The park is composed by pedestrian paths through wetlands, stepped areas along the river bank, flow forms that aerate water, and sculptures, marking the stages of the natural water cleaning process.

All the forms and parts of the project let visitors experience water, get close, witness the whole complex process. This sense of wholeness, according to the non-profit organization Keepers of the Waters, which Damon was one of directors, is key for the public to experience “living water” and the complexity of the role of water in our lives and in the cities¹⁵.

This project introduces together simultaneously reveal, restore, and preserve water systems letting communities reconnect with water. An important role in the process was held by the cooperation of artist, scientists and communities, together to create a project that is fully integrated in the local culture (France, 2005).



Fig. 2 Children playing at Living Water Garden. Author: Elizabeth Damon, Keepers of the Waters

¹⁴ China – The Living Water Garden, Chengdu City, Sichuan Province, Project 1995 – 1999, Betsy Damon.
Source available at: <http://flowform.info/projects/the-living-water-garden/>

¹⁵ Keepers of the Waters, Visions and Solutions. Model projects—living water garden.
Source available at: <https://www.keepersofthewaters.org/living-water-garden>

The role of risk perception and citizens awareness in the metropolitan area of Nice

Nice, with a population of 350,000 inhabitants, is the fifth largest city in France. Located in the Region of Provence-Alpes-Côte-d'Azur, it is part of the "Rhône Méditerranée" basin district, and it is characterized by typically Mediterranean geographical and climatic features (Meeres, 2013). Due to the morphological and climatic aspects the metropolitan area of Nice is a highly exposed territory to natural risks, such as flooding, forest fires, earthquake, landslides and aversive meteorological events. The main risk is related to the floods of the rivers Var and Paillon, which have the typical Mediterranean flooding profiles, characterised by flash floods, accompanied, in this particular case, by extremely high urban pressures (Gahlin, 2015).

Even if both rivers have problems related to flooding issues, they provide two different types of approach to flooding and governance frameworks due to their locations in the city. In the case of Paillon, that crosses the old city of Nice, flood is associated with water quality and sustainability while for the Var, located in a new, and still potentially expanding, area, it is associated with urban development (Larrue et al., 2016).

The Var is the main river of the Alpes-Maritimes department and it is affected by extensive protection infrastructures. Those old protection not only are not enough to face flooding, but also, they accelerate the flow of the river and the risk exposure. After a chaotic urbanization of the valley a national operation was launched in 2009. According to the study of Larrue et al., on Flood Risk Governance in France, this project named "Eco-Valley", which introduces significant development projects, aims to set a new development framework in which the risk of flooding is a part of the development strategy; however, the study highlights also that the "eco" name is more a slogan, and it is not well defined if it refers more to "economic" or "ecological" development (Larrue et al., 2016).

The Paillon, considered as a small water course, runs inside the old city; the final 11.5 km of the river are totally artificial and the last three completely covered. On the last buried part of the river, the Promenade du Paillon project was developed and inaugurated in 2013. The urban park has stitched up a series of fragmented and abandoned spaces above the river site, recreating a large public space, with a sequence of different urban and green areas (Meeres, 2013).

The project had a particular sensitivity in bringing water back to the surface, through the presence of fountains and ponds, useful for cooling the area but also symbolic memory of the river below (Meeres, 2013); this operation, even if not acting directing on the river, which is totally hidden in the last part, has the capacity to work on the perception of the presence and dynamics of the covered river infrastructure. The linear park project, by Christine and Michael Péna, even if is the most popular intervention, is only the culmination of a much broader process, managed through a Paillon River Contract signed for the first time in 2010. The Contrat de Rivière du Paillons, which involves 45 subjects, including public institutions and the 20 municipalities of the basin (Perini, Sabbion, 2016) has several objectives, including protection against floods, the restoration of landscape values, improvement of water quality, and conservation of river biodiversity.

The Paillon river redevelopment focused with a particular attention on the promotion of education and awareness regarding the river and the perception and protection of its natural characteristics. Workshops, school activities, meeting and sensibilization on river thematic were ones of the most important part of the successful strategy (Syndicat Intercommunal des Paillons, 2017).



Fig. 3 Promenade du Paillon, Nice. Author: Steven Lek.

Even if the city of Nice developed different paths for her inner river areas, with a prevention-defence governance arrangement on the Var and a mitigation-defence strategy on the Paillon, a common strategy is defined in the emergency management. Sylvia Gahlin, from the Department of Prevention and Risk Management of the Métropole Nice Côte d'Azur, described the methodology of the strategy used for improving the overall resilience and development of the culture of risk, as focusing on awareness, flood risk perception and active participation of citizens. Gahlin also reported that make every citizen an actor of the security and resilience, is both the key principle and the major level to achieve the goal of greater resilience. To develop a culture of risk strong and shared is presented as the main goal of the municipal in the risk's management of the city (Gahlin, 2015).

To enhance these processes, together with all the other measures, a smart tool was developed: smartphone app called "Risks Nice". This tool is useful to improve the level of security and monitoring, but also to measure the level of implementation of the risk's culture of the local Disaster Risk Reduction strategy (Gahlin, 2015). The app gives the possibility to establish a direct relation between citizens and municipality, sharing information on both direction: from the institution, but also from the population, that, able to point out problems and risk situations, becomes the first "sensor" on the territory.

The metropolitan area of Palermo: the territorial identity of Oreto valley.

At the southern limit of the city of Palermo flows the Oreto river, which extends for a length of about twenty kilometers and crosses the municipalities of Altofante, Monreale and Palermo. The area of the Oreto river park is an area subject to landscape protection and the construction of new buildings is forbidden, however over the years it has undergone phenomena of abusiveness and degradation.

The committee Salviamo l'Oreto, born from the collaboration between private citizens and associations such as EcoMuseo Mare Memoria Viva, WWF North Western Sicily, Legambiente, has for years had the objective of re-evaluating the Oreto river and its valley.

The turning point in the fate of the river came with the candidacy for the competition “I luoghi del cuore - FAI” in 2016, strongly desired by the committee. It brought finally to the public attention the problem and the opportunity to redevelop the river area (Catalano, 2018), determining, among the various initiatives, the start of cleaning works by the municipality in April 2017. The participation of the city and the commitment of the Salviamo l'Oreto committee managed to provoke the mobilization by the municipality of Palermo, which on April 2019, approved a resolution with which two projects were approved for the environmental requalification and the usability of the Oreto valley and the stretch of the Addaura coast. Both projects will be financed with Community funds earmarked for Rete Natura 2000 in Fondo di Sviluppo Regionale¹⁶. The project concerning the Oreto valley envisages the restoration of the environment and the legitimacy conditions of the sites and specifically includes: the removal of landfills and urban waste, the demolition of illegal buildings, the re-naturalization of the areas affected by removals and demolitions, the mitigation of the hydrogeological risk through the thinning out of allochthonous species and the maintenance of the watercourse, the creation of natural paths and re-functionalization of the existing ones, the recovery of historical artefacts for the creation of a Study Centre, for monitoring and studying natural areas.

Despite the negative image that risked to wrongly define the Oreto territory, the candidacy among the competition “I luoghi del cuore” Fai, was the occasion to redeem the perception and pride of the population towards a river that was partly forgotten.

The project of this river redevelopment will probably still have very distant horizons, however the complex enhancement process, that began with the establishment of the group “Salviamo l'Oreto”, is a significant example of how bottom-up processes, and a strong territorial identity can determine the beginning of possible and effective collaborations between local communities and authorities in the direction of a better integration and perceptions of rivers in the cities.

Medellin River Parks: a strategic reconnection.

“The body of water that runs through Medellín can be called many things: an open sewer, a barrier, a crime alley or even a highway median strip. Anything but a river”.

Santiago Ortega, *The Guardian*, 4 May 2015.

Located in Colombia, the city of Medellín is second in population only to the capital Bogotá. This enormous city has been able to use urban planning, over the past few years, to trigger virtuous projects and redeem itself from her sad reputation, of cities with a very high crime and violence rate.

A very ambitious project, that started in 2014 and is now on its second phase, is the River Parks; it recently won the first place in the II Latin American Biennial of Landscape Architecture.

The city is located in a not wide valley and the homonymous river, that crosses it, is periodically subject to violent floods. As in many other situations, once the river was channelled, the valley underwent a strong infrastructural development, with the construction of a highway and an urbanization out of control, both in the small flood plain and above the hills. Floods and especially landslides are a major problem in this area, killing hundreds of people over the years. Infrastructure development has transformed the river, totally inaccessible due to the highway, into a clear urban break. In 2011 a new urban plan was adopted, and the Parks of the Medellín River was then been developed (Sáenz, 2016). The project, according to the authors (Sebastián Monsalve and Juan David Hoyos)¹⁷, aims to develop

¹⁶ Reference made to Resolution no. 49 of 10/04/2019, and at the extract of the Decision of giunta n. 49 of 10/04/2019. Both available at: <http://www.ilsicilia.it/comune-di-palermo-ecco-le-delibere-di-giunta-dal-9-aprile-al-12-aprile-2019/>

¹⁷ More information are available at: <https://landezine-award.com/medellin-river-parks-2/>

environmental awareness, preserve local species and connect the biotic network of the valley. Through urban planning and landscape engineering, the project aims to the “recomposition of the urban, environmental and social integration of the whole city, promoting sustainable urban redevelopment, and also recovering the memory of water on the city and the Aburra Valley”.

The highway, which is buried in several sectors, leaves free new public spaces in which inhabitants can approach the river, as they have not been able to do from 1950 until today. The development of new public park spaces aims to reunite and reactivate sectors that have been depressed by the development of road infrastructure. The hybrid union between infrastructure and nature project aims to restore the quality of habitability to abandoned spaces along the river.

From the designers' point of view, one of the priorities of the operation was the connection of the two banks, through a series of green bridges that re-connect the fabric of pedestrian and cycle paths, as well as ecological ones. It is interesting to note the same theme of the connection was not received with benevolent enthusiasm by the population. The inhabitants of the neighbourhood, organized several protests against the new park, contesting that the new project connects their neighborhood with other economically depressed districts nearby, resulting in the arrival of poor and homeless people (Ortega, 2015).

The first phase of the project was completed in 2016. The small part of the entire plan that is currently realized is widely used and frequented by the population, and has effectively returned to the population a large public space, allowing the recovery of a relationship between the city and its river, reconstituting, at least in part, a perceptual link with what are the natural river dynamics. However, the project, as well as professional awards, has been subjected to several criticisms from citizens. David Alejandro Mercado, on November 2019, reported the words of Daniel Carvalho¹⁸, urban planner and councillor from Medellín, whom assured that the project has never been popular because citizens have not been able to understand its real purpose, due to the wrong communication from the authorities.

The cost of the entire operation is actually enormous, however, the biggest lost opportunity in the whole process was certainly the lack of involvement of the population. For sure this is an example of a huge and interesting project that has brought the city back to the river, creating a great public space, but without operating any river restoration attention and losing the opportunity to enhance the citizen awareness to its river and to the all process.

Conclusion

All the four cases, previous presented, address the integration of river ecosystems within urban areas, trying to achieve a greater interconnection between the two systems. They use different strategies, projects of a radically different scale, but they have in common the research, at least partially, of what May identified as “cognitive connectivity”; therefore they propose interventions that have an educational value of reconnection, attempting to don't compromise the ecological systems of the river. Among the four cases, Nizza and Medellín certainly present watercourses in already heavily anthropized situations, whose ecological systems are compromised and totally artificial.

The metropolitan area of Nice focuses, on the one hand, on the mitigation of flood risk, on the other it understands the need for greater awareness, flood risk perception and active participation of citizens.

¹⁸ On the journal El Tiempo. Article available at: <https://www.eltiempo.com/colombia/medellin/parques-del-rio-la-megaobra-de-medellin-que-tiene-un-futuro-incierto-431790>

The case of the Paillon represents a success of a top-down planning, through the instruments of agreement between the national government and local authorities; it addresses the hydrogeological problem of floods and the protection of ecological objectives, using great attention to the social and community values of the river infrastructure.

Medellin River Parks project is also a top-down planning, whose objective was clearly to restore the perception of the river from the urban space. The huge intervention of the River Parks is a great reconnection, visual and conceptual, potentially also didactic, to the water and ecological values, but does not includes citizens in all the process, losing probably some opportunities.

The case of the Oreto river and the city of Palermo, even if in the really first stage, is an example of the potential of the role of local communities and of the participation of citizens building bottom-up initiatives and starting processes of enhancement of urban rivers. In this case the territorial identity and the awareness of the population is at the beginning of the process.

Living Water Garden is a paradigmatic case of “Eco-revelatory” design. The project of the entire park, from the shape of the site, to the design of the single elements, is oriented and think not only for the functional purification treatment, but equally for becoming the medium itself of the ecological message it represents.

In all the cases, whether it is bottom-up processes or top-down or planning, the projects rethink the urban-river system in the direction of greater integration between the river and urban dynamics, and highlighted the close relationship and mutual influence that links the environmental requalification of river areas with urban regeneration and social reactivation, and vice versa. They also evidenced that the best effectiveness of plans that includes prevention, adaptation and resilient strategies is strictly connected to flood risk perception, to perception of the presence of the natural element and to a wider awareness of the relation between the urban and the ecological system.

As May reported (2006), direct river restoration plans are not effective to achieve ecological and hydrological connectivity; urban rivers, in fact, differs fundamentally from rivers in their natural state because of their connection to urban system and human processes. The first step in the direction of healthy urban rivers, is identified in restoration of connectivity between human behavior and the knowledge and perception of natural processes within our settlements.

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Inside the Secret Garden

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Abstract

From 2015, for three days a year, from sunset to late at night, in Rome the Cultural Association Luci Ombre, through the first urban festival of light installations and video installations in the capital (the RGB Light Experience Festival), allows the public to immerse themselves in hidden and unconventional corners of the city, creating an artistic path dedicated to sharing experiences and exploring the material and immaterial heritage of the urban periphery. The event in 2019 saw the participation of more than 22 international artists and took place in the triangle of territory with the Pigneto pedestrian precinct, the Alessandrino Aqueduct of Sangalli Park and Malatesta Square, on the eastern outskirts of Rome. The site-specific installations, specially designed by the artists for the places that hosted them, created a strong union with the environment: the works for three days became part of the neighborhoods and the neighborhoods participated in the works, exalting each other in an innate symbiosis. In this scenario, the work "Inside the secret garden" was created inside an abandoned underground garage, in which the various languages of land art, light art and experiential sound created a dreamlike and interactive garden by architect Diego Repetto and sound designer Enzo Cimino.

Abstract

Dal 2015, per tre giorni all'anno, dal tramonto a notte fonda, a Roma l'Associazione Culturale Luci Ombre, attraverso il primo festival urbano di installazioni luminose e videoinstallazioni della capitale (il Festival RGB Light Experience), permette al pubblico di immergersi in angoli nascosti e non convenzionali della città, creando un percorso artistico dedicato alla condivisione di esperienze e all'esplorazione del patrimonio materiale ed immateriale della periferia urbana. L'evento nel 2019 ha visto la partecipazione di oltre 22 artisti internazionali e si è svolto nel triangolo di territorio che ha per vertici l'isola pedonale del Pigneto, l'Acquedotto Alessandrino di Parco Sangalli e piazza Malatesta, nella periferia est romana. Le installazioni site-specific, appositamente ideate dagli artisti per i luoghi che le hanno ospitate, hanno creato un forte connubio con l'ambiente: le opere per tre giorni sono entrate a far parte dei quartieri e i quartieri sono stati partecipi alle opere, esaltandosi reciprocamente in un'innata simbiosi. In questo scenario si è realizzato all'interno di un'autorimessa

sotterranea abbandonata l'opera "Inside the secret garden", in cui i vari linguaggi della land art, della light art e della sonorizzazione esperienziale hanno dato vita a un giardino onirico e interattivo ad opera dell'architetto Diego Repetto e del sound designer Enzo Cimino.

Introduction

The online magazine LUCE web¹, dedicated to the culture of Light, describes the RGB Light Experience 2019 Festival in Rome as a lively artistic "showcase" of site-specific works that transform the 5th City Hall into an open-air museum among unexpected places, where private and public spaces are made visible with lights, colours, sounds and vibrations.

The event, organized by the Cultural Association Luci Ombre and dedicated to light art in its various forms, is part of the program of Contemporaneamente Roma 2019 promoted by Roma Capitale with SIAE.

At the end of November 2019, between the Pigneto pedestrian precinct, the Alessandrino Aqueduct of Sangalli Park and Malatesta Square, a four kilometre route was created in which urban artistic lighting is used as an alternative language that combines art and society.

The theme of this fourth edition is "Lightscapes": an imaginary term, born from the idea of the organizer and light designer Diego Labonia, which captures one of the most characteristic aspects of light, "that of knowing how to create and radically transform the space and the experience of those immersed in it by changing our perception, our being and our acting".

In three days a part of Rome was shown in a new light: 21 site-specific works of light art, urban light and video lighting, by artists selected through a public call that saw about 150 applications from Italy and abroad.

On this occasion, in collaboration with sound designer Enzo Cimino, architect Diego Repetto was invited to participate with the installation *Inside the Secret Garden*, in which the public was "immersed" in the rarefied light of a secret garden inside an underground car park. The work is part of the series of "immersive experiential rooms" created in 2014 with the redevelopment project of the Cloister of the Episcopal Seminary of Cuneo. The Roman experience is part of an artistic journey in which, thanks to creativity, the aim is to experiment with spaces that are important for the social and cultural imagination, in which it is no longer just about architecture, but about dream and social imagination, expressed in "ideal" spaces that have an impact on architecture, art and human hopes.

Experiential immersive rooms for new ways of perceiving the landscape

There are many examples of immersive installations with a strong emotional impact, just think of the works of Yves Klein, Olafur Eliasson or Anish Kapoor.

In addition to the attraction that a particular work conveys, the viewer is involved by a sense of uniqueness of the moment they are experiencing.

The French artist Klein, known as Yves Le Monochrome, in the spring of 1958, on the occasion of the exhibition "Le Vide" completely emptied the Galerie Iris Clert in Paris and then painted all the walls white. The visitor is literally immersed in immateriality, in indefinable art, as Eugène Delacroix had already defined it.

There are many examples that involve the world of art, architecture, science, landscape and human

¹ <https://www.luceweb.eu/2019/12/18/roma-illuminata-la-iv-edizione-del-festival-di-light-art/>

perception on many levels.

Olafur Eliasson, a Danish artist known for exhibiting the installation *The Weather Project* at the Tate Modern in London in 2003, expresses in this regard his thought in the book *Olafur Eliasson. Colour memory and other informal shadows* (Eliasson, 2007:21):

«In architecture and the spatial arts there has been a progressive understanding of the fact that a total and external “vanishing point” (to the body), understood as a common goal or opinion about a park (or society), has disappeared, leaving the possibility of raising an internal or personal vanishing point to a higher level. We can therefore relate more easily to space based on what I call an inverted perspective point of view. Since an internal or personal vanishing point can never be the same as another - being in each of the different users - then it can be considered a higher level of personal experience»².

Art is therefore able to stimulate high experiential levels, allowing the observer to change his or her point of view, generating new awareness and new possible future scenarios.

Diego Repetto's artistic and research path on immersive and experiential installations begins in 2014 with the project proposal for the redevelopment of the cloister of the Bishop's Seminary in Cuneo, a project dedicated to the Custody of Memory “Mons. A. M. Ribera” (Fig. 1).



Fig. 1 Project dedicated to the Custody of Memory “Mons. A. M. Ribera”

² AA.VV. (edited by), Olafur Eliasson. *Colour memory and other informal shadows*, Postmedia Srl, Milan, 2007

The redevelopment study of the Cloister of the Episcopal Seminary of Cuneo takes its cue from the element characterizing the environment itself: a large tree placed at the center of the open space. With the remodelling of the environment obtained through the interference between art and landscape, the Cloister becomes a new field of action in which the users stop being normal observers and become indispensable elements for the definition of the space that hosts them. The environmental components become directional, dimensional, functional and expressive, i.e. they communicate values that go beyond the definition of limits and “membranes” that separate environments.

The territory takes from all the environments, crosses over into them and incorporates them, becoming itself a space capable of being an external, internal and intermediate environment³.

The “roots” are generated from the centre (represented by the tree) and branch off towards the perimeter, ideally continuing to the foundations of the historic building complex.

The same “green roots” make figuratively visible the Christogram “HIS”, associated with the liturgy of the Most Holy Name of Jesus; this symbol, characterized by beams of light radiating from the center, often stylized with a cross in the H, is a *nomen sacrum* that since the Middle Ages has had a very wide use in the figurative art of the Catholic Church. In addition to the above, the Cloister becomes a moment of reflection thanks to vertical and subtle elements that function both as nocturnal illumination and as Via Crucis. The circular-section poles house, at the height of the human eye, sculpted bas-reliefs that follow the reconstruction and commemoration of Christ’s path on Golgotha. The architecture is contaminated by art, becoming more expressive and bearer of messages. Through the design of new figurative stimuli, the user of the Episcopal Seminary is transported into a unique and intimate atmosphere, in which, thanks to the expedients described, the relationship with God becomes more tangible.

Following this project experience in 2015, together with the Madeinlanga Association of Social Promotion, the Association for the Heritage of Wine Landscapes of Langhe-Roero and Monferrato and the International White Truffle Fair of Alba, the multisensory installation *La Vigna* was created in the Cortile della Maddalena, an open space in the city of Alba (CN). The installation is characterized by two green hills, which intersect and shape the space, and by rows of wooden vineyard poles recovered from disused vineyards of the local territory, inscribed in an area of about 145 square meters. The central axis is designed by a luminous driveway characterized by alternating vineyard poles equipped with a LED lighting system. Another aspect characterizing the multisensory aspect of the installation is the emission of the sounds of the work in the vineyard, realized through environmental recordings and reproduced by a system of sound architecture with 360° diffusion on the highest hill. The installation becomes a special experience: a walk inside a ghostly vineyard where you can see and hear the wine-growing landscape in a new look.

In the living room of an apartment, transformed into an art gallery on the occasion of Arte Fiera 2019, in Bologna for the Barrhaus event a new immersive work *La Vigna: una nebbia universale, un oceano di latte frappato* (*The Vineyard: a universal fog, an ocean of milkshake*) is created (Fig. 2), which re-elaborates the experience of *La Vigna* in 2015, breaking down the boundaries between domestic and public environments and celebrating the Fifth Landscape.

³ Concept extrapolated from L. Galofaro, *Artscape. Art as an approach to contemporary landscape*, Postmedia Srl, Milan, 2007



Fig. 2 *The Vineyard: a universal fog, an ocean of milkshake*

The project is produced in a new site-specific concept for the house that hosts it and becomes a visual, sound and tactile path inside a vineyard immersed in fog and snow.

La Vigna: una nebbia universale, un oceano di latte frappato is inspired by “Il Partigiano Johnny” by Beppe Fenoglio:

«Waking up, he had an immediate, ajar feeling of snow, but then he saw the fog. But such a fog as he had ever seen on the most favorable hills: a universal fog, an ocean of milkshake, which narrowed the boundaries of the world to those of the Hague, indeed much more inside»⁴.

Artifice and nature acquire a new connotation in the immersive work *Resized Volcano* presented in world premiere at the National Museum of Science and Technology Leonardo da Vinci in Milan at Kids Sound Fest 2019. Here we have built an imaginary magmatic chamber conceived as a symbol, an artifice aimed at listening to one's emotions, in which one undertakes a journey with oneself, inside the emotional “volcano” that is in each of us. The visitor takes part in the precise moment of the volcanic eruption, depicted as an imaginative and immersive snapshot. In addition to the visual emotional aspect, a fundamental element that enriches and makes unique the perceptive experience is the sound⁵. The immersive work is the geometric stylization of a volcano: a monolithic tensile structure in the shape of a truncated pyramid with eight obsidian black segments that rises 5 meters high inside the Spazio Olona of the Museum. The installation is compressed, thanks also to the tensions generated by the architectural space.

A gash in the wall gives access to a dreamlike environment, as if it were the centre of the earth, in which

⁴ B. Fenoglio, *Il Partigiano Johnny*, Torino, Einaudi, 2014 edition, p. 398

⁵ <https://www.giovanigenitori.it/lifestyle/tech/resized-volcano-kids-sound-fest-museo-scienza/>

one is enveloped by heat, light effects and the sound of the volcano (Fig. 3).

The Repetto-Cimino partnership created the site-specific installation *Inside the Secret Garden* presented at the RGB Light Experience 2019 Festival in Rome and lasting three days.



Fig. 3 *Resized Volcano*

Inside the Secret Garden

Together with sound designer Enzo Cimino, architect Diego Repetto designs and builds a garden shrouded in fog and light inside an abandoned garage just a few minutes from the Malatesta Square underground station in Rome.

The Pigneto District, between Prenestina Street and Casilina Street, has expanded spontaneously over the years and has been characterized by a high population density and a lack of green spaces and public services. In 2001 with the launch of the Neighbourhood Contract, an urban regeneration programme involving the coordinated intervention of various administrations, a public underground car park was to be built in Gabrino Fondulo Street underneath Pigneto Square (work completed in 2006)⁶. Unfortunately, to date, the safety of the work, maintenance and care has never been applied, making the garage unsuitable for its use.

Thanks to the Cultural Association of Shadows Lights, for four years now, on the occasion of the RGB

⁶<https://abitarearoma.it/pigneto-riqualificare-zona-e-messa-in-opera-parcheggio-interrato/>

Light Experience Festival, this place is made accessible and usable to the community, turning into an exhibition space.

In previous years the underground garage has hosted site-specific installations that were visually suggestive, but which were not accessible internally.

In 2019 it was possible to experience a greater interaction with the public, allowing access to the underground garage in total safety; in fact, together with a team of volunteers, the space was completely cleaned up, freeing the emergency exits and ventilation grids from rubble, garbage and unsuitable infill panels (Figg. 4 and 5).



Figg. 4-5 The underground abandoned garage

Inside the Secret Garden represents the re-appropriation of Nature on the anthropized environment and how man can live with it, developing a new form of communication (Fig. 6).

Through the organizers of the festival it was possible to recover about 200 square meters of real lawn in rolls from the renovation site of the green carpet of the Olympic Stadium field (Fig. 7). By arranging various elements (apartment and garden plants of various shapes, real grass to cover the cement flooring, essences that recreate a natural environment also from the olfactory point of view, headlight system and fog machines to create the mist effect at dawn) a strong contrast has been created between the square lines of the grey coloured garage and the vital and exuberant shapes of the plants. In addition, the points of light filtered by the leaves and fog have generated kaleidoscopic shadows on the ceiling (Figg. 8 and 9), mitigating the pressing presence of the roof, making the space more airy. In this way, visitors have entered a place that is part of a rediscovered collective memory and imagination.

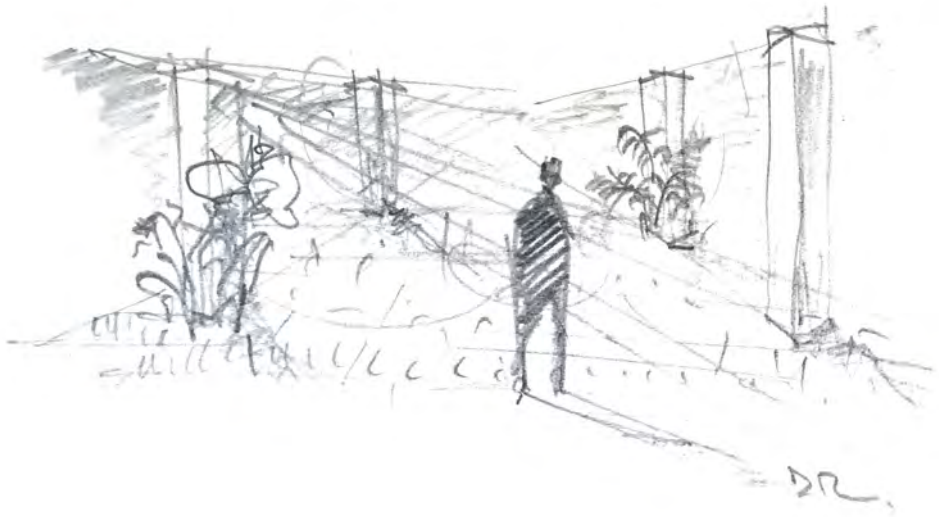


Fig. 6 Inside the Secret Garden: concept



Fig. 7 Inside the Secret Garden: work in progress

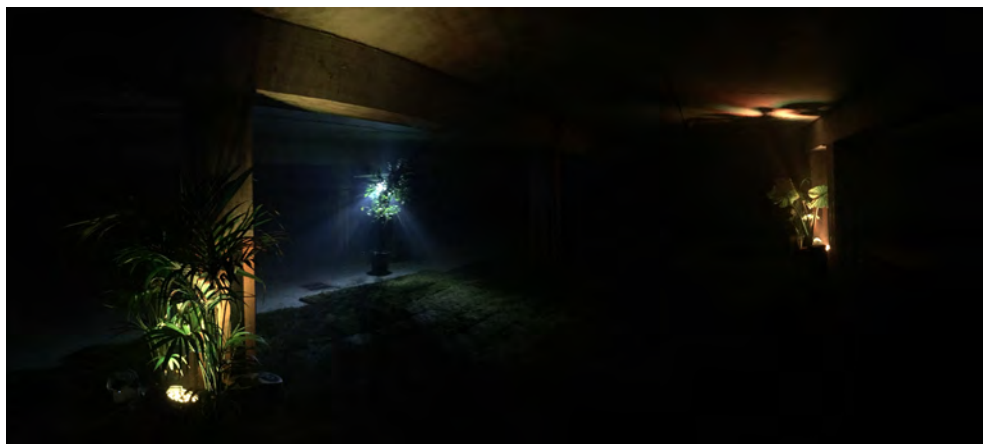


Fig. 8 Inside the Secret Garden

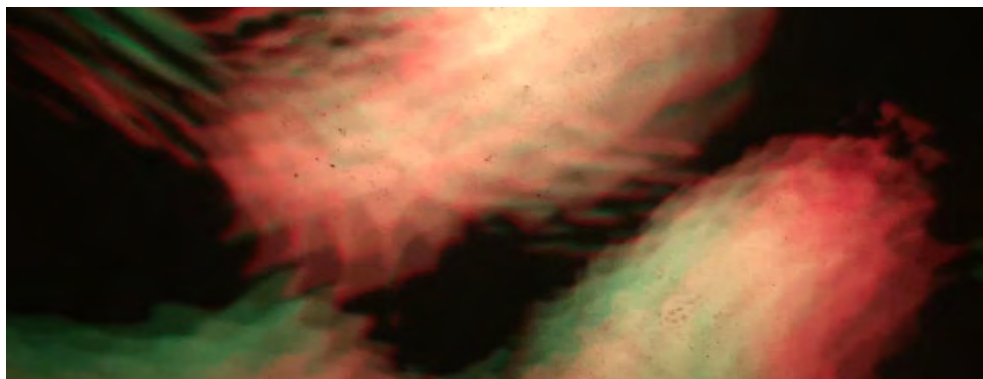


Fig. 9 Inside the Secret Garden: the kaleidoscopic shadows on the ceiling

Another element to complete the immersive work is the installation of a perimeter audio system, characterized by several sources, and a Biodata system on two groups of plants placed at the base of the internal pillars, which allows plant-man interactivity, making the leaves sensitive to touch and making them respond to tactile and sound impulse.

The effect of the clouds and rarefied light, due to internal convection movements, foreseen during the project phase, generated the escape from the smoke ventilation grids, producing a light mist on the square above; the above has transformed a natural event into an element of attraction from Pigneto Street and the surrounding streets (Fig. 10).

Confirmation of the success of the work came during the opening, in which Prof. Carlo Infante of Urban Experience, who together with about one hundred participants explored the various installations of the festival with the format “walkabout-conversation radionomade” entitled “Sciame”, once in sight of the square in Pigneto Street and seeing a suggestive mist rising, exclaimed ironically to the microphones:

«But who brought the fog of the Po Valley to Rome?»



Fig.10 *Inside the Secret Garden: the fog of the Po Valley to Rome*

Thanks to the redevelopment of the area and the site-specific installation, albeit in a time limited to three days, citizens and tourists have been allowed to regain possession of a place degraded at a social and urban level, where fifteen year old boys are dealing drugs and the hidden areas are a receptacle of garbage.

Completely cleaned up the area, the same kids of the neighborhood from hostile have become improvised custodians of the immersive work, rediscovering a minimum of respect and civic sense and their playful and research side, experiencing the visual and sensory effects in crossing the rarefied atmosphere of the secret garden (Figg. 11 and 12).

The installation became the gimmick to stimulate the sense of curiosity and courage, because visitors arriving from the outside could see who was in the centre of the garden, but those inside, because of the effect created by the smoke machine, could not see outside. What was perceived was a sense of bewilderment, caused by not recognizing and/or not seeing the depths of the background.

In addition, especially children under 8 years of age intuitively demonstrated that they were able to identify quite quickly plants equipped with the Biodata system, able to communicate with them, as well as having, in the company of their parents, a blind trust in crossing space, as if the lack of recognition of the depth planes was not a problem for their orientation.

What positively influenced the experience of immersion in the decontextualized space (a green garden surrounded by clouds inside an underground garage) was the sound environment masterfully created by Enzo Cimino.

The intervention, while on the one hand it dialogued with the space in which it had been inserted, on the other it completely annulled it: by accessing the underground space one entered a new reality, a “perceptive bubble” without doors or walls.

In this sense the installation *Inside the Secret Garden* has been conceived as a dense and material sound space, which becomes architecture and immaterial landscape in which to immerse oneself and relate.

The sound designer Cimino, applying his knowledge of acoustics and psychoacoustics to the sound settings, has succeeded in arousing in the listener/visitor an involvement capable of touching different spheres of his sensitivity.

One of these spheres is that of spatial perception, so with appropriate devices the sound idea is enriched with what could be close to the concept of “acoustic illusion”.

The perceived space can therefore become indefinite, to leave room for the imagination.

As Cimino himself maintains, the case of sound is different, making the shape and the real dimension of the environment ephemeral, allowing the ceiling to move away, as in the case of the site-specific installation in Rome, or on the contrary to contract and dilate the space at the same time, as in the case of the magmatic room *Resized Volcano*.



Fig.11 Inside the Secret Garden

Conclusion

The architect Dario Canciani at the call “Fabbricare Fiducia - Architettura” created by Farm Cultural Park writes:

«[...] I would like an architecture not only “retinal”, made for the eyes and magazines, but sensorial/ experiential, made for all our senses, for our body in its entirety and complexity, an architecture of touch, smell, sound, “hapticity”! An architecture made specifically so that we can experience and understand the world through our body»⁷.

It is believed that in order to understand the meaning of Repetto’s “immersive experiential rooms” one can refer to Canciani’s lucid thought. Through these works you can experience the link between the work and space, the relationship with time and the interaction with the public.

The will of the inhabitants is also strengthened, as in the case of the RGB Light Experience festival, to enhance their territory.

⁷<http://www.cityvisionweb.com/mag/15-manifesto-di-unarchitettura-gentile-dario-canciani/>

Moreover, the artist, having to relate, in a short or medium time, with the socio-environmental context, is facilitated in experimenting new languages and is thus able to determine the subsequent choices of his research path.

The architect Repetto has found in the immersive and site-specific installations the occasion for the creation of trans-disciplinary and choral collaborations, involving sound and light designers, writers, musicians, artists, performers, media artists, university scientific researchers, craftsmen, designers, experts in various fields, in order to give a meaningful body to the work. The contaminations coming from the various scientific and artistic fields, reformulated in a participatory art, allow a transformation of the space, in which the visitors themselves intuitively feel an integral and fundamental part of the work. The positive energy born from creative collaborations is inevitably transmitted to the public, who perceive its expressive power.

The “immersive experiential rooms” are a representation of an Architecture of Dialogue that relates more knowledge, stimulating, in all the people involved, from the authors to the public, creativity, spirit of research and the desire to improve the environment in which we live.



Fig.12 *Inside the Secret Garden*

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Dual_mind: from Culture to Design

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Abstract

We often believe to think with our mind, but it is not true in reality. We are human beings, and we grow up in a dual mode, at minimum. During our nine months of live, we feel like our mother, we hear her bit heart and we walk together. We are dual, and during our future life, outside of her womb, we will try to find a partner, to remain dual. In this way, our mind learns to think in a social, cultural way, because we came to life not alone, with emotions and thoughts coming from our mother. We are programmed to live in a social way, and when we are alone, or we fell alone, we become suffering. In the same way, our world, objects and situations experiences, with their products, are the outcome of a mentality, the culture results we share. Design, and all its products, are the work of this way of thinking, that is a real world vision, where persons and objects live together, and where Design becomes expressions of our mentality. Forms, colours, materials of Design are all culture and mind expressions, and in this article we find to understand how we can utilize some cultural and mind categories to encourage a design, that highlights cultural specificities and, at the same time, promotes them in the global market.

Abstract

Molto spesso crediamo di pensare solo con la nostra mente, ma in realtà non è così. Come esseri umani, specie Homo Sapiens sapiens, cresciamo dualmente, ossia in una dimensione biologica e mentale binaria. Durante i nostri mesi di vita intrauterina, infatti sentiamo nostra madre, in tutte le sue manifestazioni mentali, fisiologiche e psicologiche. E nella nostra vita futura, usciti dal grembo materno, cercheremo, con il nostro partner, di ripercorrere il benessere affettivo che abbiamo sperimentato con nostra madre. Siamo programmati per vivere socialmente, e quando ci sentiamo soli, andiamo in sofferenza. Questa abitudine, biologicamente determinata, alla relazione sociale si manifesta culturalmente come mentalità, con la quale interpretiamo oggetti, situazioni, eventi e, dunque, anche il Design. Ecco perché nel Design è rinvenibile una visione del mondo che appartiene a quella cultura all'interno della quale il Design stesso si esprime. In questo contributo, si cercherà di comprendere come sia possibile utilizzare i contenuti della cultura nella progettazione di Design, per evidenziare le specificità culturali che il prodotto contiene e proporre una ulteriore dimensione globale.

The anthropological-cultural dimension of human existence, even more than the psychological and sociological one, carefully examines what is familiar to us and what appears to be less familiar, that is, unusual. And it does, most of the time, reversing this relationship. The family member can be considered original, and the latter normal. Well, this type of evaluation inversion is perhaps the methodological characteristic of the history of anthropological discipline itself, precisely because it represents the starting point of its scientific interest: to study and understand the reason of things we consider obvious, to analyze on a basis of a greater knowledge the advent of what we consider strange, different, original and often creative.

Starting from these first considerations, I think it is clear the relationship that this discipline establishes with the world of Design and the design in general. There are, in fact, theoretical assumptions of the discipline that can be used to understand, legitimize and analyze Design products, and at least one is crucial.

In this contribution, I will try to announce its complexity, to then focus on some aspects of the dual dimension in the Design.

The prejudice

From a cultural and psychology-social perspective, the term prejudice indicates an early judgment, with respect to the evaluation of the facts. Gordon Willard Allport, the first and perhaps the greatest scholar of the twentieth century who dealt with this theme, in this perspective, connotes it totally in a negative way. He defines it as an unfavorable or hostile attitude, having superficial characteristics and undue generalization (Allport G.W., 1954). Furthermore, he expresses himself in the refusal to call in to question the validity of the concepts he says, and he resists in verifying their relevance and consistency. Beyond this psychological-social connotation, there is also the Gadamer's vision, who adopts a hermeneutic perspective, particularly interesting in the case of the Design and the reality in general, because it allows us to evaluate the prejudice in a different way (Gadamer H.G., 1965). In this case, it presents itself as a critical-cognitive and summary anticipation of the nature of an unknown, or ambiguous object. The prejudice therefore becomes a necessary pre-judgement, like a global pre- intuitive cognition, a generalizing hypothesis, on which subsequent checks will make eventual corrections. In this meaning, the prejudice appears as a cognitively valid method to generalize and anticipate problems still imperfectly explored. It thus becomes impossible to draw a clear dividing line between the condemnable aspects of the cultural and social phenomenon, and those that cannot be amended.

In both conceptions there is the historical dimension of human life, the anthropological one, to be clear. It is not possible to clearly identify the knowledge spread and handed down (in their richness of cultural traditions and social representations) by their possibly less precise aspects, that is, by those attitudes that present themselves as prejudicial (Moscovici S., 1984).

On the other hand, the expression of pre-judgments, with respect to any aspect of reality, presents psycho-anthropological dynamics that differentiate it from the majority of dispositions to elementary behaviors. In these last, we recognize a positive pragmatic and cognitive interest, that is, the tendency to approach the object.

We think, for example, of attitudes of curiosity, identification in the use of an object, of the mental disposition to create friendly products, easy to use, and that stimulate positive relational behaviors. We think of the design of a dining table, or of an interior of Nautical Design, or even the arrangement of spaces and areas to be designed in a waiting room of a hospital, and so on. If we were to use the injurious attitude described by Allport, we would face a tendency to move away from these positive,

socializing designs. That's why, the role that the Anthropology of Mind can play in the world of Design, it can be to highlight the presence of prejudicial and cultural opinions, which tend to remain, as well as generic, little modifiable. In essence, this discipline can favor the re-evaluation of many aspects of reality classified as negative, those aspects that the designer himself refuses to deepen in cognitive terms. In this way, anthropology of mind can help the designer to identify what aspects of consensual sharing are involved in prejudice, because these aspects give strength to prejudice itself. This consensus is necessarily linked to judgments that are expressed in simplified formulas, that is, into stereotypes. The relationship between the prejudice and the stereotype is very close, and with this term we refer to a shared belief, considered obvious in a given cultural environment. It is articulated in convictions that are always generalizable, always reductive and sometimes – but not necessarily – erroneous. Stereotyping performs an important function: the stereotypes. It anchors a group of people to an essential sharing, facilitating feelings of corporatist involvement, together with common actions, and produces a hierarchy of priorities.

For example, in design, precisely on the basis of these stereotypes, there are mental attitudes that lead designers to consider their work as about right or improper; more or less proposable, or not proposable; more or less innovative, ecologic, economic, etc.

This just got interesting, at least from our point of view, because this short list of stereotyped and general prejudices, referred to the world of the Design and Planning, they can remain unchanged over time, thanks to the process of the cultural tradition of the design itself, resulting into real design styles. Thanks to this project, in the world of design it is possible to identify what is commonly called design style, thanks to which each product can be placed more or less within a precise cultural tradition. Indeed, the designing stereotypes, precisely because they are “superstructural”, are more resistant to economic cycles and cultural changes than previously thought, especially in the theories and ideological assumptions of the 1950s and 1960s. Therefore, the fact that not only aspects of error can exist, within stereotypical designing judgments, but also aspects of truth, makes their re-evaluation.

Let's try to think about stereotypes concerning objects, goods and services that a designer faces to realize, such as the organization of the light and the dark into an environment, the ecological materials, the linearity of forms with respect to their roundness, the arrangement of objects and walls inside a master cabin in a yacht. All examples of how stereotypes can influence design, which, by respecting them in part, if not completely, are binding and limiting the creativity of the designer himself.

But there are even stronger stereotypes, compared to which a designer called to design is facing, with the result, if he does not know its formation and derivation, to find difficulty in accepting the assignment.

Take for example, western stereotypes towards animals such as bats, snakes, researches in genetic medical field, or those in psychiatric field, such as psychotropic drugs. Not to mention the prejudices that a designer has to face in designing religious objects. Their shape, material, colors, and so on. Not to mention the anthropomorphic forms linked to the different Catholic, or Protestant hagiographies, or even if the designer had to try different oriental philosophical traditions, such as Buddhism or Hinduism. The preliminary study would be almost infinite, and very important for the design of objects of this sort of things.

Moreover, try to think of other forms of situational prejudices, such as those that emerge in this historical period of the Covid-19 pandemic, linked to those widespread suspicions that hinder the introduction of simple hygiene measures, cooperation structures, techniques rational waste recycling, and so on.

The combination of these visions and interpretations allows us to understand why the scientific theme

of prejudice has now gone beyond the boundaries set by its traditional - and restrictive - association with the problem of equality and evaluative and cognitive objectivity. It now emerges, and with greater force, how much the issue is more complex, which requires us to deepen the concept of judgment itself and obliges us to examine other aspects of the problem neglected till now.

An ongoing research

In order to make the positive interpretation of the pre-judgment more effective at an operational level, that is, a design level, it is interesting to view the following table, which lists some particularly significant pre-judgments in the world of the Nautical Design. These are some starting scientific hypotheses, elaborated by Mario Ivan Zignego, within a research project that we are developing. In this research project, we want to identify, with greater clarity, those design and mental schemes belonging to the nautical tradition, with which a designer relates, more or less consciously, and which can be positively or negatively configured as pre-judgments. Therefore, on the basis of the following lexical references elaborated in table 1, targeted interviews will be carried out in the research (for designers and engineers, as for the client) with the aim of evaluating their effective impact on the design and, especially, in the expression of one's creativity.

Before commenting on this table, which is definitely clarifying, it is necessary to preface the following.

The concept of duality

The Cultural anthropology doesn't limit to interpret the data of human reality, within different cultures, but also it seeks to provide an explanation of these data.

And this explanation tries to keep in mind a first fundamental and natural duality, namely that between biological and cultural basis of human action, and therefore of human thinking. "We are not governed by a strong "human nature", nor are we the simple product of our genes. We make choices. The hunter-gatherers have had choices available and often, historically, have chosen to cultivate the value of egalitarianism and to re-size the property value, in order to maintain their way of life.

The nomadic existence of hunter-gatherers depends on both of these elements: To share resources and dissuade social status, and accumulation (the stuff, after all, can be weighing a lot when you have to move). (Engelke M. 2017:8).

Engelke reminds us that our species, wherever it exists, makes choices, among those possible, to achieve the objectives that sets itself, or that Nature imposes.

Going out to the sea is, among other things, an anthropologically very primitive expression, exactly as it is going by land. Another thing (and also we understand on an intuitive level) is going to air. Without the attempts of the Wright brothers, in 1904, we would not have the current jets, nor the attempts to colonize the planets of our solar system, nor the International Space Station. So, our species begins its evolution through this go by sea and by land, and it does so by making precise choices, straddling the biological and the cultural, exactly as it continues to be today, in our global contemporaneity. And choosing is always a dual question, even when we are faced with multiple options. And this precisely happens because our mind groups the possibilities into dual connections, so that the management of complexity is possible. And any management of complexity necessarily implies simplification, that is a *reductio ad duo* (reduction to two), thanks to which it is possible to self-monitor the elective process. With this reduction, therefore, human design choices are made possible, in whatever field they apply. Now, on the basis of what has just been written, albeit briefly, it becomes possible to reflect upon the table 1.

		STEREOTYPE	TRADITION - TEMPLATE	EXISTING	FASHION EXPRESSION	REMARK	PRE-JUDGMENT
		Rigidly pre-established and generalized	Based on expe- rience - history				Sometimes pre- judgment, other times judgement
STERN	Wooden boat		Yes	No	Yes		Very expensive maintenance
	Fiberglass boat			Yes		Inexpensive, robust inert for mass- produced boats	Big plastic - non nautical tradition
	Aluminum boat			Yes		Expensive, recyclable and suitable for one off boats	
	Sailing boat						Slow, uncomfortable, "like inside the whale's belly", barely livable on deck, due to the sailing equipment
	Sailing boats with low hull/cruiser	No	Yes	YES		The proper helms the masts, but the image of the helmsman loses prestige	
	Motorboat - motor yacht					The boat of the ignomant marine, who reels the house on cruises in the sea	
	Motor boat open hard top					Boat or the "I reached the goal"	
	Boat fisher- man's trailer					Boat world risks, unpretentious for the connoisseurs	
	Catamaran					"My life", but how much space	
	Long and nar- row boat		Yes	Yes/no		English sailing ships (height sailing); Americans develop forms (shape stability)	
STERN	Curved deck cruiser		Yes	No		It was used on wooden structures, overstayed on steel liners, now almost completely eliminated	Uncomfortable for furnishings
	Traditional boat	Yes	Yes	Yes/no			Old boat
	Flipping boat		No		Yes	Mainly fashion factor	Innovative boat
	Teak deck		Yes	Yes/no	Yes	Unsustainable	Luxury
	Cockpit sail boat (stepped towards the stern)	Yes/no	Yes	No		Very protective and closed the structure of the boat at the stern, today techno- logically not relevant and uncomfortable for the bathroom	Outdated boat
	Steering gear external seat, and end of the stern	Yes/no	Yes	Yes	Uncomfortable	There is no doubt that it is the most comfortable position to steer, not to use towards the bow, today we copy the America's Cup where they steer while standing	If comfortable and ambitious, it is no longer a sailboat but a motor car (Noric, slow boat with a powerful engine for "old people")
STERN	Wooden cabin (external hull/cabin)	Yes/no	Yes	No	Yes	Nowadays only a few boats and cruise ships	Luxury
	Carbon Elements	Yes/no	Yes/no	Yes	Yes	Light and resistant, used on high- performance boats and as an expression of technology, even in unnecessary details	Even fast, it is not a high tech boat
	White color	Yes	Yes	Yes		Fresh and easy to maintain	Old
	Blue hull yacht	Yes	Yes	Yes/no		Nowadays replaced by a thousand colors	Blue hull color - even the boat is perceived outdated
	No green color	Yes				Space is precious	
	Steep stairs	Yes/no	Yes	Yes/no		Too wide and intermediate supports are needed	
	Narrow stairs and corridors	Yes/no	Yes	Yes/no			
	Rounded edges (internal and external)	No	Yes	Yes		Safety	Boat 90's
	Sharp edges		No	Yes	Yes	Danger	Nowadays rethought with fast lines that debate the sharp edge
	Not very bright colors		Yes	No	No	Technologies did not allow to produce the full	
STERN	Large win- dows below deck		Yes/no	Yes	Yes	Sometimes useless for night use and in port life	Being able to enjoy the sea even below deck (disposal: when the boat is at the dock, and you see the neighbor's cabin and vice versa)
	Beds with slippery mattress	Yes/no	Yes	No		Nowadays the win- dows step the mattress	
	Narrow beds	Yes/no	Yes	No			
	High beds	No	Yes	Yes		The more you go up, the more the boat/cabin expands	
	Bunk beds		Yes	Yes			
	No bidet	Yes	Yes	Yes/no		Probable English traditions	The bidet is a luxury boat pre-judgment
	Chart table		Yes	Yes/no		However useful a desk for pc, etc.	Only owners of the sea look for it and appre- ciate it: positive pre-judgment (if it is such)
	Mahogany interiors	Yes (exotic d'e- poué)	Yes	No		Expensive, danger- ous in processing	
	Carpet on floor		Yes (passenger transport ships)	Yes		Soundproofing - great, easy replace- ment - dust blocking	Today hated by many because dirty and poor floor
	Anti-rust edge tops and shelves	Yes	Yes	No		Difficult to clean and it cuts forearms on the table	

Table 1

Conclusion

As it can be seen from the table, the research hypotheses refer to the nautical world, according to two main macro-categories, exteriors and interiors, in turn considered on the basis of 4 historical sub-categories, the stereotyping, the traditions-model, the modernity and the expression of fashion. Finally, the last 2 columns collect a note from the authors of the research and the summary of a possible prejudice linked to the referenced design element (the column on the left, in pink).

On the basis of this table, an exploratory questionnaire is taking place with the aim of seeing the hypotheses confirmed, modified or unconfirmed. In this way, after processing the collected data, drawing the necessary inferences, both in the perspective of nautical-naval design and in the anthropological-mental one, we could better understand the role of those mental categories that become part of the contemporary design nautical-ship.

The final aim is, of course, to try to enhance the cultural characteristics that are reflected in a specific design style and those that can, instead, belong to the globalization market, in order to respect both the different needs of the market.

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Animated Reflections: An Everyman's Guide to Postmodernity

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Abstract

According to architects, Postmodernism was a movement that lasted about a decade, from its official birth (1977, christened by Charles Jencks in *The Language of Postmodern Architecture*), through its peak (1980, along Paolo Portoghesi's *Via Novissima* at the Venice Biennale), to its death (1988, killed by the new game in town, Philip Johnson's *Deconstructivist Architecture* exhibition at MoMA New York). The relative brevity of its life is generally what allows to think of it more as a fad than as a proper movement. Moreover, a fad remembered with a bit of embarrassment. 'Good riddance' could sum up fairly well the general, architectural sentiment towards Postmodernism. Yet this kind of statements could depend on a too narrow definition of the term '*Postmodernity*' within the field of architecture. Several reasons suggest that, enlarging that field to other disciplinary domains, mostly linguistics and philosophy, the overall picture could change dramatically.

The problem is, philosophical and linguistical definitions tend to be hard to digest, what with the auto-referential character of Postmodernity, and the aporetic consequences that this implies; what with the difficult concepts – like 'meta-fiction', or '*mise-en-abyme*', or 'worldmaking' (to name just a few) – put in place to tackle such difficulties.

In this paper, we will try to *illustrate* these categories by evidencing their action within a popular medium: the animated cartoons. From there we will argue that Postmodernity is far from dead and that architecture, with all the other arts, is doing its job to keep it thriving.

Abstract

Secondo gli architetti, il Postmodern è stato un movimento durato circa un decennio, dalla sua nascita ufficiale (1977, battezzato da Charles Jencks in *The Language of Postmodern Architecture*), alla vetta della sua popolarità (1980, lungo la *Via Novissima* di Paolo Portoghesi alla Biennale di Venezia), fino alla sua morte (1988, ucciso dalla nuova *vague*, quella esibita come *Deconstructivist Architecture*, da Philip Johnson al MoMA di New York). La relativa brevità della sua vita è ciò che generalmente permette di pensarlo più come una moda che come un movimento vero e proprio, per di più una moda spesso ricordata con un certo imbarazzo.

Il generale sentimento architettonico nei confronti del Postmodern è, di fatto, quello di sollievo nei confronti di una dipartita mai abbastanza tempestiva. Tuttavia questa convinzione potrebbe dipendere da una definizione troppo ristretta del termine “postmodernità” nell’ambito dell’architettura. Diverse ragioni suggeriscono che, allargando questo campo ad altri settori disciplinari, come la linguistica e la filosofia, il quadro generale potrebbe cambiare radicalmente.

Il problema è che le definizioni filosofiche e linguistiche tendono ad essere piuttosto ostiche, sia in ragione delle aporie che il carattere autoreferenziale della Postmodernità di per sé comporta; sia per i concetti impervi – come ‘extra-diegetico’, o ‘*mise-en-abyme*’, o ‘*wordmaking*’ (per citarne solo alcuni) – normalmente messi in atto per affrontare tali difficoltà.

In questo scritto proveremo a *illustrare* questo genere di categorie evidenziandone l’azione nell’ambito di un *medium* popolare come i cartoni animati. Di lì cercheremo di dimostrare come, in realtà, la postmodernità è tutt’altro che morta. E come l’architettura, assieme a tutte le altre arti, stia tutt’oggi facendo la sua parte per farla prosperare.

Timon & Pumbaa Are Alive

“*Nants ingonyama bagithi Baba / Sithi uhm ingonyama*”: the Zulu words are repeated like a mantra, while the sun is rising on the Savannah horizon. “Here comes a lion, Father / Oh yes it’s a lion,” they say: a voice solo, singing acapella, slowly joined by the chorus. The scene is more than familiar to all the kids born after the late Eighties (and to their parents too). All the animals are gathering around Pride Rock, and we all know what is going on: the chorus will give way to the lyrics of *The Circle of Life*, and soon Mufasa, the Lion King, will present his kneeling people with his new-born child Simba.

But suddenly something strange happens: a rasping voice overlaps with the song, mocking it. Then the images stop abruptly on a still frame, only to restart in fast-forward... Wait, are we watching Walt Disney’s *The Lion King*? Yes and no. Yes, this is the opening scene of *The Lion King*. No, we are not *watching* it: rather, the scene *is watched* by two viewers we now see in silhouette from the back, sit on the armchairs of a movie-theatre. We are watching someone who is watching. *The Lion King*. A remote control in hand. Fast-forwarding. What we are actually watching is *The Lion King 1½*, and we are in for a strange ride.

The Lion King (1994, hereinafter *TLK*) was the first, and one of the few, Disney’s films based on an original script (not adapted from some source). In the beginning, so the story goes, very few believed in the project, and the executives themselves had no clear idea of which path to take. Until someone came up with the idea of focusing the collective efforts by at least choosing a model of inspiration. Disney CEO proposed *King Lear*, but the final choice fell upon *Hamlet*. Mind: *Hamlet* was not chosen as the material for an adaptation but as an *archetype*. Meaning that *TLK* is only loosely based on Shakespeare’s tragedy. True, there is a nearly one to one matching of the main characters: Mufasa for the dead King, Scar for Claudius, Sarabi for Gertrude, Zazu for Polonius, Simba for Hamlet, Nala for Ofelia, Rafiki for Horatio, Timon & Pumbaa for Hamlet’s ‘friends’ Rosencrantz & Guildenstern. And a major similarity lies in the King’s murder at the hands of Simba/Hamlet’s uncle Scar/Claudius. But that pretty much sums it: after the initial parallelism, the two plots diverge, each towards its own direction: *Hamlet*’s final doom, *TLK*’s expected happy ending.

Notwithstanding, *TLK* remains Shakespearean in spirit: *mutatis mutandis*, it has moments of great poignancy, putting into play the eternal truths of life through dichotomies such as good/evil, love/hate, life/death, and so forth. The whole, naturally, in a peculiar cartoonesque way, meaning that here dichotomies are unambiguously neat, justice is restored at the end, and drama is tempered after a

very typical Disneyan fashion. But only to a point: Mufasa's tragic death is not something that young audiences (and perhaps many adults too) will forget so easily.

Like *Hamlet*, *TLK* is essentially a *Bildungsroman*. The ordeal Simba goes through is punctuated by many of the genre's standard topics: an initial state of innocence, the turmoil caused by betrayal, death, deception, and denial; then the restoring of innocence, in a temporary state of suspension lighted by friendship; further on the protagonist's anagnorisis favoured by romantic love, his following assumption of destiny, in turn leading to the final battle between good and evil, and the restoring of the natural order of things. The pedagogical message is unequivocal, but effective nonetheless. No doubt, young audience will love above all Simba's existential parenthesis in the company of his mentors/friends Timon & Pumbaa, in a carefree life cadenced by the notes of *Hakuna Matata*, a Swahili phrase for 'no worries' as a title for a 'problem-free philosophy'² set to music. But, the more enticing the dream, the more effective the bottom line: no matter what, there comes the time when we must face up to our moral duties and fight for our own salvation and good life. The plot is well crafted and brilliantly written, and the film was a major success. Due to long life through home video, it will remain a major, if mostly unconscious, moral reference for many generations to come.

By the mid-Nineties, Walt Disney Company began to produce low-budget, direct-to-video films as sequels to major productions. *TLK* made no exception: in 1998 *The Lion King II: Simba's Pride* was released. Generally, low-budget has also meant low-quality, and this case makes no exception. Like its older brother, the sequel is also inspired by a Shakespearean archetype: the one set by *Romeo and Juliet*'s vicissitudes. Sadly, the borrowing is quite mechanical, with a limping plot and a sloppy animation. The pedagogical message, here, is very politically correct: a call to a more progressive attitude towards minorities. Halas, the poorly structured plot mostly prevents the attaining of such a commendable purpose.

By 2004, a third instalment of the *Lion King* franchise was released, *The Lion King 1½* (hereinafter *TLK ½*). And it was a whole other story, different not only from its predecessor, but also from any other Disney's sequels, both previous, following, and probably to come. The title already is revealing in two ways: the fraction ½ is mockery of the sequels' numbers and a clear reference to *The Naked Gun 2½* (1991), a comedy by Zucker, Abrahams, and Zucker, the notorious trio specialized in parodies of other films or genres. And, the same fraction puts the film in a strange position, *before* the sequel released six years before. Indeed, someone has called this film a 'syncquel,' or a 'sidequel,' and we shall soon see why. *TLK 1½* is, first and foremost, a postmodern toon. Not in the same way, however, as the many others that kept appearing since the Eighties. It is, and probably will remain forever, the most postmodern cartoon ever. So much so that, we could say, more than a postmodern film it is postmodernity personified (or 'filmified,' if we may say so). And, not so much postmodernity explained to the kids, as Lyotard would have it, rather postmodernity brought to the kids to grow up with as their sentimental education. To understand why, we must go back to where we started: the still image, the remote-control, the fast-forwarding.

From their shapes, it is easy to guess whom the black silhouettes belong to: Timon & Pumbaa, the deuteragonists of the first instalment. So what we have here is two characters of a film *stepping out* of the screen in order to watch it. This is what narratologists call 'metalepsis,' meaning, as Genette explains, "any kind of transgression, whether supernatural or playful, of a given level of narrative or dramatic fiction, as when an author pretends to introduce himself into his own creation, or to extract one of his characters from it. In other words, the word *metalepsis*, as part of a more general genre called 'meta-fiction,' defines any kind of narratorial device by which a 'sacred boundary' is broken: the one between the fictional

and the real world. Like Oliver Hardy seeking complicity with the public by looking directly at the camera. This last example already shows that metafiction is not born with postmodernity: Genette himself makes an example by quoting a passage from Diderot's *Jacques le fatalis*. But there is no doubt that it becomes a major device, if not *the* device, of postmodern poetics, and through whole new levels of complexity, putting in place intricate conundrums of ontological nature. So, Timon & Pumbaa are watching *TLK*, and a second degree of fiction superimposes itself on the first, pretending to be the 'real' one. The images of the 'watched' are fast-forwarding because the 'watchers' are arguing about what part of the film to watch. Timon is fast-forwarding to skip directly to the part when the two first appear in the story (around the middle of the film), Pumbaa disagrees. Here is their dialogue:

Pumbaa: "Uh, Timon, what are you doing?"

Timon: "I'm fast-forwarding to the part where we come in."

P: "But you can't go out of order."

T: "*Au contraire*, my porcine pal. I've got the remote."

P: "But everyone's going to get confused. We got to go back to the beginning of the story."

T: "We're not in the beginning of the story."

P: "Yes, we were – the whole time."

During this conversation, the film in the background keeps fast-forwarding and rewinding according to the contender's opinion (Pumbaa too holds a remote). But Pumbaa's last sentence comes as a revelation: in 'real life,' the two *existed* even before they entered the scene. So, at last, they agree to rewind, not just to the beginning, but "to before the beginning" to recount "the whole story." And, before we give a brief résumé of it, it is worthwhile to take a short recess to comment this first, revelatory dialogue.

The sequel we are watching is a "second-degree" product based on a "first-degree" original: the existence of the former depends on the one of the latter. It is, so to speak, ontologically *contained* in the first. But, from a narrative point of view, it tells a *broader* story, so that *the contained contains the container*. This is the first paradox, perhaps too subtle to be noticed at once, but one putting the premises for all that comes next. Pumbaa's warning, about the dangers of putting things "out of order" (a pun, meaning both 'contrary to natural order' and 'not working'), is self-referential: a description, from within the film, of the deconstructionist attitude of the film itself, and of the possible confusing effect it can have. Timon's use of French language ("*au contraire*"), is a clear homage to French philosophy, the homeland of Deconstructionism. But the last line of the dialogue is what really gives us pause: the characters' talking of their life *when they are not on the screen* draws our attention towards something we wouldn't usually think about while watching a film: their reality status. In so doing, it ruptures what in literature is known as the "willing suspension of disbelief": a tacit pact between the author and the reader, where the latter suspends his common sense concerning possible implausibilities within the narrative in order to enjoy the reading. What for example consents us, in this case, to perceive as perfectly 'normal' a scene where two animals are sitting in armchairs, watching a film, and talking about it. And the real paradox, here, is that precisely their talking about their *actual* life is what breaks such a well-honed mechanism, forcing us to recognize their fictionality.

According to Brian McHale, the main feature of postmodern fiction, what he calls its "dominant", is that its poetics is dominated by *ontological* issues, as opposed to modern fiction, mainly directed towards *epistemological* issues. It does so by systematically and self-consciously shifting our attention from *what* is described to *how* it describes it. And, by doing so, it poses in question the relationship between fiction and reality, sign and referent. This kind of self-consciousness, and implied self-referentiality, is something we can generalize to the postmodern culture at large. While modernism

was more concerned about the world ‘out there,’ about how much we can know what we see, and how much we can meaningfully describe it, postmodernism turns its gaze from the outside to the inside. Actually, to the gaze itself. If, as often has been suggested, postmodernism can be seen in many respects as a continuation, and amplification, of what was already present in modern sensibility, on the contrary this reversal could justify the idea of a postmodern *turn*: an abrupt interruption of a long tradition dating back at least to Renaissance, as theorized by the words of Leon Battista Alberti when he described paintings as *windows* on the world, from which to see *facts* as they *are*. By turning inward, the postmodern gaze loses its referent. But it is not just a question of using language self-referentially, rather of discovering that language is inherently self-referential, that it never really touches what it should stand for. At best, it redoubles reality, superimposing a layer of signs whose meaning cannot be explained but by other sign. The *window* turns into a *mirror*: as Maurice Blanchot poetically puts it, “... there is no longer a limit of reference. The world and the book eternally and infinitely send back their reflected images. This indefinite power of mirroring [...] will then be all that we will find, dizzily, at the bottom of our desire to understand”.

The effect of this infinite recoiling so powerfully described by Blanchot is dizzying, like the act of looking at the infinitely multiplied image of yourself from between two mirrors. This is what happens when the referent becomes *self*-referent. There is, in critical theory, a precise definition for this phenomenon: it’s called ‘*mise-en-abyme*’.¹ An effect of self-referentiality, a *mise-en-abyme* happens in particular whenever – in an image, or a text, or a film – the contents contain the container, as iconically exemplified in the famous advertising of Droste cocoa². [Fig. 1]

¹ See: Lucien Dällenbach, *The Mirror in the Text* (1977), University of Chicago Press, Chicago, 1989.

² The *myse-en-abyme* is also known as “Droste Effect”.



Fig.1 Jan Misset, Droste cocoa packaging (1904)

TLK ½ is case in point, but it doesn't stop at that. Like its father/son *TLK*, *TLK ½* also has an archetype: Tom Stoppard's theatrical piece *Rosencrantz and Guildenstern Are Dead* (hereinafter *R&G*), premiered in 1966, one of the first and most famous postmodern plays ever written³. Now, this play is also meta-fictional: it is the theatrical piece *Hamlet* seen from the eyes of two side characters, staged in a theatre, mostly during the representation of *The Mousetrap*, which is a theatrical piece played within the *Hamlet*. In mathematical terms, we could say that *TLK ½* stands to *TLK* as *R&G* stands to *Hamlet*. So *TLK ½* is a 'chiastic' *mise-en-abyme*. Or, always in mathematical terms, the equivalent of infinity raised to the power of infinity. Which is mind-boggling, as it should be. Here too, *R&G* is chosen by *TLK ½* as an archetype: the two share the same 'mood,' not the plot. Many adjectives used by critics to describe *R&G* could safely portray *TLK ½* too, as in "fragmenting," "defamiliarizing," "displacing," ...⁴

³ *TLK ½* is "sort of a 'Rosencrantz and Guildenstern are Dead' for the pre-teen set." The Lion King 1½, Review, *Movieretriver*, 2004.

⁴ "Many critics have described this as an exercise in postmodernism, fragmenting, defamiliarizing, and displacing as it does one of the most canonical texts of English literature and Western culture; Roger Sale also regards it as an act of depoliticization". Julie Sanders, *Adaptation and Appropriation*, Routledge, London, 2006. pp. 56-57. Genette too, in *Palimpsests*, talks about *R&G*: *Palimpsests*, cit., pp. 292-293.

But then, once again, each one walks his own, each one 'imprisoned' in the plot they are embedding (and embedded in).

TLK ½'s broader plot is quickly told: it begins depicting Timon's grim life, within a community of fellow-meerkats, in a desertic land. Since the meerkats are "so low on the food chain⁵," the community is rigidly organized in teams excavating tunnels underground twenty-four hours a day, to avoid predatory hyenas (the song "Digga Tunnah," marking the workers' automated movements, is one of the film's best accomplishments). Timon's character is portrayed as the typical unruly fellow who doesn't fit in, an 'out of the box' guy unable to accomplish what 'common people' expects from him. After messing things up a couple of times, he decides to leave the community (and his possessive mother) to find his own path in life. On the way, he meets wise old mandrill Rafiki, who bestows on him one of his trademark maxims of wisdom: to find yourself – he says – you must "look beyond what you see." Timon takes the advice literally and this is why he begins a quest infinite by definition, in the company of Pumbaa, whom he met and teamed-up in the meantime. From there on, the plot converges with *TLK's* master narrative, touching upon its key episodes and supplementing them from a sideways glance, in a syncopated and anti-climatic way. But it is precisely here, when it abandons even an excuse for a plot, that the film reveals its true nature, by deconstructing all the tacit epistemological assumptions of the master narrative it parasitically lives on.

In *R&G*, right at the beginning, the play shows us Guildenstern in the act of playing head or tails with Rosencrantz. He tosses a coin for ninety-two times in a row, each time getting inexorably head. It is a long, spellbinding and unnerving scene, as such attracting the attention of many commentators. The probability of obtaining head after ninety-two tosses is one in five octillions. As to say impossible: but only in a world where each toss is chronologically bound to each other, not if each toss is isolated, unchained from the others. So, since the beginning, the play depicts a condition of *suspended time*, one where all the following events from Shakespeare's tragedy float, like fragments failing to cohere in a sensible whole. The remote control in the hands of Timon and Pumbaa is *TLK ½'s* equivalent for the coin tossing, a device by which time becomes *spatialized*: either reversed or fast-forwarded, all events virtually co-present⁶, and the master narrative is undermined. Time is also *stopped* at will: every time the plot reaches a peak of particular intensity, one of the two spectators freezes the image under some pretext: commenting on the events portrayed, saying things like "do you mind if I pause for a second?", going to get some snacks while the other picks his nose⁷. The overall intended effect is highly anti-climatic.

⁵ Timon's words.

⁶ "Time has become a perpetual present and thus spatial. Our relationship to the past is now a spatial one". Fredric Jameson, in Anders Stephanson, "Regarding Postmodernism. A Conversation with Fredric Jameson", *Social Text*, n. 17, 1987. p. 32.

Much has been said about the spatialization of time, but perhaps the best way to understand it is to read a short passage in a Kurt Vonnegut's novel, rendering it in a perfect allegory: "The most important thing I learned on Tralfamadore was that when a person dies he only appears to die. He is still very much alive in the past, so it is very silly for people to cry at his funeral. All moments, past, present, and future, always have existed, always will exist. The Tralfamadoreans can look at all the different moments just the way we can look at a stretch of the Rocky Mountains, for instance. They can see how permanent all the moments are, and they can look at any moment that interests them. It is just an illusion we have here on Earth that one moment follows another one, like beads on a string, and that once a moment is gone it is gone forever. When a Tralfamadorean sees a corpse, all he thinks is that the dead person is in bad condition in that particular moment, but that the same person is just fine in plenty of other moments. Now, when I myself hear that somebody is dead, I simply shrug and say what the Tralfamadoreans say about dead people, which is 'So it goes.'". Kurt Vonnegut, *Slaughter Five, or The Children's Crusade* (1969), Dial Press, New York, 2005. pp. 33–34.

⁷ In one case, just when images are showing Timon's uncle running for his life, Pumbaa sits on the remote and mistakenly switches to QVC shopping channel, ending up on a leather goods commercial: "Suede is the look for this fall. *Of course, that is what's happening* up in every magazine". My emphasis.

Moreover, as the plot unfolds, we discover that the two buddies were unacknowledged witness to all the key events of the saga: Simba's presentation on Pride Rock, Scar's neo-nazi conspiracy with the hyenas, Mufasa's death. But, engrossed in looking for what lies "beyond what you see," they never see – nor realize – what is really going on! In a specific case, they alter unknowingly the course of the facts as we knew them, and this is perhaps the film's most telling scene: we discover now that all the animals kneeling around Pride Rock, at the beginning of the story, were not acting out of respect for the future king, but fainting as an effect of one of Pumbaa's legendary farts. So we are left with one scene with two antithetic meanings, each one true in its own universe. But since the two universes are conflated here in one, what gets broken is the master principle of all western logic: the law of noncontradiction. After linearity, progress, and teleology, causality too goes down the drain; and with them, all the basic dichotomies that strung together all the master narrative's facts in a consistent and quasi-deterministic string of events, leading the premises to their logical outcomes. If *TLK* was a novel about being and becoming, here the being is questioned and the becoming has disappeared.

The point is, there is no becoming without being, and being has remained *out there*, untouched by a language who has discovered itself as an autonomous system, with its own rules and conventions. During the whole film, the authors never fail to remind us that what we are watching is precisely that: a film. They do it in multiple ways: by delving in its intertextuality⁸, in a turmoil of quotations from other films (*Casablanca*, *The Blues Brothers*, *Apocalypse Now*, *The Good the Bad and the Ugly*, to mention just a few); and, by exposing cinematographic language – and by implication all language – as inherently metaphorical. There is a scene when Pumbaa's running is shot in slow-motion: a mock quote of Simba's epical come-back in *TLK*. Only, this time he is not in slow-motion, but just running slowly, to allow Timon to catch up with him. In another scene, Timon complains that he is unable to concentrate because the film's soundtrack is too loud. The catchphrase of the film, Rafiki's "look beyond what you see", is also the key to its understanding: the authors themselves suggest so, by making Timon's mother warn Rafiki about the dangers of talking in metaphors. The lesson we can draw is that, actually, we must look 'within what we see': i.e. we must never forget that we are not attending to a story, but a film telling a story.

The film's ending scenes are consistent with the overall setting. After Simba and Scar's showdown – and, here again, the violent fight and Scar's subsequent death is just glimpsed from far away – Timon and Pumbaa, together with the whole meerkats' community, leave Pride Rock and move back to the Hakuna Matata, the heavenly place in the jungle named after the eponymous song. There they are joined by Simba, who – just ascended to the throne – has apparently forsaken his duties to go and live forever with his friends, in the pure bliss of suspended time: de-commitment as the only possible rule of life is the new pedagogical message.

In *The Birth of Tragedy*, Nietzsche describes Hamlet's irresoluteness as the tragic effect of witnessing the "horror or absurdity of existence". Here we can understand – he adds – how art is the only "sorceress" enabling us to go on with our lives, providing us with the notions of "the *sublime* as the artistic taming of the horrible, and the *comic* as the artistic discharge of the nausea of absurdity¹⁰".

⁸ The term "intertextuality" was coined by Julia Kristeva, "Word, Dialogue, and Novel" (1969), and "The Bounded Text" (1969), in *Desire in Language*, Columbia University Press, New York, 1980, pp. 36–91, where it was introduced to describe how, in texts, meaning is shaped by their implicit relationship with other texts. The concept has little to do with matters reciprocal influence between authors, whereas is central as a device to undermine the authority of authors' intentionality.

⁹ Friedrich Nietzsche, *The Birth of Tragedy* (1872), Vintage, New York 1967, p. 60. Nietzsche's emphasis.

¹⁰ *Ibid.*

Following Nietzsche's hint we could say that, paradoxically, *TLK ½* is much more akin to *Hamlet* than *TLK* was, even if *Hamlet* was the latter's chosen archetype. Inaction – in *TLK* – is only temporary, and horror does not prevent Simba from punishing the bad guys and restoring the proper order of things. If the general mood is tense and dramatic, much more than you might expect from a children's cartoon, nonetheless it can never reach the overwhelming sublime, because man (the lion) remains firmly in charge of his destiny. To the contrary, *TLK ½*'s comic attitude brings absurdity, of events no longer relating to each other, to the only possible outcome: self-ironic detachment, story without history.

But the Hakuna Matata is only the happy ending of the film watched within the film, while another happy ending is coming to wrap it up. Timon and Pumbaa's silhouettes start talking again while the images of the 'grand finale' (Timon's words) fade in the background, when suddenly a crowd of people begins to invade the movie theater: first Timon's mother, with Rafiki and Simba, then... Mickey Mouse, Snow White and the seven dwarves, Aladdin, Donald Duck, Goofy, Lily and the Tramp, Alice and the Mad Hatter, Donald Duck, Peter Pan, Dumbo, Sleeping Beauty with the three fairies, and many others it becomes difficult to distinguish. A myriad of characters, from worlds we used to think as ontologically apart, all come together in a single place, adding to the feeling of unreality haunting us since the beginning. Everybody wants to watch the movie again, the remote clicks and the images start rewinding. At first Timon disagrees, then he surrenders: "hakuna matata", he says. Lights off, the film starts all over again. "*Nants ingonyama bagithi Baba...*"

With the suspended time of the fiction encapsulated in the suspended time of the meta-fiction, the *mise-en-abyeme* is put *en abyeme*. Cartoon characters' life expectancy is virtually infinite, so these voluntary prisoners of language could keep watching the movie forever, till the end of time.

Spider-Man's Web of Worlds

Fourteen years later. Another movie, another mantra.

"All right, let's do this one last time. My name is Peter Parker. I was bitten by a radioactive spider and, for ten years, I've been the one and only Spider-Man. I'm pretty sure you know the rest. I saved a bunch of people, fell in love, saved the city, and then I saved the city again..." And the *mise-en-abyeme* is already served *en abyeme*, *in medias res*, at the start of the movie. Meanwhile, the doubt whether this is by no means the beginning of the film (or the only real one, if any) is besieging the viewer. These words immediately suggest this is not a simple movie in the Spider-Man franchise. On the other hand, assuming Spider-Man is not unique is not really a negligible thing. There is trouble ahead, at least on the theoretical side.

In a blending of self-confident and apologetic tone for being yet another Spider-Man movie, Peter Parker introduces himself in a sort of meta-textual prologue, mocking the chance of an origin story to be original. Of course this is not an original story. Perhaps, not even a story. Rather, this is a highly sophisticated narrative device, under the guise of an animated movie – probably the more fitting media for carrying it out. Facing such a work, epistemic certainties falter and fall – especially for those who still think of a real physical world made up of "brute facts", with one univocal meaning and gazing point.

If the aim of *TLK½*'s 'chiastic' *mise-en-abyeme* seemed to be one of shaking all the collective confidence in the traditional aesthetics of textual exclusivity and autonomy, while opening issues about the relationship between sign and referent, facts and fiction, here the stakes are higher. *Spider-Man: Into the Spider-Verse* (2018, hereinafter *SMSV*) goes beyond, striving for a deepened analytical role towards the mature outcomes of postmodern culture – being itself one of them. An aware older audience target, a

science-fiction character part of a varied franchise, as well as the greater distance from first postmodern narrative turn, give the chance to do it.

Starting from what seems to be a perfect understanding of the deconstructionist and Lyotardian lessons, the movie boosts their topics to explore how broad the concept of world can be, walking a tightrope between epistemology and ontology. Thus, the plot runs a straight course from the beginning to the end. But the course is straight only on the surface, while hiding the turmoil laying beneath. Indeed, *SMSV* offers many and multiple levels of storytelling, crossing-overs, rebootings, and options for different routes, to broach reality's multiplicity. By doing so, the movie sequences put on stage the main topics of fiction theory, a field emerging at the crossroads between literary criticism and philosophy, by applying possible worlds theory to literature. Yet, the real goal seems one of reflecting on constructivist epistemology, its radical relativism "that eventuates something akin to irrealism¹¹," and its power to make and re-make real worlds. Welcoming us in such a sort of 'Hakuna Matata' universe "under rigorous restraint¹²," where almost "anything goes¹³," *SMSV* plunges us – like Alice – in a wonderland where we necessarily shall face up some "trouble with Truth¹⁴."

After the weird introduction, some reassuring elements come out. Spider-Man (or rather, the one currently on-screen, doing the emo dance from Spider-Man 3) seems to be there to comfort the viewer by making a list of his multiple ways of being in the real world, stopping (maybe we should say pausing) the ontological questions about his uniqueness. A burst of mishmash quotations and extradiegetic¹⁵ elements is proudly shown: "We don't really talk about this. Look, I'm a comic book, I'm a cereal, did a Christmas album. I have an excellent theme song. And a so-so popsicle. I mean, I've looked worse. But after everything, I still love being Spider-Man. I mean, who wouldn't? So no matter how many hits I take, I always find a way to come back. Because the only thing standing between this city and oblivion is me. There's only one Spider-Man. And you're looking at him."

The images accompanying the speech quickly skim through different levels of reality, different existences, and moments of the character, overturning the levels. First of all, Spider-Man takes for granted his very existence in a comic book, where he originally was born, as if he was a real person to which the comic is inspired. Then, he shows the merchandising and the theme of the 1967 cartoon series. The melted down portrait-popsicle is a real photograph (not a cartoon effect), as well as the image of the '60s theme is a real old TV clip. In few seconds, the movie raises many narrative and ontological issues. In particular, the frames where he records the Christmas music album (listened by a character within the film) open the deep question of his possible existence offstage. On the other side, the comic book, the popsicle picture, and the old TV pictures (in 4:3 ratio) are ironic about the particular narrative situation the film itself is entrenched in.

A situation that, according to Henry Jenkins, "represents a process where integral elements of a fiction get *dispersed systematically across multiple delivery channels* to create a *unified and coordinated entertainment experience*¹⁶." Typically, inside the same franchise different media make their

¹¹ Nelson Goodman, *Ways of Worldmaking*, Hackett, Indianapolis 1978. p. x.

¹² *Ibid.*

¹³ The expression "anything goes" in this kind of argument, refers, of course, to its employ by Paul Feyerabend in its book *Against Method: Outline of an Anarchistic Theory of Knowledge*, New Left Book, London & New York, 1975.

¹⁴ Cf. Nelson Goodman, cit., pp. 17–20.

¹⁵ In narratology, the term "extradiegetic" means "external to the fictional world of the narrative."

¹⁶ Italics in the original. Henry Jenkins, "Transmedia Storytelling 101", *Confessions of an Aca-Fan*, 2007. However, the main Jenkins concept definition is: "A transmedia story unfolds across multiple media platforms, with each new text making a distinctive and valuable contribution to the whole. In the ideal form of transmedia storytelling, each medium does what it does best [...] Each

contribution to the unfolding of the main story by offering the public more and more stories taking place in the same storyworld. Robust marketing and merchandising strategies thrive at the forefront of this battle, exploiting the popularity of single-medium successful narratives. This means that, in the last decades, what has been called ‘transmedia storytelling’ has affected a peculiar narrative aesthetic, especially in conglomerates like Marvel or DC Comics, in particular in superhero storyworlds as those of Spider-Man’s or Batman’s.

As a wholly result of such a vogue, *SMSV* exploits the vein itself to make fun of it at the same time. This allows *SMSV*’s creators to put in place even a sort of ‘*meta-mise-en-abyme*’: an upper level meta-textual discourse ironizing about itself and the typical postmodern narrative devices. Such intertwining of levels happens in several ways during the movie, blending more than one narrative device and crossing different ontological levels in a sort of complex, un-hierarchical Matryoshka effect. For example, during the action – before the raid to the Alchemax headquarter – the characters refer to their deeds on the comic books of origin, using the drawn strips by way of tutorial and giving rise to a complex overlapping of narrative devices and crossing of reality levels. So the main level of narration combines at least to another media part of the same franchise: a worlds blending, an external analepsis¹⁷, and a *mise-en-abyme* at the same time.

Another essential feature of that scene, pivotal for this argument, must be taken into account: by referring to their comic books to collect advice about their next move, the characters gain access to their very feats in a sort of frozen, circular time. The timeless, deconstructed present of postmodernity is what allows their contemporary existence in comics *and* on the scene, showing how chronological time has abdicated in favor of reversibility, and circularity¹⁸. The rebooting plot with different routes makes of *SMSV* a masterpiece of deconstructed, circular time.

The “you know the rest” motif of *SMSV* is a powerful and resourceful formula. In particular, the motto is a key for focusing on more than one feature of the movie. Indeed, it is a highly effective deconstructive tool, as well as working as a secure anchor toward the entire narrative ecosystem of the long-lasting Spider-Man franchise. Of course, the script can use it because the story of almost every Spider-Man is well-known by the audience. Likewise, the reboot is the primary device to deconstruct the plot, hinting that there is no ‘absolute story’ of the Spider-Man, least of all a “one and only” Spider-Man.

In this light, the movie seems to go far beyond the coordinated entertainment experience described by Jenkins, despite using and subtly teasing it. Rather, here the transmedial game seems closer to Marsha Kinder’s concept of “network”, where subjects are sliding signifiers, and their movement beyond the boundaries “requires us to look more closely at the cultural and historical specificity of the particular combination¹⁹”. In such a complex ecosystem, intertextual literacy is the key to survive to what media demand from us. Against the overwhelming sensory overload to process, we should become comfortable with the idea of *not* getting the whole picture. Such is the experience boost on every level by *SMSV* both aesthetics and intellectual overflowing. Across its continuous re-mirroring, *SMSV* is the plastic demonstration of what deconstructionism calls “dissemination of meaning”. The opulence of identities, quotations, and different points of view, each one reverberating and modifying the other, outdates the mere fiction continuity distributed across different storylines – typical of superhero universes, not to mention the still popular idea of storytelling as a self-contained narrative object.

franchise entry needs to be self-contained [...]” Henry Jenkins, *Convergence Culture: Where Old and New Media Collide*, New York University Press, New York, 2006. pp. 95–96.

¹⁸ Cf. Catherine Burgass “A Brief Story of Postmodern Plot.” in *The Yearbook of English Studies*, vol. 30, 2000.

The mazy and amazing ‘genealogy’ from Hamlet’s stage to the Timon’s remote-control made *TLK*½ a postmodern toon, perhaps *the* postmodern toon. But, in the true spirit of postmodernity, *SMSV* succeeds in adding a ‘post’ to the post. Here, postmodernity is not only personified, but self-consciously and ironically looking at its own fragmented, overwhelming identity. *TLK*½’s children have grown up in that postmodern sentimental education, so they will have no hesitations to face here the maelstrom of deconstruction of truths and identity that never stops rebooting itself.

Building fictitious realities has always been an intrinsically human activity²⁰. Just think both the children’s ability to promote a stick in a hobby horse²¹ and to the Homo Sapiens mythopoeic skills to imagine things or stories blended to reality, giving birth to fictions, myths, godheads to share through language²². But even if this attitude is fully part of our cognitive life, modern rational thinking has sought to reduce it as something slightly more than a simple form of entertainment²³. Postmodernity sensitivity has brought this talent back into the spotlight, proudly exhibiting our linguistic nature. So, although we are accustomed to any kind of intertwined stories – since they are hardwired in our mental capacities, focusing on such an attitude is a typical postmodern concern, systematically explored and elevated into an aesthetic only in the last decades.

The postmodern narrative turn, the mediatic supply explosion and, even more, the philosophical achievements and acknowledgment of infinite perspectives from which reality can be described, give rise to what Marie-Laure Ryan defines as a genuine “aesthetics of proliferation²⁴.” Contemporary cultural scenario implements several ranges of possible relations between worlds, texts, and stories, sorted by Ryan in three main forms²⁵. In the “*narrative proliferation*,” multiple stories are told about the same world, while in the “*ontological proliferation*,” many worlds sprout within the same story, often supported by the modal logic and the concept of possible worlds²⁶. And, in “*textual and medial proliferation*,” many different texts and media converge around the same world. Thanks to a plot seemingly built *ad hoc* for the task, *SMSV* comes out as a champion in the aesthetics of proliferation: it complies with all three the forms at the same time, blending them in the same work.

In science-fiction, as when talking about possible worlds, coherence is crucial in the establishment of truth conditions. In essence, it is what makes a world consistent, allowing the franchise continuity²⁷. The huge Super-Collider machine built by the villain Kingpin – to access parallel universes and bring back his dead family – is at the core of the events, both as the cause and the solution. It is the plot device letting the Spider-Men and their worlds meet, and making the movie consistent – at least in a sci-fi cartoon narrative horizon. By doing so, the plot introduces the possibility of multiple realities, but – above all – the implicit core message: there is no absolute reality, just like there is no one absolute story of the Spider-Man. In other words, none of the seven Spider-Men (plus two, in the *mise-en-abyme* bonus scene at the end of the credits²⁸), presented with their peculiar qualities, props, graphic and ontological rules, can claim the right to be “the one and only Spider-Man.” By tacitly dismissing the thought there was anything inherently special about Peter Parker, and weakening by many deconstructive strategies of the unique identity of Spider-Man²⁹, the film suggests that there are no absolute truths, nor privileged

²⁷ DiGiovanna observe how “In following up from Goodman’s adoption of the Tarski truth conditions, worldmaking is where the artist is more concerned with creating the truth conditions for fictional texts than with the creation of the texts.” James DiGiovanna, James. “Worldmaking as Art Form.” cit. p.116.

²⁸ Spider-Man 2099 (from Marvel’s Earth-928) meets in this bonus scene the first Spider-Man in the original Marvel’s Earth-67 cartoon.

²⁹ Just think of the scene of Spider-Man I memorial service, in which his wife Mary Jane Watson talks to a pained crowd of people masked as Spider-man. The acme of her speech is, “We all have powers of our own, in one way or another. We are all Spider-Man. And we’re all counting on you.”

perspective.

Such an admission not only closes Alberti's window on the one world: it opens a new, more complex and inclusive gaze on a reality made by a multiplicity of finite, singular, and self-aware points of view, seizing a wealth of possibilities previously unknown. Such a second-degree postmodern gaze wholly shifts the attention from the object observed to the observer, zeroing any neutral representation or description.

SMSV underlines such a statement through its graphics, providing a practical demonstration of the fact that "tools of representation are never neutral³⁰." Thus, the drawing style of each character maintains the peculiar ontological properties of its world (medium). For instance, the Spider-Man Noir³¹, inspired by Humphrey Bogart's thirties movies, is rigorously monochromatic. And his incapability to solve the Rubik Cube puzzle suggests that he does not perceive colors at all, absent as they are in his personal comic world. Likewise, Spider-Ham³² – a pig who looks like an old Looney Tunes character – appears faded, uses enormous funny props (huge wooden hammers, anvils, etc.), speaks in odd confused ways, and – of course – emits bizarre sounds. Furthermore, graphic disturbances and noises sometimes burst into the screen during the action, standing for tiny incongruences between co-existing worlds. What at first glance might seem wholly inconsistent, is instead ontologically consistent with both the world (and the medium) of each character and enforces the pluralistic aesthetics of the entire movie.

By dismantling any chance of a neutral description and subjecting representation to individuality, we rediscover ourselves as a subjects, and unmask that one Truth we had been immersed in to live with "calm, security and consistency," as Nietzsche wrote³³. The objective facts framed by Alberti's window will never come back: each fact will be framed into a theory, a speech, a world. And such awareness allows to discover how, thanks to language, we can build frames at will. The movie never stops rebooting itself, and everything is put in quotation marks, because in the postmodern, constructionist horizon, "everything said is said by someone³⁴."

With the concept of absolute truth wholly out of play, the typical postmodern reflection on sign and referent, fiction and reality, can take another step forward, involving the concept of 'world.' Here *SMSV* is at the forefront, suggesting a glimpse of how abundant and countless our inventories of reality can be. The term 'world' usually means 'everything that exists,' depicting a totality of things, a "complete inventory³⁵" of the whole. Yet, we know today how for humankind the material realm is not the only possible one, what with all the 'realities' that can be built and collectively shared in our minds: fictive realities, but not less effective for that. Humankind's main allies in such a task have always been the symbolic systems, language in particular, as the cartoon characters never cease to remind us.

Facing many realities, more than one inventory should be taken into account, but none of them all-encompassing. Hobgoblin, for instance, belongs to mythology and to Spider-Man's world, but he is not – at least for the moment – included into the realm inventories of *TLK* or Peanuts. And all these are

³⁰ Cf. Alberto Pérez-Gómez, "The revelation of order: Perspective and architectural representation." in *This Is Not Architecture: Media Constructions*, Taylor & Francis, London, 2002.

³¹ Created by writers David Hine and Fabrice Sapolsky and artist Carmine Di Giandomenico, Spider-man Noir first appeared in Spider-Man: Noir #1 in February 2009, the first part of a four-issue miniseries.

³² Hailing from Marvel's Earth-8311, Spider-Ham was created by writer Tom DeFalco and artist Mark Armstrong. He debuts in a comedic one-shot comic entitled Marvel Tails in 1983. Spider-Ham was created by Tom DeFalco and Mark Armstrong.

³³ Friedrich Nietzsche, "On Truth and Lie in an Extra-Moral Sense" (1873), in *Friedrich Nietzsche on Rhetoric and Language*. Oxford University Press, New York, 1989, p. 252.

³⁴ Humberto R. Maturana, and Francisco J. Varela, *The Tree of Knowledge: The Biological Roots of Human Understanding*, Shambhala, Boston and London, 1992, pp. 26–27.

³⁵ C.D. Broad, *Scientific thought*. K. Paul–Trench–Trubner, London, 1923. p. 242.

intuitively different from those of Emma Bovary or the theories of Einstein or Darwin (worlds does not pertain just the fiction³⁶). Nevertheless, we cannot exclude *a priori* any possible future blending of them – as in the ‘gran finale’ of *TLK*^{1/2} or as in *SMSV*, nor consider them just a narrative chance. Indeed, according to Goodman, such realities built by symbolic systems are not “multiple possible alternatives to a single actual world but of multiple actual worlds³⁷.”

SMSV’s attitude of closing everything in quotation marks, shifting our attention from *what* is described to *how* it is described, reminds us how “we are confined to ways of describing whatever is described³⁸.” Thus, in the absence of neutral language³⁹, each description of the world actually presents us with a different world: there is a world for each different way of combining and building symbolic systems and, from a “solemn and severe master”, truth becomes a “docile and obedient servant,” as Goodman synthetically assesses the situation⁴⁰. Of course, worldmaking goes “under rigorous restrain,” and, as in sci-fi, consistency is the first rule. In essence, nobody makes “a world by putting symbols together at random than a carpenter makes a chair by putting pieces of wood together at random⁴¹.” But that is the beauty of the game, and, as human constructions, such worlds’ status depends upon their explorers who, in turn, become worlds-builders in a multiple dance of continuous switching of roles. *SMSV* offers us a brand-new world, collecting old friends from existing worlds, since “worldmaking as we know it always starts from worlds already on hand; the making is a remaking.” As a movie that is going on rebooting itself⁴².

Neverending Postmodernity

No art has ever been modern like architecture. During its ‘heroic years’ (and this characterization is already symptomatic), architecture has never known a ‘negative side’, weakening – or at least tempering – from within modernism’s faith in progress and in art’s role to achieve it: there is no architectural equivalent for Duchamp’s derisive attitude, or even Joyce’s disruptive experiments, both widely considered from hindsight to have been harbingers of postmodernism⁴³. This is why architectural postmodernism has often been considered a well-rounded phenomenon, easy to define and to place historically⁴⁴; one avoiding the pitfalls you may stumble into while trying to define its deeds among the other arts. In architecture, to be *postmodern* has meant – for about a decade – to be *against* modern. Plain and simple. Yet, this could be a formalist reading of a movement that in turn has been accused and subsequently condemned for its formalism.

To understand why, we could go back to Alberti’s window. Modern architecture bypassed any problems related to the gaze’s objectivity by advocating for itself the role of *changing* the world for the better, as opposed to the one of looking at it or even of simply being part of it. It could be argued that, if moral

³⁶ “The arts must be taken no less seriously than the sciences as modes of discovery, creation and enlargement of knowledge in the broad sense of advancement of the understanding, and thus that the philosophy of art should be conceived as an integral part of metaphysics and epistemology. [...] Works of fiction in literature and their counterparts in other arts [...] play a prominent role in worldmaking: our worlds are no more a heritage from scientists, biographers, and historians than from novelists, playwrights and painters.” Nelson Goodman, *Ways of Worldmaking*, cit. pp. 102–103.

³⁷ *Ibid.*, p. 2.

³⁸ *Ibid.*, p. 3.

³⁹ Neurath call the neutral language ‘*tabula rasa*’. Cf. Otto Neurath, “Protokollsiitze” in *Erkenntnis*, 3, 1932-1933. p. 206.

⁴⁰ Nelson Goodman, *Ways of Worldmaking*, cit. p. 18.

⁴¹ *Ibid.*, p. 94.

⁴² *Ibid.*, p. 6.

⁴³ See, for example, Ihab Hassan, *The Right Promethean Fire*, University of Illinois Press, Urbana, 1980. p. 108.

⁴⁴ See, for example, Matei Călinescu, *Five Faces of Modernity*, Duke University Press, Durham, 1987, pp. 279–287.

commitment was a character shared between all modern arts, this has been even truer for architecture, given its possibility of materially intervene upon reality. It is a fact that, however, not long after WWII, architecture – and art in general – lost this moral faith, so much so that postmodernism could be thought as a way of coping with the grief of such a loss. Confronted with the failures – in terms of banalization, alienation, and people's marginalization – of the 'rational' and 'radiant' architectural policies favoured by general consensus, architecture experienced the hard way its powerlessness to deal with problems of eminently social and political nature. At the end of a road paved with good intentions, modern architecture discovered none other than itself, as a language with its own rules and conventions.

To think postmodern architecture mainly as a style, moreover a style looking at classicism as a stance against modernism, is a misunderstanding born from an excessive focus on its first steps and a refusal to look at the bigger picture. What actually happened is that, by losing the world outside as its founding referent, architecture became *self-referential*: here again, the window turned into a mirror. This was already clear within postmodern architecture's most famous public event – Venice Biennale 1980 – suggested by Rem Koolhaas', Frank Gehry's, and Arata Isozaki's minimalist façades alongside a jubilation of arches and columns facing the Strada Novissima. And it was definitely sanctioned by 1988 exhibition *Deconstructive Architecture*, at the MoMA, showing the works of seven most fashionable 'starchitects', all more or less inspired – as stated by the curator himself – by Soviet Constructivism. All, at the same time, deprived of whatever social and political impetus characterizing the Russian movement. To look today at the exhibition's materials can give a fair explanation of why cynicism is considered another of postmodernism's distinctive features⁴⁵.

From then until now, architecture has literally emptied all the scraps lying in the big supermarket of modernist techniques, from Dadaist procedures to Arte Povera's matterism.

The result is a sequence of new formalisms succeeding one another, each one supposedly putting forward a new 'world' of meanings replacing the other. However, since the historical reasons for their being as other than language (their referent) has been stripped away, each new world simply joins the others without replacing them. The result is a coexistence of multiple worlds that should stay ontologically apart, but manage to coexist pacifically, one alongside the other in the spatialized time of intertextuality. Moreover, the media through which architecture is mostly 'consumed' nowadays (magazines and the web), relentlessly recombine images, texts, and ideologies – themselves reduced to pure form. And architects' already flourishing activity of worldmaking is thus exponentially multiplied.

So yes, perhaps *the* Postmodern, as a recognized architectural movement with its friends and foes, is dead. But postmodernity as a *condition* is still there and architecture is unescapably part of it. Postmodern as a willed outcome of the work of some authors has given way to postmodernity as a lived cultural environment. Mostly unconsciously, but no less effective for that. As Derrida often said, deconstruction is not something you intentionally put in place: it occurs [*ça arrive*]. We can find this characterization, between the other places, in the transcription of a speech given at a seminar called *Deconstruction is/in America*⁴⁶. In the course of the speech, Derrida plays – as he usually does – with words, hinting at a certain point that – perhaps – Deconstruction *is* America. Perhaps it is – we could

⁴⁵ Cf.: Timothy Bewes, *Cynicism and Postmodernity*, Verso, London, 1997, p. 3.: "Cynicism appears in the place left empty by the mass cultural retreat from politics itself."

⁴⁶ Jacques Derrida, "The Time is Out of Joint", in Anselm Haverkamp (ed.), *Deconstruction is/in America. A New Sense of the Political*, New York University Press, New York, 1995.

add – a cultural condition born in the homeland of global capitalism, to level all differences and abolish any ideology, and pave the way for the free circulation of goods and money. If true, this is the guarantee that postmodernity will live at least until global capitalism's modes of production and consumption will last.

Post-scriptum

The authors of this paper have written their parts under the duress of COVID-19 pandemic spreading all over the world, each one confined in his house and dialoguing with the other only through the Internet. Nobody at the moment can predict how global capitalism will be affected by this epochal event and how much it will change itself to adapt. So perhaps this will be the last of their efforts to describe postmodernity as a relevant phenomenon of the present. It is true that, as David Lodge acutely pointed out, “history may be in a philosophical sense, a fiction, but it does not feel like that when we miss a train or somebody starts a war⁴⁷.”

⁴⁷David Lodge, *The Novelist at the Crossroad*, Cornell University Press, Ithaca, 1971. p. 33.

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Symbology and myth in ancient ships: the aplustre

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Abstract

The ancient ships had always been equipped with ornaments both in the bow and in the stern, which were generally raised above the other parts of the deck and placed above the point where the helmsman had his seat. The purpose of these ornaments was to flaunt power, but also to intimidate and ward off both evil spirits and enemies. At the bow, in addition to the animal-shaped rostrum, there was a decoration on the top of the bow, the *acrostolium* (ἄκροστόλιον), archetype of what would become the figurehead from the 16th century, and above the rostrum, where bow “sees” the sea, i.e. apotropaic eyes. In the stern, an element emerged in importance, which anticipates the symbol par excellence of ancient ships: the *aplustre* (ἄφλαστον), flanked internally by the *chéniscus* (χηνίσκος) goose-shaped ornament or more generally a bird’s head. The ornament we want to deal with in this short note is exactly what decorated the top of the stern like a plume: the aplustre. It is an ornament formed of wooden planks, an extension of the planking, which constituted the highest part of the stern of a ship. The aplustre was a one or more volute plume, otherwise in the shape of an animal with a twisted neck or simply a fan like a bird’s tail, a sign of recognition of the ship but also an image of the ship’s tutelary deity. The aplustre was the heart and soul of the warship and had to flaunt the strength and power of a navy; he was endowed with magical powers capable of protecting the ship during combat and of being a guide and protection for the helmsman during navigation. The myth of the aplustre as protection (or *tutela*) of the boat means that its destruction - as Lucretius and Cicero wrote - had to be teaching seafarers to admonish them in facing the pitfalls and dangers of navigation with the right respect for Poseidon. Not only that, the importance of this object was such that the aplustre was a sought after spoil of war at the end of a naval battle, for this reason, it was animatedly defended by sailors and furiously coveted by opponents. The strong symbolic value assigned to this constructive-decorative part of the ship also made it a sort of symbol-trophy, which was to be torn from the enemy ship and carried in triumph, otherwise it was exhibited as an emblem of a naval victory. Vice versa, his loss translated into the image of a tragedy for a defeat suffered a lack that had to be filled with a victory at sea to snatch the coveted trophy from the enemy again. The aplustre was, therefore, the representative ornament par excellence of ships, of great symbolic value on which «*fulgent Argos stellis*», as Germanicus wrote in the *Aratea phaenomena*.

Abstract

Le imbarcazioni antiche sono sempre state dotate di ornamenti sia a prua sia a poppa, questi ultimi generalmente sopraelevati rispetto alle altre parti del ponte e posti superiormente al punto dove il timoniere aveva il suo sedile. Il fine di questi ornamenti era di ostentare potenza, ma anche intimidire e allontanare sia gli spiriti maligni sia i nemici. A prua oltre al rostro a forma di testa di animale, c'era una decorazione sulla sommità della ruota di prora, l'*acrostolio* (ἄκροστόλιον), archetipo di quella che diventerà dal XVI secolo la polena, e sopra il rostro, dove la ruota di prua “vede” il mare, gli occhi apotropaici. Nella poppa emergeva invece per importanza un elemento, che anticipa il simbolo per eccellenza delle navi antiche: l'*aplustre* (ἄφλαστον), affiancato internamente dal *chenisco* (χηνίσκος) ornamento a forma di oca o più in generale di testa di uccello. L'ornamento di cui vogliamo trattare in questa breve nota è proprio quello che decorava la sommità della ruota di poppa come un pennacchio: l'*aplustre*. Si tratta di un ornamento formato con assi di legno, prolungamento del fasciame, che costituiva la parte più alta della poppa di una nave. L'*aplustre* era un pennacchio a una o più volute, altrimenti un animale a collo ritorto o semplicemente un ventaglio come la coda di un uccello, segnale di riconoscimento della nave ma anche immagine della divinità tutelare della nave stessa. L'*aplustre* rappresentava il cuore e l'anima della nave da guerra e doveva ostentare la forza e la potenza di una marineria; era dotato di poteri magici in grado di proteggere la nave durante il combattimento e di essere guida e protezione per il timoniere durante la navigazione. Il mito dell'*aplustre* come *tutela* dell'imbarcazione fa sì che la sua distruzione – come scrivono Lucrezio e Cicerone – doveva essere di insegnamento agli uomini di mare per ammonirli nell'affrontare le insidie e i pericoli della navigazione con il giusto rispetto verso Poseidone. Non solo, l'importanza di questo oggetto era tale che l'*aplustre* era un ricercato bottino di guerra alla fine di uno scontro navale, per questo motivo era animosamente difeso dai marinai e furiosamente ambito dagli avversari. La forte valenza simbolica assegnata a questa parte costruttivo-decorativa della nave ne fece anche una specie di simbolo-trofeo, che doveva essere strappato alla nave nemica, e portato in trionfo, altrimenti esibito come emblema di una vittoria navale. Viceversa, la sua perdita si traduceva nell'immagine di una tragedia per una sconfitta patita, un vuoto che doveva essere colmato con una vittoria in mare per strappare nuovamente l'ambito trofeo al nemico. L'*aplustre* era dunque l'ornamento rappresentativo per eccellenza della nave, di grande valore simbolico sul quale « *fulgent Argoæ stellis* », come scrisse Giulio Cesare Germanico negli *Aratea phaenomena*.

Introduction

The ancient boats had always been provided with ornaments both on the stern and on the bow. The stern ornaments were generally raised above the other parts of the deck and indicated the place of the ship where the helmsman seat was; on the other hand, those in the bow were intended to flaunt power, as well as to intimidate and send away evil spirits, as well as enemies. Already in the eleventh century BC, the bow and stern of ships were carved and painted both to distinguish one ship from another, and to identify a category of ships: for example, a hawk or a hawk's eye was drawn down on funerary Egyptian boats employed on the Nile River. The ships that date back to the Second Minoan period had a raised stern surmounted by the symbol of a fish. In pre-classical Greece, the bow had a high horn and a large eye and was connected to a sharp prominence above the water (what would later become the rostrum). In the stern was placed a great horn, which will anticipate the symbol par excellence of

ancient ships: the aplustre (ἄφλαστον)¹. In this way, the stern became as important as the bow: two oars-rudder (πηδάλια), a ladder to land, and at the top the aplustre, flanked internally by the chêniscus (χηνίσκος), a goose-shaped ornament or more generally a bird's head.

It was a form of representation, with signs, symbols and figures painted or carved in the wooden structures of the ship, testifying to some important aspects of a people's reality, aspects ranging from magic to religion, from myth to military power. As well as, for example, the apotropaic eyes (ἀποτρόπαιον) that were meant to ward off evil influence and equally scare the enemy. These eyes were a consequence of Democritus' theory (460 – c. 370 BC), the theory of idols or simulacra (εἰδῶλα), according to which atoms detach themselves from objects and hit those who look at them by means of their effluvium. In ancient times, and this tradition has been handed just down to the last century, sailors have always justified the existence of the eyes painted on the boat, believing that without them the boat would not have been in a position to “see” the sea and thus it would not have been able to avoid the obstacles encountered during navigation. In this way, the boat assumed the status of “living being”, capable of even following a route on its own or avoiding danger at sea. This feature was increasingly accentuated in ancient ships by the presence of the ears, *hepôtidae*² or anchor hoists, or perhaps the bulkheads closing the row of oars placed at the bow and protruding from the sides, that contained the oarlocks³. Aeschylus (525 - 456 BC) wrote that warships observed the horizon with eyes wide open, to distinguish the right course to follow⁴. The Phaeacians ships, told in the *Odyssey* of the Homeric tradition, were sailed without a pilot (helmsman), because they were able to understand the thoughts of man and to find by themselves the right route to reach the desired destination⁵. The Chinese, Egyptians, Phoenicians, Greeks and Romans followed this custom of decorating the bow of the ships. According to the people of Crete, the eye painted in the bow of the boat was that of the goddess Rhea, on Egyptian ships it was the eye of Osiris or Horus, on the Phoenician and Greek triremes a form of protection from the evil eye, for the Chinese instead it represented the eye of a dragon or that of a phoenix, so much so that in the Eastern tradition the eye of the ship, understood as a living creature, was a fundamental part of the ship itself. The eye was necessary because it allowed the ship to choose for itself the best route to travel. After a long period after the fall of the Roman Empire, in the Middle Ages the apotropaic eye disappeared perhaps entirely, and only in the early twentieth century in the Mediterranean minor navy did it reappear as a symbolic element of the “living” nature of the boat. Even today on the ‘luzzu’, a typical traditional Maltese boat used for fishing, apotropaic eyes are drawn in vivid colours⁶ and they are part of the local seafaring culture.

¹ Mollet, J. W. *An Illustrated Dictionary of Words used in Art and Archaeology*. London: Sampson, Low, Marston, Searle, and Rivington, 1883; p. 19.

² In ancient ships equipped with rostrum, the *hepôtidae* (ἑπώτιδες), or anchor hoists (large hoist, placed almost at the extreme bow of the ship and suspended overboard, intended to tie the anchor with the block to the cable of the hoist on the deck), indicate each of the two spikes placed in the bow, on the sides of the rostrum, to concur in the impact together with the rostrum itself. They often took their place when they broke in the collision [Casson, 1971; p. 85-86].

³ Medas, 2015-2016; p. 14.

⁴ Aeschylus wrote in the third episode of the *Suppliants*, giving voice to Danaus « The trimming of its sail, its side-guards, and the prow that with its eyes scans its onward course, obeying—all too well for those to whom it is unfriendly—the guiding rudder at the stern. » from Aeschylus. *Aeschylus, with an English translation by Herbert Weir Smyth, Ph. D. in two volumes. 2. Suppliant Women*. Herbert Weir Smyth, Ph. D. Cambridge, MA: Harvard University Press, 1926.

⁵ « For the Phaeacians have no pilots; their vessels have no rudders as those of other nations have, but the ships themselves understand what it is that we are thinking about and want ». See: Butler, Samuel. *Homer. The Odyssey. Rendered into English prose for the use of those who cannot read the original. Based on public domain edition, (revised by Timothy Power and Gregory Nagy)*. London: A. C. Fifield, 1900.

⁶ For more details see: Medas, 2010; p. 11-23 and Medas, 2015-2016; p. 12-18.

In the nineteenth century, the ‘cubìa’ eyes - hawse or area with anchor holes - of the iron vessel were associated by sailors as a form of evolution representative of the apotropaic eyes.

Nautical symbols

A second symbolic aspect of the ancient ships, from the Egyptians and then to follow in the Greek and Roman world, was to decorate the bow and stern of the ships with impressive elements; where, however, on the iconographic point of view there was the prevalence of the symbolic value of the object on the image itself, which was often only an evocative image of the significance recalled. The symbolic value attributed to a part of the ship revealed aspects of reality that could not be described or exhibited in any other form, and the form itself was conventionally used so that the object metaphorically represented a concept or belief to which it alluded. At first, an animal head-shaped rostrum (προτομή or pròtome) was used, or even a decoration on the top of the bow, archetype of what would become the figurehead, the mask, a mythical representation or even allusive to the name of the ship, and subsequently a religious symbol (for example the sculptures of saints), or a national emblem, or animals such as the lion, sea horses, dolphins, or the mythical gryphon or a unicorn; or even female images, such as the goddess Venus, the bride of Poseidon, Amphitrite, or simple mermaids, or even parchment and a swallow’s head. The figurehead of the HMS Victory - for example - depicts two cherubs holding up a shield, which bears the motto of the Order of the Garter “Honi soit qui mal y pense”. Some of these protomes were intended to terrorize less civilized populations. The Viking ships were equipped with monstrous heads on the top of the bow with the intent to terrify the enemies with the ostentation of dragons or hideous sea monsters. The Carthaginians often used a sculpture of Amun, the Athenians a statue of Athena, and an Athenian ship from 500 BC had a whole rostrum, carved in the shape of a boar’s head. The Roman ships, which made the rostrum a combat weapon, carved the very high stern with a golden swan head instead.

The bow decoration was the acrostolium (ἄκροστόλιον or akrostólion), whose literal meaning is high bank⁷, and it was the extension of the bow of the Greek ships, usually carved in the shape of an ornament. In the Hellenistic-Roman age, the acrostolium became a large spiral that rose and rotated backwards. This symbol was enriched with ship’s names or marks, or even greeting symbols, an archetype in a symbolic sense, as we have already said, of the figurehead. We have a documentation of this object in many ancient coins also because this symbol was used, among others, as a celebratory element of naval victories⁸.

⁷ The acrostolium was the end of the stólos (στόλος), the extension of the bow; in ships, it is the protruding part of the bow also called a spur. The stólos was projected from the head of the bow, and its end (ἄκροστόλιον) often had the shape of an animal or a helmet. It seems that this ornament was sometimes covered with brass and that it also served as a ram (ἐμβολή) against enemy ships [χαλκήρης στόλος (ram made of bronze or copper)]. « ... Then from our side arose in response the mingled clamor of Persian speech, and straightaway the ships dashed together their bronze prows. It was a ship of Hellas [410] that began the charge and chopped off in its entirety the curved stern of a Phoenician boat. » See: Aeschylus. *Aeschylus, with an English translation by Herbert Weir Smyth, Ph. D. in two volumes*. 1. Persians. Herbert Weir Smyth, Ph. D. Cambridge, MA: Harvard University Press, 1926.

⁸ Gusseme, 1773; p. 19-20. Gusseme notes that the aplustre is represented in the medals of Gades (Cádiz), Nicópolis of Epirus, Tire and in the commemorative medals of the Roman *gentes* Cassia, Cornelia, Servilia and in many commemorative coins of triumvirs and Roman emperors Pompey, Augustus, Vespasian, Titus, Hadrian and Pertinax.

The aplustre

The ornament we want to deal with in this short note is the one that decorated the top of the stern like a plume⁹: the aplustre (or apluster), from the Greek ἄφλαστον (aphlaston) and from the Latin *āplustre*¹⁰. *The aplustre was an ornament made of wooden planks, which constituted the highest part of the stern of a ship¹¹, in use by the antiquity's navy, even in those of the peoples of the sea, the Egyptians and the Phoenicians, although declined in different forms. So the humanist Johannes Schefferus (1621 - 1679) describes it: « When, however, there are two ends on the ships, one in the bow and one in the stern, these ornaments were twofold. And, in fact, the Greeks had given them distinct names. The one in the bow (it was called) ἀκροστόλια (read ἀκροστόλιον), and the one in the stern ἄφλασα (read ἄφλαστον) »¹². The shape and dimensions of this appendix were varied, as can be seen from the many representations on coins, bas-reliefs, pictorial and mosaic representations, etc., but without departing from a geometry that is quite common and made of curved lines, thin at the base, which them open upwards and resemble the wing or crest of a bird, the tail of a fish or the stems of a plant folded in the same direction, often similar to a plume with one or more volutes, otherwise, they have the shape of the crest of a twisted-necked animal or simply that of a fan with unfolded feathers, like those of a bird. In Egyptian ships, the aplustre was made of metal, unlike the Greek and Roman ones in which it was built with flexible wooden planks, and fixed, like the rostrum, to the wooden elements and then folded. It was worked to form a lotus flowered or an imitation of the feather of a bird's wing, as early as the 5th century BC¹³.*



Fig. 1 a) Acrostolium and aplustre, from Schefferi Joannis Argentoratensis (Johannes Schefferus). *De militia navali veterum Libri quatuor. Ad Historiam Græcam Latinamque viles. Ubsaliæ: Excudebat Johannes Janssonius, 1654; p. 156*; b) Smith, William (edited by). *A Dictionary of Greek and Roman Antiquities. New-York: published by Harper & Brothers, 1843; left, p. 58; in the center and on the right, p. 69.*

In the construction of the Roman ships, the aplustre was composed of curiously carved and painted boards in various colours. Probably some of the decorations of the aplustre served as a sign of recognition of the ship. Often the plume of feathers was fixed on the neck of a goose or a swan, as

⁹ « L'Aplustre avait généralement la forme recourbée, celle d'un panache, par exemple (The aplustre generally had the curved shape, that of a plume, for example). Eustathius [Eustathius of Thessalonica (c. 1110 – 1194)] wrote : Ἀφλαστον δὲ φασιν οὐχὶ τὸ ἀκροστόλιον, διαφέρει γὰρ αἱ λέξεις, ἀλλὰ κατὰ Δίδυμον, ὥς φησι Πανσανίας, τὸ ἐπὶ πρύμνης ἀνατεταμένον εἰς ὕψος ἐκ κανονίου πλατέων ἐπικεκαμμένων, διήκοντος δὲ αὐτῶν πλατέος κανονίου, ὑπηρεισμένον τούτῳ στυλίσκου ὅπισθεν τοῦ κυβερνήτου. » [Eustathii, 1829; v. 1039, 37; p. 294; quoted from Jal, 1848; Vol. I, p. 212].

¹⁰ *āplustre* (ἄφλαστον plural ἄφλαστα) or *āplustrē*, plural *āplustrīa*, *um* and *āplustra*, *orum*. Priscian (Priscianus Caesariensis, 512 - after 527) wrote: « Aplustre item quamvis faciat ablativum ab hoc aplustri, nominativum tamen pluralem non solum in a, sed etiam in ia terminat: et aplustra enim et aplustria antiqui protulisse inveniuntur » [Prisciano di Cesarea (Priscianus Caesariensis). *Prisciani*, 1819; p. 512].

¹¹ Smith, 1843; p. 69.

¹² « Quum autem duæ navium sint summitates, proræ scilicet, ac puppis, etiam ornamenta ista duplicia fuere. Ac Græci quidem etiam nominibus distinxere. Proræ quippe ἀκροστόλια, puppis autem ἄφλασα [aphlaston or aplustre, N.d.T.] nominarunt », Schefferi, 1654; p. 156.

¹³ Maspero, (1879); p. 13.

can be seen in some Roman mosaics and bas-reliefs, and to this was attached a ribbon coloured like a festoon, which served to indicate the direction of the wind.

Although simpler and less imaginative or “sacramental” than the bow ornament of ships, the aplustre had an important meaning in ancient times, even if the forms that this symbol assumed show a similarity with the acrostolium, the prolongation of the bow of the ship. In fact, in many ships, the stern was adorned with the image of the ship’s tutelary deity (tutela) and represented the heart and soul of the warship. Naval warfare, in fact, played a vital role in human history, as early as the 12th century BC with the birth of the Greek city-states, and precisely the city of Athens owes its dominion in the fifth century BC to the supremacy of its naval force. In fact, many Mediterranean cities prospered and declined depending on their naval power. Carthage, for example, was a powerful ruler in the Mediterranean, from the VIII century to the III century BC, for over 500 years, thanks to its ships and fleets, and then dominated only by the nascent Roman military power in the early second century BC. The Carthaginian honorary ships had a fish tail or volute frieze at the stern, ending with the aplustre, a zoomorphic frieze representing the head of a horse.

The aplustre was, therefore, the main ornament that decorated the upper part of the stern, a naval symbol that had to flaunt the strength and power of a navy. The aplustre, originally an abstract form of a bird, consisted of a precise number of curved axes, arranged in a fan shape, and joined together at the base by an ornament that resembles a circular shield¹⁴. In the history of the Argonaut’s expedition, it is described as a bird, perched on the stern of the Argo ship that offers oracular advice, both to the helmsman and to the sailors¹⁵.

During naval battles, with the sails furled and the mast placed on the deck, the aplustre was the only distinctive symbol of the warship and it was believed to be endowed with magical powers capable of protecting the ship during combats and to be a guide for the helmsman in naval evolutions. The symbology related to naval combat, therefore, made the aplustre a coveted trophy. In this regard, Homer writes in the *Iliad*: « [235] ... And Zeus, son of Cronos, shows them signs upon the right with his lightnings, and Hector exulting greatly in his might rageth furiously, trusting in Zeus, and recketh not of men nor gods, for mighty madness hath possessed him. [240] His prayer is that with all speed sacred Dawn may appear, for he declareth that he will hew from the ships’ sterns the topmost ensigns, and burn the very hulls with consuming fire, and amidst them make havoc of the Achaeans, distraught by reason of the smoke »¹⁶.

And it is still Homer who in the *Iliad* (XV, 716-725) writes that Hector grabs the aplustre of an enemy ship while inciting his followers to light a fire and burn them: « [715] ... But Hector, when he had grasped the ship by the stern, would not loose his hold, but kept the ensign in his hands, and called to the Trojans: “Bring fire, and therewithal raise ye the war-cry all with one voice; now hath Zeus vouchsafed us a day that is recompense for all— [720] to take the ships that came hither in despite of the gods, and brought us many woes, by reason of the cowardice of the elders, who, when I was eager to fight at the

¹⁴ The shield - perhaps a shield-shaped rosette - was called *aspideion* [ἀσπίδειον or ἀσπίδοσκη, *aspidiske*, diminutive from ancient Greek *aspis* (ἀσπίς = shield)] and is almost always seen on the aplustres represented in classical iconography.

¹⁵ Apollonius of Rhodes says that the ends of this appendage to the stern were broken by the collision with the Symplegades islands or also known as the Cyanean Rocks placed at the entrance of the Euxine Sea, while the body of the ship miraculously escaped its passage between those islands. Greek mythology narrates that these islands continually collided with each other, thus constituting a danger for the ships and sailors who sailed in those waters [Pseudo-Apollodorus. *Bibliotheca*. Book I, Ch. 9 § 22; Apollonius Rhodius. *Argonautica*. Book II, 601; Valerius Flaccus. *Argonautica*. Book IV, 658-660].

¹⁶ Homer. *Iliad*. Book IX, 236-243. See: Homer. *The Iliad with an English Translation by A.T. Murray, Ph.D. in two volumes*. Cambridge, MA: Harvard University Press; London: William Heinemann, Ltd. 1924.

sterns of the ships, kept me back, and withheld the host. But if Zeus, whose voice is borne afar, then dulled our wits, [725] now of himself he urgeth and giveth command” »¹⁷.



Fig. 2 Naval battle trophies represented by aplustres and rostrums. Detail of a bas-relief of the triumphal arch of Orange, lower attic, north wall, 1st century AD, Orange (France), from: Basch, Lucien. *Le musée imaginaire de la marine antique*. Athènes: Institut hellénique pour la préservation de la tradition nautique, 1987, p. 426-428

A similar episode is mentioned by Herodotus¹⁸, after the battle of Marathon, in which the Greek historian illustrates the courage of Cynaegirus (6th century BC - 490 BC), brother of the poet Aeschylus, who, after having grasped the aplustre of a ship Persian, he had his hand cut by an axe rather than giving up the precious trophy, and that this event was the cause of his death. The strong symbolic value assigned to this constructive-decorative part of the ship made it a trophy, which must necessarily have been torn from the enemy ship, the emblem of a naval victory that was often reported on the triumphal arches, such as in that of Orange (1st century AD).

The importance of this object was such that the aplustre was sought-after war booty at the end of a naval battle and for this reason, it was animatedly defended by the sailors. Phormio (5th century BC - after 428 BC), son of Asopius (c. 470 - 429/428 BC), an Athenian admiral who during the Peloponnese war led his naval fleet to conquer numerous victories, both in the naval battle of Rhium or Chalcis, which took place in 428 BC, captured 12 aplustres. His victory was celebrated in Athens with a glorious celebratory parade in which the trophies he won were displayed, and flaunted as a tribute to the gods¹⁹ since victory without honour it was unacceptable. There could be no honour without a public ceremony and there could be no outcry without evidence of a trophy²⁰. The brave men, who had participated in the battle, showing those sought-after trophies with exultation, preceded the parade.

¹⁷ Homer. *Iliad*. Book XV, 716-725. See: Homer. *The Iliad with an English Translation* by A.T. Murray, Ph.D. in two volumes. Cambridge, MA: Harvard University Press; London: William Heinemann, Ltd. 1924.

¹⁸ « ... Cynegirus (brother of the poet Aeschylus) son of Euphorion fell there, his hand smitten off by an axe as he laid hold of a ship's poop. » [Herodotus, with an English translation by A. D. Godley. Vol. III. London: William Heinemann Ltd; Cambridge: Harvard University Press. 1938; p. 269].

¹⁹ Rouse, 1902; p. 99.

²⁰ Finley, 1956; p. 132.

In case of victory in a naval battle then a trophy was erected on the coast closest to the place of the clash and consecrated to Poseidon²¹. Trophies taken to the enemy, the bronze rostrums of the ships and the aplustres, however, were more often placed in the sanctuaries²². This constructive-symbolic element of the warship was therefore always held in high regard by the ship's commanders and crews and respected for that aura of magic that implied and for this reason strenuously defended, as much as the "heart and soul" of the fighters²³.

Lucan (Marcus Annaeus Lucanus, 39 - 65 AD) wrote: « One vessel circled by Phocaeen keels / Divides her strength, and on the right and left / On either side with equal war contends; / On whose high poop while Tagus fighting gripped / The stern Phocaeen, pierced his back and breast / Two fatal weapons; in the midst the steel / Met, and the blood, uncertain whence to flow, / Stood still, arrested, till with double course / Forth by a sudden gush it drove each dart, / And sent the life abroad through either wound »²⁴. The Roman poet continues: « Now every dart was hurled and every spear, / The soldier weaponless; yet their rage found arms: / One hurls an oar; another's brawny arm / Tugs at the twisted stern; or from the seats / The oarsmen driving, swings a bench in air. / The ships are broken for the fight. They seize / The fallen dead and snatch the sword that slew »²⁵.

The text "La Cista atletica del Museo kircheriano" also states that: « The Argo floats on the sea held motionless parallel to the beach by its anchors: a steep hill that rises before it hides the greater part of its long body and removes the view of the sea itself, whereby the eye sees no discovery of it except the part closest to the stern, the stern itself and the opening. The aplustre was an extension of the stern, which with rising and curving in an arch towards the bow and with the crest or acrostolium that gracefully crowned the top, formed with the bow the ship's beautiful ornament. At half the height of the aplustre, weathervane and forked flames are recommended, which used different colour shades. This practice was constant when the ships were in port and the sails collected, as they waved these for the utmost lightness at each puff, gave some warning of the direction of the winds that dominated. The acrostolium is missing here because there is no field to rise to: instead, better seen in profile than the art and solidity with which the aplustre was internally woven »²⁶.

The aplustre was, therefore, the symbol of auspicious for the ship par excellence, an ornament which stood motionless on the stern of the ships, behind the helmsman, and which had a large surface facing the sky, was very likely to be shaken by violent and contrary winds, as Rutilius Claudius Namatianus (5th century AD) wrote in *De reditu suo* (Book I, 513)²⁷; placed above the seat on which the helmsman (gubernator) held the rudder and guided the ship, it also served, to a certain extent, to protect it from

²¹ Stroszeck, 2004; p. 313-314.

²² Thucydides in his *Peloponnesian War* (Περὶ τοῦ Πελοποννησίου πολέμου) repeatedly mentions the erection of a trophy (τρόπαιον or τροπαίων) by the winner after a naval and consecrated fight to the god Poseidon. In the trophy, they used to arrange parts of enemy ships such as rostrums and aplustres. Originally they were temporary installations erected near the battlefield, after the Persian Wars they become permanent installations. A trophy made with an aplustre (or a rostrum according to Herodotus) taken from a Persian ship, was held in hand by the little more than six meters high statue of Apollo in Delphi [Herodotus. *Histories*, Book VIII, 121, 2 or *Herodotus, with an English translation* by A. D. Godley. Vol. IV. London: William Heinemann Ltd; Cambridge: Harvard University Press, 1930; p. 125], a practice that became usual after naval victories in the Persian Wars [Pausanias' *Description of Greece*. Translated into English with Notes and Index by Arthur Richard Shilleto. Vol II. London: George bell and Sons, 1886; p. 239].

²³ Wachsmann, 2009; p. 189-190.

²⁴ Lucan. *Pharsalia*. Book III, 583-591. See: M. Annaeus Lucanus. *Pharsalia*, translated by Sir Edward Ridley. London: Longmans, Green, and Co. 1905.

²⁵ Lucan. *Pharsalia*. Book III, 670-674. See: M. Annaeus Lucanus. *Pharsalia*, translated by Sir Edward Ridley. London: Longmans, Green, and Co. 1905.

²⁶ Marchi, 1848; p. 35.

²⁷ « Inconcussa vehit tranquilluss aplustria flatus / mollia securo vela rudente tremunt / The gentle breath of the wind carries the stern-fittings on without vibration. » Rutilius Claudius Namatianus. *De reditu suo*. Book I, 513.

the wind and rain. In the Trajan's Column, on the other hand, you can see a lantern suspended from the aplustre and placed in front of the helmsman [Trajan's Column, scene 79-80]. In the same way, when we read in Virgil « *púppibus ét laetí naut(ae) ímposuére corónas* »²⁸, we must assume that the wreaths, dedicated to domestic or marine deities, and considered as symbols of a prosperous journey, attached themselves to the aplustres. To these and similar decorations, expressive of joy and hope, Gregory of Nazianzus (329 - c. 390) seems to allude to a stern flower (*άνθος πρύμνη*)²⁹ and Apollonius of Rhodes (295 - 215 BC) elevates it to a symbol of great imaginative power in the expression *ἀφλάστοιο μετήορος* (the aplustre raised in the air)³⁰.

As a consequence of its position and its beautiful shape, the aplustre was often considered, in absolute terms, the emblem of navigation. The god Neptune, represented on many coins and medals, sometimes holds the aplustre in his right hand. In the famous "Apotheosis of Homer" by Archelaus of Priene (2nd century BC), Hellenistic bas-relief dating back to the 2nd century BC, preserved in the British Museum in London, the woman who plays the Odyssey crouching with Iliad at the foot of Homer's throne exhibits the same emblem referring to travel and the nautical epic of Ulysses³¹.

They were, therefore, majestic ornaments, made up of variously worked and painted boards, often surmounted by a rod, a spear or a banner (*στύλις* or small stern tree), to which weathervanes or flames (*ταινία* or band, ribbon) were tied useful to indicate the wind direction. Claude Saumaise (1588 - 1653) imagined the aplustres ornaments placed at the stern to which a straight wood was attached to the top of which feathers and plumes waved³². In Greek ships the wind direction was also indicated by the figure of a newt. Avienus (4th century AD) wrote that they were « *Puppe refulgentem* » (See: *Phaenomena Aratea*, 757) or « *The aplustres, ship ornaments, which, because they were large, more than were necessary for their use, they were also called aplustria* »³³.

Festus, with the term *aplustres* calls both the ornaments of the stern and those of the bow and also confuses the *rostrum* with the same name³⁴. In this regard, we recall that this term was used in the Middle Ages also to define the rudder, as stated in five galleys chartering document to Marseille, drawn up on 13 April 1335³⁵.

Even Julius Pollux (183 - infra 177-192 BC), Greek grammarian and lexicographer, in his precise description that he makes of the *Onomastikón*, says that the *aphlaston* was sometimes crossed by a straight wood called *stylus* and that it carried a strip of cloth, called *fascia* (a band)³⁶. At the base of the aplustre we also observe an ornament reminiscent of a circular shield: this was called *ἀσπιδοειὸν* or *ἀσπιδόσκη*³⁷.

²⁸ P. Vergilius Maro. *Georgics*. Book I, 304 and P. Vergilius Maro. *Aeneid*. Book IV, 418.

²⁹ « *Navem euntem in mare laudo, non quae insignibus / Ornamentis, aut puppis floribus coruscat* », from Caillau, 1840; *S.P.N. Gregorii Theologi Archiepiscopi Constantinopolitani, Operum*. Pars III. Carmina. Carmen XVII, 5-6; p. 310. See also: Smith, 1843.

³⁰ Apollonius of Rhodes. *Argonautica*. Book I, 1088-1089.

³¹ Collignon, 1897; p. 674-677.

³² Salmasii, 1689; p. 12.

³³ Ruperti, 1825; footnote 136, p. 152.

³⁴ Romani & Peracchi, 1826; p. 278. A confirmation that the aplustre was the stern ornament is found in the *Corpus grammaticorum Latinorum veterum*: « *Summa pars puppis atque etiam ornamenta, quae semper in summa puppis parte, non in prora, ut plerique veterum scripserunt, collocabantur. Nam quae in prora erant, dicebantur acrostolia; aplustria autem et aplustra, nam utroque modo antiquos protulisse docet Priscianus* » [Lindemann, 1832; p. 312].

³⁵ «... unam bonam et sufficientem galeam de centum et sex decim remis bene aptatam, stagnam, calefatatam, spalmatam fornitam et garnitam bene et sufficienter omnibus suis corredis velis amplustris [in the sense of rudder, two on each side of the ship (translator's note)] anthenis arboribus issarciis ancoris remis... », *Convention passée, au nom le Philippe de Valois, entre Paul Giraud de viens et des un envoyé et des armateurs de Marseille et de Nice pour le nolis de cinq galères* (1335). Vedi: Jal, 1840; p. 326-327.

³⁶ Julius Pollux, see: Polluce Giulio, 1541. *Liber primus, Caput nonum, de navibus et nauticis nominibus*, p. 34.

³⁷ See Apollonius of Rhodes. *Argonautica*. Book I, 1088-1089: « *Et hanc quidem Dea rursus dimisit: siditque super navis aplustri / Poi*

As it will be for the bow in Norse ships, the particular shape that this ornament assumed, which as we have seen had different meanings in ancient ships, is probably associated with the idea of a ship intended as a “living being”, equipped with eyes to see the route (at the bow) and of a tail at the stern, like that of a sea monster of which the aplustre represented its tail emerging from the water. We have brief descriptions of the aplustre in Aegean ships, as we can observe its reproduction on seals, while it seems almost completely absent in Mycenaean boats.

The myth of the aplustre, as protection of the ship (tutela), means that its destruction - as Lucretius (Titus Lucretius Carus, 94 - 50 or 55 BC) and Cicero (Marcus Tullius Cicero, 106 - 43 BC) wrote - has to be teaching seafarers in navigating³⁸ and then it is important to ensure that it is not lost³⁹. In a short essay, Cicero cites a scene of shipwreck just mentioned in Aratus (315 - 240 BC) where the sight of the aplustre floating in the sea after a shipwreck must be a warning for sailors to avoid the dangers of the sea both in navigation and in the safe shore of the landing. Cicero wrote: « But to those who do not know the sea it seems that the ships in the port are resting crooked on the waves with broken aplustres »⁴⁰.

The iconographic illustration of the aplustre, however, remains relegated to indirect and completely particular sources: seals, especially Greek and Roman coins, engraved stones, bas-reliefs⁴¹, mosaics and has also been represented figuratively on painted vases. We can see the aplustre on most of the rowing ships that appeared in the decoration of the houses of Pompeii⁴², which show the vessels decorated with the aplustre and the shield at its base (see the graffiti of the ship “Europa”, datable to 1st century AD), and at Herculaneum, and on a large number of commemorative medals. In the *Aratea* of Cicero, an astronomical treatise describing the constellations - a Latin translation of the *Phaenomena* written by the Greek poet Aratus (c. 315 - c. 240 BC) -, the constellation Argo is seen represented as a ship with an imposing aplustre aft⁴³. In this regard, Germanicus wrote (15 BC - 19 AD): « Where the Dog's tail, whose light is feeble, ends, the stern of the Argo gleams with stars »⁴⁴, and « It also cuts the ornamented

un dio lo mandò lontano, e si levò in volo, e andò a posarsi sopra l'aplustre / Then a god sent him away, and rose in flight, and went to rest on the aplustre », in Apollonii Rhodii. *Argonauticorum*. Libri Quatuor Editio secunda. Oxonii: E Typographeo Clarendoniano, 1779; p. 109) and Book II, 601: « Attamen aplustris absciderunt summas extremitates / tagliarono via la punta degli ornamenti dell'aplustre / they cut away the tip of the aplustre' ornaments » in Apollonii Rhodii. *Argonauticorum*. Libri Quatuor Editio secunda. Oxonii: E Typographeo Clarendoniano, 1779; p. 199); Apollodorus of Athens, Book I C. 9 § 22: « ...mentre l'estremità della poppa ornata della nave (ἀφλάστων) era spazzata via / while the adorned stern end of the ship (ἀφλάστων) was swept away. » [Apollodori Atheniensis, 1803; p. 92].

³⁸ « But, just as, after mighty ship-wrecks piled, / The mighty main is wont to scatter wide / The rowers' banks, the ribs, the yards, the prow, / The masts and swimming oars, so that afar / Along all shores of lands are seen afloat / The carved fragments of the rended poop, / Giving a lesson to mortality / To shun the ambush of the faithless main, ... » [Lucretius, *De rerum natura*, Book II, 552-557: Lucretius Carus, Titus. *Of the Nature of Things: A Metrical Translation*. By William Ellery Leonard. London & New York: J.M. Dent & Sons; E. P. Dutton, 1916].

³⁹ « navibus assumptis fluitantia quaerere aplustra / to search for floating stern-ornaments after their ships have been destroyed », Cicerone, 1831; p. 273 [Quoted from: *Ovid, Edited by J. W. Binns*. London and Boston: Routledge & Kegan Paul, 1973; p. 100].

⁴⁰ Latin text: « At maris ignavis in portu clauda videntur navigia aplustris fractis obnitiis undis ». See also: « Again, to gazers ignorant of the sea, / Vessels in port seem, as with broken poops » [Lucretius, *De rerum natura*, Book IV, 436-437: Lucretius Carus, Titus. *Of the Nature of Things: A Metrical Translation*. By William Ellery Leonard. London & New York: J.M. Dent & Sons; E. P. Dutton, 1916].

⁴¹ Bas-relief of the ship of Lindos, probable base of the statue of Admiral Agesander of Mikion (Hagésandros Mikionos, late 2nd century BC), made by Pythókritos (2nd century BC) on the Lindos acropolis (Λίνδος) in Rhodes. On Lindos' bas-relief, see Blinkenberg, Chr. e K.-F. Kinch, 1907; p. 21-27.

⁴² Jal, 1848; p. 192.

⁴³ Manuscripts: *Harley MS 647* (c. 820 - XI sec.), f. 9v; *Harley MS 2506* (c. 990 - c.1000), f. 42r; *Cotton MS Tiberius C I* (XI-XII sec.), f. 29r; *Cotton MS Tiberius B V/I* (2nd quarter XI century - 3rd quarter XII century), f. 40v. British Library, London.

⁴⁴ « At qua cauda Canis languenti desinit astro, / fulgent Argos stellis aplustria puppis ». See: Claudius Caesar Germanicus, *Aratea phaenomena*, 1, 343-44: *The Aratea of Germanicus: Text, Commentary and Translation by David Bruce Gain*. Ann Arbor, MI: ProQuest LLC, 2016; p. 82.

stern of the sacred Ship »⁴⁵, and also « The stern of the ship the Argo and the whole of the Dog arise »⁴⁶, and finally Germanicus wrote « But the rear part of the ship the Argo, where the sign is fashioned into a curved stern, still shines »⁴⁷. Lastly Marcus Manilius (1st century BC - 1st century AD) in the didactic poem the *Astronomica*, underlines: « it cuts the ship of the Greeks through the top of the stern-post »⁴⁸. In the bronze coins of Rhodes the goddess Victoria is often represented above the prow of a ship holding an aplustre, and whose meaning is the exaltation of the naval power of Rhodes on the Aegean Sea⁴⁹. Diodorus Siculus (90 - 27 BC) says⁵⁰ that Nicanor of Stageira (4th century BC) entered Piraeus with the fleet decorated with the “Acrostolii della Vittoria” (The acrostolia of Victory), in this case, the ornaments of the bow, trophies torn from enemy ships: « ... it can be said that the Victory showing the Aplustre or the Acrostolium on the coins of Rhodes hints at the deeds of the Rhodes against Demetrius... »⁵¹. Some relevant examples are those of the coins representing Greek and Roman ships, or ornaments that refer more explicitly to this subject, as it can be seen on the coins of Phaselis, Apollonia in Lycia, Histiaea, Cyzicus, Anchialus. As a characteristic element of the stern of ships, both merchant and war, the aplustre was a symbolic element of almost divine importance; in fact, it is possible to see this symbol in the hands of the god Poseidon in some Tarantine and Byzantine coins. Sometimes Neptune is represented on the medals by holding the aplustre in his right hand. Especially in the Roman coins of the Cassia, Fonteia, and Sulpicia gentes, the aplustre is the real trophy of victory (symbol in the hand of the goddess Victoria in the coins of Himera) and was used to symbolize the maritime power of Rome⁵² in all the territories subject to power Roman.

The theme of the naval war was then identified in the aplustre as a trophy symbol of victory but also of defeat⁵³. Silius Italicus (25 - 101 AD) wrote in this regard: « the surface is strewn with floating benches and masts, with stern-ornaments with tattered sails, and with hapless sailors spitting out the brine »⁵⁴ and also « From there he rained down on the stern-ornaments of the Carthaginian ship fatal fires fed

⁴⁵ « *desecat et sacrae speciosa aplustria puppis* » in Claudius Caesar Germanicus, *Aratea phaenomena*, 1, 484. See: *The Aratea of Germanicus: Text, Commentary and Translation by David Bruce Gain*. Ann Arbor, MI: ProQuest LLC, 2016; p. 87.

⁴⁶ « *et surgent aplustria puppis* ». See: Claudius Caesar Germanicus, *Aratea phaenomena*, 1, 620: *The Aratea of Germanicus: Text, Commentary and Translation by David Bruce Gain*. Ann Arbor, MI: ProQuest LLC, 2016; p. 92.

⁴⁷ « ... *Argoaeque ratis, qua flexile signum / In puppim formatur, adhuc aplustria lucent* » in Claudius Caesar Germanicus, *Aratea phaenomena*, 1, 676-77. See: *The Aratea of Germanicus: Text, Commentary and Translation by David Bruce Gain*. Ann Arbor, MI: ProQuest LLC, 2016; p. 94.

⁴⁸ « *Argivamque ratem per aplustria summa* ». See: Manilii, M. *Astronomicum*. Liber primus. Londinii: apud Grant Richards, 1803; Book 1, 694, p. 62 / Manilius. *Astronomica, with an English Translation by G.P. Goold*. Cambridge: Harvard University Press; London: William Heinemann Ltd, 1977; p. 61.

⁴⁹ Diodorus Siculus, see: Diodoro di Sicilia, 1815; Book XX, Chapter XI, p. 257 / *Diodorus of Sicily, with an English Translation by Russel M. Geer*. Vol. X. Cambridge: Harvard University Press; London: William Heinemann Ltd, 1954; p. 353-377.

⁵⁰ See: Diodoro di Sicilia, 1815; Book XVIII, Chapter XV, p. 33 or *Diodorus of Sicily, with an English Translation by Russel M. Geer*. Vol. IX. Cambridge: Harvard University Press; London: William Heinemann Ltd, 1977; p. 215.

⁵¹ Cavedoni, 1835; p. 200.

⁵² Juvenal (40/50 - after 127 AD) mentions it among the decorations of a triumphal arch. Juvenal. *Satirae*, Book X, 133-137: « *Bellorum exuviae truncis affixa tropaeis / lorica et fracta de casside buccula pendens / Et curtum temone iugum victaeque triremis / Aplustre et summo tristis captivus in arcu / Humanis maiora bonis credentur.* / An ornament from the stern of a conquered ship, a sad captive / On the fortress's heights, these are the things for which a Greek / Or Barbarian, or a Roman commander exerts himself, these are / The things that provide an incentive, for danger and hard work. » [Juvenal. *The Satires*, X, 133-139 (Translated by A. S. Kline)]. In Ruperti [Ruperti, 1825; footnote 136, p. 152] we read: « *tabulatum ad decorandam superficiem navis adpositum: alii dicunt rostra navis, ornamentum puppis / placed to decorate the lower part of the ship: commonly called a rostrum, others say it was the stern ornament* ». See also: Daremberg, 1877; p. 308-309.

⁵³ See the bas-reliefs preserved in the Capitoline Museum with naval trophies and aplustres [Stuart Jones, 1912; Vol. 1, p. 258-261, 263-264].

⁵⁴ Silius Italicus, *Punica*. Book 10, 323-325 [Buzio, 1765; Tomo XXXV, p. 199]. See: Silius Italicus *Punica with an English Translation by J. D. Duff*. Vol. II. London: William Heinemann Ltd; Cambridge, Mass.: Harvard University Press, 1961 (reprint); p. 75.

with pitch; and the wind added strength to his missiles »⁵⁵. Finally, in a letter to Trygetius (5th century AD), a Roman politician, Sidonius Apollinaris (c. 430 - 486) wrote: « The oarsmen at the thwarts, the steersmen on the poops, shall tune their chants to sing your praises »⁵⁶.

Conclusion

As can be seen from this brief note, the artistic-symbolic formula of the aplustre is exalted above all in the Greco-Roman naval epic. In the *aúxēsis* (αὔξησις) of symbolic value, the aplustre will assume more and more relevance, to be torn from the opposing ship as a trophy, in imperishable memory of the victory achieved, and shown as a frieze of arms captured to the enemy. The glorification of a naval victory will find its maximum expression with the coins⁵⁷, as the aplustre was an object capable of telling the deeds of a hero, a prince, an emperor, a figure alluding to the maritime power conquered by naval force, a symbol that it stood like an imposing marine creature, whose highly symbolic and auspicious fan-like tail was a metaphor for the place where the soul of the ship was believed to be located.

As Timotheus of Miletus (446 - 357 BC) tells in the Persians, the Persian ships hit by the rostrum of the Greek ships, defined as “iron spur”⁵⁸, whose allusion is not so much to the material itself as to the solidity of the tip of the spur, sank without their ornaments, stolen as trophies. These are the ornaments to which Aeschylus alludes with the term *aplustres*⁵⁹, one of the two symbols of the Persian ships together with the tutelary god in the bow as Herodotus recalls⁶⁰.

In the decoration of the Ara Pacis Augustae (9 BC) in Rome, you can see small palms, which would even seem to recall the aplustre of a Roman trireme in testimony to the victory of Emperor Augustus (63 BC - 14 AD) in the naval battle of Actium (September, 2 31 BC). The aplustre, a proper symbol of the victory of Actium, also appears in the Arch of the Sergi in Pula (whose dating is attributed to the years 25-10 BC).

The symbolic value of the aplustre will remain in the following centuries as a strong reference to the naval epic. In the portrait of Andrea Doria (1466 - 1560) made by Sebastiano del Piombo (1485 - 1547), in particular in the lower frame of the portrait, all the characteristic elements of the maritime power of the Genoese admiral appear: the rostrum, the bow formed as a swan head, the five-armed Roman aplustre. These objects are placed in the frieze of the portrait to testify to its value as a naval leader, referring to the naval victories and military successes of the princes.

The aplustre, as well as the rostral prow, symbolic-decorative element of the Greco-Roman tradition, will also be combined with religious symbols with the intent to underline the link between religion

⁵⁵ Silius Italicus, *Punica*. Book 14, 421-422 [Buzio, 1765; Tomo XXXVI, p. 37]. See: Silius Italicus *Punica with an English Translation by J. D. Duff*. Vol. II. London: William Heinemann Ltd; Cambridge, Mass.: Harvard University Press, 1961 (reprint); p. 302.

⁵⁶ Sidonius. *The Letters of Sidonius, Translated, with Introduction and Notes, by O.M. Dalton*. Vol. 2. Oxford: at the Clarendon Press, 1915; Book VIII, Letter XII, p. 167. See also: Apollinaris, 1836; *Lettres*. Livre VIII, Epistola XII; p. 340. Edme-Louis Billardon de Sauvigny (1738 -1812) did not understand this passage, which he thought he had to translate as follows: « Les pilotes en haut des mâts attacheront des flambeaux allumés; les rameurs assis sur leurs bancs chanteront en chœur vos louanges » [Apollinaris, 1787; p. 42]. There are no torches or trees in Sidonius' letter to Trygetius; the term *aplustre* never meant a tree or even a torch. The bishop of Clermont tells his friend that he agrees to leave Bazas to come to Bordeaux: « (A bord de la barque avec laquelle tu descendras la Garonne), les matelots sur leurs bancs, les patrons à leurs gouvernails, chanteront tes louanges dans un chant rythmé (ou dans des vers harmonieusement cadencés). » [Jal, 1848; p. 148-149].

⁵⁷ On the symbolism of the aplustre in coins see: Brett, 1938; p. 23-32.

⁵⁸ σῖδα[ρ]ῶ κράνει, from Strazzulla, 1904; p. 45.

⁵⁹ Strazzulla, 1904; p. 17.

⁶⁰ See: Herodotus. *Histories*, Book III, 37 and Casson, 1971; p. 95-96.

and the legitimacy of victory⁶¹, or between *virtus* and *pietas*⁶², *symbol of universal dominion*⁶³ of man over peoples, but also the spiritual guide of the traveller. Anselm Schramb (1658 - 1720) wrote in his *Chronicon Mellicense*: « the cleric Ruperto⁶⁴ transported the venerable cross from Vienna to Nußdorf in a boat without sailors and led by the aplustre »⁶⁵.

This statement is the strongest testimony of the symbolic value of the aplustre, whose value has remained imperishable over the centuries.



Fig. 3 Bas-relief (1st century AD) commemorating the naval battle of Actium, which took place on 31 BC [Colección Duques de Cardona (Córdoba, Andalucía, España)]

⁶¹ Zanker, 1989; p. 88-92.

⁶² Hölscher, 1994; p. 194.

⁶³ Hölscher, 1994; p. 175.

⁶⁴ Rupert of Salzburg (c. 660 - 710).

⁶⁵ Schramb, 1702; p. 79.

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The drawing the image the space of the García Sanabria Municipal Park in Santa Cruz de Tenerife

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Abstract

Studying and to draw the García Sanabria municipal park in Santa Cruz de Tenerife means examining and considering a set of links and constituent elements that contribute to understanding different figurative, spatial and temporal registers, but also referring to measurement. This extraordinary set of facts is manifested, in a particular way, through the dimension of time and color that makes the city changeable in the various seasons, especially during the passing of the hours, since the fantastic images that it evokes appear now clear, now opaque now transparent as in an ideal sentimental story. But the city of Santa Cruz de Tenerife is a witness not only of its typical hot season but also of a poetic culture that is cloaked in a scientific character that integrates well and is completed with that sense of apparent abstraction and imagery that surrounds it. The recognition of the role and essence of the city is manifested within its main park by a garden on the Atlantic, as the Sanabria park is called. The park is the expression of a sensitive refinement in which the community, also for a customary habit, has established a relationship with space and with the richness and variety of vegetation in a relationship that is determined by the geometry of the environment that forms a sort of unequal duality between the sensory perception and the metric data that merges into the characteristics of the grounds. These facts allow in their meaning to be placed within a dimension that intervenes as a frontier that oscillates between the perceived and the measured, between the ideal and the lived.

Abstract

Studiare e disegnare il parco Municipale García Sanabria a Santa Cruz de Tenerife significa prendere in esame e considerare un insieme di legami e di elementi costitutivi che concorrono a comprendere differenti registri di carattere figurativo, spaziale, temporale, ma anche riferiti alla misura. Questo straordinario insieme di fatti si manifesta, in modo particolare, attraverso la dimensione del tempo e del colore che rende mutevole la città nelle varie stagioni specie durante il trascorrere delle ore, poiché le immagini fantastiche che essa evoca appaiono ora nitide, ora opache ora trasparenti come in una ideale vicenda sentimentale. Ma la città di Santa Cruz di Tenerife è testimone oltre che della sua tipica stagione calda anche di una cultura poetica che si ammantava di un carattere di scientificità che bene si integra e si completa con quel senso di apparente astrazione e di immaginario che la avvolge.

La riconoscibilità del ruolo e dell'essenza della città si manifesta all'interno del suo principale parco un giardino sull'Atlantico, così come viene definito il parco Sanabria. Il parco è l'espressione di una sensibile ricercatezza in cui la collettività anche per una consueta abitudine ha stabilito un rapporto con lo spazio e con la ricchezza e la varietà della vegetazione in una relazione che è determinata dalla geometria dell'ambiente che forma una sorta di dualità disuguale tra la percezione sensoriale e il dato metrico che si fonde nelle caratteristiche del sedime. Tali fatti consentono nel loro significato di collocarsi all'interno di una dimensione che si interpone quale frontiera che oscilla tra il percepito e il misurato, tra l'ideale e il vissuto.

Introduction

This contribution is an ideal continuation referring to the study investigation which has concerned in the past the analysis conducted on the García Sanabria Municipal Park of the city of Santa Cruz de Tenerife¹. Similarly, the recovery project of the Parco Sanabria which constituted the theme of study and professional assignment carried out by Professor Juan Manuel Palerm Salazar in collaboration with the architect Leopoldo Tabares de Nava, whose objective concerned the re-planning and restoration of the urban park system. The city of Santa Cruz de Tenerife for a singular natural relationship, which even before being urban is territorial, is characterized by two significant morphological presences of particular impact: the Barranco de Santos and the Municipal Park García Sanabria, which is the largest park of the Canary Islands. These two elements and systems of the city can be made to correspond by analogy as the main apparatuses of a hypothetical human body. The Barranco de Santos is a natural system that is not counted, according to the orographic dictates of the Canary Islands, to a canyon despite the similarity. Its orographic peculiarity derives from the erosion of a river, a typical natural event of the Canarian geography from which it takes the name of Barranco, (ravine). The Barranco is an immense natural gorge that crosses the city of Santa Cruz dissecting it geographically from the west to the east. Another geographic element that constitutes a natural typicality of the place and referent to the geometry of the environment consists of a series of volcanoes. In these islands is the Teide volcano which is the highest peak in Spain². For this reason, the islands have such a particular structure: volcanic chimneys and lunar landscapes intersect in deserts with dunes and laurisilva woods. In this orographic complexity, with different natural and vegetative aspects, morphological, territorial and urban signs, a whole is constituted which can be explained in a particular way both through reasoning, from intuition and also from sentiment, which all unites and that all it increases by disposing itself and unfolding in the mind and in the experiences. Santa Cruz de Tenerife is not like all the other seaside cities which, for a strange affinity, can be united with each other, but differs realistically since its geographical position is that of an island, that of Tenerife. In this way its wealth is even more mysterious and exotic. For this reason, the islands have such a particular structure: volcanic chimneys and lunar landscapes intersect in deserts with dunes and laurisilva woods. In this orographic complexity, with different natural and vegetative aspects, morphological, territorial and urban signs, a whole is constituted which can be explained in a particular way both through reasoning, from intuition and also from sentiment, which all unites and that all it increases by disposing itself and unfolding in the mind and in the experiences.

¹ A. Donelli, *Drawing to restore and represent urban greenspace in Santa Cruz de Tenerife*, in *UpLanD Journal*, of Urban Planning, Landscape & environmental Design, n.2(1), Napoli, 2017, pp.117-135.

² The typical volcanism of the Canaries corresponds to the alkaline series, in which basalts, trachites and phonolites predominate, which among other volcanic rocks abound on the island of Tenerife.

Santa Cruz de Tenerife is not like all the other seaside cities which, for a strange affinity, can be united with each other, but differs realistically since its geographical position is that of an island, that of Tenerife. In this way its wealth is even more mysterious and exotic.



Fig. 1 Superposition of the historical map of 1899 relating to the city of Santa Cruz de Tenerife with the current orthophoto. Drawing by: Andrea Ferrais and Selina Masucci, (Corso di Rappresentazione e Rilievo dell'Architettura Politecnico di Milano, docente: Andrea Donelli)

Methodology

The drawing, the image and the space form a whole that is not just lexical, as it constitutes a particular aspect that is often secret or hidden from a link that characterizes the urban organism formed by the García Sanabria Park. This aspect is attributable to the geometry that the Park's drawing triggered since its foundation with the determination of the presence of vegetation whose location was conceived for the correct exposure as a natural and climatic condition. The park, despite having been built at the beginning of the past century, and inaugurated in 1926, represents not only a strong link with the natural elements of the place, but also a moment of escape. Just as the image of the park is the result derived also as a consequence of the empty space found on the design of the city. The “measure” of the *forma urbis* of Santa Cruz de Tenerife is “mirrored” by analogy on the design of the park space, anomalously restoring the atypical shape of the park itself for its external appearance. The space thus generated is a set of sedimented experiences that evoke allusions to the warm city life described and narrated by the canary poets, they also recall the pictorial representations of the Park and the city of Santa Cruz de Tenerife. In addition, space is also a constitution of permanence relationships that trace references to formal registers referring to the constructive experience due to the conjunctions that space itself is able to represent through natural and anthropic connections.

Analyzing the stays allowed the study to grasp the urban relationships in which the Park as a choice for its foundation and realization in the past centuries suggested. The Sanabria Park with its wealth of plantations and arboreal essences proves to be a particular garden, a vegetable organism that testifies to apparent contradictions as many of the species of the native flora of the Canary Islands have not found their considerable place within the García Sanabria Park; as well as other exotic species from other continents, always tropical and subtropical climates are an integral part of the system. Due to this fact, the park was considered a sort of real botanical garden in the city, a garden in the Atlantic as it was considered by Juan M. Palerm Salazar and Leopoldo Tabares de Nava. This extraordinary set of naturalistic and plant elements was first thought, subsequently implanted and in the last decade returned in the form of custody as a representation of a system and a will that complement each other between a natural and scientific process due to the characteristic presence of the flora, as the same particular tree species integrate with history, poetry, twentieth-century art but also with a romantic garden culture made up of paths, fountains with water features, gazebos and sculptures. Natural and vegetable essences grown and cultivated over time such as rose gardens, olive trees, Canary Island palms, Ginkgo biloba, Mangifera indica, guía botánica³ are one that defines the essence of the park itself, creating a relationship between the plant elements and the drawing of the park which unfolds without rhetoric and without confusion to consolidate the shape of the city of Santa Cruz. The Sanabria Park covers an area of 67,230 square meters, due to its considerable size it constitutes a set of relationships that can be found through a systematic technical-scientific operation of description and classification of the formal connections of the space. The methodological study has identified the following aspects that trace in their general description the so-called Aristotelian units (of time, place and action) which represent a canon of narration that is intertwined as regards the García Sanabria Park in the development of historical interests, urban and architectural. The greatest difficulty is connected to the mechanism that triggers growth according to the principles of self-determination, referring to a sort of autogenesis. The preservation of a formally unified image of growth of the Park played an important role in the conception of a discontinuity that is of place and time. The system defined by the urban configuration of the park presents itself in a double aspect that of internal and external. Internally it has the rule of relations in which the configuration of the spaces is recognized thanks to the arboreal locations of the vegetation and plantations, in which the stable elements that form the image contribute through which to warn and perceive the space, whether functional or playful, of temporal collection of activities. Externally the park has over time taken on a complex, “atypical” configuration since the richness and quantity of the plantations does not return the clarity of the drawing of the past. This does not entail any inconsistency as the high degree of permeability that characterizes the entire morphological drawing of the Park guarantees the recognisability of the paths and functions for the specific connections of the internal space and ends up attenuating the sense of appeal expressed by a reading and from an iconic planimetric or zenithal observation. The geometry of the environment, as undertaken by some conjectures, proposes the use of mathematical models to be used in the design. In fact, the first modeling concept that was used for the design was the drawing which within a scientific context corresponds to the design for a geometric representation and description of the space. For the configuration of the space of this green place, to describe the perspective axes, tools were used to outline those graphic and construction systems that guarantee the axuality necessary to stage the “wise game” decreed by

³J.M. Palerm Salazar, L. Tabares de Nava, *Un jardín en el Atlántico*, Ediciones Y Promociones Saquiro S.L. Santa Cruz de Tenerife, 2006

the colors, the light, from realizing the order of the plantations in a different and differentiated way, effectively affecting the perspective of the views as well as on the path of the avenues itself, also affecting the aspects of psychomotor skills.

The clarity of the system relating to the Sanabria Park system can be found through a simple description of the elements. In fact, the recognizability of the constituent elements allows you to grasp the configuration of the categories that belong to the organization of the space.

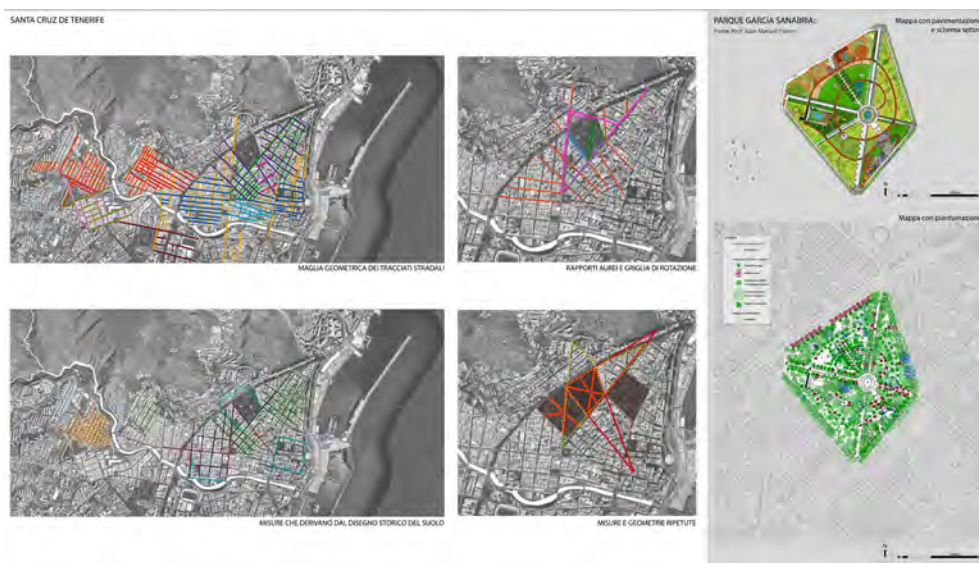


Fig. 2 Study of the geometric generators and of the relationships relating to the space of the Sanabria Park. Drawing by: Alice Zago and Francesca Zoia, (Corso di Rappresentazione e Rilievo dell'Architettura Politecnico di Milano, docente: Andrea Donelli)

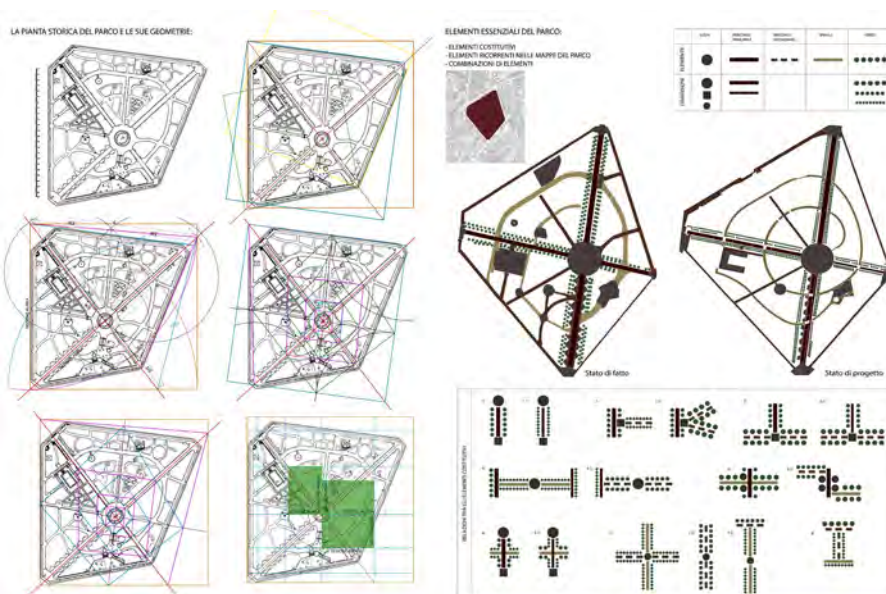


Fig. 3 Study of the geometries and recognizability of the constituent elements relating to the space of the Sanabria Park. Drawing by: Alice Zago and Francesca Zoia, (Corso di Rappresentazione e Rilievo dell'Architettura Politecnico di Milano, docente: Andrea Donelli)

All paths, whether main or secondary, generate a so-called stopping or intermediate point. It differs from the size of the route, location and shape. In addition, the paths are characterized and qualified and thus distinguished by arboreal presences located along the sides of the paths. This aspect inherent in multiple definitions and articulations with the insertion of recreational or recreational functions, parking spaces, returns the Park as a sort of square, a privileged place of aggregation and social and individual meeting. Through the even repeated drawing of the repetition of linear tracing, it has been intense to search for the geometric generators that intend to return with their sign also the units of measurement relating to the proportion between the parts and the elements. Because it is the value of the measure that more than other aspects will allow to propose further insights useful to define the representation of this space. In the same way, graphically representing this green space and place means knowing first and then understanding a particular concept of space that is expressed through the process that defines its system of spatial regions and frontiers. The irregular figure of the Park close to the idea of a pentagon has equally triggered some evidence relating to the geometric rejoining inherent in its configuration and on some parts deemed alienable as consequential to the design of the urban layout of the city of Santa Cruz de Tenerife. The geometric drawing of the Sanabria park acquires a metric value, this is verifiable in that the geometries of the Park's alignments, including the plantings, generate correspondences with the geometry of the triangular-based paths setting a ratio of $1/4$ of the average value for the sector of the tail of the spiral-shaped drawing present in the configuration of the Sanabria Park. Another geometric finding relates to the tracing of the golden section whose origin is given by the cartesian axes attributable to the four main entrances to the Park. The drawing of the generatrix defines points which, joined together, form regular figures. Given points recognized by pointing the needle of the compass and detaching the instrument on other acquired points, arcs of circumference are determined which in turn form, by means of their intersection, known points that belong to the figure and the

geometric relationship of the park space. The system of constitutive elements sorted by categories, the search for geometric generators and the relationships that constitute the formation of figures allows us to hypothesize possible considerations around the topological concept of spatial regions and frontiers. To ascertain these conjectures, it could be established that each phase has its “territory” and then, in the same way, the configurations represented by the different phases of the activities will have to stratify in space⁴. The singles spatial units are thus superimposed on each other, determining a complex spatial unit capable of constituting a single and only correspondence to all the phases. The operations of representation and investigation can therefore be summarized as the state of the aggregations of the shape figures and the stratifications of the resulting spatial units. In conclusion, starting from the peculiarity of the interaction of the Sanabria park with the overall involvement of the city, we come to consider the park system not as an acquired element belonging to the urban fabric but as a “special” part and piece of the fabric itself with an autonomous variation. Another aspect sees the role of the park as a recognized need for the co-presence of facts whether they are functional based on perceptual correlation, which are metric in that the design and image of the park form the natural and anthropic condition through the idea of its multiplicity. The park is configured as a field (in the topological sense of the term) of experiences but also as a place of experimentation based on the rule of the constituent elements that coexist and that develop around the different functional nuclei. In a certain way, the role of the park, if you think about its recent foundation, is located within the transformations of the city due to the urban addition. The composition of the natural, anthropic and functional relationships that the park establishes with all the other activities that run through the events of the city is historically characterized by different senses and gives solution to past aspects trying to reformulate them by placing them in new ways. Human activity generates a particular structure that allows to elaborate principles and meanings such as natural, geographic and orographic affinities, as well as cultural and life ones are reflected in these continuous facts as in the many daily experiences. With this, the García Sanabria Park cannot be considered as an isolated fact in its own right, unrelated to the shape and orography of the city of Santa Cruz de Tenerife. It is deduced that the study investigation relating to the park has found the structural essence of the forms, as each form has its own structure. This fact entailed perceptual questions resolved through the description and classification of the paths, the nodes and the hierarchy of the systems. Just as the graphic test reconstructs possible geometric generators, which are able to establish concordances, intersections alignments concerning the nodes of the paths previously observed as parts and subsequently ordered. In the last instance, hypotheses of topological aspects were launched to determine perceptual principles based on previous experiences relating to the order of the data collected and designed. In this study, the knowledge of drawing consisted as a critical tool to investigate the reality of the image and space of the García Sanabria park in Santa Cruz de Tenerife.

⁴The specific “territory” of each activity is not only formed of disjointed constituent units. In fact, all the space is inherent and thought, the constitutive units such as the margins, the distances allow to be read in single units that merge.

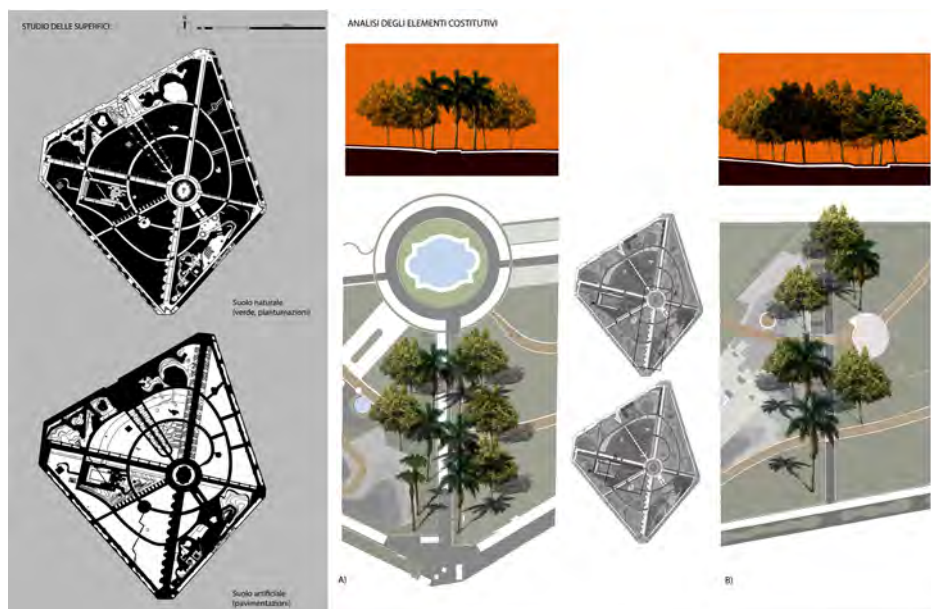


Fig. 4 Study of the constituent elements referring to the “rules” of the Sanabria Park space. Drawing by: Alice Zago and Francesca Zoia, (Corso di Rappresentazione e Rilievo dell'Architettura - Politecnico di Milano, docente: Andrea Donelli)

Conclusion

The project and construction referred to the drawing for the restoration of the García Sanabria Park constituted a very important aspect for the city of Santa Cruz de Tenerife; a new large public garden that iterates to the urban and consolidated system of the city. The intuition of the past in designing a green space has meant that over time the addition of experiences relating to the development of the city has always influenced understanding the particular orographic articulation, as well as the morphological and urban drawing. The study relating to the design of the Park has caught in the image and space of this organism a succession of events that have constituted an autonomy and at the same time an integration of relationships, relationships and functions. The investigation achieved a first objective to understand through the scientific process of analysis, using description and classification as useful elements to define its constitutive aspects, as the park was and is composed. A sort of geometric archetype has developed the study for the search for geometric generatrix in which the link between the system of the organization, the composition of the park coincides with a configuration derived from the alignments and intersections of the lines, circles and circumference arcs that they intercept the nodal points of the space structure of the Sanabria park. In this, the categories of the space were observed on the basis of their constitutive characteristics and how the latter can in turn unfold and become “flexible” in organizing the activities and functions of the park itself. These connections inherent in these strong relationships are also supported by the route system and by the placement and use of choices relating to tree species which, based on their size and their ecosystem variety, measure the benefits of urban green integrated with environmental quality strategies. This forms and constitutes a whole between the natural and anthropic aspects. In fact, the island of Tenerife, the city of Santa Cruz, relate to these natural characteristics, forming a unique and distinct habitat with the archipelago.



Fig. 5 Sanabria Park in Santa Cruz de Tenerife

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Representation of space in literature and East Asian cinematography. (House-earth. Space-time. Man-space) *

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Abstract

This study focuses on the concept and representation of space and the relationship between man and space in literature and East Asian cinematography. The study is part of the author's ongoing research on the representation of physical and mental space in literature (*Space-Representation-Literature*). The study is divided into three paragraphs (House-earth, Space-time, and Man-space) and is based on a transversal analysis of the thoughts and poems of Chinese and Japanese poets and the cinematographic works of Chinese and Korean directors.

In the East reflections on space include the sense of emptiness, the meaning of the sky, the spatiality of the earth, the sense of the house, man's condition in space, and his relationship with space vis-à-vis our finite and infinite existence. Several ideas about space expressed by great eastern thinkers and philosophers, for example the thirteenth-century Japanese Zen master Dōgen (永平道元) or those of the ninth-century Chinese Chan master Jōshū (趙州從諗), inspired by Buddhist doctrine, appear reflected in the words of the most famous contemporary Asian poets such as the Chinese poets Meng Lang, Bei Dao, Shu Ting, and Mo Mo. Words which are in turn projected, using a poetic chain, in the spaces ideated and represented in the images of contemporary directors such as Kim Ki-duk (Korea) and Wong Kar-Wai and Jia Zhang-Ke (China).

Space is the centre of Asian words and images (be they Chinese, Japanese, or Korean). The latter focus on the relationship between man and space and on the meaning of the existence of man in space, because, since he exists, man lives in the space of the earth and every human existence is enclosed and contained in a space, suspended between misery and solitude.

The observations and considerations in this study underscore the fact that in the space outlined and portrayed in East Asian poetry and cinematography – which are reflections of ancient, centuries-old cultures – the human condition and the relationship between man and space are represented in events of the present and history. Through space, Asian words and images interpret the meaning of life and death, the conscience of the individual, and his indecision when faced with the “Path of no doubt” that transforms the closed emptiness of solitude into the boundless emptiness of enlightenment.

Abstract

Questo studio si concentra sul concetto e la rappresentazione dello spazio e sul rapporto tra l'uomo e lo spazio nella letteratura e nella cinematografia dell'Asia orientale. Lo studio fa parte della ricerca in corso dell'autore sulla rappresentazione dello spazio fisico e mentale in letteratura (Spazio-Rappresentazione-Letteratura). Lo studio è diviso in tre paragrafi (Casa-terra, Spazio-tempo e Spazio-uomo) e si basa su un'analisi trasversale dei pensieri e delle poesie dei poeti cinesi e giapponesi e delle opere cinematografiche di registi cinesi e coreani.

In Oriente le riflessioni sullo spazio comprendono il senso del vuoto, il significato del cielo, la spazialità della terra, il senso della casa, la condizione dell'uomo nello spazio e il suo rapporto con lo spazio rispetto alla nostra esistenza finita e infinita. Diverse idee sullo spazio espresse da grandi pensatori e filosofi orientali, ad esempio il maestro Zen giapponese del XIII secolo Dōgen (永平道元) o quelle del maestro Chan cinese del IX secolo Jōshū (趙州從諗), ispirate alla dottrina buddista, appaiono riflesse nelle parole dei più famosi poeti asiatici contemporanei come i poeti cinesi Meng Lang, Bei Dao, Shu Ting e Mo Mo Mo. Parole che a loro volta vengono proiettate, attraverso una catena poetica, negli spazi ideati e rappresentati nelle immagini di registi contemporanei come Kim Ki-duk (Corea) e Wong Kar-Wai e Jia Zhang-Ke (Cina).

Lo spazio è il centro delle parole e delle immagini asiatiche (siano esse cinesi, giapponesi o coreane). Queste ultime si concentrano sul rapporto tra l'uomo e lo spazio e sul significato dell'esistenza dell'uomo nello spazio, perché, poiché esiste, l'uomo vive nello spazio della terra e ogni esistenza umana è racchiusa e contenuta in uno spazio, sospeso tra miseria e solitudine.

Le osservazioni e le considerazioni di questo studio sottolineano il fatto che nello spazio delineato e ritratto nella poesia e nella cinematografia dell'Asia orientale - che sono il riflesso di culture antiche e secolari - la condizione umana e il rapporto tra l'uomo e lo spazio sono rappresentati nelle vicende del presente e della storia. Attraverso lo spazio, le parole e le immagini asiatiche interpretano il senso della vita e della morte, la coscienza dell'individuo e la sua indecisione di fronte al "Sentiero del dubbio" che trasforma il vuoto chiuso della solitudine nel vuoto sconfinato dell'illuminazione.

Keywords

Representation of space in East Asian culture; East Asian poetry; East Asian cinema; space in East Asian cinematography; space in East Asian poetry.

The true original aspect of things,

in the spring cherry blossoms,

in the summer the cuckoo,

in autumn the moon.

And in winter

the snow, clear, cold (Eihei Dōgen 永平道元, 1247 c.)¹

¹(*) The original text of this essay is in Italian. English translation by the author.

All the quotes from Italian books, books translated into Italian, or other Italian language sources, have been translated by the author from Italian into English. Dōgen, about 1247, ed. 2019, p. 115 (Poem 6). The quote has been translated from Italian into English.

«In 1968, the Nobel Prize for literature Kawabata Yasunari [...] (1899-1972), in his award speech, quoted this poem to show the essence of the Japanese soul» (Tollini, 2019, p. 115). Quote translated from Italian into English.

House-earth

A poem by the Chinese poet Mo Mo reads: «the house is on earth»². The house as the sense of human dwelling and inhabiting the earth. Through the house man inhabits the space of the earth surrounded by the sky and thus by emptiness, because sky and emptiness in the culture of the East are always superimposed, even in lettering³ where sky is a synonym of emptiness: 空. The sky is the human sense of spatial emptiness and in poetry, as in all other expressive forms, not only in the East, the earth represents human space when faced with spatial emptiness, spiritually and psychologically associated with the origin of space, because in every origin space was emptiness. This vision goes beyond the poetic meaning of every written representation or image, restoring the human and immanent sense of space on earth and, at the same time, the infinite and transcendental sense of space beyond earth, i.e., of the sky and thus of emptiness, because, apart from the double meaning of the character 空, the sky – as per the famous phrase of the master of Chinese Chan Jōshū (趙州從諗)⁴ – is «a vast and great vacuity»⁵ without boundaries.

In one of the sixty poems⁶ of *Sanshō dōei* (傘松道詠)⁷, Master Dōgen (永平道元)⁸, a Japanese poet and philosopher, opens the poetic composition by writing that his heart offers flowers to the great sky: «This heart / gives flowers / to the great sky. / To the Buddha of the Three Worlds⁹, / I would like to offer them»¹⁰. «Remember that ‘sky’ is a synonym of ‘emptiness’, hence the Master offers, with all his heart, flowers to emptiness, which is the same as saying to the Buddha. [...] Dōgen loves the expression

² Mo Mo 默默 (born in Shanghai, China, in 1964)

Poem: «A Very Long Dance» (Mo Mo. In: <<https://internopoesia.com/2020/02/26/mo-mo/>> [consulted April 2020]; cf. Pozzana, Russo, 1996). The quote has been translated from Italian into English

«Mo Mo 默默 (pen name for Zhu Weiguo) is a founding member of the poetry school Sa Jiao 撒娇派. “Sa Jiao” means behaving like a spoiled child or a man moaning like a woman; Mo Mo says it means “gentle resistance”. A whimper, not a bang. The poet co-founded many independent poetry journals in Shanghai including Sa Jiao (1985) and made Sa Jiao known nationwide by organizing a series of events and by being jailed in 1986 for his long poem “Growing up in China”. A legendary figure but hardly known outside China, he became wealthy by investing in real estate in the early 1990s, but gave up his business to return to writing in the new century. Now he runs a hotel-like residence in Shanghai to host wandering poets who travel to Shanghai and he has named the place “Academy of Sa Jiao Poetry”. He also manages a motel of 18 rooms in the Shangri-la plateau, Yunnan, in southwest China, a free paradise for poets who can endure the altitude and temperature. [...] Mo Mo started writing poetry and novels in 1979. To get a sense of what he was writing in his early years and what was censored at that time, here are a few lines from his epic poem “Growing up in China”: We are the illegitimate children of sun and communism. / Shouldering the heavy sun, we wander around in the wilderness / where red sorghums wave and roll. We are tired. / Dear fatherland, we are tired.

Such poems riff on the common identification in propaganda poems, songs and imagery of Mao Zedong with the sun that rises in the east and illuminates the world, as in “The East is Red”, a propaganda song from the 1940s that was part of the effort to create a cult of personality around Mao. (“The east is red, the sun is rising. / From China comes Mao Zedong. / He strives for the people’s happiness, / Hurrah, he is the people’s great savior!”). “The East is Red” became China’s unofficial national anthem, which students were forced to recite each morning, and was adapted into a propaganda movie and a play during the Cultural Revolution» (Barnstone, Di, 2019).

³ In Chinese as in Japanese.

⁴ «Jōshū Jōshin 趙州從諗 (778-897), master of Chinese Chan» (Tollini 2019, p. 286, note 31). Quote translated from Italian into English.

⁵ Jōshū Jōshin 趙州從諗.

«As the Chinese master Jōshū said: “If it is true arrival on the Path where there is no doubt, it is like the sky, a vast and great vacuity» (*Ibid.* p. 127). The quote has been translated from Italian into English.

⁶ «With a slightly variable number depending on the editions» (*Ibid.* p. 11, note 1). Quote translated from Italian into English.

⁷ Zen Eihei Dōgen 永平道元, *Sanshō dōei*.

«The poems in the Japanese language, sixty in number – writes Tollini –, are today known with the name of *Sanshō dōei* [...], i.e., “poetic compositions of the Way of Sanshō”, where Sanshō stands for the name of the mountain where the Eihei-ji temple is located. These are *waka* poems [...], i.e., compositions in a classical style of thirty-one syllables, in five verses, with the cadence of 5-7-5-7-7 syllables» (*Idem*). Quote translated from Italian into English.

⁸ Zen Eihei Dōgen 永平道元 (1200-1253) is an important philosopher (thinker) and poet of pre-modern Japan and a popularizer of Buddhist doctrine (cf. Tollini, 2019, p. 11).

⁹ «Present, past and future» (Tollini, 2019, p. 287 note 59). Quote translated from Italian into English.

¹⁰ Dōgen, about 1247 c., ed. 2019, p. 159 (Poem 22). The quote has been translated from Italian into English.

‘great sky’, which for him means the vacuity of enlightenment, and he uses it in several poems»¹¹. The spiritual vision of the pure emptiness of enlightenment imbues this particular poetic vision, enhancing the concept of the absence of physical space, because space originates in that absence, in that emptiness. Space forms the dialectics of house-earth and sky-emptiness, because they are spatial dialectics. The house is the space though which the body momentarily inhabits earth. For man, the house is the finite space of earth, i.e., that part of finite space of an infinite space. The house shelters and protects, but brings with it that irreversible feeling of being on earth, because the body is on earth, emphasising the dramatic impossibility of being in the air and floating lightly in emptiness.

The physical nature of the body and the physical nature of the house-earth space are often expressed and represented with profound sadness, as in the poet Mo Mo’s poem entitled *A Very Long Dance*: «The leaves in the air stage / a whole dance / ... / the house is on earth / the house is the dirge in the dance / the house of my body is full of tears / ...»¹². In the poem space and the body merge when faced with the tragedy of a space anchored to earth, that becomes a «dirge» in the middle of a lyrical dance of airborne leaves. An introverted, poetic dialogue alternating with the instantaneous and rational vision of a man, and the fact he is transiting in a finite space within the infinite. A vision that is amplified in the human multitude, in the everyday life of ordinary people, until it returns to the individual and then to the «countless himself»¹³ that are in every man in a second, because «From the steep precipice, countless himself always spring in a second / Just like one flower is different to the one next to it»¹⁴. So many different himself bound in a single instance and in a single I. In this poetic image, humanity is united in one man, because in those countless himself the whole of humanity is represented, united yet different, just «like two trees joined by a swing are different»¹⁵. A humanity that in the end identifies with that vision of the leaves, because like those airborne leaves, bodies drift for a while on earth, moving in its silent space. Those bodies, with their continuous transit in the house, as if in a series of very long dances, create their own life, create existence on earth, appropriate space by forming and reflecting an existential and at times dramatic fullness under the spiritual emptiness of the sky.

¹¹ Tollini, 2019, p. 159. Quote translated from Italian into English.

¹² Mo Mo 默默.

Poem: «A Very Long Dance» (Mo Mo. In: <<https://internopoesia.com/2020/02/26/mo-mo/>> [consulted April 2020]; cf. Pozzana, Russo, 1996). The quote has been translated from Italian into English.

¹³ Mo Mo 默默.

Poem: «Even in a second there are countless himself» (Mo Mo. In: Grasselli, 2005. In: <<https://cinaoggi.it/2005/10/01/mo-mo-2/>> [consulted May 2020]; cf. Pozzana, Russo, 1996).

The quote has been translated from Italian into English.

¹⁴ Mo Mo 默默.

Poem: «Even in a second there are countless himself» (Mo Mo. In: Grasselli, 2005. In: <<https://cinaoggi.it/2005/10/01/mo-mo-2/>> [consulted May 2020]; cf. Pozzana, Russo, 1996).

The quote has been translated from Italian into English.

This poem belongs to the third phase of his writings. «The first, that of *Chengshi de Haizi* (Children of the city), is based on the spoken language and portrays the daily life of ordinary people; the second, *Shouzhi de Liulu* (Appearance of the fingers), it is characterized by less perceptive poems and more rational, for some critics a success, for others a real failure; the third phase, *Hui Jia* (Homecoming), blends spoken language, perception and rationality» (Grasselli, 2005). In this poem «the young poet arrives, along the winding path of the self-knowledge, to the conclusion that there is no real himself, but countless himself» (*Idem*). Quote translated from Italian into English.

¹⁵ Mo Mo 默默.

Poem: «Even in a second there are countless himself» (Mo Mo. In: Grasselli, 2005. In: <<https://cinaoggi.it/2005/10/01/mo-mo-2/>> [consulted May 2020]; cf. Pozzana, Russo, 1996). The quote has been translated from Italian into English.

Space-time

Bodies by themselves, bodies which like leaves causally meet in human and spatial silence, filling empty spaces, like those poetically portrayed by the Korean director Kim Ki-duk in *3-Iron. Empty House*¹⁶. Desolate spaces emptied by uneasiness (fig. 1). Houses as the reflections of mental spaces, temporary places linked only to the present (fig. 2). In spatial patterns man superimposes the patterns of his temporary presence. Space merges with the patterns of life, full of solitude and man's inner drama. The empty houses narrated by Kim Ki-duk represent the profound space of the soul, a momentary shelter, a place of reflection and action. The same space to which the director withdraws in a village, isolating himself and then confessing himself¹⁷ in the poignant and introspective *Arirang*.¹⁸ A self-narrative in which he superimposes mental and physical space, expressing his thoughts and his soul in an isolated place, empty and faraway from everyone. In this profound poetic space he lays bare his soul through an inner dialogue, a direct, devastating recited poem, because in the words of the Chinese poet Meng Lang¹⁹, «诗指向内心 / poetry aims at the heart»²⁰. Every space can inspire and contain a poem and by simply crossing it – Meng Lang writes in «crossing this empty space together»²¹ – you cross poetry itself, the poetry of living and inhabiting «four walls as white as snow»²², in other words the poetry of life rooted in space and time, like the life portrayed by the Chinese director Wong Kar-Wai in room 2046²³ or the one portrayed by the Korean director Kim Ki-duk in the house in *The Housemaid* (하녀)²⁴.

Wong Kar-Wai encloses the life of man between space and time, because 2046 (a hotel room number)

¹⁶ *3-Iron. Empty House* (빈 집), directed by Kim Ki-Duk (born in Bonghwa, South Korea, in 1960), South Korea, 2004. Venice Cinema Award: Leone d'argento, Premio per la migliore regia. 61. Mostra Internazionale d'Arte Cinematografica, Biennale Cinema, 2004. La Biennale di Venezia.

¹⁷ « [...] Since 2008 I have come up against this barrier from a professional point of view, therefore of cinema, and also of life, therefore of my personal life problems [...]. At that time, I remember, I was plunged into a very big dilemma, both in my professional life and in my life as an individual and the course of life in general. So, I retired to a small village and decided not to meet anyone anymore and to live completely alone in a small house. For a year I have led an absolutely lonely life. I have not gone out. I have not seen anyone. One day I thought about shooting myself with a digital video camera. For a whole month I recovered from getting drunk, while getting angry, while crying. I recovered at various moments of my life throughout a month. Then I asked myself various questions about what cinema was, what cinema should represent. Who was I, what were we supposed to be. What should we become. So, I started shooting various scenes: Kim Ki-duk 1, Kim Ki-duk 2, Kim Ki-duk 3 [...]. In this way I told, I told myself [...]» (Kim Ki-duk, 2012. Kim Ki-duk lecture, Ca'Foscari University, Venice, 2012. Simultaneous translation from Korean into Italian: by Prof. Vincenza D'Urso. Available on: <<https://www.youtube.com/watch?v=7oLYJUQLKYy>> [consulted May 2020]). Quote translated from Italian into English.

¹⁸ *Arirang* (아리랑), directed by Kim Ki-Duk, South Korea, 2011.

¹⁹ Meng Lang 孟浪 (born in Shanghai, China, in 1961 - Hong Kong 2018).

«Meng Lang was active in the underground poetry scene from the mid-1980s. He was co-editor of an anthology of underground and non-official poetry published in 1986: *An Exhibition of New Poetry Groups* “86 年诗群大展”. He left China in 1995 to spend three years as visiting poet at Brown University. After that he remained in exile, dividing his time between Boston and Hong Kong. Meng Lang's passport was revoked when he left mainland China in 1995, so he was unable to go back to visit his family in Shanghai. [...] Every year as June 4th approached, Meng Lang was always involved in planning for the June 4th Tiananmen memorial observances, wherever he happened to be. [...] his true story—his true biography—lies in the trajectory of his poems. He was a poet who found his own unique path to write about the social, political realities of his country in the language of modern, avant-garde thought. As a poet he always faced political realities, never going down a rabbit hole of metaphysics or aestheticism, yet each poem demonstrates his powerful artistic sensibility» (Mair, 2019).

See also: Lang, 1989, ed. 2017.

²⁰ Meng Lang 孟浪.

Poem: «Winter» (Pozzana, 2010, pp. 71-72). The quote has been translated from Italian into English.

«Meng Lang (孟浪), *Dongtian* [冬天: Inverno], in *Nanjinglu shang, liangpi pengma* [南京路上，两匹奔马; Due cavalli, sulla via Nanjing], Meng Lang Poem Collection, Guangmin ribao chubanshe, Beijing 2006, p. 2» (Pozzana, 2010, p. 71, note 16).

²¹ *Idem*.

²² *Idem*.

²³ *2046*, directed by Wong Kar-Wai (born in Shanghai, China, in 1958), China, 2004.

²⁴ *The Housemaid* (하녀), directed by Kim Ki-young (1919-1998, Seoul, South Korea), South Korea, 1960.

The Housemaid, directed by Im Sang-soo (born in Seoul, South Korea, in 1962), South Korea 2010.

is a space that poetically becomes time, becomes the year 2046. A future time, a time to reach with «an endless train launched in an unfathomable night towards a foggy and uncertain future»²⁵, in search of the past and lost memories. But memories cannot be found «since you can't go back»²⁶ to the past, because in the words of the Nobel prize winner Kawabata, «water and time never flow backwards»²⁷. Wong Kar-Wai builds a spatial mechanism around a profound, perverse human introspection, turning it into a complex and spectacular novel about time. A dark mechanism sustained and enhanced by an enveloping photography²⁸, a profound space, an asphyxiating scene of poor and profoundly fragile human memory. In the end, a “cosmogony” that embraces and represents the beginning and end of man's actions. A sequence of cities, roads, stations, and rooms, and then stairs, corridors, beds, tables, windows, and lights. Spaces and things that Wong Kar-Wai has always considered to be snippets and fragments (fig. 3). Fragments of Lang's «four walls as white as snow»²⁹ that collect and embrace the desires and dramas of men who pour their tragic existences into space. Like the walls of the house in *The Housemaid* by Kim Ki-young³⁰ (figs. 4-5) or the walls of the houses in *Parasite* by the Korean Bong Joon-Ho³¹ (figs. 6-8). All these walls are thus transformed, become imposing, and overwhelm man, separating him from the outside world and surrounding him with a wall that absorbs and protects him, but when it comes to life – in the words of the Chinese poetess Shu Ting³² – «it extends its soft tentacles»³³. It extends and plunges its tentacles almost into his body, into the body of a man who in space seems first to loose and then find his identity. Shu Ting writes: «Who am I? / Who is it? It is very possibly / my own skin gradually aging»³⁴. Man finds himself and identifies himself in space, because space – every space – can contain and represent his condition, the real human condition, until it becomes his skin (figs. 6-8).

Man-space

Every man abandons himself and succumbs to the poor or rich wall to which he is tied, a wall that squeezes and suffocates him, but one which he needs either to live in or survive, as portrayed by the walls in Bong Joon-Ho's film *Parasite* (figs. 6-8) or the words by Shu Ting: «I was unable to rebel against this wall / I only wished to do so. / [...] / Still, in the evening, the wall begins to move, / [...] /

²⁵ *2046*, directed by Wong Kar-Wai. From the narrator in the film.

The quote has been translated from Italian (from the movie in Italian language) into English.

²⁶ *Idem*.

²⁷ Kawabata, 1963, ed. 2014. The quote has been translated from Italian into English.

Yasunari Kawabata (Osaka 1899 - Zushi, Yokosuka, 1972). Japanese writer and Nobel Prize in Literature in 1968. Suicidal death.

²⁸ *2046*, directed by Wong Kar-Wai. Photography director Christopher Doyle (born in Sydney, Australia, in 1952).

²⁹ Meng Lang 孟浪.

Poem: «Winter» (Pozzana, 2010, pp. 71-72). The quote has been translated from Italian into English.

See notes 20, 21, 22.

³⁰ I refer to the walls of the house of *The Housemaid* (호녀), Kim Ki-young, South Korea, 1960.

³¹ *Parasite*, directed by Bong Joon-Ho (born in Daegu, South Korea, in 1969), South Korea, 2019.

4 Oscars Winner 2020: Best Picture, Directing, International Feature Film and Writing (Original Screenplay).

The Palm d'or Festival de Cannes in 2019.

³² Shu Ting 舒婷 (original name Gong Peiyu. Born in Jinjiang, Fujian, China, in 1952).

Shu Ting 舒婷, contemporary Chinese poet, is a representative of *Obscure Poets* (*The misty poets* 朦胧诗人). He has been writing poetry since 1969. Cf. Ting, 1994 (*Selected Poems by Shu Ting. An Authorized Collection*. Edited by Eva Hung) and cf. Ting, 1995 (*The Mist of My Heart. Selected Poems of Shu Ting*. Translated by Gordon T. Osing & De-an Wu Swihart; edited by William O'Donnell).

³³ Shu Ting 舒婷.

Poem: «The wall» (Shu Ting. In: <<https://internopoesia.com/2017/11/29/shu-ting/>> [consulted March 2020]; cf. Pozzana, Russo, 1996). The quote has been translated from Italian into English.

³⁴ *Idem*.

I panic and escape into the street, / I find the same nightmare I know / hanging at everyone's hells»³⁵. So, every man inhabits and lives in a physical space representing his mental space, i.e., his inner world, because man considers space – every space, even the most insubstantial – as a possibility to exist and as something reliable compared to the outside world (fig. 9). He considers it a compromise necessary for his fragilities and his «insecurity vis-à-vis this world»³⁶ due to the temporariness and randomness of his existence (figs. 9-10).

In the poem *The Wall* the Chinese poetess also writes «If I am accidental, it is also inevitable»³⁷. Words that appear to support the double spatialities, be they poor or rich, designed by Bong Joon-Ho in his film *Parasite* (figs. 6-10). Spatialities where the relationship between man and space is consolidated, albeit as a relationship of dramatic and asphyxiating dependency. Words that are instead irreconcilable with the lacerated space that the Chinese director Jia Zhang-Ke creates in *Still Life*³⁸ (figs. 11-13), portraying the conflictual relationship between man and space, where by opposing space man rebels against time and the uncertainties of life, denying even his insecurities. Man uses this relationship to destroy that wall since he considers it no longer necessary, because certainty is not space, but is his existence, his life. In *Parasite* space supports man because «man inhabits space and is tied to it and with it fights against death, in an endless Kafka-like war [...], in an act of extreme resistance to the end and therefore as a way to be anchored to life»³⁹. On the contrary, in the Chinese film *Still Life* man moves away from space; if this, on the one hand, leaves him vulnerable, on the other, it leaves him free. Free to move beyond physical space with his mind, to move away from real space and all its places, turning his thoughts into reality, so he can come closer to the relationship expressed by Hegel: «*Was gedacht ist, ist; und was ist, ist nur, in sofern, es Gedanke Ist*»⁴⁰ (what is thought, exists; and what exists, only exists as thought). A relationship is «a harmony that induces us to say – embracing that part of Asian philosophy that sees life as a dream – that thought is real and everything that appears in reality is transitory and unreal, almost as if it didn't exist»⁴¹.

The visions of these two poets – Bong Joon-Ho and Jia Zhang-Ke – represent their worlds, from which they extract profound images, because, as Bei Dao⁴² writes, «a poet must establish his world through

³⁵ *Idem*.

³⁶ *Idem*.

³⁷ *Idem*.

³⁸ *Still Life*, directed by Jia Zhang-Ke (born in Fenyang, Shanxi, China, in 1970), China, 2006.

Venice Cinema Award: Leone d'oro, per il miglior film. 63. Mostra Internazionale d'Arte Cinematografica, Biennale Cinema, 2006. La Biennale di Venezia.

³⁹ Marrocco, 2019, p. 161.

⁴⁰ Hegel, 1917, *Das Denken* (Thought) § 465.

⁴¹ Marrocco, 2019, p. 161.

⁴² Bei Dao (original name Zhao Zhenkai. Born in Beijing, China, in 1949).

Bei Dao «is undoubtedly the best-known contemporary Chinese poet abroad. Author of numerous collections of poems, volumes of essays (*Qingdeng*, 2006; *Lanfangzi*, 2009; *Wuye zhi men*, 2009) and memoirs (*Chengmen kai*, 2010), his books have been translated into twenty languages» (Lombardi, 2018, p. 15).

Quote translated from Italian into English.

«Poet, animator and inspirer of the movement known as *Menglong* ("obscure, indistinct"), which aimed to express, through a renewed poetic form, rich in unpublished symbolic images, the disillusionment, anxieties and aspirations of the still young generation raised in the tormented years of the cultural revolution. His poem *Huida* (*Answer*) was almost a manifesto of the movement» (from: <<http://www.treccani.it/enciclopedia/bei-dao/>> [consulted May 2020]).

Quote translated from Italian into English.

Bei Dao in 1978 was one of the founders of "Jintian", closed in 1980 and revived in Oslo in 1990 by the same poet together with other Chinese writers (about this topic see also note 44 in this text).

By Bei Dao see: *City Gate, Open Up. A memoir* (2009, translated from the Chinese by Jeffrey Yang) and *The Rose of Time. New & Selected Poems* (2010, translated from the Chinese by David Hinton, Bonnie S. MacDougall and Eliot Weinberger. Edited by E. Weinberger).

his poems – a sincere and unique world, a world of justice and humanity»⁴³. Their representations reveal new poetically expressed thoughts about the world. But they also contain a different understanding and a different interpretation of the relationship between man and space, because through space – and in space – the great tragedies of humanity are revealed by delving into the profound emptiness of each man and each conscience until one reaches his fragilities, rooted in the consciences of a society fragmented and divided by differences.

Kim Ki-duc, Bong Joon-Ho, Wong Kar-Wei and Jia Zhang-Ke, but perhaps even Mo Mo, have superimposed space and conscience on poetic *underground* stories that recall the ones which, in the late seventies, were present in “Jintian”⁴⁴, the Chinese magazine jointly founded by Bei Dao and many poets who, during the Cultural Revolution, paved the way for new possible intellectual ideas⁴⁵. Although the origins and ideologies of contemporary narrations differ from those origins and from the historical ideologies published in this famous magazine that circulated in a closed and limited milieu, the same desire to renew our ideas about the condition of the world and that of man using perceptive and sometimes hermetic representations is visible and present in many contemporary words⁴⁶ and images.⁴⁷ Poetic representations that are currently and necessarily *underground* because, silently and “in the mist”⁴⁸ they dig deep into the roots of man’s fears and miseries, gently bringing them to light. They explore mental spaces, bringing them to the surface by using a language inspired by that method and by the profound poetic sense of seeing reality with their own eyes, but also with the eyes of the period in which these events occur. In other words, it also originates from that «poetic idea of time» which, in the words of the French philosopher Alain Badiou, is «to see things not only with one’s eyes, but also with the eye of that century»⁴⁹.

«*City Gate, Open Up* is the lyrical autobiography of China’s a memoir legendary poet Bei Dao. Exiled from Beijing in the wake of the 1989 Tiananmen Square protests, Bei Dao returned to his homeland in 2001 for the first time in over twenty years. The city of his youth had vanished: “I was a foreigner in my hometown”, he writes. The shock of this experience released a flood of memories and emotions contained in *City Gate, Open Up*» (from: <<https://www.carcenet.co.uk/cgi-bin/indexer?product=9781784104627>> [consulted May 2020]).

About Bei Dao cf. also Pozzana, Russo, 1996.

⁴³ «Bei Dao, *On poetry*, Salt Hill/ Issue 5 Index, The *Meng Long Shi* Series, published on line: www.hypertext.com/sh/n.5dao (August 2006)» (Pozzana, 2010, p. 141, note 1). Quote translated from Italian into English.

The quote by Bei Dao is from: Pozzana, 2010, p. 141. The quote has been translated from Italian into English.

⁴⁴ «Since the late seventies, a multiplicity of poets, with a network of verses, interventions, utterances, disputes and exchanges, has given rise to a vast and rich independent intellectual space for poetry. The founding event, the creation in 1978 of the independent magazine “Jintian” by Bei Dao and Mang Ke, was not only the forcing of the limitations due to the lack of freedom of the press and publication, felt as one of the most unfair in life public, but above all the perception of a profound intellectual crisis concerning crucial issues of Chinese cultural consistency. The magazine aimed to make available to readers a vast *underground* poetic production that could not find a place in the editorial apparatus» (Pozzana 2010, p. 73). Quote translated from Italian into English.

«In the aftermath of Tian’anmen, in 1990, “Jintian” was re-founded in Oslo by Bei Dao and a group of exiled poets. Even today [in 2010. Author’s Note] it is the most important literary magazine in Chinese, and paradoxically continues to be published abroad and not regularly distributed in the People’s Republic» (*Ibid.* pp. 87-88). Quote translated from Italian into English.

⁴⁵ Cf. Pozzana 2010, pp. 73-74.

⁴⁶ «On *underground* poetry see Bei Ling, *Wenhua da geming zhong de dixia shige* [文化大革命中的地下诗歌: Underground Poetry in the Cultural Revolution], in “Qingxiang” [倾向; Tendenza/Trend], 9, 1997, pp. 1-17» (Pozzana 2010, p. 73, note 1). Quote translated from Italian into English.

⁴⁷ For the Japanese poets cf. Clementi Degli Albizzi, Orsi, 2020; for Chinese poetry cf. Pozzana, Russo, 1996.

⁴⁸ I mean the images of the films mentioned in this text.

See also recent works by the same directors mentioned, in particular: *Chungking Express* (*Hong Kong Express*), Wong Kar-Wai, Hong Kong, 1994; *Fallen Angel*, Wong Kar-Wai, Hong Kong, 1995; *Pietà* (피에타), Kim Ki-Duc, South Korea, 2012 (Venice Cinema Award: Leone d’oro, per il miglior film. 69. Mostra Internazionale d’Arte Cinematografica, Biennale Cinema, 2012. La Biennale di Venezia); *The Grandmaster*, Wong Kar-Wai, China, Hong Kong, 2013; *Mountains may depart*, Jia Zhang-Ke, China (France, Japan), 2015.

⁴⁸ It is a cultural-visual reference to *Obscure Poets* (*The misty poets*).

⁴⁹ «A. Badiou, *Il secolo*, Feltrinelli, Milano 2006, p. 25. The quote refers to the opening chapter of the volume in which the French philosopher closely comments on Mandel’stam’s poem, *The century*» (Pozzana 2010, p. 76, note 5).

The differences in these representations do nevertheless portray a twisted world, humanity naked in front of time, immersed and enveloped in an oppressive, desolate, frayed, and submerged space (figs. 7, 10-13). A space containing tragedies and for this reason always empty, be it in wealth or poverty, because in Bei Dao's poem «poverty is emptiness 贫穷是一片空白 / freedom is emptiness 自由是一片空白»⁵⁰; the poem was inspired by that category of emptiness which is «a well-known category of classical Chinese philosophy, especially from Laozi to Zhuangzi»⁵¹.

Space equalises and unites poverty and wealth when men are miserable in their spaces. Human misery exists, beyond poverty and wealth, because a man who is unaware of his thoughts lives in the misery of his conscience, in a space that becomes only a stratagem of survival, a driving force of existence. A human container, a warehouse of objects, bodies, minds, and then actions, often performed through and above those ever-present stairs. Stairs representing the verticality of human feelings and actions, either upwards or downwards. A metaphorically Dantesque verticality overturning the human landscape that ultimately no longer stretches horizontally, along the horizon of the earth, but vertically, the way man gravitationally stands on earth (figs. 2, 5-6, 8-9). So, both the poor, cramped space submerged by water, and the rich, cold space, raised and deserted (figs. 6-10) are both spaces flooded by emptiness, a reflection of solitude and exclusion, in which man finds himself, chiefly because he is incapable of understanding his own existence. This emptiness is very different to Dōgen's emptiness, a reflection of purity and immensity, that man instead attains and experiences when he achieves confidence in himself, towards that "Path of no doubt", passing from the closed emptiness of solitude to the boundless emptiness of enlightenment, as stated by the Chinese master Jōshū Jōshin (趙州從諗)⁵²: «If it is true arrival on the Path where there is no doubt, it is like the sky, a vast and great vacuity»⁵³. On the other hand, in the poem of *Sanshō dōei* (傘松道詠), Dōgen writes «In this world, / perhaps is it that there are no / real men?»⁵⁴, in other words are there no enlightened men⁵⁵, men who have understood the essence of their existence and have embarked on the path of purity? The mental space of every man conceals the profound emptiness of enlightenment, because every man is sensitive to his own life and existence. And in this world he travels, wandering amongst other men, like a leaf amongst airborne leaves, perennially waiting for the possibility to discover and understand, between the seasons, i.e., in time, his sensitivity, retreating into himself in a poor form, i.e., pure and essential, because – again according to master Dōgen: «A sensitive heart / hidden from people, is / in this world / only a poor man / in the autumnal twilight»⁵⁶.

Quote translated from Italian into English.

The quote by Alain Badiou is from: Pozzana, 2010, p. 76. The quote has been translated from Italian into English.

⁵⁰ Bei Dao. Poem: «Emptiness [空白]» (Pozzana 2010, pp. 148-149). The quote has been translated from Italian into English.

⁵¹ Pozzana 2010, p. 148. Quote translated from Italian into English.

Laozi (VI-V century BC), Chinese Taoist philosopher, author, according to the unanimous Chinese tradition, of the fundamental sacred writing of Taoism: *Daodejing* and primary divinity of the Taoist religion. A legendary figure, he appears for the first time in the *Zhuangzi*, a Taoist work of the III-II century BC, with the name of Lao Dan and Master of Confucius himself (Cf. *Laozi*, in *Philosophy Dictionary*, 2009, in: Treccani.it).

Zhuangzi, Zhuang Zhou (IV century BC), Chinese philosopher, considered heir to Taoism after Laozi. The opera *Zhuangzi*, usually attributed to him, is pervaded by an «irrepressible lyricism; some of the recurring themes [...] certainly make Zhuangzi one of the most fascinating figures in Chinese history».

(from: <https://www.treccani.it/enciclopedia/zhuangzi_%28Dizionario-di-filosofia%29/> [consulted March 2020]). Quote translated from Italian into English.

⁵² See note 4.

⁵³ Jōshū Jōshin 趙州從諗 (Tollini, 2019, p. 127). The quote has been translated from Italian into English.

See note 5.

⁵⁴ Dōgen, about 1247, ed. 2019, p. 127 (Poem 10). The quote has been translated from Italian into English.

⁵⁵ «I.e., men who have come to enlightenment» (Tollini 2019, p. 286, note 30). Quote translated from Italian into English.

⁵⁶ Dōgen, about 1247, ed. 2019, p. 149 (Poem 18). The quote has been translated from Italian into English.

«It is a very famous poem because with its simplicity and essentiality (instead of saying what there is, it says what is not there), it is

So, as in any autumnal twilight, in other words at a certain moment in his life, man – interpreting a haiku by Yosa Buson⁵⁷ – visits «another solitude»⁵⁸ by himself. A solitude that differs from his previous solitude. A pure solitude that is prosperity and confidence in himself, from which man «reach out to touch the sky’s blue features»⁵⁹.

capable of arousing deep feelings» (Tollini 2019, p. 149). Quote translated from Italian into English.

In the first part of this poem he speaks of «a person with a sensitive heart “hidden from the people”. Surely it is a monk, or a person dedicated to the search for the Buddhist Way, and perhaps it refers to himself. A sensitive person with delicate feelings who shuns crowds and confusion and retreats to a solitary, bare and simple place, devoid of seductions, where to practice the Way in solitude. Dōgen, a lover of quiet and remote places, preferred a *wabi* lifestyle, marked by essentiality and purity» (*Idem*). Quote translated from Italian into English.

⁵⁷ Yosa Buson (1715-1783).

«Today considered, together with Bashō, Issa and Shiki, one of the four great masters of haiku, Buson during his life and then for the whole following century is known above all as a painter; the revaluation of his poetic production takes place starting from 1899, the year in which Masaoka Shiki publishes *Haijin Buson*» (Dal Pra, 1998, ed. 2015, p. 129). Quote translated from Italian into English.

⁵⁸ Yosa Buson.

Haiku: «*hitori kite / hitori wo tou ya / aki no kure*».

«autumn twilight: / I visit alone / another solitude» (Dal Pra, 1998, ed. 2015, p. 157)

The quote has been translated from Italian into English.

⁵⁹ Meng Lang 孟浪.

Poem: «City in hibernation» (Lang, about 1995. *Seventeen Poems*. Translated from the Chinese by Denis Mair).



Fig. 1 Scenes from the movie: 3-Iron. Empty House (빈 집), directed by Kim Ki-Duk, South Korea, 2004



Fig. 2 Scenes from the movie: 3-Iron. Empty House (빈 집), directed by Kim Ki-Duk, South Korea, 2004



Fig. 3 Scenes from the movie: 2046, directed by Wong Kar-Wai, China, 2004



Fig. 4 Scenes from the movie: The Housemaid (하녀), directed by Kim Ki-young, South Korea, 1960



Fig. 5 Scenes from the movie: The Housemaid (하녀), directed by Kim Ki-young, South Korea, 1960



Fig. 6 Scenes from the movie: Parasite, directed by Bong Joon-Ho, South Korea, 2019



Fig. 7 Scenes from the movie: Parasite, directed by Bong Joon-Ho, South Korea, 2019



Fig. 8 Scenes from the movie: Parasite, directed by Bong Joon-Ho, South Korea, 2019



Fig. 9 Scenes from the movie: Parasite, directed by Bong Joon-Ho, South Korea, 2019



Fig. 10 Scenes from the movie: Parasite, directed by Bong Joon-Ho, South Korea, 2019



Fig. 11 Scenes from the movie: Still Life, directed by Jia Zhang-Ke, China, 2006



Fig. 12 Scenes from the movie: Still Life, directed by Jia Zhang-Ke, China, 2006



Fig. 13 Scenes from the movie: Still Life, directed by Jia Zhang-Ke, China, 2006

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Filmography

- The Housemaid* (하녀), directed by Kim Ki-young, South Korea, 1960
- The Housemaid*, directed by Im Sang-soo, South Korea, 2010
- 3-Iron. Empty House* (빈 집), directed by Kim Ki-Duk, South Korea, 2004
- 2046*, directed by Wong Kar-Wai, China, 2004
- Still Life*, directed by Jia Zhang-Ke, China, 2006
- Arirang* (아리랑), directed by Kim Ki-Duk, South Korea, 2011
- Parasite*, directed by Bong Joon-Ho, South Korea, 2019
- Mountains may depart*, directed by Jia Zhang-Ke, China, France, Japan, 2015
- Pietà* (피에타), directed by Kim Ki-Duc, South Korea, 2012

The art of woven vegetable fiber, decorative signs and functional shapes derived from the environment

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Abstract

The continuity of an archaic model that contributes to define, even today, the coastal landscape through a productive settlement based on fish farming: the traces of which are still evident, as well as in the traditional practices of a secular activity, also in the use of materials and in construction techniques for the realization of professional equipment.

The reference scenario is the Sinis Peninsula, on the western Sardinian coast, partly characterized by a lake-like nature, in which a settlement pattern persists, definable, by peculiarity, a unicum: the relationship between man and sea, in the varied expressions of the vernacular wisdom, he moved to a material work perpetuated in tradition through numerous generations.

In fact, the fishing activity that has been taking place there for centuries, focuses on procedures, methods and tools still unchanged. Starting from the instrumental artefacts: boats, containers, stowage warehouses, typical for the essentiality of the construction technique adopted and for the type of material coming from the lush marsh vegetation.

From the stems and foliage the fibers are obtained which - dried, intertwined and bound with different techniques - generate shapes and textures designed directly in the work; a decorative and functional warp at the same time that supports the specific purposes for which these objects, strongly linked to water, are designed: navigation in protected waters, fishing, storage and coastal shelter.

The texture also represents the metaphor of a subtle balance historically generated between the environment, which supplies the raw material - and regaining it at the end of the use of the artefact - ad the human intervention, deliberately limited in the slight and erasable traces of his presence.

Abstract

La continuità di un modello arcaico che concorre a definire, ancora oggi, il paesaggio costiero attraverso un insediamento produttivo fondato sull'itticoltura: le cui tracce sono tuttora evidenti, oltretutto nelle pratiche tradizionali di un'attività secolare, anche nell'uso di materiali e nelle tecniche costruttive per la realizzazione delle attrezzature professionali.

Lo scenario di riferimento è la Penisola del Sinis, nella costa occidentale sarda, in parte caratterizzata da una natura di tipo lacustre, nella quale persiste un modello insediativo definibile, per peculiarità,

un unicum: il rapporto tra uomo e mare, nelle variegata espressioni della sapienza vernacolare, si trasferisce in un'opera materiale perpetuata nella tradizione attraverso numerose generazioni.

Infatti, l'attività ittica che ivi si svolge da secoli, verte su procedure, modalità e utensili tuttora immutati. A partire dai manufatti strumentali: imbarcazioni, contenitori, magazzini di stivaggio, tipici per l'essenzialità della tecnica costruttiva adottata e per la tipologia del materiale proveniente dalla ricca vegetazione palustre. Dai fusti e dal fogliame si ottengono le fibre che -essiccate, intrecciate e rilegate con tecniche differenti- generano forme e trame disegnate direttamente nell'opera; un ordito decorativo e funzionale allo stesso tempo che asseconda le finalità specifiche per le quali tali oggetti, fortemente legati all'acqua, sono concepiti: la navigazione in acque protette, la pesca, il deposito ed il riparo costiero. La trama intrecciata rappresenta altresì la metafora di un sottile equilibrio storicamente ingenerato tra l'ambiente, che fornisce la materia prima -per poi riassumerla al termine dell'uso del manufatto- e l'opera dell'intervento umano, volutamente limitato nelle tracce debili ma ripetibili della sua presenza.

Introduction

Environmental specificities and building traditions

The woven texture as the metaphor of a subtle balance historically generated between the environment and the work of human intervention, circumscribed in a specific geographical and environmental context and a specific time interval, deliberately limited in the delectable but repeatable traces of its presence.

The reference geographical environmental context consists of the wetlands of the *Sinis* Peninsula, on the western coast of central Sardinia: in particular the *Cabras* ponds¹. An area with a particular and varied orography. Wetlands consist of bodies of water separated from the sea by a thin strip of land, to which they connect through canals. The latter allow a recirculation that favours the mixing of fresh water with marine water: the particular level of salinity of the water, in fact - together with the mild temperatures and the shallow waters - constitute the ideal environmental conditions for the proliferation of a wide variety of fish species.

These favourable conditions make these extensive bodies of water a natural nursery, exploited in an organized way since the Middle Ages. The flora constitutes a positive element both to the variety of the ecosystem and to the supply of building materials for fishing and fish farming tools.

The time interval in which this human exploitation activity takes place is limited: it is primarily dictated by the biological rhythm of the fish fauna - the primary resource -, which historically has always determined the duration of the fishing season.

The second order of time constraints consists of the environmental conditions favourable for the collection, drying and transformation of the vegetable fibre, the *thifa*² - another primary resource, which has always been functional to the creation of tools for fishing: the barriers of the fishpond cells, the shelters, lobster pots, *Fassoni* canoes.

The latter, due to their precarious constitution, are characterized by a sudden transience, therefore

¹ The *Cabras* pond is a large lagoon of 22 sq km one mile from the coast and in communication with the sea, its basin is characterized by the confluence of numerous torrential rivers (coming from the *Montiferru* hills, in the immediate hinterland) and canals connecting to the sea. By extension and relevance of biodiversity, it is one of the most important wetlands in Sardinia. It locates in the northern part of the Gulf of Oristano; it is fed by the *Riu di Mare Foghe* and communicates through natural and artificial channels with the Sardinian sea. Together with the wetlands of *Mistras*, *Pauli 'e Sali* and the pond of *S. Giusta* (8.40 sq km) it generates a marsh ecosystem among the largest in Europe and since 1971, protected by the International Convention of Ramsar.

² Marsh *Panicladium* (*Cladium mariscus* Pohl)

destined to degrade within a few months. At the epilogue of the fishing season, in fact, the boat built with marsh grass becomes unusable: the materials making up the hulls, the untreated essences, lose their original impermeability over time, getting wet with water, no longer guaranteeing the necessary buoyancy.

Only then, the plant assembly will return to the natural action of degradation to dissolve definitively its precarious link with human work, and to re-join, with the rest of the marsh vegetation, at the end of its life cycle.

The product in question is thus the result of a reversible, non-invasive transformation process limited in time. The seasonality of the operational settlement, together with the natural decay of the material - determine the functional essentiality of this deliberately limited tool³, even in the post-use phase, since no action is foreseen for the transformation and artificial re-composition process at the end of the cycle operating.

The methodology focuses on a material knowledge that guides the selection of tree species, their treatment, their seasoning, the intertwining of the fibres with binding techniques that determine the final product, in the different typological configurations articulated for purposes and functions.

The container, the pot, the boat, the shelter: they are united by a single common matrix, vegetable fiber, a technique that unfolds according to a varied construction methodology in relation to the application field; manual skills are the basis of a practical knowledge handed down, not codified except through tradition.

Construction techniques and age-old practices that come from the landscape merge with it for the use of materials directly provided by nature and the environmental context. Constructive practice thus becomes an expression of essential knowledge, which celebrates itself in the repeated actions of an industrious ritual.

Transformation processes weighted according to a wise archaic utilitarianism, aimed at obtaining the maximum efficiency during the short operating life of the product, in relation to the duration of the fishing period. Contact with water, the woven material that exploits the natural impermeability of the fiber to become a cage, hull, oar, roof and wall. Therefore, these objects are the result of a process perpetuated in the wake of the vernacular tradition, obtained from the elementary transformation of the materials that the place can offer immediately. They constitute the material traces of a continuous comparison between the coastal environment and the settlement: an example of interaction between human activity and natural resources, based on the subtle balance in exploitation and respect for the latter.

In fact, they constitute the means and the end of this atypical as precarious settlement model, which conforms and submits - in its repetitive temporality - to the cyclical alternation of the biological rhythms of the environment that receives it.

The woven texture as a metaphor: of a combination historically woven between the natural environment and man in the ability of the former to provide an immediate raw material and the latter, through simple transformations, to create settlements that do not involve irreversible mutations on the primary protagonist.

³ By virtue of the statute at the basis of the concessions for the use of ponds, the fisherman equipped with this means would have had operating limits, both in the use of fishing tools and in terms of quantity and types of fish.

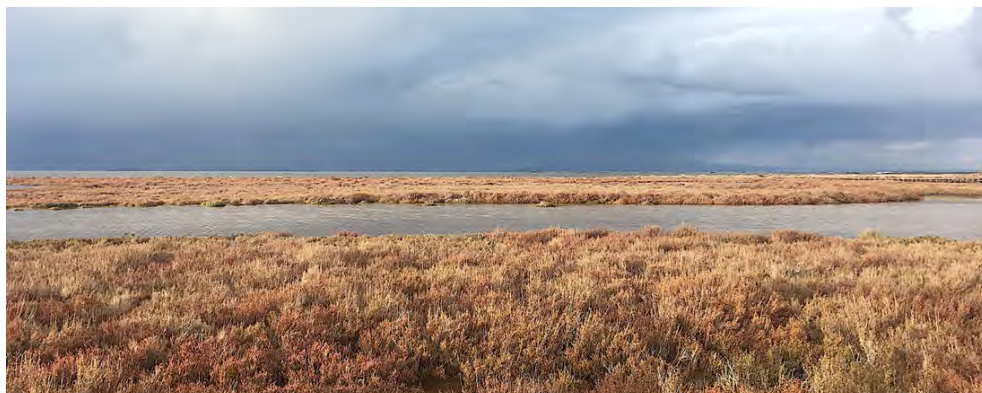


Fig. 1 Marshes of the Sinis peninsula (Sardinia).

Permanence of an archaic system in modern times

The perpetuation of an exploitation system based on a feudal logic of the organization of fishing rights could in part constitute the main reason why, for a very long time, this part of the lagoon has known a type of deliberately contingent exploitation. Limited: both for the number of anglers allowed, and for the quantities of fish caught and the type of fishing allowed.

Although the intentions were beyond the scope, these regulations favoured a balanced exploitation model that respected the precious ecosystem, preserving this territory from the risks of reckless use.

For a very long period, until part of the second half of the twentieth century, the exploitation of the resources of the Cabras pond provided for a pyramidal organizational scheme, directly borrowed without altering it from the *latifundial* one of medieval extraction⁴.

In which, in order of importance, there were different fishing companies (*Colleghe*) who - by way of payment - were authorized to fish in the lagoon:

- The *Poigeris* were anglers enabled to fish with a tight mesh (*poigiu*), although they could catch a wide variety of fish, they still had limits on the quantity of fish caught.
- The *Shaigoteris*: fishermen capable of using the *shaigoti*, or a wide-meshed net, therefore enabled for more selective fishing.
- The *Bogheris*: rowers paid the fees for fishing and for the use of the boats provided with the property. Their activity could only be carried out in the period from September to May, they had the task of conveying the fish towards groups of boats the chambers of the fishpond were entitled to have only a part of the fish caught.
- The holders of the *Palamitai* license could only fish using small rattan boats, the *Fassonis*, armed with

⁴ Since 1958, a regional law abolished exclusive fishing rights on the waters of the region, but this part of territory seemed to be exempt from this regulation as it was considered private property. In fact, the fishmongers of Cabras became private property in 1652, when - under the Kingdom of Spain- Philip IV contracted a mortgage of 149,000 royal silver coins from the Genoese banker Gerolamo Vivaldi, in exchange for the use of the lagoon. From July 1856, because of the Luxembourg Treaty, the Savoy State became the contractor of this agreement, but by not allocating any liquidity to the repayment of the mortgage. The banker's heirs obtained the right to sell the property, acquired by a wealthy family local: which continued, in the exercise of possession rights, the effectiveness of medieval landlordism for well over a century. Paradoxically, in the second half of the twentieth century the feudal scheme, based on a hierarchical organization of the workforce provided by about 250 fishermen divided into categories, it was still in force.

harpoons, a pole oar, and a line for trolling: they could not use nets of any kind. Fishing was allowed only in the slums on the edge of the lagoon and in the period between September and April⁵.

It took some time for this model to be progressively supplanted, through the issue of specific laws aimed at definitively eliminating the privatization of this environmental “unicum”.

Today, thanks to the principles of the Ramsar International Convention⁶ drawn up in 1971, this marsh ecosystem among the largest in Europe is finally recognized as a public heritage and protected by specific regulations. The fishing activities that take place there, heavily disciplined, are entrusted to fishermen’s cooperative societies.



Fig. 2 Collection cells of Cabras fishpond, Sinis (Sardinia), 1950s.

⁵ The fishing license, until the early 70s had a limited time: from September to May, it costed 50,000 lire, the life of the boat was slightly higher than that period, and the actual navigation was about a month after which it was starting to deteriorate. The fishing through the harpoon is conducted through fishing trips made up of groups of 10-20 boats, which, after having conveyed the fish to a specific area, arrange themselves in a circle in a technique that is defined as “chiudere il ballo” (closing the dance), in which the operation develops of real hunting. This category of fishermen is generally allowed to fish in the more marshy areas in the slums, where it was impossible to implement the most profitable fishing systems put in place by the sharecroppers and the manpower of the property.

⁶ The Ramsar Convention is the first true intergovernmental treaty with a global purpose, in its most modern sense, concerning the conservation and management of natural ecosystems. Italy ratified and enacted it with specific Presidential Decrees, respectively in March 1976 and February 1987. The implementing instruments provide, in addition to participation in the international common activities of the Convention, a series of national commitments, such as:

- monitoring and experimentation in the designated “Wetlands”;
- activation of the models for the management of “Wetlands”.



Fig. 3 Palamitai at the end of a fishing trip. Ponds of Cabras, Sinis (Sardinia), 1950s.

The *Fassoni* type, formal and constructive characteristics

Fassoni are small boats-rafts built using a marsh hay, the *falasco*⁷, this dried material and arranged in strips longitudinally is assembled in bundles through special raffia bindings or other vegetable cordage, according to a technique handed down for generations.

Their name derives precisely from *fascina*, because they are made up of 15-20 bunches of rushes tied to each other. Their length varies from 4 to 4.50 meters for about one meter in width. Their name derives precisely from *fascina*, because they are made up of 15-20 bunches of rushes tied to each other. Their length varies from 4 to 4.50 meters for about 90 cm-1 meter in width. The geometries of this hull are characterized respectively by a flat bottom, by a high bow (about one meter above the floatation), and by an extremely tapered plant.

The maximum width of the hull is reached precisely in the aft sections. The rear part is truncated, while the cross section provides for the assembly of about 5-6 aligned beams bordering the outside with another order of beams, in a raised position on each side to form a side protection side, to accommodate the seat.

Each beam is bound to form a circular cross section, while in the longitudinal direction has a tapered shape. Its length is interspersed with transverse bindings with a pitch of about 25-30 cm. To this order of transverse fastenings are added the longitudinal ligatures also made of natural cord, which determine the characteristic saddle shape of the hull just emerging from the water. Due to the geometric characteristics, these vessels are only suitable for sailing in calm waters.

⁷ The *falasco* or *marisco* is a marsh tree species, other name of the marsh *panicastrella* grass (*Cladium mariscus*).

Regarding the propulsion system, some specimens provided for the use of a pole, made of a weave of reeds: they were suitable for fishing in the shallows of the lagoon. However, there were models equipped with a pair of oarlocks made of wood and fixed to the hull through a reed weave, for rowing navigation: this arrangement made the fassoni suitable for navigation in the deeper waters.

By virtue of the truncated stern shape, the rear sections of the panelling were free and in contact with water. Furthermore, since the construction material was free of any waterproofing treatment, the hygroscopicity of the material limited its daily navigation autonomy: this made it necessary, at the end of each fishing trip, to place the fassoni on the beach in a vertical position, on special supports. The operating duration of this very particular nautical artefact was therefore destined to end in the short span of a fishing season, roughly equivalent to a semester. The technique related to these particular creations is generally regarded as a genuine survival of prehistory. In fact, recently several cultural initiatives have been born - mostly promoted by local institutions - aimed at preserving and protecting these techniques, so that they do not get lost in oblivion, in order to perpetuate the testimonies of a centuries-old material wisdom, which finds singular analogies with the uses and methods of very distant cultures.



Fig. 4 Cabras ponds, Sinis (Sardinia). Fassonis on the shore, aft view on the assembly systems of the bundles.



Fig. 5 Cabras ponds, Sinis (Sardinia). Fassonis on the shore, view of the binding systems and the forward closure.

Analogy: environmental context and material culture

In Peru, for example, there are patterns which, due to their shape, construction typology and construction methodology, highlight absolute similarities with the Fassoni type.

The analogies do not stop at the material aspect, but we can find them in the geographical and social characteristics that combined to generate these specimens. Also in this case, the subsistence economy based on a fishing of small cabotage is the protagonist. Also in this case, the orographic configuration has outlined a close connection between the inland wetland and the open sea, favouring the symbiosis between the vegetation-raw material and the navigation-sustenance tool.

The marshes of Huanchaco (*Humedales de Huanchaco*) extend over an area of over 4600 hectares for a total of about 215 ponds in the La Libertad region; they are unique in the northern coastal landscape of Peru. They extend for about 10 kilometers northwest of the city of Trujillo. Thanks to the establishment in the 60s of the ecological reserve⁸, that has preserved its original landscape features; the community organization has been able to keep the wetlands uncontaminated, as a peculiarity of the territory.

We can see how the formal and constructive analogies are in some way attributable to a geographical landscape evidence. The marshes in the Huanchaco coast, as well as in the Sinis peninsula, once again constitute the optimal environmental conditions, capable of favouring a complex system, based on the exploitation of the raw material, for the construction of work tools and -in general- of whole natural resources. Also in this case we have evidence of a millennial culture, which has lasted until modern times, marked by the alternation of the climatic conditions of the seasons, by the vegetative cycle of the

⁸The CHAVIMOCHIC project born from the regional cooperation of the Department for the Environment and other institutions, which work for the promotion and recovery of the eco-systemic heritage consisting of the Huanchaco wetlands, known as “*Los Balsares*”; historical places of the cultivation of the *totorá* used by the *huanchaqueros* for the production of the “*Caballitos de Totorá*”.

marsh flora and by the wealth of fish resources. However, compared to the reference example, fishing there does not take place in a protected body of water, but in the open sea.

The *Caballito de totora*⁹ represents - also in this case- the typical expression of a material culture of ancient origins, in which the work takes shape directly from a manual process. We can say that the project is not expressed through the graphic representation but through a process - handed down in operational practice - made up of repetitive coded operations articulated in different phases.

The constructive process starts with the finding of the building material, which is no longer spontaneous vegetation but agricultural essence, and then it is passed to its preparation, through seasoning; finally, we come to the complex construction work itself. This is the result of a wise combined action of composition of the stems and the partial binding, in such a way as to create bundles with different sections and shaped according to variable radii of curvature. In this way, the ligatures themselves become tensors that define the longitudinal saddle and the concavity of the hull. The construction of the artefact thus represents a singular typological hybridization: between the assembled and the warp. Another common element is the atypical effect about absence of any graphic design code for the repetitiveness of the artefacts: in both cases, the various built models present characteristics of almost total morphological uniformity; therefore, the artefacts can still be classified in a precise typological model unchanged for workers and dating.

Therefore, these models mostly reflect formal and constructive similarities to fassonis, mainly for:

- The construction material: that is, the marsh reed, the *totora*¹⁰, which after a short drying period is joined into bunches which are then worked for the longitudinal curvature.
- The assembly technique, which also in this case involves the use of vegetable fiber, only recently replaced by synthetic fiber. However, compared to the construction system of the Fassonis, it is not foreseen here in the transverse form of the hull a side-by-side aggregation of several circular bundle orders. Rather, the shape generates by the juxtaposition of two thick mats jointed in the centre and folded at the sides in a conical shape, until they close at the top to form a protective envelope for three quarters of the length of the hull. The floating body is instead characterized transversely by a double circular section placed side by side. The longitudinal shape of the hull draws a wide continuous curve from the stern to the bow, this is inclined according to a tangent of about 40 degrees, which then gently connects to the central body with a course parallel to the waterline in the aft part, and finally the profile rises sharply to end with a clean cut.

The construction system provides for the transverse binding for the assembly of the two conical longitudinal beams, fixed respectively through a central suture and transverse sealing rings, in vegetable fibre cordage, which give the shape to the individual spindles. These knots follow one another with a variable interval: more dense - about 10-15 centimetres - from the forward ends to the centre of the boat, and then thinning up to about 30 centimetres in the other sectors of the hull. To this secondary order of ties is added the primary one, which fixes the two floating bodies, obtained from rings of ropes of larger section spaced respectively by about 40-50 centimetres. The fastening system completes with the longitudinal ligatures -from stern to bow-, which determine the typical wide arch development of the hull¹¹.

⁹ Built according to a methodology that tradition wants to descend directly from the pre-Inca civilization Mochica (1st-7th century AD)

¹⁰ Reed of the *Schoenoplectus californicus* type

¹¹ The element characterizing the geometric composition of this vessel is the arched development of the hull characterized by the high radius of curvature of the bow wheel, compared to an average length between 4.5 meters and 5 meters, and a weight of about



Fig. 6 Huanchaco (Perù), Caballito de totora on the shore

Conclusions: further analogies

However, this geographical region contains a further starting point of analogy with the Sinis peninsula, this time not referring to the nautical construction, but to the extraordinary affinity between the coastal shelter houses of the Cabras ponds, and the dwellings of the floating villages of Lake Titicaca.

The huts in *falasco* of the Sinis peninsula were refuges that stood a few meters from the shore and mainly served as temporary shelters for fishermen and warehouses for fishing equipment.

They also constituted the compendium on the mainland of an articulated settlement model that finds in the immediate transformation of local resources to obtain the various tools necessary to support fishing activities. The cells - with a quadrangular plan- were supported by two orders of frames: the first, in chestnut poles, included the perimeter pillars, the support beams and the ridge of the heavily pitched two-pitched roof (slope greater than 80%). The second frame - superimposed on the first - formed an orthogonal mesh, composed of marsh canes fixed by binding: these had the task of supporting the external coating. The infill surface forms a complex interweaving of assembled thin rushes, gathered in bundles fixed to the support through special holes made up of two overlapping and bound stems. The cover also adopts the same fixing system to the main frame: it configures in the sequence of different orders of compact bundles, arranged in longitudinal overlapping courses for over half of their width.

The interweaving of the vegetable fibre of the marsh reeds is therefore, once again, a metaphor. In short, it is the connecting element, still in force, between the exploitation of the natural resource, the expression of a material tradition: in the elaboration of a settlement strategy compatible with the biodiversity of the lagoon, that has accompanied, over the centuries, the existence of a territory.

50 kilograms. In plan, the trend is progressively tapered, from the aft three quarters (where there is maximum width) towards the bow and slightly, towards the stern.



Fig. 7 S.Giovanni di Sinis (Sardinia), coastal hut made of falasco

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Signs and thicknesses of the city. The evolution of urban representation in premodern cartography

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Abstract

The cartographic documents are useful tools for the study of the city, and in particular, for the recognition of long-lasting structures in the area. The historical maps contain all the invariants represented by values, pre-existences, permanences, and sediments, identifying what Lavedan defined as “*Law of the permanence of the plant*”, as well as a precious treasure chest that informs us how the role of the city has changed over time.

After the growing season, in which the city has expanded “consuming territory”, today, in the awareness of the need to preserve the environment, there is greater attention to the consolidated city, resorting to redevelopment, recovery, thus placing a limit on the expansion, reusing the existing. The territory in that “past growing season” was considered mere support, a container of activities, an unlimited resource, but, otherwise, represents a stratification over time of facts and culture, a space of relationships, a precious, limited, and non-reproducible asset. In this new way of understanding the city and the territory, the tools of knowledge have also changed, and the cartography, even the historical one, in this case, becomes again a “speaking” document, once again assuming that importance in the interpretation of the urban fact, once to recognize and restore quality and identity to places.

The contribution intends to report the evolution of the representation of the city and the territory, indicating the signs and thicknesses of pre-modern cartography to recognize urban transformations.

Abstract

I documenti cartografici sono strumenti utili per lo studio della città, ed in particolare, per la ricognizione delle strutture di lunga durata del territorio. Le carte storiche contengono tutte le invarianti rappresentate dai valori, preesistenze, permanenze e sedimenti, individuando quella che Lavedan definiva “*legge della permanenza della pianta*”, oltre che un prezioso scrigno che ci informa come si è modificato il ruolo della città nel tempo.

Dopo la stagione della crescita, in cui si è estesa la città “consumando territorio”, oggi, nella consapevolezza della necessità di preservare l’ambiente, esiste una maggiore attenzione alla città consolidata, ricorrendo alla riqualificazione, al recupero, ponendo così un limite all’espansione, riutilizzando l’esistente. Il territorio in quella “passata stagione di crescita” era considerato un mero

supporto, contenitore di attività, una risorsa illimitata, ma, diversamente, rappresenta una stratificazione nel tempo di fatti e cultura, spazio di relazioni, bene prezioso, limitato e non riproducibile. In questo nuovo modo di intendere la città ed il territorio sono cambiati anche gli strumenti del conoscere, e la cartografia, anche quella storica, in questo caso torna ad essere documento “parlante”, assumendo nuovamente quella importanza nell’interpretazione del fatto urbano, volta a riconoscere e ridare qualità e identità ai luoghi.

Il contributo intende riportare l’evoluzione della rappresentazione della città e del territorio, indicando i segni e gli spessori della cartografia premoderna al fine della riconoscibilità delle trasformazioni urbane.

Introduction

“Because drawing, the father of our three arts, Architecture, Sculpture, and Painting, proceeding from the intellect, draws a universal judgment from many things; similar to a form or idea of all the things of nature [...] here it is that not only in human and animal bodies, but in plants again, and in factories and sculptures and paintings, it knows the proportion that has everything with parts, and that have the parts between them and with the whole together”¹. If in the Middle Ages cartography essentially took on the character of a graphic compendium of universal knowledge and - in the field of iconography - symbolic abstraction prevails over description, in the Renaissance we witnessed an evolution of representation with the prevalence of a realistic image in perspective to flight - and greater figurative realism - with a clear indication of the hierarchies emphasizing some buildings (in particular the places of power)². From the mid-eighteenth century,³ it will be replaced with a planimetric representation. From this period the city loses its volumetric prominence - the representation adapts to the emerging needs of planning, expansion, and transformation, with the introduction of the *zenithal plan*. Here the organism loses its three-dimensional value to be “reduced” to just two horizontal coplanar coordinates. It is a revolution in the way of conceiving and transmitting the urban image, above all in the function of more instrumental than representative objectives, such as those imposed on the Enlightenment culture and the organizational needs of the nation-states.

Throughout the eighteenth and nineteenth centuries, there is a great production of images of cities. It is precisely in the eighteenth century that the technique of zenithal projection was perfected and generalized, giving rise to an exceptional production of this kind of documents. While losing the imaginative and exalting aspect of some of the characteristics of the places, the planimetric cartography becomes a less figurative cognitive tool, but also full of indications on the image of the city itself.

Drawing as a tool for describing the identity

Until the end of the seventeenth century and part of the eighteenth century, different techniques of representation of the city coexisted: bird’s-eye views and planimetric representations that use vertical projection and provide increasingly reliable information on the size and geometry of the building urban. However, the precision of the drawing does not necessarily provide the same wealth of information as the perspective views. We are witnessing a contradictory phenomenon whereby, as the techniques of

¹G. Vasari, *Le vite de’ più eccellenti pittori, scultori e architettori*, ed. or. 1568, Rusconi, Santarcangelo di Romagna (RN), 2009

²Thus were born the first atlases, important for expressing the awareness that cities form a recognized system of relationships and mutual relations.

³By influence of the cadastral methodology.

representation are refined in a geometric sense, the wealth of information that the cards can offer is being depleted.

The technical-instrumental specialization translates into a more accentuated selection of the information entrusted to paper, which tends to assume the character of a basic tool for the “government” of the territory.

This phase has its major examples in the numerous realization of “city plans” which, until the end of the nineteenth century, represent, highlighting it, the particular *forma urbis*. These maps belong to that condition which can be described as the *representation of the dimension*, in which the close link with the geographical and natural place is still evident, the hierarchy between those commercial, political and religious functions that determined the configuration of the spaces, the role within the wider territory, but above all that was reflected in its identity. Subsequently, the language of the paper will change considerably, especially in the last century, leading to a “dehumanization” of the image.

Precisely the cartography drawn up from the eighteenth century will be the subject of this contribution, highlighting how this represents a “narrative of the size of the city”, which acquires its specific weight through maps (illustration and understanding of spatial nature). This is evident in city plans created in the so-called “pre-modern” period⁴ (symbolic or metric) strongly rich in meaning and information, thanks to the ability of cartographers, “profound readers and expert interpreters of the city and the territory”. Until the last decades of the nineteenth century, these maps still combine scientific, symbolic, and artistic elements, and allude to the particularity of the places. The product defines the city and its idea through the “description of its qualities”, but above all the maps convey a special “sense of dimension”. Here “describe” and “represent” are inseparable moments of a complex heuristic and planning action.

It is therefore interesting to analyze and deepen the methods and techniques of the urban representations of the eighteenth and nineteenth centuries that precede the great modern transformations. In these “figures” the city always represents the central element, where often precise limits tend to express a “conclusion” of a geometric, decorative type and descriptive texts of the “remarkable things”, in addition to the views of the monuments, for example in the *Plan of Fantozzi* from 1843, where Florence is enclosed in a circle (fig. 1). The city itself is always positioned in the center of the sheet, but above all it is limited in width and height, with a scale often contained⁵, to provide a dense and global vision of the city/territory relationship.

Above all, the *sense of dimension* is represented by the exaltation of those distinctive signs of the role and image of the city itself; from the walls or the urban hierarchy, defined by the graphic emphasis of the main buildings. Furthermore, the relationships of the city with its context are fundamental, that natural territory formed by hills, rivers, valleys, plains well related to the city. The walls, therefore, in addition to representing the physical limit of the city, become the peculiar element, rich in thicknesses and meanings, a symbol of a social and cultural dimension “held together by the infinite drives of *civitas*”. Furthermore, in the various representations, these become an emphasized sign and a recognizable image, as in the *Plan de la Ville de Vienne et de les fouxbourgs* of 1810 (fig. 2) in which the two circles of walls overlap, one more compact and one more delicate; or in the numerous eighteenth-century representations of the city of Lucca⁶.

⁴ That is, up to that particular period in which the cities have not yet undergone the vast transformations induced by an eager modernity, which will mark their future shape.

⁵ In equivalence with our modern relationships it is 1 to 5:000.

⁶ See Pietro Bertelli, *Theater of the cities of Italy*, Padua, 1629.



Fig. 1 Map of Florence. Fantozzi, 1843.



Fig. 2 Map of Vienne, 1810.

These cartographies highlight the urban form of the city, highlighting its peculiarity, the plain, the ridge of the coast, the hills, describing and also representing its territorial “position”, emphasizing the valleys⁷, the waters, or canals. The same relationship with the territory is highlighted in a Rome map of 1839⁸ in which the city, compact along the sinuous course of the Tiber and protected by the “hills”, is delimited by the Aurelian walls which surround a much larger urban territory. In these descriptions, particular attention to graphic detail is evident, in a clever mixture between the masses of the building and the open spaces, in which the green is traced with the same spellings used for external rural crops, and the paper often also reports the warping of the fields and the tree boundaries. Precisely this turns out to be a fundamental feature that defines premodern cartography, in which the boundary between city and countryside is not so clear, but the urban and rural areas integrate until they penetrate the walls, subtle signs in the territory⁹. This highlights the relationship between city and countryside which was territorial, but at the same time structural; and it is precisely complementarity and the balance between urban and rural, as well as a reading of dimensions and relationships, the main message of the vision of these cards. In these tables the same buildings that today we will call “conspicuous” are highlighted with the insertion of the plan, to symbolize a further “complex” relationship between the public building and its context.

⁷ For example, in the numerous cartographies of Siena.

⁸ Topographical map of the suburban area of Rome. Taken from the maps of the new census and trigonometrically diluted in the proportion of 1: 15000 by order of the Emo. and Rmo. prince mr Cardinal Youth Francesco Falzacappa president of Censo in the year 1839.

⁹ See for example a map of the city of Milan by the Bettoli brothers from 1826 - (fig. 3) - or the map of the city of Florence by Giuseppe Poggi from 1855 - (fig. 4).



Fig. 3 Map of Milan. Betolli, 1826.



Fig. 4 Map of Florence. G. Poggi, 1885

But turning our gaze to European representations of the nineteenth century, we will notice how, just to cite one of the many examples, the city of Paris, in a plan of 1827¹⁰, is represented in its vastness, (Fig. 5) with a certain graphic incompleteness, despite some traits common to previous cartographies, which impoverishes its reading, bringing it closer to more “technical” cartographies (for example the same monuments are highlighted simply with more strokes dark); or in a London map of Davies¹¹ (Fig. 6) where a detailed “calligraphic” card is superimposed on a meticulous graphic description with the identification of the remarkable places, expressing the same connotation force of the spaces.



Fig. 5 Map of Paris. P. Rousset, 1827.



Fig. 6 Map of London. B. R. Davies, 1860.

¹⁰ Plan de la ville de Paris, divisé en 12 arrondissements, et 48 quartiers avec tous les changemens exécutés et projetés jusqu'à ce jour. P. Rousset, Paris, 1827.

¹¹ B. R., Davies, London, 1860. Davies's new map of the British metropolis: the boundaries of the boroughs, county court districts, railways, and modern improvements.

A system of sized cities

In these types of cartographies there is a representation of the idea of the city in its being “system”, an object concluded in the physical limit and relations with the surrounding territory, in which the planimetric representation highlights a different way of transmitting the urban image (unlike the seventeenth-century landscape painters) and it becomes more and more cognitive support. Pre-modern cartography is always a representation of the qualities, and therefore of the city consolidated in its dimensions; as opposed to a representation of the quantities of a perennial change typical of modern cartography.

The passage of the representation of quality to signs

As we have seen, if until the second half of the nineteenth-century cartography still had a character linked to the description of quality and identity, a conception of paper as a representation of a geometric territory-surface becomes prevalent, where even the fact of settlement and the wealth of its traits are returned in quantitative data and reports. With the “new competence” acquired by the state bodies¹² for cartographic production, paper loses its expressive quality, even if, as happens for IGM tablets (Fig. 7), these maps offer us interesting and useful indications for the interpretation of the urban fact.

The first IGM cartography at a scale of 1:25000, made at the end of the nineteenth century, shows us a multitude of cities still sized, still recognizable in the form that had characterized them for centuries. “[...] so, for example, any plan up to the mid-nineteenth century tells us immediately what the size of the city was: a limited measure and, at the same time, the proportion between the parts; urban hierarchy and, together, urban relationship and rural, or much more simply the ability to be measured [...] So, size, shape - the same one that, once, we used to call *forma urbis* - and again, image, the role was almost intimately linked, to the point of making us suspect that, at times, was nothing more than synonyms [...] And this makes us think that this sort of homonymy between those words also alludes to the meaning of another term: that of the identity of the city. lose in the long season of urban growth [...]”¹³.

A growth that has erased that panorama of sized cities and, deforming them, has confused their identity - that is, what differentiated one city from another making it recognizable; that same identity that the cartography of the ancient or premodern city exalted with such expressive force. And the impoverishment of the figurative significance of urban representation is accompanied by the loss of specific traits, differences, and particularities - in a word, of the quality of space - of the city.

It is starting from the mid-nineteenth century that, starting the great urban expansions - *luxuriant flowering of nascent celebratory modernity* - which will determine, in the first place, for the majority of cases, the elimination of that physical “limit” of the city represented up to that period from the walls. For example, in Florence, with the need for expansion for the administrative needs related to the new reality of Capital of Italy, a *Plan for the expansion of the city* was prepared in 1865, entrusted to Giuseppe Poggi. The city - still enclosed in the walls of Arnolfo - presented itself with a controlled and balanced dimension. The Plan, in addition to defining the rehabilitation of the historic center, provides for the demolition of the walls to accommodate large and airy tree-lined avenues, as a link between the old center and the new external expansion.

¹² Think of the 1:25000 ‘tablets’ of the Military Geographical Institute produced for mainly military purposes, which cover the entire national territory.

¹³ M. G. Cusmano, *Oggi parliamo di città*, Franco Angeli, Milano, 2003.

From this period, the replacement of the producer of the representation takes place, who will no longer be the cartographer, but a technician with the task of highlighting the numerous expansions of the city¹⁴. In this way, plans will be increasingly depersonalized of their image, and it will no longer be possible to read a clear and evident dimension of the city's characters. The representation will be increasingly based on simplified figures, a reproduction for blocks without any specificity, the prevailing buildings will be replaced by simple colored backgrounds and superimposed writings; the paths of the roads, the greenery, and the rows will be increasingly weak, indicating only large episodes¹⁵.

Thus, cartography intended as basic support is added, which does not interpret reality and in which territorial facts are represented in an undifferentiated way. However, cartography continuously perfected by detection and restitution techniques, which offers us increasingly sophisticated and equally precious works for the reading and interpretation of the urban fact.

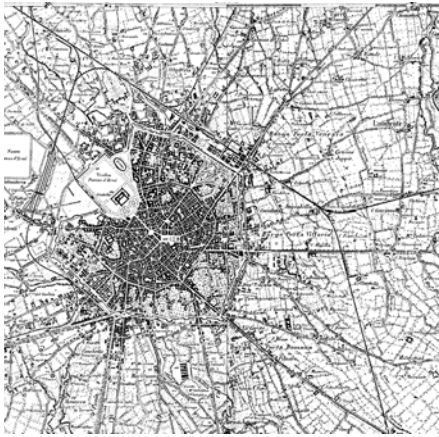


Fig. 7 Map of Milan. IGM, 1888

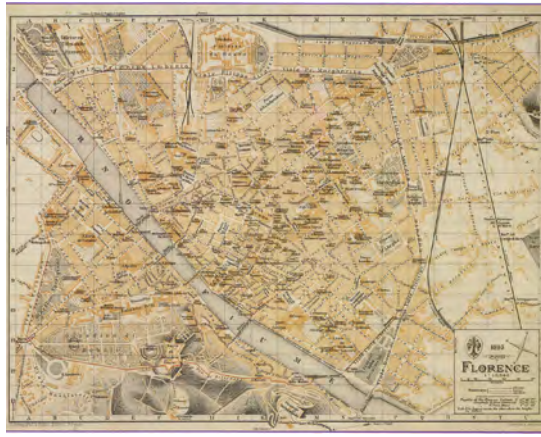


Fig. 8 Map of Florence, 1895.

Conclusion

For the reasons described above, these cartographic documents - generally medium-scale - are useful for our studies for the recognition of the long-lasting structures of the territory, containing all the invariants represented by values, pre-existences, permanences, and sediments, thus being able to identify that *Loi de la persistance du plan* of Lavediana's memory, as well as a precious treasure chest that also informs us about the role that the city has assumed over time. Urban planning shows itself as a knowledge in which the visual is central and the maps represent a reduction and persuasive interpretation, not only materials for the expert but elements for the community, as well as useful to the city project, which is also made of these materials, fundamental to intercept the urban space less and less homogeneous.

¹⁴ It allows us to see a city and a territory currently modified, profoundly transformed by that phenomenon of urban growth especially as we have seen from the second half of the 19th century onwards.

¹⁵ Just the "update" is the aspect that most characterizes the map of the contemporary city. See for example a map of Florence from 1895 (Fig. 8) where the spatial relationships are not as clearly legible as in the previous cartographies. Florence, 1:10000, Bemporad and sons publisher, 1895.

At a time when we talk about “urban deduction” and we try to pursue the goal of reducing land consumption, the existing city takes center stage, reconsidering the requalification, recovery, reuse as an operation to limit the expansion. During the past “urban growth season”, the territory was only supported for the new expansions. Otherwise, today, we re-read the stratification of time, facts, and culture, the space of relationship, the historical city, as a precious, limited, and non-reproducible asset. Therefore, in this new way of understanding the city and the territory, the tools of knowing have also changed, and as previously reported, the cartography, even the historical one, in this case, it becomes a “speaking” document again, assuming that importance again in the interpretation of the urban fact, aimed at recognizing and bringing back quality and identity to the contemporary city.

The call to the value of this type of image appears to be a fertile contribution to a discipline such as urbanism in continuous transformation and that often changes objectives and tools, with the awareness that the “comparison”, even with the story drawn, represents an added value for the project of the city and the territory.

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Decomposition and Recomposition of Natural Landscape

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Abstract

Part of the design process in architecture education, the Form Studies discipline in the first year is a rather art-related design studio that assists the main Architecture Design Studio, through short exercises. Its educational direction highlights expressions and plastic qualities in two-dimensional compositions and studies, followed by tri-dimensional explorations using different materials; punctual exercises emphasizing graphic ideas that can be read as part of the project concepts.

The Form Studies Studio in the first semester is correlated to the Architecture Design Studio project – the *Sensorial Pavilion in a Natural Landscape* – by means of several graphic-conceptual exercises of: observation, interpretation, analysis and imagination through drawing and sketching details of the natural environment in various techniques. The article follows architectural answers in relation to these graphic compositions using particular methods: model study, exercises of dematerialization, abstraction, sequences creation, modulation, repetitiveness, decomposition and re-composition. It also emphasizes the relation between these two directions and the way in which these plastic expressions can be integrated into projects.

Abstract

Parte del processo di progettazione nell'ambito dell'educazione all'architettura, la disciplina Form Studies del primo anno è uno studio di design piuttosto legato al mondo dell'arte che assiste il principale Architecture Design Studio, attraverso brevi esercitazioni. La sua direzione didattica mette in evidenza espressioni e qualità plastiche in composizioni e studi bidimensionali, seguiti da esplorazioni tridimensionali con l'utilizzo di materiali diversi; esercizi puntuali che mettono in evidenza idee grafiche leggibili come parte dei concetti del progetto.

Le lezioni di Studi di Forma nel primo semestre è correlato al progetto dell'Architecture Design Studio- il Padiglione Sensoriale in un Paesaggio Naturale-attraverso diversi esercizi grafico/ concettuali di: osservazione, interpretazione, analisi e immaginazione attraverso il disegno e lo schizzo di dettagli dell'ambiente naturale in varie tecniche. L'articolo segue le risposte architettoniche in relazione a queste composizioni grafiche con metodi particolari: studio di modelli, esercizi di smaterializzazione,

astrazione, creazione di sequenze, modulazione, ripetitività, scomposizione e ricomposizione. Sottolinea inoltre la relazione tra queste due direzioni e il modo in cui queste espressioni plastiche possono essere integrate nei progetti.

Introduction

The first year of study at the Faculty of Architecture and Urban Planning has been developing an educational path that emphasizes students' plastic expression and creative thinking in the architectural language. A project-based education, the Architecture Design Studio has been designed and remains to this day the core-discipline of each year, around which a series of other disciplines revolve, including the Forms Study where students' creativity is stimulated through a variety of visual arts topics. During their academic journey, students learn to respond to different situations, to think architectural solutions and, especially, to experiment. As to the first year of study, this last skill's development is underlying the project-themes and represents the topic of this article.



Fig. 1 Decomposition and Recomposition of Natural Landscape

The educational experiment we refer to links the Architecture Design discipline and the Forms Study, both in the first semester (of the first year of study), highlighting the experimental features regarding space-thinking, plastic and graphic expressions.

Work-themes construction, a connection between disciplines

This article tells the story of a “weaving” exercise between these two creative disciplines (mentioned above). During the first semester, students' education course is led in order to understand the connection between disciplines and also to observe and learn that a creative approach in the development of space-ideas in architecture can be enhanced by a correlation with the field of visual arts, its expressions and representations. All these can be read as an impulse and can nourish the process of space-conception. This discipline-correlation and research of some didactic methods that would offer a complete and complex training of the future architects are preoccupations of ours since many years.

Forms Study topics focused and continue to develop the relationship between structure, form and the way in which we conceive architectural forms as architects. For a better understanding this initial phenomenon of creating forms in the architecture, educational experiments focused on the phenomenon of perception and significance and the one of representation of the perceived reality. As a next step, the experimental study analyses the way perceiving information and creating new models based on perception and understanding of the previously observed object. Re-modeling, re-combination, decomposition and re-composition of some well understood and detailed represented models, followed by a synthesis, abstraction and geometrization, generate new models (as in the *reverse engineering* way of learning in the field of design).

Perceptions, along with representation, are two important moments of the creative process. *Perception* is a selective process of a psychic nature that provides a global picture of the real objects phenomena, through the senses. *Representation* is the moment following perception; it forms itself over time and is a synthesis process resulting the information received through perception.

Levels of Perception and Representation¹: the *geometric-abstract level* describes and analyses shapes in space from a geometric point of view, in an abstract way (children's drawings, contour drawings, linear perspective, background shapes delimitation etc.). The *plastic – real level* is a type of perception and knowledge that refers to the analysis and composition of shapes, their association observing plastic qualities such as texture, colour, their relationship, placement (composition), relation to artificial and natural light etc. (elaborate drawings of observation, in colour, textured with lights and shadows, in which one tries to approach the image of reality).

The *material-constructive level* refers to the knowledge and understanding of shapes in space, using the basic principles of statics and their association with existing building materials, structure, constructiveness etc. The *programmatic - creative level* achieves a synthesis of all the above, very personal, in which subjective elements are associated with the objective ones (of reality) - this level generates a personal project. The structure of a natural form is always determined by its function; similar structures correspond to similar functions.

The project-theme at the Architecture Design Studio is a *Sensorial Pavilion in a Park*², a sensorial pavilion built in nature (in an imaginary park, near a lake, a natural landscape with different slopes, with forested or rocky areas). This pavilion, which is thought of in a special relationship with its natural context, aims to stimulate all human senses by integrating both architecture in nature and nature in architecture. The pavilion includes indoor spaces, semi-open spaces, partially covered, outdoor spaces, including rest areas and observation areas towards the park. The purpose of this pavilion is to create a space for contemplating nature, as a metaphor for the relationship that must be established between the environment, man and architecture.

In order to enhance the space-conception in the Architecture Design Studio, several exercises were designed for at the Forms Study discipline. These short exercises, built with a precise theme and clarity of the requirements, emphasize a “radiography” of ways to generate the concept and the space typologies in the architectural project.

The work-themes at the Forms Study Studio are correlated to the development of the project, in both calendars. Thus, *the initial theme* is a study of real natural elements.

This introductory topic is an exercise of *observation* and *understanding* of particularities related to shape, colour, materiality and tactility of elements coming from a natural environment (either mineral or vegetable elements).

The *second working-theme* is a graphic exercise of *dematerialization* and *abstract-representation* of the previously studied natural elements. This step is a basic step for the following exercises that will further develop these abstract forms of the natural model, processing those using different methods. Several types of compositions are thus developed.

¹ Opincariu, Dana, *Formă și structură [Form and Structure]*, UT Press, Cluj-Napoca, 2010.

² Opincariu, Dana; Moțu, Andreea, *Pavilion senzorial într-un parc. Tema de proiect sem.1, an 1 [Sensorial Pavilion in a Natural Landscape]*, Architecture Design Studio 1, 1st year of study, Faculty of Architecture and Urban Planning, UTC-N.

The *third exercise* entitled *Sequences, modulation, repetitiveness* uses a fragment from second exercise, a fragment that is further seen as a *compositional module*. Several modules - identical or with different dimensions - are used in several compositions by *duplicating, joining, overlapping* them or by using other techniques. In this series of composition - exercises, the *last work-theme* involves *Decomposition and Recomposition*.

The abstract representation of the natural element (the second exercise) is broken up into several parts and reconfigured into another element, according to other rules.

These first exercises were designed to be completed in the same time-frame with the phase of space-concept development and design solution of the Sensorial Pavilion. Their role, as further seen, was to encourage students to discover new ideas that can lead them to design particular spaces, interesting solutions with a sensorial appeal.

The following exercises argue the *chromatic compositions*, colour- joining, nuances and tones, from a theoretical perspective and through several chromatic work-themes. These exercises are further applied in the final work-phase of the Sensorial Pavilion Project, the poster-presentation illustrating, as expressively as possible, the idea and atmosphere each student imagined.

The *Introduction to Colour Theory*, *Chromatic Contrasts* and *Monochromes* exercises are a series of work-themes that discuss the basic chromatic notions, related to the chromatic circle, primary and secondary colours, the contrast of complementarity.

The “colored greys” resulting from the combination of primary and secondary colours are further experienced; the nuances and tones are studied, both for understanding the theoretical notions, but especially for enhancing graphic expressions of each student. The *Chromatic palettes, season, landscape* exercise is a consolidating work-theme of the previous ones regarding chromatics, directly applied to the poster representation at the Design Studio.

The last exercise - *Graphics, ink, ideogram* - is an exercise that synthesizes, in a monochromatic graphic representation, the concept of the Sensorial Pavilion.

Observations and understanding, decomposition and geometrization, repetition and recomposition - exercises

Some of the examples below highlight students’ ability to observe, analyse and re-interpret the topics at Forms Study. If these expressions are prove of students’ ability to *understand* from a visual representation’s perspective the natural elements surrounding, the project at the Design Studio is prove of *integrating* all these graphic exercises in their approach towards creating an architectural concept.

The object sought in nature had to be studied in several stages - the study of details, of shapes, textures, the study of lines generated by ribs and nodes specific to naturally / irregular shapes, then the fragmentation geometry of the cones generated by the ribs; followed by the creation of a simplified plane geometry. The contour of the studied object becomes a modular element, multiplied in a composition using two-dimensional repetitions, overlapping and rotations of the module.

All these exercises were represented in a technique of their choice, in the example below – in watercolour and ink, a technique that offers translucency and physical mixing of colour, so that the colours of the object studied can be taken over.



*Fig. 2 Decomposition and re-composition - Form Studies,
1st year of study 2019-2020*



Fig. 3 Geometrization and repetition - Form Studies, 1st year of study 2019-2020

Images above represent some sketches of the first four Forms Study exercises. Beyond the actual graphic representations, is interesting to note that the way of composing these two-dimensional shapes can also be found in the composition of the semi-open, semi-enclosed areas of the pavilions.

Colour palettes exercises - season, landscape, Pavilion entourage

The following exercise, a synthesis work-theme, approaches the subject of chromatic representations regarding the natural context of the Pavilion. The last topic - *Graphics, ink, ideogram* is also a synthesis exercise that *translates* the space concept of the Sensorial Pavilion in a monochromatic expression. These work-themes (the chromatic exercises), following the first types of representation, are a step closer to the graphic poster at the Architectural Design Studio. We can thus observe that the knowledge-transfer (methods of visual representation / interpretations of a real, natural context) from the Forms Study towards the Design Studio is highlighted by various space-composition and graphic expressions in the students' drawing, but it is interesting to note the opposite way of knowledge-transfer, specific tasks and representations from the Design Studio project, within the Forms Study exercises. One can see that, in the context of the project-theme and the specific architectural drawings -students expressed themselves in expressive manners, as can be seen in the images below. We can thus ask ourselves if, in this exercise of enhancing creativity towards the Design Studio project, these informal ways of representation in the Forms Study work-themes are the result of a design theme meant to enhance imagination and originality.

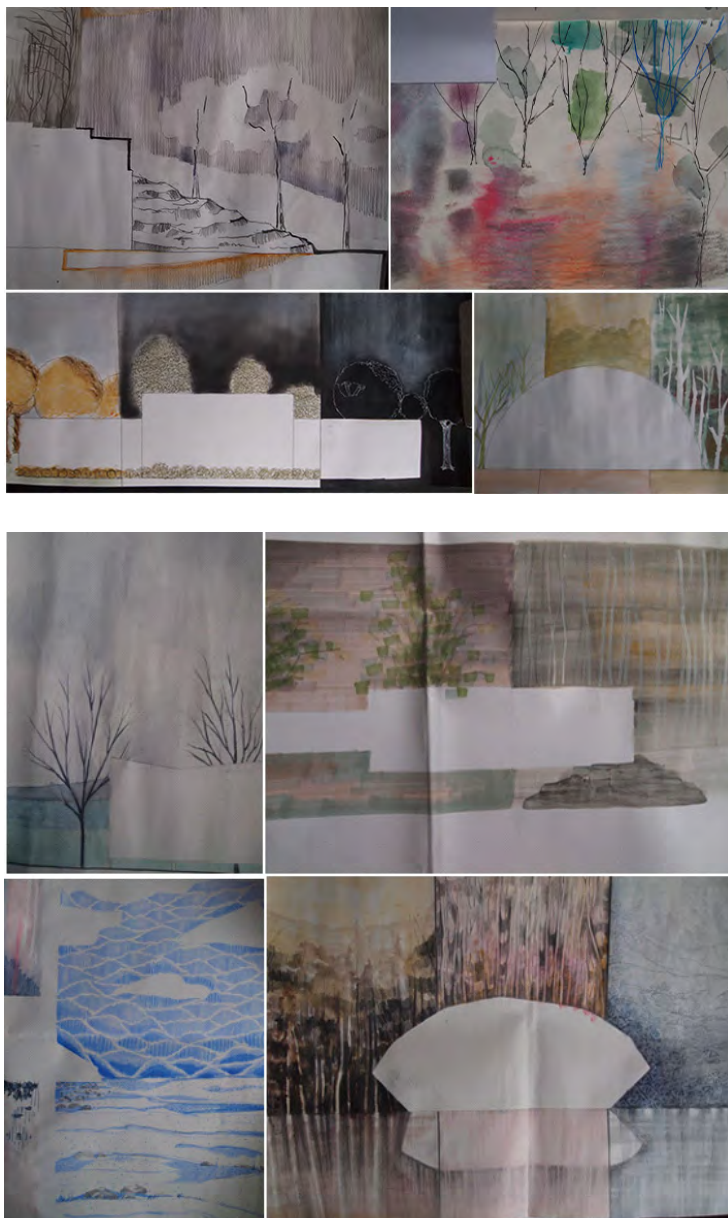


Fig. 4 Chromatic exercises applied to the Design Studio project - Form Studies, first year of study 2019-2020

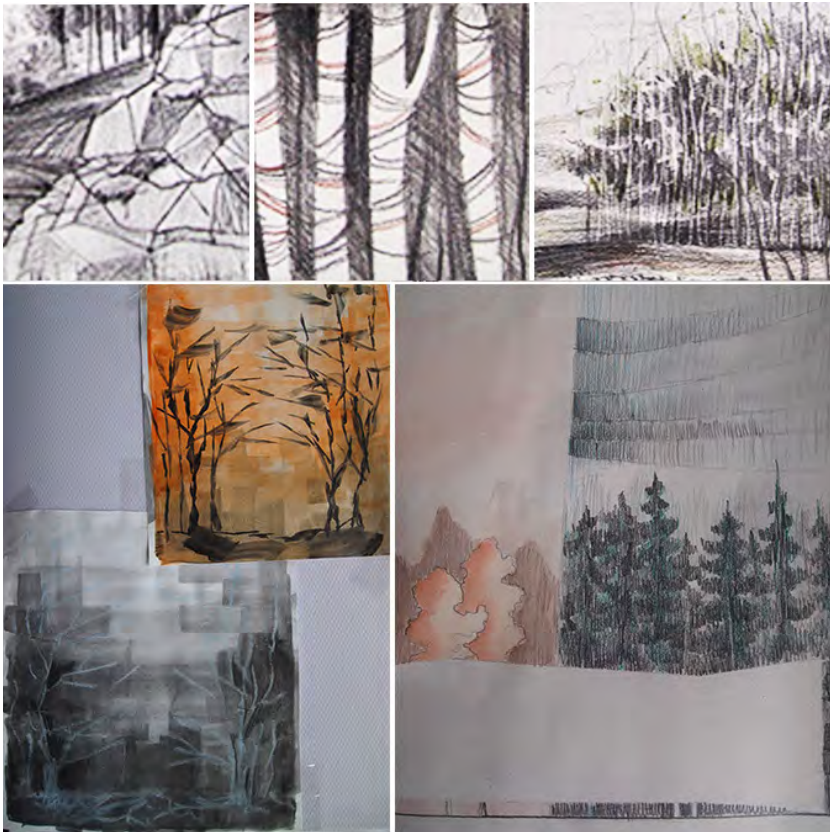


Fig. 5 Chromatic exercises applied to the Design Studio project - Form Studies, 1st year of study 2019-2020



Fig. 6 Ideograms / Christmas tree - Form Studies, first year of study 2019-2020

Conclusions

Overall, this coordination-collaboration between the two disciplines from the first semester of the first year aimed at highlighting the creative side in the development of the project, both in terms of space-concepts and in terms of representations.

Various points of view, perspectives on specific subjects were followed: graphic composition principles were applied in the project and the concept was resumed in terms of the richness of expressions at the Forms Study. We believe that this permanent balance between these two approaches over the same subject – the space-concept - led to the development of ingenious, imaginative solutions and to the creation of very pleasant space-details.

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Communication, orientation and wayfinding aboard great ships: towards an integrated and user-centred system

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Abstract

Being on board a great ship, like a ferry or a cruise vessel, can be perceived as a disorienting experience, especially if lived for the first time.

The rich outfitting of the common areas, the lighting, the very similar serving spaces such as hallways, stairways and secondary elevators, along with being on a vehicle in its turn moving in the space and the need of understanding complex routes from one point to another; all these factors may result confusing for people, making them feeling a frustrating sense of “not being able to find the way” to reach their destination.

They often are inconveniences easy to be solve in a short time, once the passenger gets acquainted with the new environment; nonetheless, in some circumstances, these difficulties can affect the enjoyment of the trip, contributing to lower the satisfaction or, even, putting at risk comfort and safety perception of the travelers.

The paper aims to present the premises of a more extended, ongoing research, that takes the cue from observing resources and critical issues of the ways of communication and information currently the most used in these contexts, in order to outline a rigorous method useful for the developers in designing new strategies and techniques to apply to wayfinding and way showing aboard medium-sized and large vessels.

Abstract

Trovarsi a bordo di una grande imbarcazione, quale può essere un traghetto o una nave da crociera, può risultare un'esperienza spiazzante, specialmente se vissuta per la prima volta. La ricchezza degli allestimenti negli ambienti comuni, l'illuminazione, la similarità degli spazi di distribuzione (corridoi, scale, ascensori secondari...), unitamente al trovarsi su un mezzo in movimento con un suo marcato orientamento spaziale e alla necessità di escogitare itinerari complessi, sono elementi che possono disorientare le persone, facendo loro esperire la frustrante sensazione di “non trovare la strada” per raggiungere la propria meta.

Si tratta di inconvenienti spesso destinati a risolversi in poco tempo, una volta che l'utente ha familiarizzato a sufficienza con il nuovo ambiente; tuttavia, in alcune circostanze, il godimento del viaggio può essere in parte inficiato da questo genere di difficoltà, contribuendo ad abbassare il livello di soddisfazione dell'utente e mettendone a rischio perfino la percezione di comfort e sicurezza.

L'articolo ha lo scopo di presentare le premesse iniziali di una più estesa ed approfondita ricerca, al momento in corso, che muove dall'osservazione delle principali risorse e criticità dei metodi di comunicazione e informazione attualmente più utilizzati in questo tipo di contesti, per delineare una metodologia rigorosa utile per i designer nell'ideazione di nuove strategie e tecniche per il wayfinding e il way showing a bordo delle grandi navi.

Introduction

Being on board a great ship, like a ferry or a cruise vessel, is often an experience initially unsettling, especially when it is lived for the first time. The richness of the fittings in the common areas, the lighting, the similarity of the distribution spaces (corridors, stairways, secondary elevators...), together with being on a moving conveyance - therefore with an own, well-marked spatial orientation - and the need to understand complex routes by coordinating horizontal and vertical movements, are elements that sometimes can disorient people, which may then find themselves to experience the frustrating feeling of "not being able to find the way" to reach their destination.

These are problems that are often meant to be easily solved in a short time, once the user has become sufficiently acquainted with the new environment. However, especially regarding shorter journeys, or in case of weaker users such as the elderly, the enjoyment of the trip, or even of the whole holiday can be partly affected by this difficulties, that can cause inconvenience or mishaps, reducing the level of user's satisfaction and even putting at risk his perception of comfort and safety.

Furthermore, sometimes problems of orientation can already occur during the boarding phases or even before, while approaching cruise terminals; then, in these situations other aspects can arise, related to the individuation of the right path one needs to follow to reach the gate of embarkment of a specific company.

In recent years, besides, the increasing development of so-called 'smart ships' has led to the massive use of powerful and sophisticated digital technologies, which seems to be the approach that will be more widely used in the future for solving certain problems, including location and orientation on board. Several shipping companies, in facts, have recently upgraded the on-board connection network, developed mobile applications and inserted fixed devices (totems), thanks to which users can interactively build their own routes from one point to another of the ship.

However, although simple and intuitive, they are tools that some categories of users, due to their lack of understanding and familiarity with digital technology, risk perceiving distant from everyday experience, not being entirely comfortable with this kind of innovation.

These and other reflections, that are going to be briefly presented in this paper, are the premises of a wider, ongoing research, that will be subject of deepening within the writer's PhD path in the next three years.

Methodology

Since the very beginning of its outlining, the topic of the research appeared complex and multifaceted, as they are involved not only graphics and communication issues, but a wider range of facets. In fact, if we consider any sort of signage system, broadly intended, as a real communication code, it shall comply to the first, basic rule of communication, as expressed by Maria Linda Falcidieno (2006):

“In order to ensure an effective communication, regardless of the means of representation used, the techniques and the operations of synthesis and criticism applied [...], that communication must be unambiguous in its meaning. Above all, there must be two entities, the transmitter the signal and the receiver, so there can be communication. This is essential, since it means never losing sight of the fact that the terms of the problem are always two, with all the constraints that this entails”¹.

Accordingly, it is not possible to evaluate the efficacy of any graphic communication system without taking into account the reactions of people who use it, their perception, that is strictly based on their personal experience. An experience that, moreover, can be affected by aspects such as the way of acting of people according to different circumstances or conditions (age, state of health or presence of physical impairment, state of mind, and so on), their ability in interpreting maps, and, more recently, their mastery of the new digital technologies.

Then, on the base of the reflections above, the study cannot help but consider the “human factor” among the first factors at play, remembering what Romedi Passini (1996) highlighted now more than twenty years ago, after many years of study on wayfinding design:

“The premise of wayfinding design is to plan for people’s behaviour in the real setting, that is, to design for their ability to perceive, select and understand information when faced with dense and stimulus rich environments, to design for their ability to understand the spatial characteristics of settings and their movements through them and finally, to design for their ability to develop decisions in order to reach destinations. The logic of the design approach is derived from the logic of wayfinding behaviour”².

Moreover, the reference to the behavioural value, although under a different point of view, is also recalled in the more recent study by Andresen et al. (2016): they indeed stress how “The assumption that all pedestrians are provided with comprehensive global knowledge about a building’s structure is a rough approximation, for example when pedestrians are not familiar with the facility. Even less, they are able to evaluate metric information about multiple routes so that an exact comparison is possible. In fact, the knowledge status of a group of pedestrians vary according to the number of visits and the capability to learn the spatial structure of new environments. Human wayfinding is a complex process which includes the use of (in some cases inaccurate and incomplete) spatial memories, the use of signs and maps, search strategies and herding phenomena”³.

This latter statement is particularly relevant to the research, especially for what concern the reference to “spatial structure of new environment”.

In fact, despite of the “structuring [of a contemporary ship] is entirely comparable at least to a small urban centre or to a set of buildings, connected by paths, collective spaces, commercial and entertainment places, residence”⁴ (Falcidieno et al., 2020), thus recalling something already known,

¹ See M. L. Falcidieno, *Parola, disegno, segno*, Alinea, Firenze, 2006, p. 21. Freely translated.

² See R. Passini, *Wayfinding design: logic, application and some thoughts on universality*, in “Design Studies”, 17(3), 1996, p. 321.

³ See E. Andresen, D. Haensel, M. Chraïbi, & Seyfried, A. *Wayfinding and cognitive maps for pedestrian models*. In “Traffic and Granular Flow” n. 15, Springer, Cham, 2016, p. 250.

⁴ See M. L. Falcidieno, E. Bistagnino, M. E. Ruggiero, *Interactive actions between project and communication: new ideas for*

being on board a medium-sized or a great ship could often be perceived more disorienting than visiting an unknown town for the first time. Indeed, as the same authors warn, “the reference to the city is sufficient to understand how articulations and dimensions constitute an objective impediment to the immediate and almost instinctive fruition of what surrounds us”⁵. So, “The objective is therefore to consolidate the familiarity of passengers with the environment in which they spend their long or short navigation, improving their confidence”⁶.

Talking about a context like a big ferry or a cruise ship, all these aspects are to be intended not only in order to simply ensure that passengers have a pleasant experience on board, but, what is most important, make them feel safe and confident especially, for example, in case of situations of emergency⁷. In this regard, it is also pertinent the study conducted by Ahola et al. (2017), who stress the concept of the user’s “subjective safety” besides the objective one, underlining the importance it has good environmental design in achieving this goal⁸.

Finally, as briefly anticipated above, it surely must be considered the increasingly development of the digital technologies, that conducted in the last years to a number of experiences, both in research and in testing new fields of project and practical implementation. In this regard, for what concern the issues of wayfinding and, broadly speaking, of tourism, the use of digital technologies today is reflected in the development of systems that allow anyone to build “in progress” his own route, thanks to the widespread use of smartphones and other devices connected to the internet with integrated GPS and navigation apps. The main limitation of this technology is that, where the use of this kind of services can be enough performing in outdoor, provided that the network coverage is adequate, conversely the digital solutions for assisting indoor navigation are still most under study. The major problem to solve, in these cases, are related with the absence of GPS signal in indoor environment, so that it is not possible to rely on apps like Google Maps or similar; however, there are always more numerous examples of integration between traditional analogue techniques of information and up-to-date digital tools, most of all thanks to the enhancement of Augmented Reality (AR). Nevertheless, the application of these solutions in contexts such as cruise ships or long-haul ferries still presents several challenges, especially when it is needed any sort of real-time updating of the transmitted information and connection to on-board servers. These criticisms are principally due to the great power requested, to allow an enough performing, simultaneous connection to a large number of people, and consequently the high energy expenditure that this entails. As a result, these are additional facets to take into account in designing integrated digital-analogue systems, not to mention all the necessary adjustments to make them as user-friendly as possible. As a result, strategies should be devised for the functional dialogue between the signage and information systems, with a view to complementarity of use rather than alternation, so that all the information transmitted and received will improve the ease of use, but above all, the sense of security and familiarity within the ship’s spaces.

So, based on the deepening of the theoretical considerations made above, the enquiry will principally investigate the matters connected with graphic communication, wayfinding, and way showing aboard medium-sized and large vessels, taking the cue firstly from observing resources and critical issues of the ways of communication and information currently the most used in these contexts.

From a practical point of view, the study will be conducted in order to draw, as a final aim, a rigorous method, useful for the developers in designing new strategies and techniques to apply to this purpose,

passenger orientation on board, in “International Journal on Interactive Design and Manufacturing (IJIDeM)”, n. 14(1), 2020, p. 93.

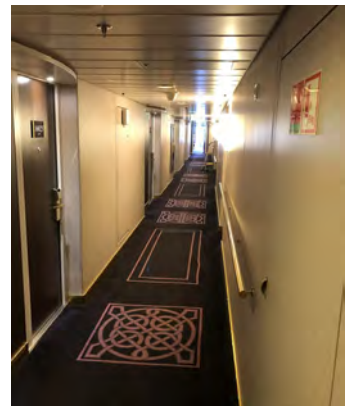
focusing on the highlighted themes - recognisability and identifiability of paths, communication of ship characteristics and account of its identity, interaction with new technologies, services designed according to the target user and considered from a user-centred perspective.

Therefore, the research project will ideally be articulated in different phases, that will examine the different facets of the issue and will constitute the basis for the construction of the methodological approach.

The different steps of the study will include:

- Analysis of the state of the art, both in research and project.
- Investigation on similarities and differences with other specific contexts, even not directly related to naval/nautical, (large buildings/shopping centres, big theme parks, tourist resorts, but also airports, stations, hospitals, and so on).
- Identification of significant, specific case studies, distinguishing by dimension, number of passengers handled, type of connection – tourist or scheduled, route length and time spent on board: boats for small trips, ferries, charter yachts, cruise ships.
- Direct and indirect survey of users' experiences, by means of shadowing, forms and interviews.
- Examination of functionality of new digital systems, helpful to highlight resources and criticality of interaction between analogue and digital tools, efficiency and opportunities of digital applications, ease of use for the different categories of users.
- Foreshadowing of further branches of development and potential impacts on other areas of research

Suggestions and ideas



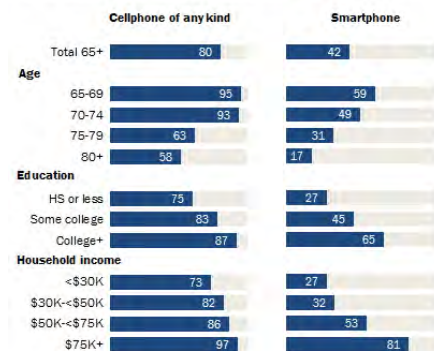
Figg. 1-2 Public space and a hallway aboard MSC Preziosa in comparison. It is evident the difference in the treatment of environment and surfaces, and as neither of them facilitates the orientation of the user, although for opposite reasons



Figgs. 3-4 Deck plan display and signage on board the Oasis of the Seas, part of the fleet of Royal Caribbean. Design project developed for the shipping company from TGAdesign company in 1982 and implemented in 2010 with the interactive system

Roughly four-in-ten seniors are smartphone owners

% of U.S. adults ages 65 and older who say they own the following ...

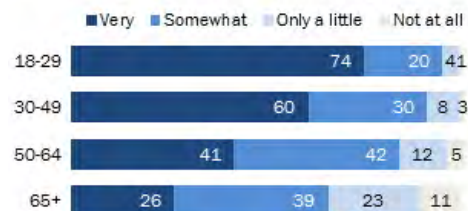


Source: Survey conducted Sept. 29-Nov. 6, 2015.
"Tech Adoption Climbs Among Older Adults"

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Seniors are less confident when using electronic devices

% of U.S. internet users who say they feel ___ confident when using computers, smartphones or other electronics to do the things they need to do online, by age



Source: Survey conducted Oct. 13-Nov. 15, 2015.
"Tech Adoption Climbs Among Older Adults"

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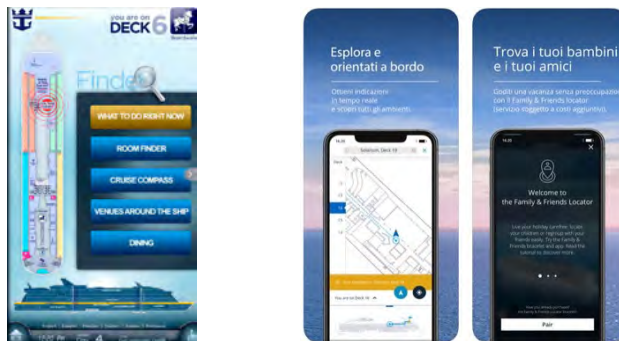
Figgs. 5 -6 Infographics from research by M. Anderson and A. Perrin, "Tech adoption climbs among older adults, conducted in 2015 with the Pew Research Center in the USA. It highlighted that the number of smartphone owners in the age group over 65 is growing. However, in the same age group, many of them struggle to gain confidence in the use of electronic devices of the latest generation



Fig. 7 Saga Sapphire cruise ship. The shipping company Saga Cruises, part of the wider company Saga Holidays, for a long time has specialized in travel proposals reserved for the age over 50. Small and well-kept ships offer peaceful and more human-scale environments, enhancing the overall feeling of exclusivity



Fig. 8 Gestione Governativa Navigazione Laghi Maggiore, Garda e Como, boat Andromeda. With a fleet composed of 97 units run by three different managements, Gestione Governativa Navigazione Laghi Maggiore, Garda, and Como Lakes moves approximately 8 million passengers every year



Figg. 9-10 Screenshots of digital app developed for Royal Caribbean Oasis of the Seas and MSC For Me. Interactive displays and, lately, smartphone applications offer the possibility of finding the route to travel or even tracing on board, thanks to the new digital technologies. Although they present undoubted advantages, they are not free from problems, mainly related to the mastery on the use of the devices and the interpretation of the information



Figg. 11 -12 Simulations of use of applications for indoor wayfinding with the help of Augmented Reality. This kind of applications currently seem to be the most promising for developing new ways of wayfinding in indoor environments, not covered by the GPS signal

Conclusions

As expressed above, the aim of the research proposal here presented could be the outlining of new strategies for wayfinding, way showing and communication of information aboard large vessels, through the investigation of opportunities that a traditional-digital integrated system could offer, by identifying in this frame new spaces of action for the designers' activities.

In a pragmatic perspective, the tangible outcomes that the study might achieve in the next years could be represented by the development of a meta-project proposal, suitable to be declined also to different contexts.

However, what will constitute the most interesting feature of this research will be the construction of the methodology in itself, with an approach as rigorous as multidisciplinary, according to the number of issues involved in the subject, graphic and communication design mainly, but also aspects such as psychology and sociology, tech, and so on, without ever losing sight of the final recipient: the user, the human being.

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Credits for iconographical references

Fig. 1 – MSC Preziosa public space, retrieved from <https://mondo-navi.forumfree.it/?t=66364171>, last consulted on 06/05/2020

Fig. 2 – MSC Preziosa hallway, retrieved from <https://www.cruisecritic.co.uk/photos/ships/msc-preziosa-696/member-8/147841/>, last consulted on 06/05/2020

Fig. 3 and 4 – Royal Caribbean Oasis of the Seas deck plan display and panel, retrieved from <https://segd.org/oasis-seas-digital-wayfinding>, last consulted on 06/05/2020

Fig. 5 and 6 – Infographics from research by M. Anderson and A. Perrin Tech adoption climbs among older adults, retrieved from (5) <https://www.pewresearch.org/internet/2017/05/17/technology-use-among-seniors/> and (6) <https://www.pewresearch.org/internet/2017/05/17/barriers-to-adoption-and-attitudes-towards-technology/>, last consulted on 06/05/2020

Fig. 7 – Saga Sapphire cruise ship, retrieved from <https://www.prnewswire.co.uk/news-releases/anex-tour-has-reached-an-agreement-to-purchase-cruise-ship-saga-sapphire-from-saga-plc-815948190.html>, last consulted on 06/05/2020

Fig. 8 – Gestione Governativa Navigazione Laghi Maggiore, Garda e Como, boat Andromeda, retrieved from <https://www.navigazionelaghi.it/?act=si>, last consulted on 06/05/2020 Fig. 9 – Screenshot of digital app developed for Royal Caribbean Oasis of the Seas, retrieved from <http://www.signindustry.com/architectural/articles/2011-07-01-LB-Oasis-of-the-Seas-Digital-Signage-Wayfinding.php3>, last consulted on 06/05/2020

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Berat (Albania) modellazione digitale per la rappresentazione avanzata

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Abstract

The research work presents digital models of the city of Berat, located in the southern part of Albania. Acknowledged in July 2008 as a World Heritage Site, the Ottoman city boasts a cultural heritage of considerable interest which documents the peaceful coexistence of various religions and cultural ethnicities in past centuries. Although it was the center of the great Turkish empire, it rarely appears in the history of Ottoman architecture.

The theme of digital modelling is of great importance, as it enables the dynamics of drawing relating to both traditional and innovative digital representation to be tackled according to disciplinary conditions. The research activity aims, therefore, through a consolidated process of survey, to the knowledge of the Site and the related documentation of architectural peculiarities, thus offering the possibility to consult new sources of digital representation. The survey activity made use of both traditional direct measurement instruments and digital instruments for the survey of urban fronts and architectural landmarks.

Abstract

Il lavoro di ricerca presenta i modelli digitali della città di Berat, sita nella parte meridionale dell'Albania. Riconosciuta nel Luglio 2008 Patrimonio dell'Umanità, la città Ottomana vanta un patrimonio culturale di notevole interesse il quale documenta la pacifica convivenza di varie religioni ed etnie culturali nei secoli passati. Benché sia stata polo del grande impero turco, raramente compare nei testi di storia dell'architettura ottomana.

Il tema della modellazione digitale è di grande importanza, poiché consente di affrontare, secondo i presupposti disciplinari, le dinamiche del disegno relative sia alla rappresentazione tradizionale sia a quella innovativa digitale.

L'attività di ricerca mira, dunque, attraverso un consolidato processo di rilievo, alla conoscenza del Sito ed alla relativa documentazione delle peculiarità architettoniche, offrendo così la possibilità di consultare nuove fonti di rappresentazione digitale. L'attività di rilievo si è avvalsa sia di tradizionali strumenti di misura diretta, sia di strumenti digitali per il rilievo dei fronti urbani e dei capisaldi architettonici.

Introduction

The research proposes the digital visualization of the models of architectural relief executed in the city of Berat, Albania, and in particular on the architecture of the Onufri Museum, a religious structure of great architectural and cultural interest. In order to understand the complex transformations related to the structure it is useful to retrace the historical events that have characterized the city of Berat. Located in central Albania and in 1961 called the city museum, despite a very large presence of religious architecture both Christian and Muslim, has as a characterizing element of the territory the house and the numerous small windows arranged in a row from which dates back the name of "city of a thousand windows". Berat is divided into districts on the hillside, in the plain and along the river Osum. The "Kala" district, located within the walls of the fortress and from the top of the hill, has about 30 churches and the remains of two mosques and its character has remained unchanged because even today the streets are bordered by the walls of the gardens and those of the houses themselves, the latter often have jutting wooden parts, large windows and roofs built in red tiles. The district of "Mangalem" rises along the hill and the Osum river is characterized by a large number of compact houses and the "Mosque of the Bachelors". Finally, the last district of the city is "Gorica", located beyond the Osum river and on the plain, also characterized by numerous compact houses with windows and quite large gardens. Between the '60s and '90s the Albanian government began to enhance and preserve the existing architectural heritage built mostly in the previous century and the general principle followed was to maintain the original aspects of the structures. The city of Berat has been divided into 3 types of areas according to the presence of elements of particular historical and cultural interest. The "museum" area is characterized by urban and architectural values, the "protected" one only by architectural values and finally the "free" one in which there are no valuable elements. In 1961 the first works of static consolidation and preservation of the most degraded buildings began, in a second time, instead, the recovery of the single monuments was carried out and finally from 1980 to 1990 the interventions were extended to all the listed buildings. The operating procedure used during the restoration phase was based on the principle of not rebuilding the buildings that had been completely destroyed and of eliminating all the interventions carried out between 1950 and 1960. The restoration of the monumental houses not intended for habitation became ethnographic and historical museums, the latter dedicated to people of particular interest in Albanian history. At the end of the 90s the process of restoration of the architectural heritage slowed down considerably due to the economic revolts in the country. At the beginning of 2000, thanks to the economic recovery, driven above all by Italy, the extensive restoration campaign was resumed, essentially divided into two phases, the first in which the real owner of the house, which in the past was absolute state property, was recognized, then the restoration of the work itself according to very strict aspects as works of considerable historical and cultural character. The research focused on the study and consequent survey of the Onufri National Iconographic Museum in Berat, located in the Kala district inside the Church of the Dormition of St. Mary, which takes its name in honour of the Albanian painter Onufri, a well-known iconographic artist of the 16th century. The museum set up in 1986 houses a collection of 173 objects from various churches in the Albanian

territory, specifically there are 100 icons and 73 liturgical objects all belonging to the painter, his son Nikola and other local characters.



Fig. 1 Albania, Berat, Onufri Museum, general plan

Methodology

The Onufri Museum, located in the Kala district of the city of Berat, is a building that was rebuilt in 1797, like other buildings in the city, and in this case, the reconstruction took place on the ruins of an ancient church from the 10th century. In fact, its current function is that of a museum that houses a collection of 173 objects from other Albanian churches related mainly to the painter Onufri. Not wanting to completely demolish the initial conformation, the “religious” spaces have been adapted to exhibition areas for the new function.

The study of this building made it possible to verify both the religious and the museum part through various phases of relief, the first one more traditional definable of “measuring and drawing”, the second digital.



Fig. 2 Albania, Berat, Onufri Museum, view towards South

With the first one the two plans of the building have been obtained, that of the ground floor and of the first floor, from which we can see a central nave, a typical element for a church, no longer used as such by the faithful but by the visitors of the museum. Through the inspection, the first approach to the structure was the metric - cognitive one, made with instruments typical of manual relief. It has been deduced that the ground floor of the museum is accessed through an arcade bounded by a boundary wall above which there are 5 columns that then support arches, supporting the pitched roof. The fulcrum of the building is the nave, composed of 8 circular columns and 2 quadrangular pillars, which then define the side bays. Beyond the nave, you can access the South-West wing, marked by several rooms, where all the paintings of the museum are displayed. With the relief in addition to the division between the various floors of the building, are also identified the various openings, both internal between the rooms of the museum and those outside, also in the nave is the background of the main apse with larger dimensions, then flanked by two smaller laterally. In the second phase of the study the technological instrumentation is the key to be able to expand the research and analyze the structure in order to obtain more information. In fact, the complete survey of the structure required a three-dimensional elaboration in order to get closer and closer to the reality of the artefact. As is well known, two are the most widespread digital survey methodologies very similar to each other but with quite considerable characteristics. These are the use of “laser scanners” and “photogrammetry”. With the use of laser scanners are carried out in order, laser scans, which change according to the complexity of the structure, they acquire data in the form of point clouds for the creation of the 3D model, align the various views taken from various positions, merge the various point clouds in a single mesh and finally opt for an operation of “editing” that is closing holes, smoothing and mesh management.

The use of the laser scanner has, however, two not negligible problems: the high cost of the machine and the difficult transportability due to its size and poor handling, which often do not allow you to use it in case the object of study is located in a site with complex morphology. With regard to the above-mentioned difficulties, digital surveying has made use of the technique of photogrammetry because not only does it make use of specific software at low cost and simple to use, but also of a basic instrumentation composed only of a digital camera and a PC. Photogrammetry is the science of obtaining accurate measurements from photographs by transforming two-dimensional information into measurement and three-dimensional information. Starting from measurements made on images, the photogrammetric technique therefore allows the determination of metric information on the size, shape and position of an object.

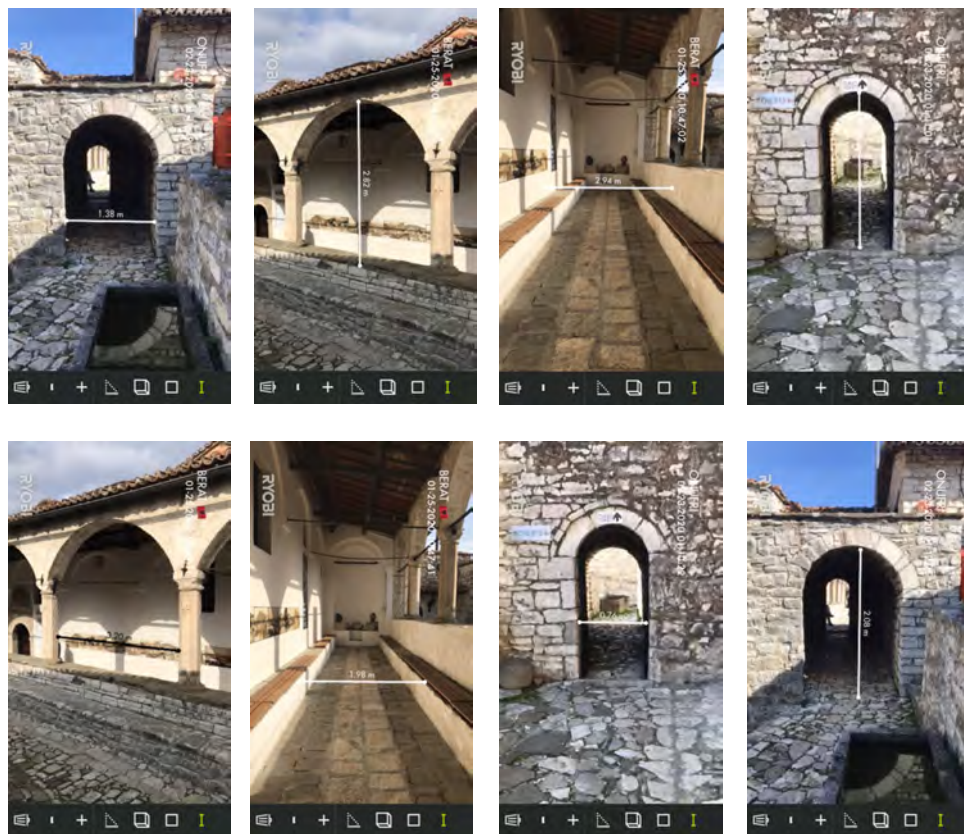


Fig. 3 Albania, Berat, Museo Onufri, rilievo digitale con strumento Ryobi

Photogrammetry has the task of establishing a geometrical relationship between the images and the real object at the time of the photographic recording. Once this relationship has been reconstructed using the mathematical model of collinearity, it is possible to obtain metric information on the object through its images. The method of photogrammetric survey is based on the recognition of so-called “homologous” points in the frames, in fact, it allows the alignment and subsequent processing of a “point cloud” model: a model in which each point is uniquely determined by three spatial coordinates X, Y, Z and three RGB color coordinates. Depending on the number and density of points returned, we speak of a dense or scattered point cloud. A single frame does not contain enough information to uniquely define the three-dimensional position of each point on the object. Several frames generated by separate gripping points contain the information needed to uniquely reconstruct the position of the object’s points.

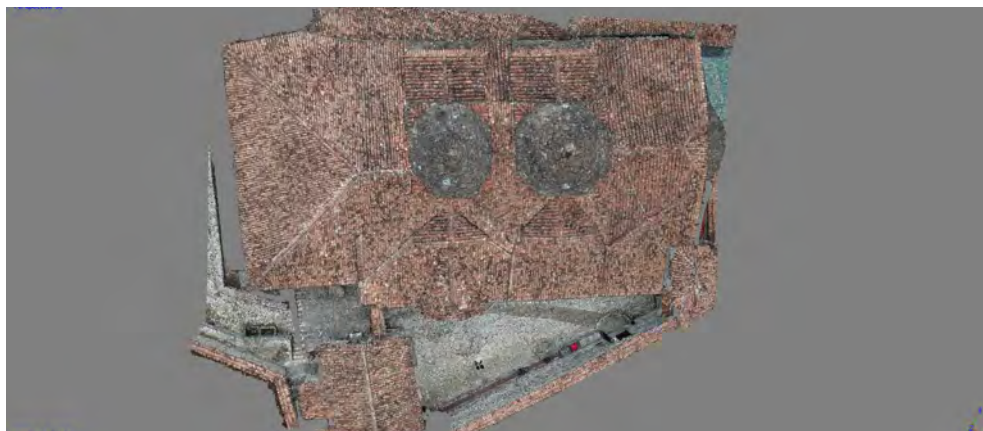


Fig. 4 Albania, Berat, Onufri Museum, cover, indirect digital photogrammetric survey. Modeling software with image superimposition, point clouds and mesh detection

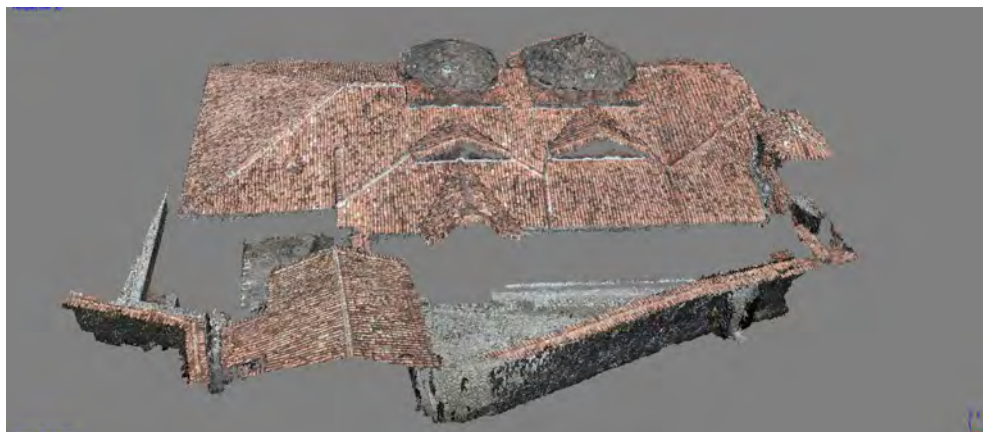


Fig. 5 Albania, Berat, Onufri Museum, cover, indirect digital photogrammetric survey. Modeling software with image superimposition, point clouds and mesh detection

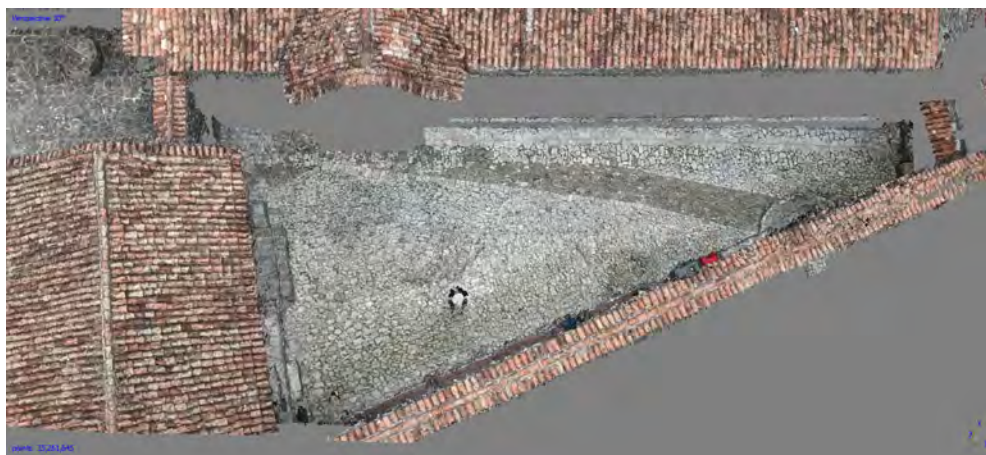


Fig. 6 Albania, Berat, Onufri Museum, cover, indirect digital photogrammetric survey. Software of modeling with overlapping images, point clouds and mesh detection

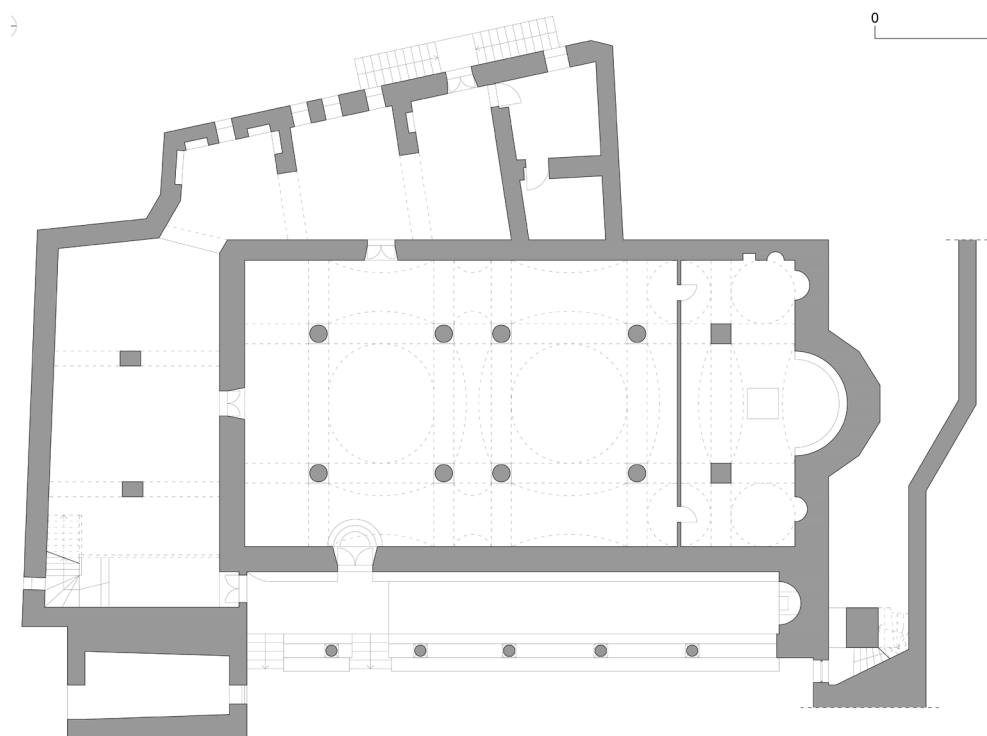


Fig. 7 Albania, Berat, Onufri Museum, ground floor plan

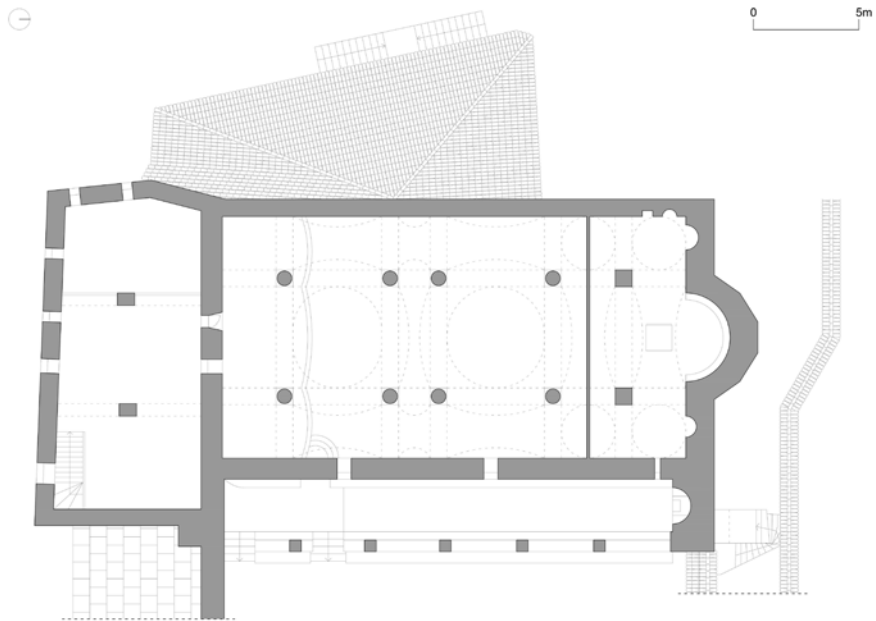


Fig. 8 Albania, Berat, Onufri Museum, first floor plan

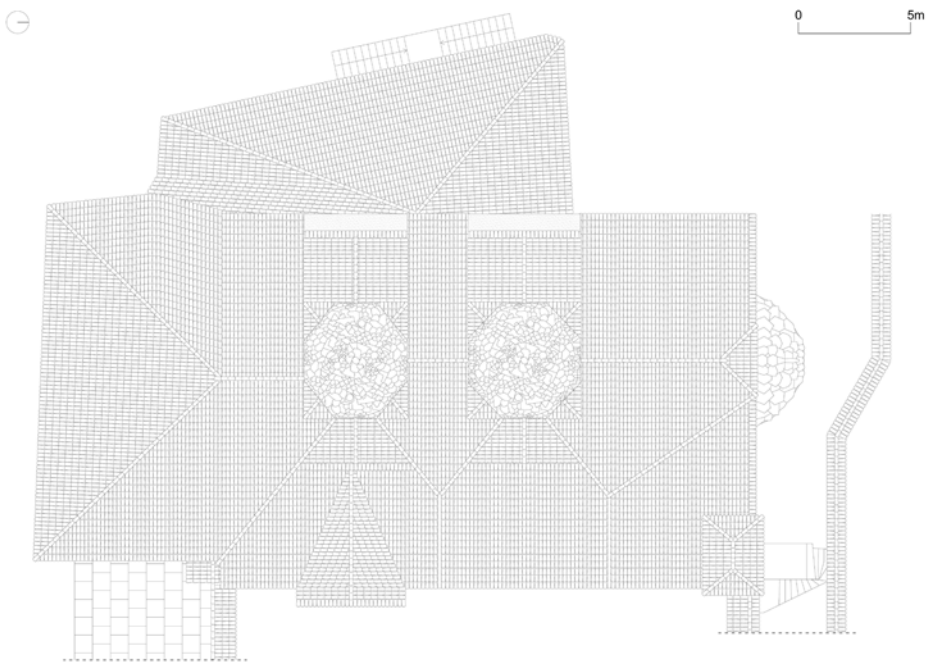


Fig. 9 Albania, Berat, Onufri Museum, plan of the roofs



Fig. 10 Albania, Berat, Onufri Museum, section A-A'



Fig. 11 Albania, Berat, Onufri Museum, altar; indirect digital photogrammetric relief. Modeling software with image superimposition, point clouds and mesh detection



Fig. 12 Albania, Berat, Onufri Museum, sundial, indirect digital photogrammetric relief. Modeling software with image superimposition, point clouds and mesh detection



Fig. 13 Albania, Berat, Museo Onufri, particolare della Meridiana

Conclusion

The survey activity, implemented through the use of multiple methodologies, is based on the analysis of the external and internal conformation of a building, in its overall articulation, its construction techniques and structures, the state of conservation and degradation. The enhancement of the structure highlights all the values, from geometric to dimensional, from structural to expressive, thus allowing a greater knowledge of the architecture under examination. The work carried out, therefore, has proved to be fundamental in order to protect and promote it as a national heritage, thus offering the possibility of consulting new sources for possible interventions to be carried out in the short or long term.

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Features of Landscape, a Visual Interpretation

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Abstract

Emphasizing creativity in the educational process of designing Architectural space can be seen as a succession of project-theme development, practice, understanding and interpretation. Short studies in the art-related design studio can be conceived as complementary project themes related to architecture projects, or they can be read in an apparently divergent direction. Several three-dimensional exercises in the Form Studies Studio (in the first year of study) highlight, through specific tasks, the variety of form-finding techniques. Landscape design is a broad theme that can generate a variety of interpretations regarding natural or human-made environment. The article presents a number of design techniques and examples that question the shapes and possible landscape configurations: *diorama design* is formulated as a theme of transition from two-dimensional representations in a three-dimensional scenario, following a composition and construction of an interior landscape through two-dimensional forms and overlays; *clay modelling* is an expression of tectonic shapes; *plasterboard carving* is a technique that allows form-finding through excavation; while *paper* allows representation of a *landscape in transformation* by cutting, overlapping, folding and texturing.

In the creation process, ideas and *solutions* often appear from seemingly non-researched areas, in a spontaneous manner. These illustrated exercises can be understood as fragments that gradually outline a map of possible form and space-finding techniques.

Abstract

L'enfaticizzazione della creatività nel processo educativo di progettazione dello spazio architettonico può essere vista come una successione di sviluppo, pratica, comprensione e interpretazione del progetto. Brevi studi nello studio di design legato all'arte possono essere concepiti come temi progettuali complementari legati a progetti di architettura, oppure possono essere letti in una direzione apparentemente divergente. Diversi esercizi tridimensionali di studi sulla forma (nel primo anno di studio) evidenziano, attraverso compiti specifici, la varietà delle tecniche di ricerca della forma. Il design del paesaggio è un tema ampio che può generare una varietà di interpretazioni relative all'ambiente naturale o all'ambiente creato dall'uomo.

L'articolo presenta una serie di tecniche progettuali ed esempi che mettono in discussione le forme e le possibili configurazioni del paesaggio: il diorama design è formulato come tema di transizione dalle rappresentazioni bidimensionali in uno scenario tridimensionale, seguendo una composizione e costruzione di un paesaggio interno attraverso forme bidimensionali e sovrapposizioni; la modellazione dell'argilla è espressione di forme tettoniche; l'intaglio del cartongesso è una tecnica che permette di trovare la forma attraverso lo scavo; mentre la carta permette la rappresentazione di un paesaggio in trasformazione attraverso il taglio, la sovrapposizione, la piegatura e la testurizzazione.

Nel processo di creazione, idee e soluzioni appaiono spesso da aree apparentemente non ricercate, in modo spontaneo. Questi esercizi illustrati possono essere intesi come frammenti che delineano gradualmente una mappa di possibili forme e tecniche di ricerca spaziale.

Introduction

The correlation between perception and representation, filtered through a certain language, defines the human relationship with the natural environment and landscape. Landscape descriptions are tributary to authors' subjectivity and to the viewer expectations, some landmarks being emphasized and others being ignored.

In the history of landscape perception and representations there are several attitudes. One of these is the impressionist method of plein air painting, an attempt to capture more than an image but the whole feeling of being in nature in a certain moment of the day. According to the impressionists the atmosphere and the sensations of the environment are induced not as much as the natural shapes but as the particularity of the light. Another kind of attitude towards landscape representations is proposed by other programmatic artistic currents and theories where landscape itself is a vehicle for messages, conceptions, means of representations that derive from the cultural rather than from natural environment. The human scale is the measure and the limit of immediate perception of the environment, understanding the environment beyond that requires an effort of imagination and some data that could be both filtered by cultural background. Perception in this case is based on a process of learning using a certain form of language.

One particular case of language used for environment descriptions is cartography. Cartographic representations are a response to human need of spatial understanding, a mental map of the surroundings. Knowledge and experience accumulated during a lifetime relation with the environment are organized in this so-called mental map.



Fig. 1 Features of Landscape, a Visual Interpretation

Mumford Lewis defines art as „the unique ability of the human kind to synthesize and represent parts of its own environment, parts of its own experiences, parts of himself in an independent and durable way, using symbols”¹. Cartography, as a way to communicate certain aspects of a culture, expressing experiences of the surrounding environment using symbols, explains cultural changes by the different usage of symbols.

The image „nonmimetic correlator of the parts of a referent”, could be „undetermined, suggested, artistically improved”, „evokes the subject without being it’s exact copy”. In the case of plans, it occurs „an iconic and linguistic transposition of reality that has to allow the handling of an unmeasurable object, difficult to be placed in visual site”. The image can as well be „a reproduction of a fictional reality, amplifying, exaggerating, imagining.”²

The territory, as Edward T. Hall says is „an extension of the organism, the perception of space depends, more often than not on the culture, the idea of territory is an internalization of the space, organized by thinking”³

Representation of the Landscape in Form Studies Studio

The proposed subjects for the first year of the Form Studies focuses on the future architectural projects, by doing freestyle sculptural exercises of form using different materials and starting from certain sources of inspiration to principals and forms of compositional organization. These „preforms” are a way of connection necessary in the architecture domain, in-between nature, space, art and a built object. The physical characteristics of natural or artificial outdoor space, forms, textures, directly or indirectly perceived, are the data from which the subject proposals for the second semester of the first year of STUFO have started.

One of the subjects proposed implies the manufacturing of a catalog of textures, made out of paper. For this, each student has to use a paper support of 30/30 cm, and spatially process it, by cropping, gluing, removing, cutting, collage, so that the support, processed on both sides becomes a page of a „catalog of textures”. The creative imagination of a collective of authors shows an interesting diversity in this type of „catalog”. The students of the next generations can be inspired by these projects or can help expend this content.

¹ Woodward, David, *Art and Cartography: Six Historical Essays*, University of Chicago Press, 1987, p. 123.

² Wunenburger, Jean-Jaques, *Filozofia imaginilor*, Editura Polirom, București, 2004.

³ Hall, Edward T., *The Hidden Dimension*, Doubleday, New York, 1966.

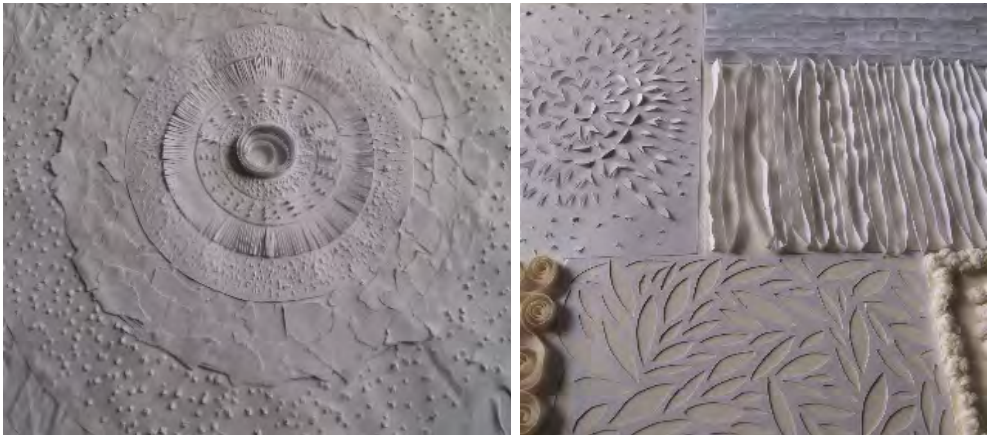


Fig. 2 Paper textures, Form Studies, 1st year of study 2018-2019

Another theme for the students proposes a play of perception, a composition that explores the passing from two to three dimensional images. The dioramas in the history or natural sciences museums art the source of inspiration for this exercise. The dioramas were created due to the way they can suggest a certain phenomenon, moment or situation, using a limited space to create the illusion of depth or distance.

Art history debates on a multitude of perspectives on spatial topic as related to human visual perception. Artists have always used personal means of expression to attract and introduce the viewer in their own space of creation. The Flemish painting in the 15th century proposes this type of uninterrupted space, by introducing the thresholds in the close plan and openings in the background. Architects like Andrea Palladio or Francesco Borromini⁴ used the limitations of perception to create a “scenographical performance”. In time, the dioramas became objects of representation in history and natural science museums and lately the artists are interested in their potential. The students have to observe the artists’ and architects’ approaches on the subject using some key words: **passing, passage, threshold, opening**. The students’ dioramas are limited to some cartoon boxes with certain dimensions: 20/15/15 cm. These “boxes” are “built” together, composing a collective work, a conglomerate of subjective situations, just like a collective building. The content of the boxes is designed by superposing some bidimensional elements and sketches, by annexation some volumes and some drawings, using collaging, transparency and carving.

⁴ Lectures notes in Civil Engineering, editors Fabio Bianconi, Marco Filippucci “Digital wood design” Innovative Techniques of representation in Architectural Design, Ed. Springer 2019 – Jose Antonio Franco Taboda, “Wood as an essential material in architectural and civil engineering, models from the renaissance to the architectural avant- garde



Fig. 3 Dioramas, Form Studies, 1st year of study 2017-18 / 2018-19

The flat shapes and textures superimposed and the example of the dioramas lead to the understanding of the surrounding space in terms of its diversity. The decomposition of a landscape and its visual simplification, through the predominant use of monochrome compositions and the use of a single material - paper, in both exercises, the emphasis is on the synthesis capacity.

A very suggestive image of the work Cretto di Burri⁵, a memorial of the urban space, a trace of the human interference in the natural environment, a mark of human living in a space that will be regained by nature, was the starting point for another theme for STUFO as regards the working materials. The 4th work theme of the second semester was getting a landform by extracting material out from a compact surface. The working material was plasterboard, which is easy to be worked over by a cutter, a common instrument for a student architect. The dimension of the material was 15/15 cm, and the boards are caved, cut for obtaining an abstract bas-relief, exploring symmetry as a compositional principle. Using the Oriental mandala, a geometrical composition based on the principle of symmetry, the students explored the regular geometrical forms, by overlapping and intersecting different layers and depths.



Fig. 4 Plasterboard carving, Form Studies, 1st year of study 2017-18 / 2018-19

Another theme proposed the shaping of a virtual, imaginary landscape by using modeling clay. The imaginary landscape had no scale and had the opposite characteristics of the artificial space: Cartesian or vernacular, expanding, programmed and geometrical increasing, or organic development. On a cartoon board of 15/15 cm square, the students composed their own sector of a future pseudo-cartographical representation, an imagined Cartesian and Vernacular space having no scale or function. The collective work had an exploring character, an abstract piece defined by the subjectivities of the authors.

⁵ Burri, Alberto, *Il Grande cretto di Gibellina*, Edizione Illustrata, Massimo Recalcati, Aurelio Amendola, Ed. Magonza 2018.



Fig. 5 Modelling clay imaginary landscapes, Form Studies, 1st year of study 2018-2019



Fig.6 Modelling clay imaginary landscapes, Form Studies, 1st year of study 2018-2019

Plasterboard carving and clay modelling, paper textures and paper layers from dioramas are all tridimensional oriented themes, and the final aim of these exercises is to develop a way of spatial thinking for our students.

Conclusions

The working themes for the 2nd semester at Form Studies propose a physical, tactile approach, being three-dimensional works that explore artistic attributes of the different materials. These common materials for the architectural field and for their future professional experience, create a link with the natural environment, surpassing the graphical, bi-dimensional representations. The observation of the surrounding landscape, either natural or anthropic, or a certain constructed space is for the student an on-going process, a gained ability. Each of these trained technics lead to understanding the surrounding forms.

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