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Chair:

**Prof. Alessandro Rocca**

## DOCTORAL PROGRAM IN ARCHITECTURAL, URBAN AND INTERIOR DESIGN

The Program promotes research on architectural design, considered in its different scales and levels of complexity. Research activities are based on the analysis, interpretation and innovation of design processes and techniques, and are supported by the acquisition and elaboration of theoretical and critical insights, and skills, related with the complex horizon of contemporary and future architecture.

The Program aims at being a specific venue for the promotion of studies and research on the aforementioned theoretical, methodological and operational field, through the elaboration of theoretical concepts and design experiments. The aim of the Program is the definition of theoretical and operational tools to foster the harmonious growth of a critical approach to architectural design, facing specific phenomena, trends and questions, as well as to acknowledge the strategic values of design in exploiting connections between formal structures, symbolic and economic impact, utilitarian contents and functional requirements.

The Program offers the candidates a constant sharing of knowledge, information and practices, with regular occasions of exchange with the board of professors, with other researchers, with other national and international institutions and scholars. For a creative and productive environment, it is also fundamental the relationship with the research activities ongoing in our Department of Architecture and Urban Studies (DASTU), and especially with its research program of Territorial Fragilities.

The PhD Program welcomes both foreign and Italian students. English and Italian are the official languages; the specific research subject will be assigned to each candidate after an agreement with the PhD Board of Professors, within the first year of the PhD activity.

### Topics and research issues

Within the 35th PhD Cycle, which will start in Fall 2019, the Program is oriented to architectural studies involved in processes of fragility, decay, recycle, radical transformation, related to these fields: architectural, urban, rural, interiors.

Lines of research are:

- Architecture of crisis, emergency and prevention; problems and proposals for public and private buildings and spaces, in relation with processes of obsolescence and decay, and in consequence of catastrophic effects of technical, social and natural source.
- Forests and rivers: how to activate processes of regeneration and reuse of suburban and rural architecture and landscapes; the recovery of abandoned landscapes, the relationships between infrastructure, landscape, architecture; architectural and landscape design tools and methods for a sustainable and transformative approach to fragile environment.
- New perspectives on territorial fragilities: multi-scalar, multi-cultural, multi-technical approaches and strategies; innovative and experimental models; dynamics of space-society relationships.
- Heritage, territory, landscape; design cultural practices as a driver of territorial transformation.
- Public spaces: lost and found. Rethinking public spaces, monuments and memorial artifacts in degraded peripheries.
- Decline and redemption of productive contemporary landscapes. Strategies and scales of intervention for the architectural and urban project in fragile landscapes.
- Territorial fragilities in buffer zones of Italian Unesco sites.

### Theory and Practice

The Program pursues lines of research which can be based on theoretical and/or operational practices, essentially organized along these two options:

- Research on architectural design paradigms (design, theory, critique) where in-depth analysis of the contents of our specific discipline is dialectically juxtaposed with the necessary connections with parallel outlooks and skills, the integration of which appears necessary for development of the core problems;
- Driven design research, in which design is considered the main tool of the research activity, and it is to be pursued as the development of a problematic assumption. The architectural project is intended as the result of a knowledge process aimed at identifying a critical path strongly related to theoretical statements, and to be critically verified through their practical application.

## Courses and workshops

Courses and workshops are mostly situated in the first year, conceived as a preparatory training for team and individual research, and are focused on the following topics:

- 1) "Research Methodology" in architectural design: confronting present and past experiences developed in national and international scholars and teams, looking for different approaches, examining research strategies and result;
- 2) "Research Funding": how to set up research project adopting the tools requested today by the research stakeholders. The aim is to get a technical skill about how to deal the different rules of the most important funding entities, how to weave the networking actions, identifying and collaborating

with teams of other institutions.

- 3) "Architectural Design Workshop": theoretical thinking and debate are tried in real conditions, with the task of producing a credible design project, facing concrete problems, stakeholders, technical requirements and environmental constraints. The studio will be part of the departmental research project of Territorial Fragilities.
- 4) "Research Design Project": to apply with a real research project to a real call, trying to win and to start with a funded research program, exploring and creating the more appropriate network, theme and strategy.

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## ARCHITECTURE AND CREATIVE TRANSFORMATION. CREATIVE URBAN PRACTICES IN LONDON

**Giuliana Bonifati - Supervisor: Carlos García Vázquez**

The historical period in which we are living is deeply marked by a change in the economic and production paradigm led by a radical shift in terms of the economic value system. The great recession that has affected the Western world at the end of the last century and has led to a deep-seated crisis of the production and financial systems and the search for innovative and original solutions is needed. The transition started during the last two decades of the last century and called "*post-Fordist new capitalism*", finds at the centre of its definition two important aspects: firstly, the opening of markets, which has led to a progressive process of dematerialisation and globalisation of the economy and, secondly, the emergence of cultural and creative features, symbolic-expressive and technical-scientific innovation to be the engine of a new production system. The change in the paradigm of production has put into the middle of the trial the production of services and knowledge rather than the supply of durable goods for massive consumption. This big transition has profoundly changed the economic value scale, the application model of the market system, the *exploitation* of human resources and the use of spaces. Precisely, within this

context of transformation and due to the need to meet the increasing needs of consumers, we are faced to the emergence of new models that are based on knowledge and they lead to innovation and creativity. In this sense, creativity becomes the true economic capital. The process of transformation and the construction of the new value sees as its main aim the change of the production process based on a *cobweb* system which looks at the extension of the process steps and the actors involved in it on varying from time to time depending on the requirement end user, instead of a chain one characterised by a number of activities providing a precise sequence of industrial executions. The continuous interaction and reticular exchange of information, ideas and cognitive abilities de ne the radical difference of the new production process rather than the Fordist one. The economy of knowledge has changed not only the process of production as well as the whole economic order providing a new paradigm. As a harbinger, creativity transformed the organisational system of businesses, the way in which education is provided, the process through which the works are developed, the skills required from

people and how cities are planned and designed. The rise of a new social class is one of the big change in our society. The so-called Creative Class include the people who have the ability to create new ideas, new technology and new creative contents high level of knowledge are required and the way of working is totally oriented on the built of even new and different creative processes. This radical change promotes the continue transformation in the social condition by providing cultural diversity and social inclusion. Starting from the strong financial crisis that occurred in 2008, companies, societies and cities were called in search of a new model that would lead to the collapse of the resolution and reconstruction of markets. The new paradigm that is based on creativity, innovation, and culture changes the scale of the value and shifts the focus from a system based on the production of mass consumer goods to a system based on the production of ideas. The change involves all three disciplines considered, finding some similarities and interweaving one another. In this sense, we are in front of not only the birth of a new production / economic paradigm and to the emergence of a new social class but also to

the definition and development of a new urban model, which is spreading more and more within practices and policies adopted by the contemporary cities around the world. This model is therefore based on the modification of urban spaces from the inside, from the characteristic of the place, from existing resources, which activates small actions to get rooted and permanent changes over time, it is a model that has already established in our thoughts and in our visions, and it is, even more, rooting within the urban transformation practices. Considering the concept of creativity as a phenomenon that is taking place within the social and economic urban policies of the globalised world for over twenty years. Stands in front of the birth and growth of more and more societies that base their capital turnover on culture, innovation, and creativity, moving the production paradigm to the importance and value of human capital. Considering the emergence within our cities increasingly developed creative spaces, such as cluster, milieu and entire neighbourhoods that have based their modification and regeneration of tactics and interconnected actions. What is needed is to understand in depth the ways in which creativity is established and spreads within the city and at the same time what are its effects on the modification of the spaces of the cities and their use. In this sense, the aim is focused on the definition of application strategies for the urban change allowing the architect, urban designers,

and planners to redefine its role as a director within these transformations. Three main methodologies were applied through the advancement of the work, such as: research based on literature review, research based on case studies and research by design. All methods were used through the different parts of the research to deepen the knowledge and collect qualitative outcomes. Firstly, the literature review allowed in first place to give the definition and meaning to this radical shift, defining the boundaries of it and finally understanding the reasons and the ways in which it is spreading this new model. Indeed, within the first part of the research the concept of creativity is studied in different subject areas in particular: economic, social and urban policies. The birth of a new paradigm based on culture and creativity has led to the definition of different changes in the globalised world. Secondly, further to the definition of a context background which draws the boundaries of the research and selection of disciplines in which the research is focused on, three case studies in London were selected and then analysed in order to deeply understand how the creative process is spreading into the city, what are the actors involved and through what actions are taking root. Moreover, the case studies are helpful in the understanding of what are the reaction of society and urban spaces, and the economy as well, to the changes and what are the needs that are

missing yet. Beyond describing what is happening in our cities, the analysis of case studies allowed the author to figure out how the process is leading and in this sense, following what found from the examples, the process itself is analysed by breaking it up. The elements that are composing the process are analysed separately to each other in order to better define them and provide a toolkit for the definition of a new strategical model. As well as, after understanding how the process is moving on and what are its components, it would be re-build up by categorising into three main categories and proposing a theoretical model which sees how creativity is leading the process itself. Thirdly, a design process is proposed as reality checks of what previously declared. e design proposal is carried out in one of the area analysed as a case study, such as the neighbourhood of Shoreditch, and is aimed to practically apply what was theoretically studied. The working experience at Central was imperative for the development of this part since it has truly helped to touch by hands the actual dynamics occurring during the urban regeneration process.

# DWELLINGS AND SETTLEMENTS IN PEMBA A TYPO-MORPHOLOGICAL FIELD STUDY IN A CHANGING URBAN ENVIRONMENT

Corinna Del Bianco - Supervisor: Michele Ugolini

Co-Supervisor: Michael Turner

Focusing on the evolution of the architectural and urban elements that characterize self-built urbanization in Pemba, a coastal intermediate city of Mozambique, this research is aimed at understanding the main evolution lines that define the relationship between the house, the city and the main settlement trends, analysing how the traditional self-built architecture is evolving and creating new forms of living in the city.

It is evident that the architectural and urban categories, as conceived in the western tradition, such as formal/informal or planned/unplanned are not applicable in developing contexts. Therefore, this research gives its contribution to their better understanding and redefinition, to create a more conscious background on living systems for interventions.

Mozambique is facing an important demographic and economic growth and its urbanization level is increasing fast (36% of the population is living in cities with an increase from 3,2% to 5% per year) and with scarce control by the authorities (data UN-HABITAT 2007). According to UN Habitat, over the 70% of the Mozambican people are living in slums, the highest rate in Southern Africa.



Fig. 1 - Street front of one of the houses of the Paquitequete neighbourhood

Pemba, an original Swahili settlement, is the capital of Cabo Delgado region; its urban context has limited dimensions but it is now expanding exponentially. One of the main features of this urban expansion is self-construction that is allowed and encouraged by the municipality.

In a context in which the rural settlement model is still the prevailing one and in which the concept of city is not rooted as in the western tradition, the birth and growth of new cities allow the development of new logics of settlement that are mixing the traditional rural spaces and functions with those of the contemporary urbanism. The phenomenon of urban evolution in Pemba can be analysed because

this is an area where dimensions and speed of expansion are controllable. Here it is possible to detect the features of variance and permanence compared to the rural models of settlement. In the course of this evolutionary process it is possible to understand which architectural and urban elements are to be valued as possible alternatives to the urban development.

The study carried out an integrated on-site analysis of dwellings and settlements in four selected neighbourhoods of Pemba, taking into account the relationship among spaces at various scales: public and private, external and internal and belonging to different historical phases of expansion of the city.

The surveyed houses are part of the formal city, but according to UN-Habitat definition they are considered slums as lacking of durability and protection against extreme climate conditions, easy access to safe water and adequate sanitation with public or private toilets.

After creating the relationship with the local community, it was possible to enter in peoples' houses to survey their spaces, functions and architectural elements. 56 houses were surveyed in the four selected neighbourhoods of Paquitequete, Natite, Alto Gingone and Chuiba. Each of these represent the self-built native houses of different periods of expansion of the city: Paquitequete shows the Swahili settlement, Natite the colonial development (1934-1960), Alto Gingone the years of the independence from Portugal (1960-1975) and Chuiba the contemporary expansion, intended for tourism development (after 2000).

In conclusion, the typomorphological analysis carried out during the research lead to the definition of the prevailing forms of living in Pemba, detecting those architectural and urban traditional elements that enrich the urban

fabric and the community life and that should be preserved and implemented in the future city development plans.

Finally, the conclusions of this research can be an instrument to approach studies and projects involving the forms of living in other Mozambican intermediate cities.

The research is accompanied by a photographic project named TIDES aimed at representing the

importance of sea and of tides in Pemba's inhabitants' everyday life and family economy.



Fig. 2 - Extract of the plan of spaces and functions of the Alto Gingone neighbourhood, original document scale 1:500

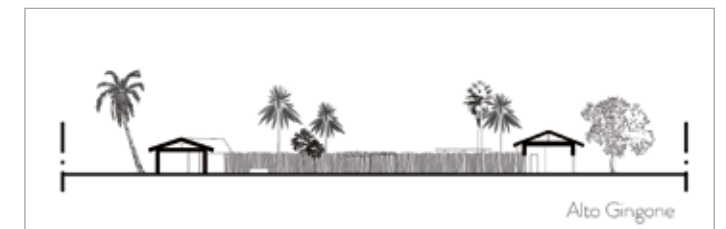


Fig. 3 - Section A-A' of the Alto Gingone neighbourhood, original document scale 1:500

# LANDSCAPES AND FORMS OF 'MODIFICATION': THE CONTAMINATION AS A NEW PARADIGM OF THE CONTEMPORANEITY

Martina Sogni - Supervisor: Guya Bertelli

In this transitional period the semantic lenition of the landscape and the trespassing of the landscape discipline in the architectural one seem to be now evident. The global crisis of the last decade produced an increase of 'awaiting spaces' to be redesigned in the 'shrinking cities'.

In addition, considering also the skidding of our old terminologies, our previous definitions and the tools we have always used, the necessity to define new paradigms becomes a goal for the research and the project.

Facing this general state of crisis, the thesis postulates the centrality of the concept of 'contamination' in the project operation, as directly involved in physical and cultural transformation of our contemporaneity. Therefore, considering only its positive sense, the 'contamination' seem to become a possible paradigm of the architectural design, presenting itself both as a conceptual tool, useful to reinterpret the role of the project, and as an operative tool for the project of modification of the 'awaiting spaces' in state of abandonment, obsolescence and decay.

Following these assumptions, the intent is to emphasizing three main research questions: today the contamination can

emancipate itself from its negative value and become a paradigm of the reinterpretation of the places? What is the role of the architectural project in the contemporary landscapes? Can the contamination become an operational tool in the modification of the contemporary landscapes?

Moreover, if until now the scientific contributions seem to have privileged specially an aesthetic-figurative value of the contamination, derived from its linguistic value, from which the research does not transcend but which only deals with some aspects, the research is more oriented towards a physical-spatial value, in relation to the different scales of the project.

In this context the research draws on a three-tiered methodological approach: the theme is firstly formulated in the 'Thinking the contamination', fixing the boundaries of the problem in the multidisciplinary literature review, then developed in the 'Interpreting the contamination', by exploring case studies and the interviews of important figures in the contemporary architecture debate to specify the paradigm to the project, and, finally, it is projected into the 'Experimenting of contamination' within a series of design experimentations.

Firstly the development has led to consider the etymological and terminological meaning of the term. The root leads to the Latin cum-tamen, similar to 'to contact (impure)' that implicate transmission and interaction, whereas the etymon leads to infection and corruption. Thus, while the etymon has a negative connotation, it is the root that has a more positive value. Naturally, this 'contact' also shines through the different disciplines. In the physical sciences contamination is the presence of extraneous materials into a contexts (natural or artificial) which alters its properties, in the literature is the interference of several compositions applied to the Roman comedy with previous references of the Greek theater model, in the linguistic represents the merging of two forms that give rise to a third.

These findings have emphasized the assumption of a duality of the contaminatio and has also suggested its definition as a compositional technique, coming from the roman tragedy, able to modify and 'fertilize' an initial state through the contact with different conditions. And this being contact or even "phenomenon of viral aggression", confirms Franco Purini, could redefines awaiting spaces (therefore not closed and

stable, but open and unstable) as a possible object of rewriting of the architectural text; seen itself as a material on which always different sides converge together (global and local, virtual and real, tradition and innovation, identity and difference).

Secondly, the correlation between the three key worlds (landscape, modification, contamination) observed through three 'glances from the past' (1960s, 1980s, over 2000) stimulates reciprocal influences within a double contribution. On one hand, they aim at identifying the possible meanings of contamination ('mixité', 'in-between', 'uncanny') that have manifested themselves in the landscape during the three decades, on the other open to a conceptual elaboration of the landscape itself ('anthropogeographic', 'phenomenological', 'contaminated') for which many studies have focused on.

In this sense, this concept of space, therefore intended to be a 'place of contamination', is also found in some figures that have elaborated details that re-evaluate the term and which have been at the center of some theories on the landscape in these years. Starting from this critical reading that introduces the state of the art in relation to the project culture and reflects about the 'materials' for the architectural project, the 'process of contamination' considers the use of three interpretative categories of landscape ('reserve', 'resource', 'ruin'). Those categories allow to recognize the existing through three 'spatiality of contamination' ('recognizable', 'temporary',

'ruined') and to modify it with three degrees of viral intervention ('whole conservation', 'partial adaptation', 'total transformation'). Thirdly, the research tends towards a critical review of different study-cases (gathered both in a sort of 'contamination atlas' and in a comparative form) and interviews with the important figures of Sergio Crotti, Vittorio Gregotti and Franco Purini that contribute to define a critical and contemporary debate about the 'project of contamination'. Moreover, the selection of three main conceptual dimensions of contamination ('stratification', 'coexistence', 'fusion'), through three projects (Milan, Seville, Mantua), defines related strategies ('by overlapping', 'by juxtaposition', 'by marquetry') and compositional actions for the project. 'Stratification' as a compositional technique that occurs through both semantic and syntactic 'overlapping' of multiple meanings and signs, in which new layers follow or ignore the rules, the measurements, the traces of the existing element, by 'assimilation' of the same and by 'sedimentation' of other measures, traces and signs.

'Coexistence' as a compositional technique that occurs 'by juxtaposing' the addition and the preexistence to determine a blending of point of tensions that intercept previous characters. The implication of a viral contact on an element that has not yet been infected leads to keeping the 'identity' and the 'difference' clearly visible between existing forms and additions. 'Fusion' as a compositional

technique that takes place through inlay or interpenetration to form a total integration between object and space or between two objects for which the two compositional elements are 'intimately' joined to make the reading of individual components almost impossible, giving rise to a new aesthetic of fluidity.

The contamination would therefore act on the modification processes of the settlement, giving different structural configurations, through possible new physical, social and constructive conditions. The landscape would seem to abandon 'finished figures' instead to interrupted drawings, intermediated spaces, as places that involve differences, densities and discontinuities that connote our contemporary era. In this landscape the 'new code' seems to be the 'contamination', the one able to involve 'complexity and contradictions' and new shapes that will redefine the preexistences.

# THE ARCHITECTURE OF MOTORWAY INFRASTRUCTURES BETWEEN MAINTENANCE AND PRESERVATION. THE A22 AND THE TERRITORY OF MANTOVA

**Claudia Zanda** - Supervisor: Prof. Andrea Gritti

Co-supervisor: Prof. Eric Alonzo

The research focuses on the architecture of motorway infrastructures starting from the observation of two complementary operations of the project: maintenance and preservation. These two actions are both strategic in the perspective outlined by the topics of reuse, recycle and architectural, urban and territorial regeneration. As an infrastructural system, at the same time complex and well defined, the motorway allows to describe and interpret some dynamics related to different levels of context: physical and spatial; social and cultural; technical and economic.

### *The questions*

Face to the changed economic and social conditions of the contemporary context, assumed as a problematic background, the motorway infrastructure could represent the most significant artefact to reflect on the legacies of modernity and on the future of the territorial structures produced by the industrial society and the capitalist economy.

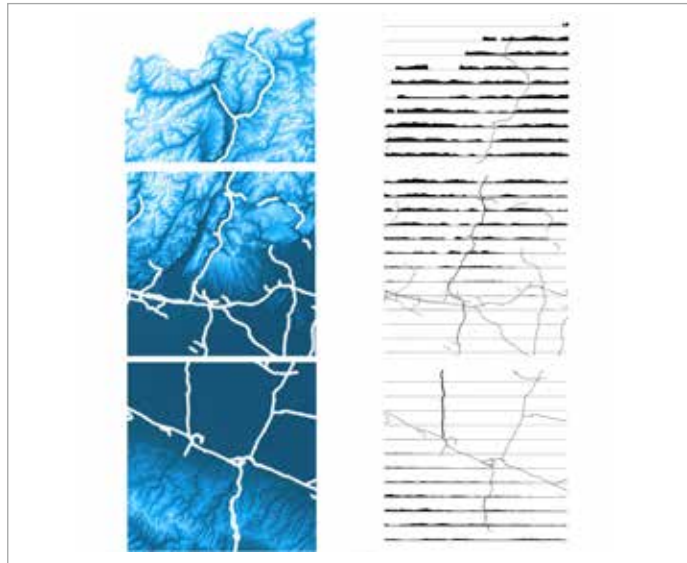
The motorways, as emblems of the economic, political and social conditions of the last century and of the transformations of the technological systems still underway, have not yet assumed the status of "historical objects", or rather they are not yet part of a

shared and recognized heritage. Some recent contributions dedicated to the relationships between architecture, landscape, territory and infrastructure have highlighted this condition of fragility, in a certain sense paradoxical, in reference to the evidence and the permanence of the physical signs imprinted by the networks and the artworks of the motorways on the geographical scale. The same history of the Italian motorway network highlights a formidable contradiction, which has opposed the structural backwardness of the country to the achievement of a

singular record: the first motorway stretch of a today planetary network is Italian. In the Italian context, this original contradiction has developed in two opposite directions: on the one hand it has strengthened the achievements and the experimentations; on the other, it has generated some clear conflicts with the landscape and with the original forms of the crossed territories.

### *The topics*

The research interprets the motorway from an architectural point of view and, therefore, as an artefact with some specific formal



**Fig. 1 - The relation between the A22 motorway and the morphology of the territory.**

and spatial conditions. To achieve this goal, the thesis retraces the ways in which architecture dealt with the projects of motorways and the forms that motorways took on starting from some antecedents: the origins of the road space; the conceptualization of large road infrastructures during modernity; the ideas of network and flow; the definition of the "large-scale architecture". At the same time, the motorway is interpreted according to three different ways that contribute to expanding its contents and meanings. The motorway, interpreted as a technical device, reveals the dependence of the artefact on the practices of standardization and on the engineering skills, both crucial in defining a specific design knowledge. The motorway, interpreted as an archaeological find, alludes to the early dissolution of the constituent elements of the network, according to a process already experienced by the Roman consular roads or by the railway lines of the Italian hinterland. The motorway, interpreted as an anthropological fact, highlights the characters through which the cultural imagination of modernity has been expressed.

Starting from these multiple meanings and from the peculiarity of the case study, the research identifies the motorway as a recognizable figure of the technological and human landscapes and, at the same time, as a place from which to observe its mutations.

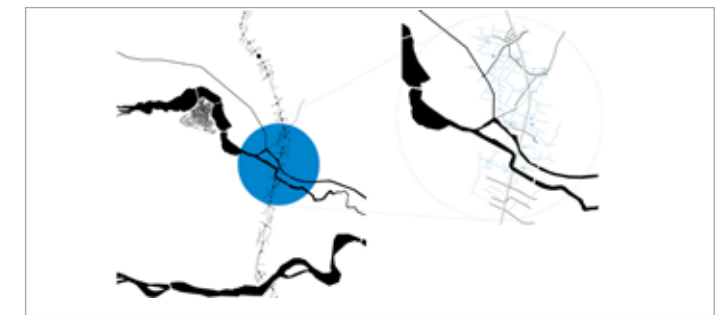
### *The strategies*

The accelerated development of the urbanization processes and of the economic, technological and

ecological factors that are related to them, seem to announce the inevitable obsolescence of the motorway system or, at least, its necessary transformation. In this perspective, the thesis proposes to consider the motorway as a new "historical object" and to reinterpret some design practices through the study of their application on the motorway infrastructure: the maintenance and the preservation. To the "destructive maintenance" that constantly homologates the architectural specificities of the motorway networks, the thesis opposes a "curative maintenance", that should be able to enhance the design qualities of the architectural components on which the original relationships between territories and artefacts are based. To the "impossible preservation" that systematically excludes the constituent elements of the motorway architecture from the list of cultural heritage, the thesis contrasts an "active preservation" of the architectural relationships that, in some emblematic cases, the artefacts and the networks have been able to establish with the landscape.

### *The case study*

The history of the project, of the



**Fig. 2 - The original layout of the A22 motorway and its relation within the elements of the territory of Mantova, such as the river and the canals.**

construction and of the current and future transformations of the A22 motorway is taken as an emblematic case within the history of the realization of the Italian motorway network after the World War II. In this perspective, the research assumes the recognition of some specificity, some values and some qualities of a typically contextual nature, as a new paradigm of the architectural project dedicated to the motorways infrastructure. For this reason, the thesis develops, around the A22 motorway, three complementary narratives: the first one, dedicated to the policies and to the practices of construction of the infrastructure; the second one, oriented to the design contribution of Pietro Porcinai and Riccardo Morandi to the realization of the motorway; the third one, aimed at recognizing the structural transformations of the territory and of the landscape of Mantova in relation to the presence of the motorway network. The context of Mantova represents a significant case to reflect on the actual and latent relationships between the motorway and the territory, both intended as stratified heritages.

## DEVOID OF ANY STYLE. PROBLEMS AND PERSPECTIVES OF ARCHITECTURE IN THE AGE OF POST-CONSUMPTION

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The dissertation analyzes orientations of architectural research and practice in the exceptional complexity of the contemporary age, characterized by the environmental conditions of Anthropocene, the digitalization of services, the pervasiveness of the information, the economic recession. This complexity is tackled through the investigation of current consumption patterns, affected and profoundly changed by the illustrated conditions and by the access to new fields, new markets, new choice opportunities. The choice to investigate the contemporary condition moves from the observation of the reconsideration the architect's role is undergoing in the present age: a widespread opinion claims it is living a crisis. The preparation of the architect is specialized, but at the same time it is wide, hybrid and contaminated, holding together technical field with economic, social, cultural, artistic, political spheres. The architect is one of the few professionals able to grasp the complexity and the interconnections of the present day, with the right tools – technical and cultural – to affect the reality. Therefore, architect's fields of action may be way broader than those

experimented at the present time: the potentialities they offer need to be investigated, to take advantage of the rich environments the contemporary age is unlocking. The investigation focuses on the evolution of consumption styles in the last decade, from the disruptive explosion of the economic crisis of 2007/08 which has reset established frameworks and produced new fields to explore, the under-construction fields of post-consumption. The focus is on consumption for its relation to resource use and the connected social and cultural attitude, and for its pervasiveness in the mass society: individuals are conscious or unconscious consumers in each stage of their existence. Moreover, consumption is inherent in human nature, basis of metabolism and survival and primary source of pleasure and fulfillment since the first moments of life. To observe how consumption conditions are changing means observing a moment of profound modification of the values and purposes according to which the Earth is inhabited. *Waste* is employed in the research as a sign of the complexities and contradictions detected in current consumption modalities; the

analysis around waste focuses on the scarcity of natural resources, consequence and antithesis of waste. Waste is thus investigated for its physical and cultural value, together with the consumption dynamics around its production and its removal. The research reconstructs the path towards the awareness of the limits of Earth's ecosystem and its resources, from the literature and the design experimentations of the '60 around the idea of systemic thinking to contemporary age, where theories about degrowth and the rise of independent consumption paths push the focus of architectural debate far from iconic architecture towards a design moved by different drivers. Among the different ideologies and alternative development models rising in the Anthropocene era, the paradigm of Circular Economy (CE) has been chosen as a case study to be analyzed on the basis of its radicality: it is presented as a flexible production and consumption model finding a way to negotiate waste, aiming to systematize several contemporary issues and give unique solutions. Furthermore, it has been chosen as significantly implemented in the field of design, analyzed in

this work in the Dutch context. Above all CE, is analyzed for its openness: it constitutes a free paradigm, to be taken and shaped according to the specific conditions and it is thus able to develop specific cultural and social attitudes and lifestyles. CE is hence investigated in order to understand contradictions and potentialities of new economies and new consumption models and analyze their outputs when applied to architecture and design domains. This investigation is carried out referring to the recent research production in the Netherlands and the innovations implemented in the last few years in the Dutch urban development. The Netherlands has been chosen as research field due the official acquisition of CE as governmental interest, the widespread application of circular model in the national economy and a pervasive presence of the investigation of circular paradigm in the academic and professional reference context. The research has unveiled how the implications that CE paradigm and similar production/consumption models have on architecture still present many investigation opportunities, which would develop at best in the framework of a research by design. On one hand, a difficult relation subsists between this paradigm and many angles of the discipline: the theoretical application of CE to architecture opens interesting perspectives in terms of space uses but envisages a restraining scenario in methodological terms. The

potentialities opened by the conception of buildings as parts of interconnected cycles are innovative, but the innovation character looks unidirectional: **on the long run, the CE paradigm theoretically contemplates all the components, element and material composing architecture as part of a cycle, constantly rotating around itself, with few spaces for other visions.** On the other hand, CE application to design involves the promising field regarding the necessity of a reverse infrastructure supporting the reverse logistic CE entails. This infrastructure is mainly administrative and logistical but is supported by a necessary physical counterpart: a repertoire of forms, tools, spaces and uses to envision, to be accurately designed around the reverse processes entailed by circular paradigm. The understanding of the interactions between new consumption models and design is examined further through the study of several architectural exhibitions from the last decade, contemporary places of cultural production which have chosen to dialogue with the changing conditions described in this work. The analysis of the production showcased within these exhibitions (*Re-Cycle. Strategies for the House, the City, the Planet, Maxxi, Rome, 2011/12; Designing Scarcity, Nai, Rotterdam, 2014; Reporting from the Front - XV Venice Architecture Biennale, 2016; After Belonging - Oslo Architecture Triennale, 2016; bioTallinn - Tallinn Architecture Biennale, 2017*), together with

other contributions from the present public debate around design composes a complex but significant map of current orientations in architecture. One of the major directions emerging from this examination is the growing ephemeralization of the architectural practice. Among the many examples analyzed, there are few evidences of built space and vast of space uses and management, suggesting a practice less focused on the design of objects and committed to the enabling of the processes preceding and following the building of the objects. Within this background, there is still space for the materialization: design discipline can act more and more in combination, in a synergic action with other realms to elaborate systemic answers to multifaceted questions. Architecture is a part - often central - of multidisciplinary plans, involving various expertise and angles, aimed to the triggering of complex dynamics of supralocal interest. This perspective proposes an answer to the quest for new paradigms that has identified the architectural debate in the last decade: the new paradigm seems right to be the absence of a unique paradigm, in favor of a discipline able to take different forms and perform multifaceted approaches to different and multiple conditions. This awareness opens up for architects the opportunity to be involved in many, promising expanded fields.