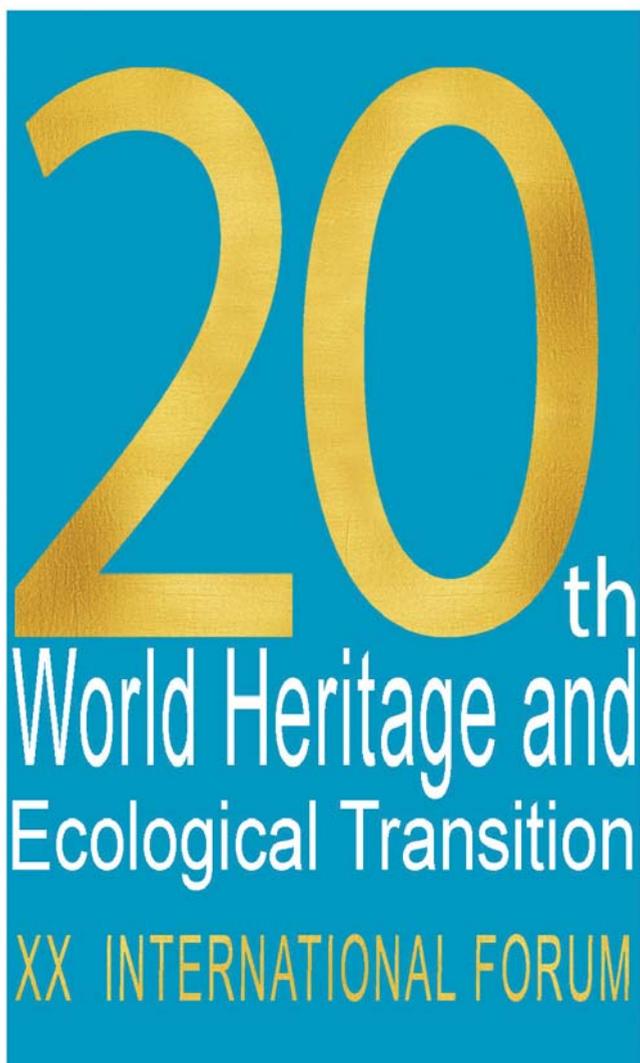


ARCHITECTURE HERITAGE and DESIGN

Carmine Gambardella

XX INTERNATIONAL FORUM

Le Vie dei
Mercanti



GANGEMI EDITORETM
INTERNATIONAL

Carmine Gambardella
WORLD HERITAGE and ECOLOGICAL TRANSITION
Le Vie dei Mercanti
XX International Forum

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WORLD HERITAGE and ECOLOGICAL TRANSITION

Le Vie dei Mercanti

XX International Forum

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Scholars has been invited to submit researches on theoretical and methodological aspects related to Smart Design, Planning and Technologies, and show real applications and experiences carried out on this themes. Based on blind peer review, abstracts has been accepted, conditionally accepted, or rejected. Authors of accepted and conditionally accepted papers has been invited to submit full papers. These has been again peer-reviewed and selected for the oral session and publication, or only for the publication in the conference proceedings.

Conference report

300 abstracts and 550 authors from 40 countries:

Albania, Arizona, Australia, Belgium, Bosnia and Herzegovina, Brasil, Bulgaria, California, Chile, China, Cipro, Cuba, Egypt, France, Germany, Greece, India, Italy, Japan, Jordan, Lebanon, Malta, Massachusetts, Michigan, Montenegro, Montserrat, New Jersey, New York, New Zealand, Poland, Portugal, Russian Federation, Serbia, Slovakia, Spain, Switzerland, Texas, Tunisia, Turkey, United Kingdom.

From the XIX FORUM WORLD HERITAGE and DESIGN for HEALTH to the XX FORUM WORLD HERITAGE and ECOLOGICAL TRANSITION

In 2022 the Capri International Forum 'Le Vie dei Mercanti' will reach its 20th edition.

A Story of love for the Earth and its Inhabitants, Landscapes, Architecture, Cultural and Archaeological Heritage told by over 7000 Scholars and Academics from all over the World in an interdisciplinary way, by integrating skills, experiences, good practices in order to train talented people who care about the destiny of our Planet.

If the Future is an Eternal Present, the renewal of the Forum in these twenty years has produced a wealth of knowledge to guide those who govern and administer the Public Good, and citizens in their daily activities. A future that must be prepared in this era, that cannot ignore the ongoing climate change and that should not catch future generations unprepared.

A Present that transmits to the future the values that Humanity has passed on to us and that must be protected and transmitted as regenerative sources of Humanity itself.

Not coincidentally, the First International Forum assigned the topic 'From Luca Pacioli to the Ecogeometry of the Territory' to the participants.

An invitation to submit scientific contributions and good practices based on double-entry, legitimized by the measurement of tangible and intangible assets, in order to integrate knowledge and state it like entries in an income statement.

Therefore, if Luca Pacioli, tutor of the Rompiasi Venetian merchants family, suggested the method to legitimize the results of the activities undertaken, that is, through the measurement he indicated the survey activity as managing a heritage, which as such must not only be geometrically definable but must be also discretized into batches, noted in its multidimensionality, in order to produce a result whose added value can always be quantified and is given by the difference between the value of the asset, as we have received it, and the value reached for the activity of knowledge and management of the potentialities which are identified and stated as in an income statement; Eco-geometry, intended as a technological echo of reality, feasible through the use of digital and artificial intelligence to create forecasting scenarios, a model in which it is possible to measure all the components and relationships between the parts and to restore the matter, no longer as an instrumental covering to be described only in the geometric matrices generating the forms.

Once again Leonardo point us the way, conceptually anticipating the transition from analogue to digital and to the management of big data: "io vò pigliare quella licenza ch'è comune ai matematici, cioè siccome loro, dividono il tempo a gradi e di quantità continua la fanno discontinua, ancora io farò il simile, dando col miglio o renella nella comparazione all'acqua" (Codice Atlantico, f. 126, t.a.).

Through the topic of the next XX Forum World Heritage and Ecological Transition, I want to provide some interesting food for thought, to identify a lived place, a life

environment, as an integral of forms of organization of the elements that surround us, examined through the prism of a civilization; we will deal with an innovative project of measurement and representation of the natural and built environment that is no longer an expression of the relationships between society and the natural environment but a construction of the relationships between the future as an eternal present and the legacy of the past as an economic value. A vital commitment that binds people to the environment; an educational revolution that match skills to the new way of managing what is learned and measured; the ecological transition with the use of technological innovation shall have the aim of entering the body of the territory, of the buildings and of the objects, it analyzes all its components through a multi-criteria analysis in order to establish a rating which in itinere defines the added of the results.

Just as the rulers and merchants in the mid-15th century, on the margins of international trade, in an economy contracted for mercantile life, combined research and training in new paths, taking refuge in agricultural operations, in favour of the reclamation of uncultivated lands in relation to the search for energy and its distribution and established the reasons of the earth compared to those of the sea in a perspective of systemic response.

Prof. Carmine Gambardella
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UNESCO Chair on Landscape, Cultural Heritage
and Territorial Governance

Dal XIX FORUM WORLD HERITAGE and DESIGN for HEALTH AI XX FORUM WORLD HERITAGE and ECOLOGICAL TRANSITION

Nel 2022 il Forum Internazionale di Capri, Le Vie dei Mercanti, raggiungerà la sua XX edizione. Una storia d'Amore per la Terra e i suoi Abitanti, i Paesaggi, l'Architettura, i Beni Culturali e Archeologici raccontata da oltre 7000 Studiosi e Docenti provenienti da tutto il Mondo in modo interdisciplinare, integrando competenze, esperienze, buone pratiche per formare Persone di Talento che abbiano a cuore il destino del nostro Pianeta.

Se il Futuro è un Eterno Presente, il rinnovarsi del Forum in questi venti anni ha prodotto un patrimonio di conoscenze per orientare coloro che governano e amministrano il bene pubblico e i cittadini nelle loro pratiche quotidiane. Un Futuro che va preparato in questa epoca che non può prescindere dal cambiamento climatico in atto e che non colga le generazioni future impreparate.

Un Presente che trasmetta al futuro valori che l'Umanità ci ha consegnato e che devono essere tutelati e trasmessi come fonti rigeneratrici della stessa Umanità. Non a caso, il Primo Forum Internazionale affidò ai partecipanti il Tema "Da Luca Pacioli all'Ecogeometria del Territorio". Un invito a presentare contributi scientifici e buone pratiche fondati sulla partita doppia, legittimati dalla misura dei beni materiali e immateriali per integrare conoscenze e per declinarle come partite di un conto economico.

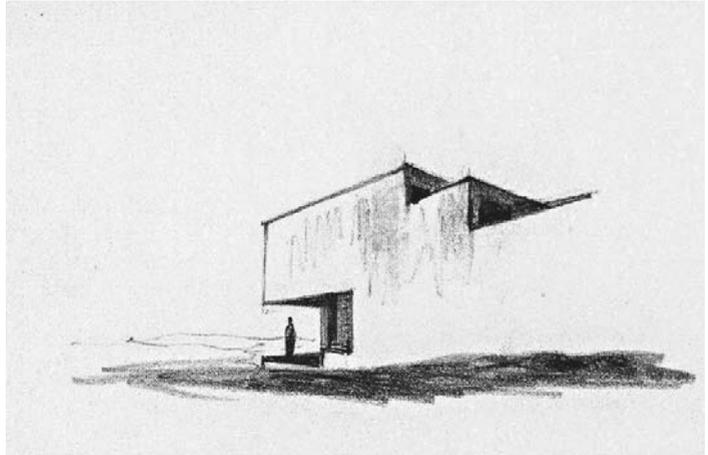
Pertanto, se la figura di Luca Pacioli, l'Istitutore della famiglia dei Mercanti veneziani Rompiasi indicava il metodo per legittimare i risultati delle attività intraprese, e cioè attraverso la misura indicava l'attività di rilievo nel senso di gestire un patrimonio, che in quanto tale non solo deve essere geometricamente definibile ma deve essere discretizzato in partite, rilevato nella sua multidimensionalità, al fine di produrre un risultato il cui valore aggiunto sia sempre quantificabile e dato dalla differenza tra il valore del bene, così come ci è pervenuto, e il valore raggiunto per l'attività di conoscenza e di gestione delle potenzialità individuate e declinate come in un conto economico; l'Ecogeometria, intesa come un'eco tecnologica della realtà, attuabile con l'utilizzo del digitale, dell'intelligenza artificiale per creare scenari previsionali, un modello dove è possibile misurare tutte le componenti e le relazioni tra le parti e restituire la materia non più come strumentale involucro da descrivere nelle sole matrici geometriche generatrici delle forme. Ancora una volta Leonardo ci indica la strada, anticipando concettualmente il passaggio dall'analogico al digitale e alla gestione dei big data: "io vò pigliare quella licenza ch'è comune ai matematici, cioè siccome loro, dividono il tempo a gradi e di quantità continua la fanno discontinua, ancora io farò il simile, dando col miglio o renella nella comparazione all'acqua" (Codice Atlantico, f. 126, t.a.).

Con il Tema del prossimo XX Forum World Heritage and Ecological Transition intendo proporre spunti di riflessioni per identificare un luogo vissuto, un quadro di vita, come integrale di forme di organizzazione degli elementi che ci circondano esaminato attraverso il prisma di una civiltà; ci si dovrà confrontare con un progetto innovativo di misura e di rappresentazione dell'ambiente naturale e costruito

non più espressione delle relazioni tra la società e l'ambiente naturale ma costruzione delle relazioni tra il futuro come eterno presente e l'eredità del passato come valore economico. Un impegno imprescindibile che lega le Persone all'Ambiente; una rivoluzione formativa che omologhi le competenze al nuovo modo di gestire ciò che si apprende e si misura; la transizione ecologica con l'utilizzo dell'innovazione tecnologica deve avere il fine di entrare nel corpo del territorio, del costruito e degli oggetti, ne analizza attraverso un'analisi multicriteria tutte le componenti per stabilirne un rating che ne definisca in itinere il valore aggiunto dei risultati.

Così come i governanti e i mercanti, verso la metà del quattrocento, al margine del commercio internazionale, in un'economia contratta per la vita mercantile, saldarono ricerca e formazione in Nuove Vie, trovando rifugio in operazioni agricole, in favore delle bonifiche dei terreni incolti in rapporto alla ricerca di energia e di distribuzione della stessa e instaurarono le ragioni della terra rispetto alle ragioni del mare in una prospettiva di risposta sistemica.

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ID 001 *A Shelter from the Storm: Finding refuge in Noronha da Costa's architectural drawings*

José FERREIRA CRESPO

*Faculty of Architecture of
Lisbon, Portugal*

This essay seeks to dwell within the world dreamt by Luís Noronha da Costa (1942-2020).

When faced with his work, be it Painting, Sculpture, Cinema or Architecture, one senses the emergence of place. Such happens atmospherically, misting the viewer's embodied gaze and placing him within the world built by the Artist. In a way, it seems as if the viewer witnesses not only the presence of the work, but it's unveiling, it's becoming... The unconcealment of the work is brought forth by-through the viewer as it was once brought forth by-through its maker. Projecting a shelter for our embodied selves. A place which we may call home?

One does find shelter in Art. We seek out to delve on How and Why this happens.

In this instance, our attention moves towards the Artist's architectural drawings.

At last, what is that makes us hum Dylan's verses when we see these drawings?

"Come in, she said / I'll give you a shelter from the storm (...)".

ID 002 *Urban Ecology and Heritage. The Resilience of Venetian “campi”*

Marco MARETTO

Barbara GHERRI

University of Parma, Italy

Daniela MAIULLARI

*Chalmers University of
Technology, Göteborg
Sweden*

Venice is known for the fragility of its urban heritage, both from a physical and environmental point of view. If, on the one hand, the city is experiencing an increase in yearly average temperatures, on the other hand, it is the complexity of its morphology, the density of its tissues, the richness of its heritage to lead its ecological transition. Owing to existing literature demonstrating how local microclimate depends on urban density, form and materials, the work studies the influence of a changing local climate on Venetian vernacular open spaces, known as Campi. Based on comparison of contemporary data and the IPCC's future predictions for 2050 scenario, the work highlights how Campi and the surrounding buildings and canals contribute to build climate resilience. By employing advanced modelling, the study analyzes microclimate and outdoor comfort users' perception of Physiological Equivalent Temperature (PET). The ENVI-met tool is used to simulate the thermal behavior of two case studies: SS. Giovanni e Paolo and S. Polo. Despite the significant temperature growth, the Venetian urban fabric characteristics seem to play a crucial role in strengthening climate resilience of open spaces. The analysis shows how the historical matrix of open and built spaces influences the Venetian environmental balance. The work thus offers a contribution on how built heritage can play a fundamental role in the light of climate change and ecological transition.

ID 003 *ESG criteria to monitor and assess women's empowerment in development processes: basic framework and proposals for a preliminary theoretical analysis*

Cristiana CARLETTI

Mariella PAGLIUCA

Roma Tre University, Italy

The acronym ESG is intended to typify, measure and certify the ability of companies to manage the impact of their activities in environmental, social and governance terms. Environmental, Social and Governance are key-parameters of the so-called sustainability rating, to assess the performance of a company in the marketplace. In particular, parameter E focuses on operations aimed at reducing risks linked to climate change, in terms of respect for biodiversity, decisions and interventions on the food chain, agri-food safety, population growth and, in general, management of natural resources such as water, land, air and forests. This parameter is linked to the social one, including labour rights, working conditions, gender equality and the countering of all forms of discrimination. Also the governance dimension features the identity of the company, its organisation and ability to define and implement organisational forms inspired by ethical principles and rules of good functioning.

This proposal intends to focus attention and address some theoretical proposals introduced in several international intergovernmental systems, stressing the relevance of ESG parameters in fostering corporate growth in terms of gender diversity and empowerment of women - both workers and in leadership positions, advancing on methodologies to measure ESG parameters relating to gender inequalities, encouraging or limiting investments in companies of different sizes that ensure a proper gender management.



ID 004 *The recovery of Miseno and its untold architectures*

Emanuele NAVARRA

*University of Campania
'Luigi Vanvitelli', Italy.*

The Covid emergency highlighted the need to offer new cultural proposals, measured on the current needs of fruition and sustainability, the result of collaboration with the reality of the territory through the Recovery Plan.

The proposed challenge is to make the goals set nationally for the rebirth of Miseno and its hidden architectures feasible.

Among the opportunities for digitization, innovation, earning opportunities and culture, better management of social networks will be prepared for the inclusion of new content for young people, the ability to multiply the knowledge and experience. Through the predisposition of QR Code it will in fact be possible to deepen in detail topics of interest directly on site, without visually abusing the spaces dedicated to the purity of vision and experience.

In line with the indications that convey towards the ecological transition and in conjunction with the already prepared projects of the territory, the "Ciclayak" project aims to create a sporting-cultural path of an environmental nature, including some sites in the path.

Connections will be improved, the criticalities of the place will be analyzed and collective and / or "green" mobility will be exploited to the fullest.

This will make it possible to locate territorial focuses capable of reviving a still hidden part of this territory but which must not be forgotten given the historical and cultural importance that characterizes our civilization.

ID 005 *The identity value and urban architecture. The issue of abandonments and the birth of new relocated towns after natural disasters and pestilences*

Enza TOLLA

Giuseppe DAMONE

*University of Basilicata
Italy*

The issue of the abandonment of small towns after disasters or pestilences characterized the settlement's geography of many realities during centuries. Millions are the small villages and towns with important politic-religious functions which were gradually abandoned after invasions, wars and pestilences or as consequence of earthquake and landslides or still because of the foundation of new cities where tax exemption was allowed to the new inhabitants.

Narrowing the research to the most recent abandons in the South Italy between the XVIII and XX century, the end of many towns was caused by earthquakes and landslides defining the abandon of the historical town and the birth of new relocated centers which inherited only the name by the previous settlements.

The analysis of historical town which gradually becomes orphan of its inhabitants for an instantaneous and notreversible episode and the comparison with the planning and the architecture of the town built in a new place represents the milestone of important considerations about times and modes of rebuilding which often does not reflect the objectives fixed. If the new towns are really far from the architecture of old settlements, also the communities are not resilient and even the new relocated town loses its inhabitants risking to be gradually abandoned. Many of new foundations often fail because they lose the identity elements where community had always recognized itself, it creates a new reality.

ID 006 *Via Popilia in Calabria. Potential of a tourist-cultural itinerary*

- Caterina GATTUSO** Via Popilia was one of the most important road infrastructures built by the Romans on the Italian territory. It connected the cities of Capua in Campania and Rhegium on the shores of Messina Strait, with a route of about 550 km largely away from the coast.
- Domenico GATTUSO** After some historical references relating to the primary network linking Rome and the peripheral regions and the old road construction techniques, the attention is focused on the southern part of the Via Popilia, within the territory of the Calabria region, to represent its potential from a tourist-cultural point of view.
- University of Calabria*
Italy
- The results of a research aimed at highlighting the most significant emergencies of the old road, in particular the elements of greater historical-monumental value, are presented, following the logic of an ideal tourist path largely still to be exploited. Some specific insights are proposed relating to some of these emergencies; the historical research concerns also architectural and engineering aspects.
- The paper intends to offer a cultural background in relation to a valuable ancient heritage, rich in singular components of great interest, and to draw attention to a touristic latent potential in the perspective of a Way (route to be practiced walking or by bicycle), or a sequence of places to visit in stages, with direct positive impacts on the economy of the crossed territory.



ID 007 *Minarets. Signs and models of Islamic architecture*

Lamia HADDA
University of Florence, Italy

The term minaret derives from the Arabic word manara and indicated signal towers before designating all the various types, particularly those that were located near mosques and were used to call the faithful to prayer (ma'dhana). Towers appear to have been an optional feature of early mosques. Later, the main purpose of the tower as a sign of the presence of a concrete mosque from the Umayyad period to the present day has been entirely replaced by a more generic meaning as a universal symbol of the presence of Islam. Its typology is closely associated with local building traditions. The shape, height, decoration depends on the region, era and dynasty. The study aims to highlight the various architectural plans through the most used planimetric schemes, describing the techniques used for their construction.



ID 008 *Research notes on safeguarding architectural heritage: a proposed mode of operation for defining territorial buffer zones*

Piero BARLOZZINI

Rossella NOCERA

*University of Molise
Italy*

What the gaze can embrace in an anthropized space is a sinuous carpet, dark and rough and with well-defined surfaces. The alternation of these elements marks the territory, it animates it with perspectives and life, and intensifies it in the balance of shadows and light, transforming it into a landscape. This case study's field of research is therefore the landscape and the aim is to identify a way of scientifically defining territorial buffer zones for Man's activity in order to avoid incongruences that sometimes arise when applying the present legislation. The research was based on the territory of Molise. An area with little tourism characterised by the presence of Samnite remains, was chosen as the study area, in part to indulge the wish to make the region's more remote places known. The quantity of work fed by alternative logic made it possible to correlate the resulting data and create a possible operational method.

The conclusions showed that the establishment a priori of parameters for buffer zones is not the right approach to obtaining the best results in that each site where history has left its mark is unique and visual capacity, orography and volume of vegetation play an important role. On the contrary, working in coordination with these entities produces an acceptable outcome both for the conservation of cultural resources and for improving what can be offered to tourists, without blocking them in a static context that represents neither the past nor the present and, above all, denies the future.



ID 009 *The oldest ecological Law and the “Ecological Transition” in Athens*

Maria Carolina CAMPONE

*Nunziatella Military School
Italy*

In 430 B.C.E. a decree (IG I3 257) in Athens forbade certain serious forms of pollution. Some significant peculiarities make this document, the first known in the field of territorial protection, an unicum. The resolution taken by the boulé was aware of the kind of environmental degradation in question; it was equally aware of the causal connection between environmental degradation and certain routine economic activities; it acknowledged that practices more respectful of the environment were consequently called for; it believed that activities that were disrespectful of the environment could no longer be left to individual discretion; it is issued during the severe plague epidemic that broke out during the Peloponnesian War.

The decree clearly treats degradation of the environment as an illegal activity, and it, already known to epigraphic scholars, has been studied for its topographical implications.

Today instead it must also be analyzed in relation to the current ecological problem and the current health emergencies, also to highlight the aspects of an unprecedented ecological transition and in order to deduce some constants of the human reaction to certain events.

During a serious health crisis, the text introduces a concatenation –unprecedented for the times- between pollution and damage to health, all the more significant as it clashed with the economic interests of a particular sector (the leather tanners industry).



ID 010 *From design d'Argot ideas for the ecological transition*

Saverio CARILLO

*University of Campania
'Luigi Vanvitelli', Italy*

Only in October 2020 in Italy was the National Government ratified the Council of Europe Framework Convention on the value of cultural heritage for the Society [Faro, 2005] which, in paragraph c of Article 7, is it undertakes “to develop knowledge of cultural heritage as a resource to facilitate peaceful coexistence, promoting mutual trust and understanding, with a view to resolving and preventing conflicts”. Many objects of Italian tradition and cultural customs tell of the conspicuous value of conviviality, especially when connected to some intangible assets recognized as heritage of humanity, such as, for example, the Mediterranean diet and the art of the Neapolitan pizza maker. The annual community rite of tomato grinding, during the last week of August, was for the inhabitants of condominium houses, a perspicuous opportunity to strengthen relational ties and, at the same time, they worked on a product that, at zero kilometer, guaranteed quality for the foods with a particular identity character. Some of the objects used for the realization of the food product are Design d'Argot objects of undoubted value that should be known and preserved, also in view of the creation of places of memory strongly characterized by the community dimension and the associated management of the shared spaces of the architecture. The proposed contribution intends to report on some of them.



ID 011 *The School Complex of Pomigliano d'Arco: a sustainable project for the community*

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Metropolitan City of Naples
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The School Complex of Pomigliano deals with the sustainable urban development and the suburbs regeneration representing a balanced system between wildlife and contemporary life, through a project that aims to a new and, at the same time, traditional way of life, with a wide park integrating the landscape, and the use of areas and paths for leisure providing services for people. The project shows close connection with the landscape (territorial geography and nature) and rural areas (plantation and historical tracks): it is part of a geographic natural landscape of great value (Vesuvio and Monte Somma) but at the same time highly marked by a vague, amorphous urban development. The architectural complex is made of seven buildings linked together by a wide common area representing a contemporary "forum", an auditorium and two facilities for covered sports activities that, in connection with the broad territorial context, generates integrated meeting and activity places for people. The criteria for the design aim at achieving environmental comfort and individual health: they consist of the containment of energy consumption in buildings, through energy conservation, passive solar heating, passive cooling and natural lighting. The "wide covering" that defines the "forum" space consists of a large flat surface made of a network of ribbed beams placed above the auditorium that, with a mesh of pilotis, connects the buildings and the decks of the whole architectural plant.



ID 012 *Architecture and territory. The former convent of the Maddalena in Castel di Sangro*

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The former convent of the Maddalena expresses, for its history, a strong link with the place where it arose, representing a territorial architectural asset. Built on the outskirts of the town of Castel di Sangro as a hospice intended to collect pilgrims who “crossed the Via dell’Abruzzo in both directions”, it still maintains a position detached from the center of the town, beyond the river Sangro, testifying a part of the history of the territory.

The ancient structure was then occupied in the fifteenth century by a community of Minori Osservanti, who used to live in makeshift shelters outside the urban agglomerations. Only when Pope Gregory IX ordered the transfer of the homes of the beggars within the inhabited areas, thanks to public and private charity, buildings to be restored were granted to the Friars Minor.

The first convents of the Order of the Minorite Order, including the former convent of La Maddalena, began to rise, which became not only a centre of religious activity, but also a place of social activity. The contribution aims to investigate, through the tools of representation, the territorial principle that underlies this type of religious architecture as an added value to project the life of the former convent of the Maddalena in a sustainable future.

ID 013 *Between the design of structures and the design of objects in Italy after WWII*

Matteo OCONE

*Tor Vergata University of Rome
Italy*

The aim of the contribution is the relationship between the Italian School of Structural Engineering and the world of industrial design in Italy in the second half of the 20th century, starting from the results of SIXXI research. Silvano Zorzi returned to Italy after taking refuge in Switzerland during WWII. He met engineers such as Gustavo Colonnetti and Aldo Favini, but above all some of the future protagonists of the world of industrial design such as Angelo Mangiarotti and Vico Magistretti. Analysing the links between two apparently distant worlds, it emerged how the period in Switzerland proved to be a successful moment for the birth of Made in Italy. Thanks to this tragic period engineers and architects were able to learn and share an approach to design developed during the years of post-war reconstruction and strongly linked to the production and use of new materials. The impetus provided by the restrictions imposed on Fascist Autarky had led to extensive experimentation with materials, which could now be continued, detached from political ideology. Using the documentation stored in Italian archives, it was possible to reconstruct the contacts and network of relations which, although not always explicit, can be identified in a common process that pays attention to construction materials, manufacturing companies, the economic world and the meaning of design in the social context.



ID 014 *Ecosystem Transition of the City. An impossible option*

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Architects Mexico City

According to the UN-Habitat 2020 Population Data Booklet, the world population living in the existing 1934 large metropolises is 2.6 billion people: one-third of the world's population. By the year 2050 will be 66% of the world population living in cities. Urban agglomerations today occupy 7.6% of land mass of the planet.

Data that obliges us to continue with an in-depth and critical review of the advent of contemporary cities whose growth pattern is unsustainable: the current development of cities occurs in a dynamic independent of geographical contiguity, ignoring codes coming from land, water, atmosphere and from the vegetal ecosystems.

Aspect that is potentiated by the advancement of the communications technology that creates a strong impact on the urban transformations that seems dispense the "obstacle" space according to the apparent needs of "liquid society".

The Nature and City have lost their binding force of deep symbolic synthesis due to the explosion of the "symbolic" force of the metropolises that is transformed into predatory, anonymous, uncontrollable forces, with obvious disastrous sequences for the balance of the world.

ID 015 *Analysis of an ancient fresco, expression of meditation and of the transition between action and contemplation*

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Fabio LANFRANCHI

Sapienza University Rome Italy

The safeguarding and enhancement of cultural heritage is the fundamental theme of this paper and the subject matter of our academic research. In recent years we have turned our attention to exploring the art history of central Italy, turning a critical eye to some little-known works of art. The aim is to ensure they are provided with suitable and updated documentation attesting their existence and state of conservation, in order to contribute to the enhancement and promotion of Italian cultural heritage, and through this stimulate tourism.

This study examines a painting in a rock-cut church situated near Isernia and makes use of information gathered in the archives present in Molise and directly by us during several study visits to the site. The sets of photographs, which complete the survey of the structure housing the painting, were taken between spring 2015 and autumn 2021. This time span made it possible to undertake an examination of the painting's state of preservation in addition to making an in-depth analysis of its figurative programme.

The collected material has been digitized, so that it constitutes a source of information as well as being the product of the final iconographic narration, expressed through the photographic images and a series of drawings documenting the characteristics, including the hidden structure with which the artist organised the representation taken from the Gospels, which being the fruit of meditation and the transition between action and contemplation is of significant theological value.

ID 016 *Kaleidoscopic ecologies.
New scenarios, from ecological utopia to probiotic
architecture*

Stefania GRUOSSO

Andrea DI CINZIO

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Nowadays Pandemic, Climate Change, Demographic Growth and Ecology are global interest issues that need, on one hand, immediate action and, on the other, long-medium-term policies, strategies and projects that anticipate a gradual and continuous change - as for the Ecological Transition, which is a multiple challenge that must be faced on several levels, such as technological, political, economic and cultural ones, and that needs to respond to both global and specific emergencies. As a matter of facts, it's more necessary to define methods that are constantly updated and adaptive projects, instead of objectives.

The paper intends to propose a series of experiments and projects that, between past and present, have committed themselves to giving innovative visions to the Ecological Transition in its different declinations, such as: Richard Weller's Ecological Utopias, Philippe Rham's Sensory Microclimatic Habitat and Neri Oxman's Probiotic Architecture. The different experiences highlight an essential need to respond to the Ecological Transition through interdisciplinary skills. So, while the role of the Archistars is fading away, another figure is establishing: the "Ecological Maker", a hybrid professional capable of including issues related to ecology in his sector and who can propose a new design culture, that innovates and safeguards our Planet.



ID 017 *The drawing of the natural landscape in the housing. Jacques-François Blondel's 18th century recommendations*

Pedro António JANEIRO

Dulce LOUÇÃO

Gisele MELO DE CARVALHO

University of Lisbon, Portugal

Understanding Ecology as a science that focuses on the relationship between beings and their environment, when we transport it to the concept of human landscape, some relationships between architectural design and nature assume great relevance. Architectural treatises since the Illuminismo have been reaffirming how fundamental is the relationship between the built object and the outside, both from the point of view of comfort, as well as its reading and aesthetic experience - nature actively participating in these experiences of inhabiting led by the gaze.

It is difficult to imagine projects that ignore the symbiosis with the environment or the atmosphere that surrounds them, and this is perceived from the Roman domus, with their internal courtyards, to the present day, with gardens, walks and external areas, where sustainability increasingly governs housing proposals.

Living today in this suspended world implies asking what is the role of the house in the individual's relationship with the community, and with himself, with the role of architectural and urban voids becoming increasingly current, in a desired balance with the gaze and feel it.

ID 018 *Digitalisation and ecological transition through digital twins. An added value for society*

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Chieti – Pescara, Italy*

Digitalisation and ecological transition are two great areas that in recent years are transforming the way of life of our society.

The questions are different: how can digitalisation foster the ecological transition? How can the current heritage constitute an added value for the challenges of the future?

The study of digital twins determines a conscious situation of the reality we live in, encouraging methods of intervention.

The contribution focuses on the analysis of digital twins, differentiating them into five levels with a progressive development of automations and artificial intelligence, up to make the model independent from a decision-making point of view, that is, able to evaluate and decide independently on the basis of the data collection.

The digital twin, therefore, has the task of entering into the essence of the territory and the buildings, analyzing how man relates to it, with the aim of presenting itself as an added value to planning and sustainable management.

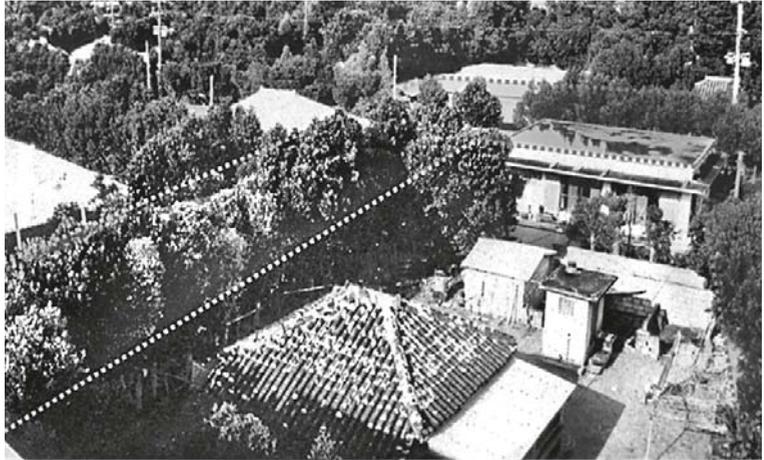
The goal is to clarify the overview of digital twins at present and to determine how they can become a tool to improve the quality of life of our societies, generating social and economic value.

ID 019 *Fengshui theories for a harmonious and sustainable environment*

Adriana ESPOSITO

Pegaso University, Italy

In the international scenario, China has taken a leading role in the challenge of ecological transition. In this regard, the concept of 'ecological civilisation' (shengtai wenming), based on the harmonious relationship between man and nature has gained particular relevance in Chinese political discourse. As a result of China's unstoppable economic and social development in recent decades and of the several critical environmental problems, sustainable development has become the ultimate goal pursued by contemporary architects and designers. The lack of natural resources and the deterioration of environmental conditions have led to a focus on the environment, and thus to a rediscovery of the doctrines of fengshui. The present paper aims to analyze these theories from a philosophical, environmental and ecological perspective and to examine their application in the modern area, as a means of safeguarding the harmony of the relationship between man and nature through the creation of a more eco-sustainable architectural environment.



ID 020 *An Effectiveness of Spreading Fire Mitigation by the Traditional Knowledge Using Group of Trees in Japanese Historic Districts*

Takeyuki OKUBO

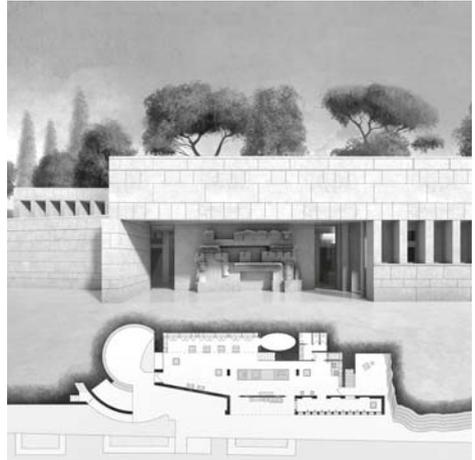
Downon KIM

Ritsumeikan University Kyoto Japan

Riku SUNADA

*Nippon Telegraph and Telephone
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In the historic districts of Japan, trees are not only preserved as important elements of cultural value and ecological transition. The purpose of this paper is to evaluate the mitigation effect against spreading fire in high density historic area by the group of trees using a mathematical fire simulation model. In case of Tonaki-jima historic district of Okinawa, Fukugi as one of the domestic trees in southern region has been used for making a forest fence to protect inside from frequent typhoons. In the same time, it is also said to be a protection barrier against spreading fire coming from neighbor houses. In case of Kanaya-machi historic district of Toyama, most of traditional Machiya townhouses have their private middle courtyards with garden trees in each narrow and long site occupied in side by side order. These courtyards' trees said to be a shared barrier against spreading fire within density traditional blocks. Mathematical simulation model was developed to evaluate the effectiveness of traditional trees as a fire barrier, and proved the importance of conservation of trees for fire safety until now. For the extraction of the challenge on the site for trees conservation, the research carried out the interview to the stakeholder of the management and future preservation. As the result of fire simulation, it reveals the group of trees can reduce the numbers of burnt buildings and delay the speed of fire spread.



ID 021 *“Sub specie æternitatis”*: the role of the ruin and the ancient in the process of architectural renewal between metamorphosis and resurgence

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Composing new works of architecture inspired by vestiges from antiquity or archaeology. The reflections and the case study which will be proposed, pertaining to a recent design experiment for the archaeological area and Antiquarium of Tyndaris, are dedicated to this theme.

Over and above any charm exerted by such places, by landscapes in which the ruins appear identical in substance and which sometimes manifest themselves as “sub specie æternitatis”, there are reasons linked to the very profession of architect and to the gashes in the crucible of controversies around the role of history in its contentious relationship with architectural design.

That apart, the aporias revealed by Michel Foucault, in questioning what he proposed as a global history project, laid emphasis on discontinuity, fractures, and thresholds; in short, transformations that counted as the basis and renewal of the very foundations themselves. Within this conception of history, or rather a methodology for history that “leans towards archaeology as an intrinsic description of the monument”, architectural works and projects appear protagonists of a dramatic action centred on the opposition between the permanence of a ‘structure’ and the thrill of change. and thereby bring a new classical tradition to life”.



ID 022 *The rural architecture enhancement through the sustainability search in the ecological transition era*

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The objective of ecological transition makes it possible to look at the recovery of rural architecture from a new perspective that focuses on processes of economic growth to preserve the environment. This allows us to look at this heritage as a resource, in the sense of built economic capital.

The paradigm shift seeks sustainability with even stronger tones that emphasise the need for action. The PNR promotes the development and valorisation of rural areas by adding new meanings and new opportunities to challenge the depopulation of agricultural territories. As a resource, the rural built heritage favours the preservation of the landscape and cultural and building traditions, but it is also a model for formulating a correct methodological approach to support sustainable recovery policies. In addition, today's living looks to the environmental context to meet an ever-increasing need for sustainability. It is true that the bioclimatic character belongs naturally to the rural building tradition, but today the design approach to renovation should be integrated with the possibility of producing energy from renewable sources.

Therefore, rural architecture is particularly suitable to be inhabited according to a more than active energy balance ("Plus Zero Energy Building").

ID 023 *Towards a Sustainability of Cultural Heritage*

Anna Marie FISKER

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Daniele SEPE

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In the EU project, UPCREATE, we focus on Cultural Heritage. In the conventional optic, Cultural Heritage includes archaeological sites, historic buildings and artefacts, importantly we find it also includes the meanings, values, and contemporary social behaviour associated with these tangible forms of heritage.

In UPCREATE, we consider place attachment, sense of place, and associated forms of intangible heritage as major societal factors that must be integrated into consideration of the sustainable transitions. It is our thesis that with point of departure in Cultural Heritage we can promote creativity, innovation and productivity. Understanding ecological transition as a concept that aims on new social and economic models in order to respond to ecological challenges, our aim is to rethink the way cultural institutions can renegotiate their identity by interacting with their audience through new innovative approaches. It is our belief that UPCREATE will strengthen the vital commitment between young people and their environment with new, innovative participatory approaches letting them engage with, develop and innovate the creative and cultural sectors.

ID 024 *Innovative strategies to preserve the Italian engineering heritage: the historical tunnels*

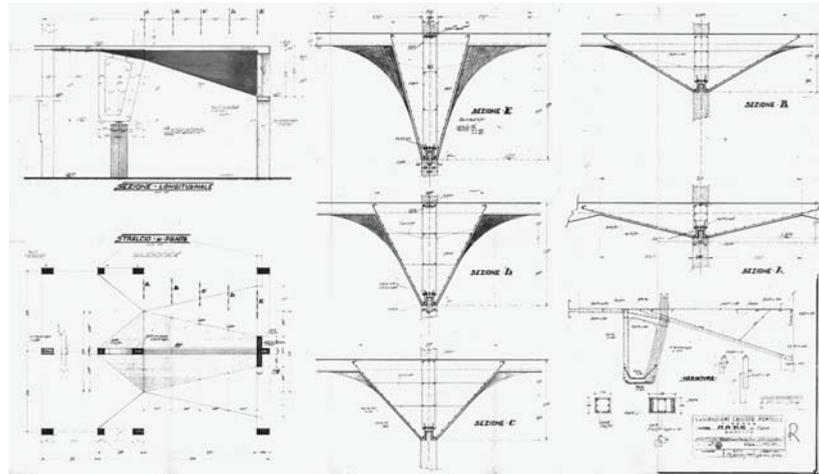
Bernardino CHIAIA

Giulia MARASCO

Salvatore AIELLO

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Italy, a nerve center for Western culture, holds the largest number of artistic and cultural assets declared World Heritage by UNESCO. From the Romans to the present day, an ever-growing infrastructure system, rich in tunnels, bridges and viaducts, has been the expression of a high engineering expertise. For the management of the aforementioned complex infrastructure heritage, the development of automated control and maintenance plans is one of the issues on which the engineering and research community focuses its resources and efforts. In this study, an approach is proposed to automate the process of classifying defects in tunnels using deep learning techniques to protect and maintain the concrete tunnel lining. The acquisition of images from non-destructive monitoring techniques, such as Ground Penetrating Radar, within a supervised learning process allows the creation of an effective tool for the automatic detection of severe defects such as cracks, anomalies, and voids. The obtained results provided for a high degree of accuracy in identifying the tunnels' structural condition. The use of the developed strategy, based on machine learning and non-invasive inspection techniques, is cost-effective for infrastructure managers. Such a procedure reduces both the number of invasive interventions on the tunnel lining and the time and cost associated with employing specialized technicians.



ID 025 *The structures of the Provincial Directorate Post Office in Florence (G. Michelucci 1963-'67)*

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Cecilia CIACCI

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To accommodate the new functions of the Provincial Directorate Post and Telegraph Office, Michelucci designed the Post Office building in Florence at the end of the 1950s. The building was born almost simultaneously with the new academic experience within the Faculty of Engineering in Bologna. This experience is fundamental to understand the building. Indeed, he shared a technical environment with new cultural perspectives, however capable of understanding his ethical commitment to architecture and the centrality of construction in the project. In Bologna he also developed his passion for reinforced concrete and structures in general.

The Post Office building is characterised by the typical elements of Michelucci's work both in relation to the social character of architecture and in the composition of space. In this, the structure, almost completely in reinforced concrete, takes on a fundamental role with a strong search for craftsmanship and detail. As always in Michelucci's work, this is manifested as "authentic" and strongly sculptural.

The paper analyses the structure in its static complexity and in the constructive detail to highlight the relationship with the architectural language. This will show the situations in which form and structure find a perfect consistency and those the "lexicon of the structure" shows some issue.

This will be done by retracing the history of the building with the support of the extensive archival documentation collected by the research group.

ID 026 *Architecture as a in fieri work. Ecological transition to ensure the resilience of a community*

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Focusing only on the 'technological' aspects of every transformation of living places, for the purpose of energy saving, is a 'punishment' for our discipline and it becomes only a rhetoric solution. On the other hand, actions that see the paradigm of 'sustainability' as an exceptional opportunity for cultural and quality enrichment of architecture, and its ecological transition, allow to consider the existing heritage as starting point for a sustainable development over time and toward the future. The project made by Lacaton & Vassal architects in Bordeaux – the renovation of three blocks of a 1960s slab housing estate with the addition of an outer skin of winter gardens – is the occasion to develop the contents of this abstract.

This work is selected because it is an expression of their social and ecological convictions and it is a reflection of the economic, social and cultural values of our time. Furthermore, it led to see a project as a process, as something dynamic and transformative – in which every phase is important as any other –. This conceptual attitude is a characteristic, deeply peculiar, in the above mentioned Lacaton & Vassal's work and within the panorama of disciplines which work on ecological design. Therefore, looking at the analyzed case, time becomes the fundamental element of design definition, taking away from Space its condition of unique protagonist.



ID 027 *The Seven Maples as Spatial and Social Places in Veles*

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There are seven maple trees in the city landscape of Veles. They are the focal points of urban texture. At the level of local neighborhoods, they are local centers. At the city level, they create a network of public places of reference through which the city is read and represented. They are the product of the traditional spatial social patterns through which the city was generated. Small public places with referent spatial and programmatic elements at the neighborhood level: the dominant tree, water fountain, bakery, and other common programs and around them, aggregations of private houses. Today they are witnessing a possible symbiosis of natural and created values.

They are facts of a traditional city but little is known about their origins as well as their vital contemporary function. The subject of this research is the sequences of urban texture in the relation of individual maple trees and their

surroundings. The purpose of this research is, first, documenting those unique places of the city as a dialogue of trees and architecture, second, exploring their natural, spatial and social attributes and their possibilities in contemporary contexts, and third, defining a method of reading and preserving the sensitive places of traditional contexts in contemporary cities. Becoming aware of a specific heritage provides paradigms for a possible relation between nature and architecture as an essential dialogue in our modern cities.

ID 028 *Ventilation systems of the early twentieth-century school environments in Turin: a possible ecological transition*

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Cristina BOIDO

Gianluca D'AGOSTINO

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In the last year safety regulations to reduce the spread of COVID-19 have been introduced worldwide, involving public and indoor spaces such as the school environments.

Their implementation had to deal with pre-existing structures, especially in the case of historical buildings. In this regard the case of Turin (Italy) is of particular interest thanks to its significant presence of schools built in the first half of the twentieth century. At that time new rules were already introduced to improve the sanitary conditions of public buildings. Construction systems and design methods addressed similar needs to the current ones, such as the ventilation of indoor spaces, developing new ventilation systems.

Then, after the Second World War, such systems were dismissed but remained within the buildings. Both the knowledge achieved through archival and iconographic sources and the materiality and formal elements of these schools lead to consider the opportunity of reusing the pre-existent systems. If properly adapted and improved, they could outline interventions that respect the historical characteristics of the building and, through the renewal of the pre-existence, highlight the role of historic buildings in the ecological transition process.

ID 029 *The ecological transition role in the Sustainable Development of Historic Urban Ports. The case of the old urban Port of Lattakia in Syria*

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Most of the historic Port City has undergone urban development and changes in use, often damaging and interrupting the historic urban path of the Port City, losing the relationship with the original morphology of the Port City, and the authenticity and integrity of the maritime and terrestrial urban heritage. In recent years, with the development of society, the awareness of environmental protection for people has been increasing. While port promote the economic development and employment levels of port cities, they also have a negative impact on the environment of Port City. In this paper we present the situation of the old urban port of Lattakia in Syria that has developed, not respecting its historical lines and those of its City, reflecting three trends: the first one is the major changes and ongoing challenges that the old port of Lattakia faces today in relation to the City; the second concerns the valorize and historical-critical analysis of the urban fabric of the Port-City to identify the values present in the place to be recovered; the last one is the ecological transition role in the sustainable development of Lattakia Port, to recover the relationship with the historical fabric of the port city in a way that respects the environment and in favor of the society that uses it, safeguarding the original identity of the heritage port city, offering more social spaces of relationship and less transport traffic.



ID 030 *The Brazilian Pantanal Region as Eco-Music-System*

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LISZT Weimar, Germany*

During field research in 2017 in the Brazilian Pantanal region about the trough lute viola de cocho (intangible cultural heritage of Brazil since 2004), I noticed strong interconnections between the ecosystem and the music cultural system of the region: Flora and fauna provide the construction material to the musical instruments viola de cocho, ganzá and mocho, while the songs of the cururu and siriri repertory deal with the diversity of the flora and fauna of the Pantanal, the largest interior wetland area of this planet. Parts of the species-rich biotope were declared UNESCO world heritage site in 2000. Still, the region is endangered: With the help of fire clearance farmers intend to enlarge their agricultural area; in 2020 fires destroyed around one quarter of the Pantanal region.

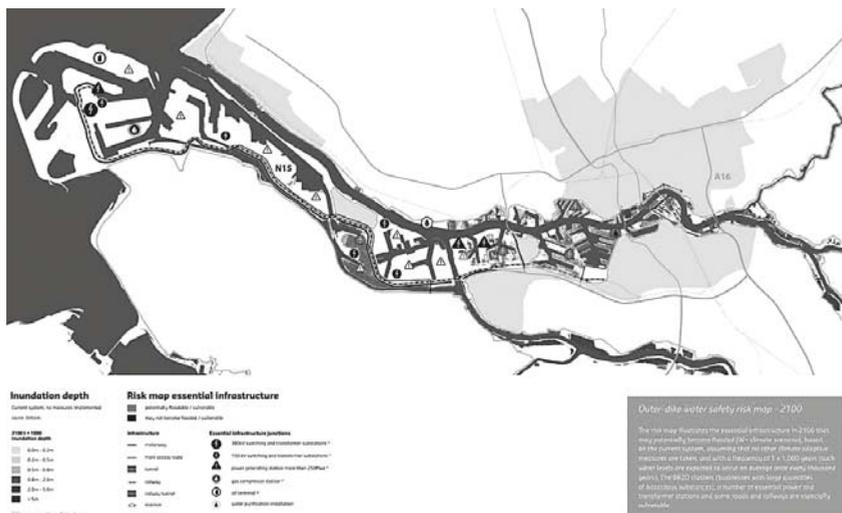
Jeff Todd Titon hypothesizes that music systems act like ecosystems and transfers the principle of “connectedness” to them, i.e., “that interventions in one part of the musical ecosystem will have outcomes in other parts of it.” Based on my observations, I consider the Pantanal region to be an eco-music-system whereby interventions in the ecosystem will have outcomes on the music system and reverse. This hypothesis leads me inevitably to the questions how the devastating fires were perceived by musicians, instrument makers and cultural bodies and what effects the vast destruction of nature had on the regional music culture. Partly guided interviews in the beginning of 2022 shall give first insights.

ID 031 *Renato Avolio De Martino architect of the SME*

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Renato Avolio De Martino (1909-2006) was one of the most talented architects in the Second Post-War Neapolitan period. Having graduated in Naples shortly before the war, he began his brilliant professional career during the years of the Reconstruction, when his most important works were commissioned by SME (Società Meridionale di Elettricità), the company that in the aftermath of the “great crisis” had been responsible for the construction and distribution of electricity networks in mainland Mezzogiorno also thanks to the support of IRI (Istituto per la Ricostruzione Italiana). In the post-war period, the company continued its important work also with the intervention of the Cassa del Mezzogiorno, constructing new electricity plants, including the Vigliena power station, designed by Avolio De Martino (1952-54). In addition to this work, in the same years the architect designed for SME: the building in Via Bracco (1954-56), the mountain village employees in Roccaraso (1954-56), the Suditalia building (1957-59). Shortly afterwards Avolio De Martino was commissioned, with Mario De Renzi and Renato Contigiani, to design the RAI headquarters in Naples, built between 1958 and 1963 in via Marconi, in Fuorigrotta district. The project was commissioned by Marcello Rodinò, in 1954 general manager of SME, who became RAI’s managing director from 1956 to 1965.



ID 032

Urban regeneration, climate adaptation, and territorial governance. Experimentation and innovation of the plan for an integrated strategy between urban planning and ecology

Laura RICCI

Carmen MARIANO

*Sapienza University of Rome
Italy*

The profound changes arising from metropolization processes, the distinctive mark of the new urban question, require significant modifications as pertains to the meaning of the problems connected to urban planning, the environment, and the landscape; they highlight the inadequacy of certain conceptualizations and raise – today more than ever, in the current situation of global health emergency – the urgency of activating policies, strategies, and instruments providing integrated responses to the demands of the environmental regeneration, social revitalization, and cultural and economic valorization of the city. This is done by prioritizing the protection of health and the well-being of the settled communities, in order to restore prospects of fairness, urban-planning/ecological quality, and efficiency to the governance of cities and of contemporary territories. This scenario, which raises the need for an intersectoral and inter-institutional convergence among all the policies that impact urban regeneration and territorial governance, finds correspondence in the most recent Community policies and programming, and also constitutes a cross-cutting objective of the National Recovery and Resilience Plan – NRRP (Piano Nazionale di Ripresa e Resilienza, PNNR) (Mission 5 Inclusion and cohesion (Urban regeneration and social housing), and of the PNR (National research programme) 2021/2027.



ID 033 *Raw earth & additive manufacturing: two case studies*

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Giosmary TINA

Angelo Vito GRAZIANO

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Italy*

Modern construction is expensive, slow and produces today 35% of solid waste on earth, whereas resources are being reduced and population grows. Due to its advantages and potential, additive manufacturing for architecture is becoming to be largely investigated. It enables the extrusion of completely sustainable mixtures like raw earth.

The research starts with the widespread study of raw earth 3d printed structures, observing that, due to the technological limitations of the common horizontal layers' deposition, the recent examples of large-scale prototypes are characterized by 3d printed walls and, if present, traditional horizontal roofs. In this phase, the authors discuss Najaat village project, a residential complex designed for Sheikh Hilal area (in Syria).

Aim of this study is trying to overcome this limitation, proposing an innovative approach to 3d print roofs without the use of temporary supports during the construction and after.

The research finds inspiration into masonry constructive system and techniques for vaults, in particular the Nubian vault. In consequence, Nubian vault principles are applied to design residential prototypes for Malandra Vecchia, an area in Abruzzo (Italy) already characterized by the presence of manifold raw earth traditional constructions.

The study concludes with reflections about further research needed in AM, specifically in Covid and post-Covid era.



ID 034 *Restoration of the Østerå river system as an ecosystem service for the ecological transition of Aalborg*

Alessandra BADAMI

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Denmark is a frontrunner in the fight against climate change and demonstrates that it is possible to develop a sustainable society and at the same time ensure economic growth and well-being. The most comprehensive document in Europe on sustainability was drawn up in Aalborg in 1994; the city pursues the commitments of sustainable growth through energy conversion, nature conservation and urban regeneration. Against land consumption and to combat pollution, Aalborg has focused on the reactivation of interrupted cycles and the re-naturalization of urban areas. One of the most significant projects is the restoration of the Østerå, the river that ran through the city.

The entire course of the river will be brought to the surface, reclaimed and equipped as a new ecological corridor. The project is divided into three interconnected parks: Gabriel, Åparken and Karolinelund. Each park enhances the multiple benefits of the river as an ecosystem service in various ways: environmental redevelopment, climate adaptation and urban regeneration. The natural environment is restored through an innovative approach to enhance the wilderness in the city. The opening of the river contributes to the mitigation of flood risk by acting as a scalable rainwater management system.

ID 035 *Ecological Redevelopment
A territorial r(e)generation of the interior region of
Portugal*

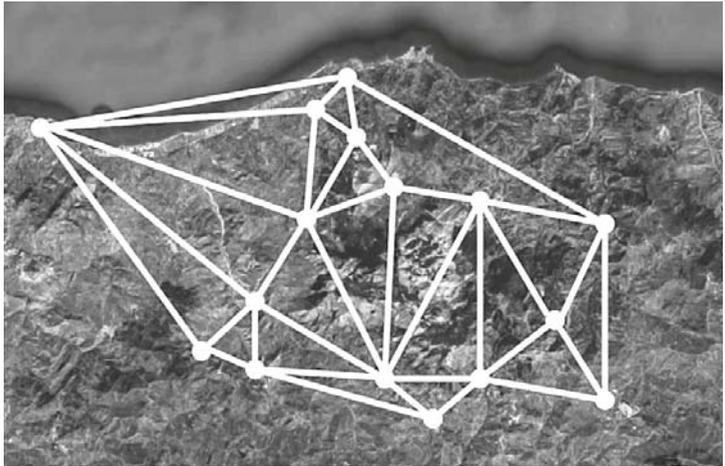
Andreia GARCIA

University of Lisboa, Portugal

More than half of the world's population now lives in urban areas, and by 2050 that number will have grown to 6.5 billion people, two-thirds of humanity. With the onset of globalization, rural areas have become peripheral to cities, and we now see that, with a rapidly ageing population, the passing down of ancestral knowledge is threatened. Seven of Portugal's ten million inhabitants live in that 30-km wide coastal strip. The remaining three million are scattered across a territory of about 250km by 750km. Cities and villages in the 'interior' lost in average an astounding 10% of population each ten years, over the last decades. If this progression were to continue, Portugal's interior would have virtually no population left by 2100.

The dominant imaginary that arises from air pollution, climate change or the COVID-19 pandemic, imagines, and conceives a world in which nature must be protected from human action. However, the human condition cannot be separated from nature because it is an intrinsic part of the same socio-ecological metabolism. We need imaginaries that instigate all generations to think about a more livable planet.

As such, and as an example of a concrete program in the concrete scenery of the interior, this article will consider Art(e)facts, that introduces the theme Supernatural Togetherness to propose alliances between humans, generations, species, and knowledge to save the future, proposing territorial developments and climate change adaptation.



ID 036 *Material and immaterial culture of the internal minor centres: studies and researches for the ecological transition of the Madonie inner mountain area in Sicily*

Tiziana CAMPISI

Simona COLAJANNI

Manfredi SAELI

University of Palermo, Italy

Presently, the European Union strategies aim at strengthening the rural areas that are characterized by a deep depopulation, people aging, and a weak employment market. In these “marginalized” areas, the urban regeneration process may be assisted by the creation of smart villages, that will cooperate and create innovative small towns. The Sicilian inner mountain area, in particular, consists of sixteen villages - mostly dating back to the middle age - that present an attractive localization due to naturalistic, landscape and cultural qualities, also qualified by a well-preserved geographical area that did not alter, during time, the main building typological features. These villages reveal some considerable problems such as abandon and information technology backwardness. This paper presents the results of a research finalized to an implementation of a sustainable technological design, aimed at creating a network of smart villages able to enhance the urban centres and their cultural, anthropic, and natural heritage, also bringing them back to a contemporary well-being and smart life conditions. The aim is transmitting to the future generations the material and immaterial values that must be protected and reconsidered as regenerating sources for this territory.

ID 037 *Ecomuseums and ecological transition: the good practices of the Ecomuseo della Judicaria in Trentino*

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Carmela BRESCIANI

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Environmental, socio-economic and cultural changes require a rethinking of the landscape and its use, triggering forms of active resilience in the communities, as processes of adaptation, resistance and sharing to build new visions of the territory.

These forms of resilience have always been promoted by ecomuseums, committed to enhancing the landscape and cultural heritage through tools focused on the ability to reinterpret the narratives and the experience of places, on participation and listening to the requests of the community of reference.

The action of ecomuseums allows to form communities and accompany them in the ecological transition required today to overcome the polycrisis in progress, both in marginal contexts subject to abandonment or degradation through a strengthening of the sense of belonging to the place, and in areas of recognized environmental and cultural value by promoting sustainable based development actions.

In this regard, the experience of the Ecomuseo della Judicaria in Trentino is emblematic, within a territory included in the World Heritage List and recognized as a MaB reserve by UNESCO.

ID 038 *Lisbon: an example of world heritage and ecological transition*

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Lisbon is typically a world heritage and ecological transition capital. Its geographical position is unique on the world stage. It is bordered on its periphery by a significant green area: the Monsanto forest, the Serra de Sintra and the Serra da Arrábida. It is also flanked by the Tagus River, with a huge estuary, containing one of the richest ecosystems in the world. In addition, it is next to the Atlantic Ocean. Its geostrategic location is crucial to the European context, as it is the most western capital of Europe.

The city, with its urban organization and accentuated topography, is characterized not only by its originality, but also by its climate maintenance, transforming it into a cosmopolitan microclimate, due to the direct relationship that exists between the natural surroundings and the architectural building.

This work intends to reveal, through texts and photographs, the places that qualify Lisbon as one of the great cities in the world, where the world heritage and the ecological transition share, side by side, their constitutions.

ID 039 *For ecological transition: analysis and projects in 'sciclitano' landscape (RG)*

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Francesca CASTAGNETO
Rita Maria VALENTI
University of Catania, Italy

The United Nations, with Agenda 2030, proposes the theme of sustainable development in the economic, social and environmental dimensions. The objectives concern urgent ecological measures to combat climate change. In Italy, in 2021, the Ministry of the Environment was transformed into the Ministry of Ecological Transition; this topic very clearly reveals the strategic objectives that politics wants to assume: to address obvious critical issues in the current human-context relations. The most significant aspect lies in the term transition; it is related to the process of technological innovation to bring about a change in our society taking into account compliance with the criteria for environmental sustainability. These are the methodological bases for research that, starting from the ecological approach, addresses the theme of urban recovery and regeneration of historical parts of the city. The case study deals with abandoned historical buildings and partly ruins in a cultural and significant context for the Sicilian Baroque, such as Scicli. Ruins of ancient convents, churches and civil buildings. Winston Churchill's statement that "first we give shape to buildings, then they give shape to us" takes on an added value in the case of buildings that in local communities have lost all function and only partially retain a "shape" having over time taken on the consistency of ruins.

ID 040 *The Enhancement of Cultural Heritage to Preserve “Biodiversity” in Lifestyles*

Valeria MINUCCIANI

Nilufer SAGLAR ONAY

Politecnico di Torino, Italy

Today's ways of living is excessively impactful on the ecosystem and our living environments are no more extensions of nature. The enhancement of cultural heritage, both tangible and intangible, preserves a sort of “biodiversity” in lifestyles. A process of turning back to “vernacular” style can be the key element in healing this accelerated process of environmental changes in broad sense, also contributing to people's well-being and happiness. This paper aims to underline the role of cultural heritage on the well-being of human population and of our environment itself, and discuss how these cultural values can be supported and enriched by space and architecture through the concrete example of eating and drinking rituals that change from culture to culture. If space as the tangible counterpart of culture can be woven in harmony with the intangible cultural heritage, the cultural experience can be more complete and support both individual and society well-being which are inevitably linked to each other. The existence of socially appreciated cultural rituals creates a platform to come together and share common values. This can be regarded as a booster of well-being for all levels of the society. Today designers and architects tend to create architectural solutions without a proper examination of ways of living. It must be recognized that the difference between cultures and lifestyles is not as significant as before but they are also influenced by advancements in technology and science, which tend to globalize local tendencies. In this sense the mission of design and architecture is to understand this adaptation process so that cultural values of societies can find their correspondences in new living environments in relation to nature.



ID 041 *Food Design: Art and Food Culture*

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Fosca TORTORELLI

*University of Campania
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One of the consequences of the pandemic concerns a new general awareness in environmental problems and different ways of relating with food arose. Agriculture has been affected in production and in supply system, so changes have been imposed on our habits. Undoubtedly, the way of living places and objects have changed; the consumption of food as a colloquial and social act has been disrupted by confinement.

The places of catering have been modified to protect health and the house has become the stage of a new way of living. All these factors lead us to review what has been assumed by the world of design in the field of food design. Food certainly remains the closest link with nature, and new ideas are partly linked to the experience of eating and partly to the whole sensory food adventure. The food experience tells the design of the experience for preparation and consumption: how people interact with food, what food is able to communicate. We try to elaborate design ideas, adapted to underline in their image the visible aspect of the changes, giving methodological tools to elaborate appropriate food design. It should be intended to provide adequate capabilities into the fields of creative design, executive detail drawing, both into the built environment in which food arises and into the eating experience itself.



ID 042 *Lens on Landscape. Atlas of the coastal villages of Lake Bolsena (Central Italy)*

Antonella SALUCCI

Francesca LIBERATORE

*University 'Gabriele D'Annunzio'
Pescara, Italy*

This contribution summarizes the results of a broader survey focused on the architectural and environmental complex of Lake Bolsena and its some coastal villages. This piece of Italian territory recognizes a unique heritage of its kind, which has been inhabited since the Etruscan era and saw its most flourishing period during the Renaissance. Recognized in its genius loci by poets and writers, it is an exemplary testimony of a shared, conscious and respectful living. Today the richness of these places is manifest of transitions and cultural, legible in the landscape and in the architectural emergencies and in the ways of living that distinguish the eight villages and the entire basin of the lake. The objective of the study is to map and communicate the evolutions, phases and transitions that characterize these places through the survey of the architectural, environmental and ephemeral qualities. Representation is the privileged means of this narration. In this context, Photography - in its double role of expressive language and documentary medium - through Structure from Motion processes and UAV acquisition methodologies - has allowed an interpretative and documentary reading of landscape and architecture.

ID 043 *Urban Gardens as Drivers of the Ecological Transition in Italy*

Massimiliano CERCIELLO

Maria Carmela GAROFALO

Sabina MARTUSCIELLO

*University of Campania
'Luigi Vanvitelli', Italy*

In the 21st century, intensive urbanisation and climate change have presented urban planners with unprecedented societal challenges. Issues like green deprivation and spirals of gentrification across urban areas have gradually become focal points to address within municipal environmental strategies. As a result, urban green strategies proposed creative solutions, including the introduction of urban gardens, i.e. tracks of land devoted to agricultural production within densely populated neighbourhoods. Communities lacking large lots of land have been resorting to vertical urban gardens. These novel elements in the urban architectural landscape may contribute to a more sustainable ecology, while matching the sustainable development strategy devised by the European Commission. The ecological transition targets established at the EU levels indeed refer to: 1) energy transition (energy efficiency, with a focus on renewable energies), 2) industrial transition (local production and recycling, in a circular economy perspective) and 3) agri-food transition (replacement of an industrial agriculture by an organic production). The aim of this work is to assess the role of urban gardens as drivers of the ecological transition in Italy, through the agri-food channel.



ID 044 *The Pantalica VR - AR digital model*

Giuseppe DI GREGORIO

Francesca CONDORELLI

University of Catania, Italy

This paper shows the current results of a part of 3DLab Sicily project (PO FESR Sicilia 2014-2020). We focus on the methods for 3D reconstruction of Cultural Heritage in virtual environments. The objects of study are three ruperstrian oratories and a cave dwelling in Pantalica. The necropolis of Pantalica (listed as a site UNESCO) is located, between the municipalities of Sortino and Ferla, on a promontory crossed by a canyon formed by Anapo e Calcinara rivers.

Because of the conformation and the extension of the territory, a first overall survey was carried out by photos taken by a drone. Some of the paths near to the rock churches were filmed by 360 cameras. The interior of the three oratories (Grotta del Crocifisso, San Nicolicchio e San Micidiario) and the cave dwelling (near San Micidiario) was surveyed by a laser scanner. The aim of the study is the fusion of surveying methods in order to create an immersive 3D environment with a different scale of detail: lower outside and in the paths and higher inside the environments.

The virtual 3D space will be explore by smartphones, VR and AR viewers and inside the CAVE.

ID 045 *Rural architecture between the two seas of Calabria. Knowledge, conservation and perspectives of re-fruitation*

Brunella CANONACO

Francesca BILOTTA

Federica CASTIGLIONE

University of Calabria, Italy

The essay aims to propose the knowledge of the rural and agricultural landscape of central and northern Calabria, with particular attention to those traditional activities that have been practiced in the area over the centuries and how these have conditioned the construction of villages and architecture between the Tyrrhenian coast, the Ionian coast, and to act as a hinge, the Apennine chain, in a Mediterranean environment but often hostile and impervious.

The strip of territory chosen to dominate draws a relevant landscape with an alternation of barren and impervious mountains, and coasts that tell of a significant past. The area is dotted with singular settlements in their architectural, typological and constructive characteristics.

Today these lands are marginal compared to the entire national system, limited from the point of view of production and economy, and the villages built close to the agricultural areas are partly affected by depopulation despite the presence of strong identity characters.

We want to focus on the new possibilities (building, productive, tourist, cultural) of these settlements by proposing scenarios for the preservation of present values, actions for the development of agricultural activities and visions of interconnection of the centers. In order to create new perspectives to preserve the past, foster the present and project it towards renewed ways of associated living that can rebalance the forms of living, accessibility, services, production methods.

ID 046 *Towards a social and environmental sustainability for communities in transition: a regeneration model for urban green spaces*

Serena VIOLA

Anna Rita VILLANO

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Within the framework of the 2030 Agenda, the contribution is in line with Goal 11 on making cities and human settlements inclusive, safe, durable and sustainable. In order to pursue this goal, the contribution looks at the processes of recovering interstitial green spaces in contemporary cities as a strategic mapping to be reactivated in order to re-establish the lost relationships between the built heritage and the signs of cultural identity of communities in the territory. In the circular meaning of adaptive reuse, whereby interstitial green spaces are readapted with creative functions of educational basis, it is possible to aim at a twofold sustainability: the first of environmental form having converted urban waste into a community resource; the second of social form having induced actions of care through a participatory transformation of the built environment. Through the methodological application of the UNI 11151-1:2005 to the mapping of green spaces, it is possible to construct a twin transition systemic matrix for which the comparison of the spatial and technological characteristics, the compliance with constraints and the satisfaction of user needs returns a system of actions. The case study verifies these actions of care and recovery for the system of green spaces of the Rione Sanità in Naples provided by the project Play_Act, returning a regeneration model, transferable to contexts where to develop sustainable and participatory design solutions.

ID 047 *Is Transition Design an alternative way to create sustainable futures? Starting from the differences between recycling and overcycling*

Massimiliano AGOVINO

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Maria Carmela GAROFALO

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Over the past few decades, the academic literature has proposed a vast set of theoretical and applied contributions on the transformations that socio-technical systems need to undergo in order to achieve sustainability. More recently, a new area of study has been emerging, i.e. Transition Design for sustainability, which integrates the current knowledge on sustainable transformations with design theory, education and practice. Transition Design has the potential to address the sustainability agenda more effectively than previous approaches, due to the integration of the ecological dimension into its perspective. Transition Design harnesses ideas and discoveries from a variety of fields, such as physics, biology, mathematics, philosophy, sociology, and organizational development, to catalyze sociotechnological change. The ecological perspective provides the insights necessary to conjugate design within complex systems, as a foundation for Transition Design. Based on the above, this paper takes stock of the concepts of recycling and overcycling in order to favor a new design framework based on the concept of zero waste and reuse of materials.



ID 048 *The Grand Tour UNESCO in the Piedmont region. A slow travel route across “in between” territories, to improve the accessibility of places in cultural landscapes*

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Alessandro SCANDIFFIO

Politecnico di Milano, Italy

In the time of the ecological transition, special attention should be focused on the fruition and accessibility of the landscape and cultural heritage for sustainable touristic purposes, which require new approaches and new strategies for inner and marginal places and their often forgotten landscapes. This paper introduces the initiative of the Grand Tour UNESCO in the Piedmont region, inserted in a broader project of connecting the Italian UNESCO sites by slow routes (in collaboration with the Italian National Commission for UNESCO), that aims at enhancing slow connections through the landscape focusing in particular to the territories “in-between” the UNESCO sites, as a sustainable travel mode to access also the less travelled tracks in the inner places. This paper shows how the Grand Tour has been defined on the basis of a complex territorial strategy, which relies on the rediscovery of remote and minor places, which are the most extraordinary and somehow less exploited, widespread, components in the Italian landscapes. The Grand Tour in Piedmont is a 660 km long itinerary, completely drawn within the existing road/ bike network of white roads. It enables more efficient slow connections among the sites of the World Heritage List (WHL), Man and Biosphere (MAB), Geopark and Creative cities localized in the Piedmont Region. The strategy also considers accessibility and mobility issues, by promoting intermodal connections with railway stations, through which many centers and also villages are reachable, with benefit not only for tourists but also to inhabitants and with specific reference to the UN goals of Sustainable Development (SDG 3, 9 and 11).

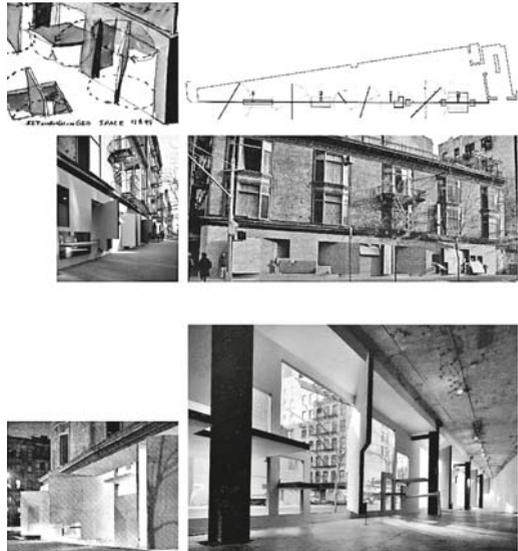


ID 049 *Experiencing places of worship*

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'Luigi Vanvitelli', Italy*

In three conferences held between '19 and '24 (textures, contrasts, colors), the Danish architect Carl Petersen highlighted the connection between the building's features and people inside it, but white and pure materials dominated the period. Almost thirty years later, in *Experiencing Architecture* (1957), Steen Eiler Rasmussen describes several spaces where light, color, shape, and superficial effects directly influence our perception; in this case, the architecture looks hollow and massive. This situation is quite evident in some projects of museums or, even more, in churches. Places of worship represent one of the main typologies during the Twentieth century, first in the sculptural spaces of Le Corbusier, Luigi Moretti, and Jørn Utzon, then in the volumes of Steven Holl or Peter Zumthor. The wall and the roof play a fundamental role in isolating the internal environment from the context, and today, due to different conditions, public space must become part of these projects. From all these references, several ideas and considerations can be drawn, which find their synthesis in a proposal designed for the monumental cemetery of Caltagirone in Sicily, where the public space and the place of meditation become an indivisible unit.



ID 050 *The interactive condition of the wall, between world heritage and ecological transition: The Storefront Gallery in New York by Steven Holl and Vito Acconci*

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The Storefront for Art and Architecture Gallery, specialised in the work of young artists and architects in Manhattan, New York, hosted a project by Steven Holl in cooperation with Vito Acconci. In it, we are shown the value of the “participative interface wall” in architecture, in the civitas/urban life and existence, where place, living and creativity convene in an intrinsic and interactive spatial and ecological relationship between culture and nature, and among humans, their *modus operandi* and the environment. Insofar as it is a wall, threshold, bench, table, lamp and exhibition window/façade, it is an architectural element with an interactive condition. It is at the same time both static and dynamic, formal and spatial, limiting and non-limiting, interstitial and borderline, full and empty, generating floating spatial areas (in their interior/interior and interior/exterior relations), multiple reflexes of light and images, and different experiential dynamics that imprint formal, functional and environmental aesthetic and ethical possibilities on the location. Designed to be the protagonist, the “participative interface façade” of the gallery, according to Holl, is an “inside-out-façade” and a hybrid of the fixed and articulated wall. Insofar as it is hinged, it promotes interstitial spatialities that are interactive and adjustable and come alive in the experience/use/occupancy/action, in the communication/exhibition and in the interrelation among form-space-time, proposing an architectural place that is dynamic, contingent and creative, with imprecise limits and in permanent transition between the part and the whole, culture and nature, tradition/heritage and the future, autonomous and interactive.

ID 051 *The transformation of the contemporary city.
Exercises of retrofit and improvement of architectural
and urban heritage*

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The city and the building stock of the XX century require a reinterpretation and new design visions capable of interpreting the needs of contemporaneity.

Among the various approaches for the transformation of the existing cities there is the attention to the redevelopment of the urban building stock and the social housing, through architectural retrofitting actions and the redesign of public spaces. Interdisciplinary models include projects from the urban landscape scale to the building scale, also looking at environmental issues. Retrofitting and its practical methodologies analyze and develop technological and energy aspects. The design decisions take into consideration the transformation of building, its context and the entire urban area.

The regeneration of the existing building and urban area, through 'microsurgery' operations to replace 'demolition and replacement' practices of large portions of buildings, emphasize an operating mode that is respectful of the social and urban identity of the consolidated city, even more sustainable.

These very topical themes represent an opportunity for reading, analyzing and reinterpreting existing buildings and the cities.

ID 052 *Maintenance of Cultural Heritage and contrasting the phenomenon of overtourism. The state-owned area of the archaeological ruins of Pompeii and the “Miglio d’Oro” axis*

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In contemporary cities, sustainable development of the built environment aims to rehabilitate the existing cultural heritage, building a co-evolutionary perspective between past and present.

Identifying cultural heritage as an engine of sustainable development, the paper recognizes maintenance as an effective and efficient strategy for managing existing resources and redistributing tourism burdens.

The document concerns the framework of actions for the development and enhancement of the Buffer Zone of the UNESCO Site N. 829 “Archaeological Areas of Pompeii, Herculaneum, Torre Annunziata”. Acting on the Historic Urban Landscape (HUL), the methodological approach is based on a multidimensional analysis of cultural heritage infrastructures (city of the past), the needs of the city in a sub-systemic key. The construction of a correspondence matrix between temporary communities (city of the present) and the requirements necessary for their performance realignment (city of the future).

The case study concerns the state-owned area of the archaeological ruins of Pompeii and the “Miglio d’Oro” axis (Golden Mile) from “Royal Palace to Royal Palace”, identified within the Strategic Development Plan of the areas included in the UNESCO Site Management Plan, characterized by the system of Vesuvian villas.

The results provide a maintenance strategy, flexible and replicable, for the usability of sites that can also become places of visit, driven by the great attractiveness of the archaeological ruins.

ID 053 *Living in future cities: from overbuilding to ecological transition*

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In contemporary cities the levels of livability and urban quality are less and less optimal. There are various causes: climate and demographic changes, reduction of natural resources, health risks, excessive consumption of land, increased pollution, impoverishment of populations, lack of employment, transformation of urban space, etc. Evolving cities, increasingly vulnerable, characterized by insecurity, uncertainty and unpredictability, the result of mistakes made in the past. In this context, in planning future scenarios it is necessary to re-examine the governance, the strategies of urban expansion and transformation through new approaches capable of declining innovative concepts such as participation, transparency, creativity and resilience. Thanks to the application of new organizational and management models, with at the base of the indicators, it is possible to build more livable and sustainable cities capable of coping with the changes taking place. Several international and national environmental sustainability programs aim at the “green revolution” so that, through investments and reforms, the ecological and digital transition of cities is favored, as indicated in the 2030 Agenda or in the Assisi 2020 Manifesto for an economy on a human scale against the climate crisis. In this study, through a multidisciplinary approach, we will analyze the gap between some cities in the north and south of the Country, with particular reference to the Sicily region.

ID 054 *Stone facades and curtain walls*

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Inspired by the quality and aesthetics of the marble stone as well as the residual marble stone and challenged by the current paradigm of sustainability and circular economy, we created several architectural applications, projects and prototypes such as modular grids for curtain walls that take advantage of the local bioclimatic conditions, as well as its application on urban equipment and the use of waste marble as visible element of the building envelope. Then we studied the ecological benchmarks and the economical impact of the use of waste marble in the mentioned applications. Among the examples, the kiosk of Vila Viçosa stands out - built from laminated marble plates alternately overlapped in full/empty composition - destined for the tourist info point and also functioning as an urban lantern at night time. Another form of hybrid architectural application is the combination of green-grid stone facades and structural masonry with residual marble cyclopic blocks, as in the case of the building project for the Vinery of Vidigueira.

ID 055 *Digital manufacturing systems and smart materials for a sustainable anastylosis process*

Valentina SANTORO

Lucia DEL CORE

Polytechnic of Bari, Italy

One of the most discussed themes in the archaeological restoration field is concerned with the necessity to use efficient methodologies of intervention for the conservation of ancient monument of relevant historical interest, able to ensure a total reversibility of the intervention, preserving the characteristics and materials of the original structure.

The university research with expertise in ancient architecture and stone, since 2010 leads a multidisciplinary research on anastylosis.

The collaboration with different specialized Apulian companies has allowed to improve the relationship between the digital systems in use (3D laser scanner, CAD/CAM and CNC-AM) and to validate innovative materials in Archaeological Restoration. The attention is focused on the use of metallic non-ferrous materials, such as Shape Memory Alloys (SMA). They are defined as “smart” materials, exhibiting unique properties in respect of traditional metallic alloys. The associated reconstruction technique uses biocompatible fastening systems with low invasiveness and positive repercussions on monuments and the environment.

The contribution - through the case study of the restoration of the Roman temple of Agrigento - aims to trace the main stages that led to the validation of this methodology aimed at making the anastylosis of ancient monuments sustainable, also through the construction of new relationships between the research and the production system (Smart Factory).



ID 056 *Bóvedas tabicadas: the migration path of an innovative technique*

Saverio STURM

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This research aims to offer a summary overview of the thin-tile vaults history, considering their recent applications in low environmental impact projects. Despite their ancient origins, not fully resolved yet but for sure referable to the interaction of Mediterranean cultures and architectural traditions, the thin-tile vaults are efficient structures, suitable for the most innovative uses, thanks to the versatility that has always distinguished them, making them the subject of periodicals rediscoveries in the modern and contemporary age. Their documented history begins in 14th century Spain, with systematic use in the Valencian and Catalan areas, where these structures were named as “bóvedas tabicadas”, as a distinctive feature of the local architectural tradition. In the following centuries, also thanks to the eighteenth-century treatises, such as the famous manual of Count Félix-François d’Espie (1754), the use of thin-tile vaults follows routes dictated by cultural and mercantile contaminations that intertwine between the Southern Europe coasts, with documented applications in Southern France and Italy. A prominent chapter in the history of bóvedas tabicadas is the extraordinary export and technological innovation operation carried out by the Valencian Rafael Guastavino (1842-1908) in the United States, starting from 1881. Still little explored is the wide use of this fast, economical, and fire-proof technique in the construction sites of Rome and his neighbours regionalist architecture, since the XIX century and the end of the second world war. The research aims to highlight the potential of the tile vaults technique, promoting its reintegration into the European building market, by virtue of the qualities of sustainability and feasibility.

ID 057 *The visual identity of wine landscapes through the Piedmont wine manifestos*

Sara ERICHE

Francesca SALVETTI

Michela SCAGLIONE

University of Genoa, Italy

As a form of intuitive and immediate communication, the manifesto is characterised in its informative guise towards the end of the eighteenth century, still stimulated by industrialisation and the literacy of the population from the second half of the nineteenth century; quickly, it became a new dynamic element of European cities. Through unique design and graphic languages, it reflects and represents the avant-garde both at the commercial level and at the political and cultural level of the moment.

The manifesto, as a mode of communicative and identity expression, has always had to deal with the problematic recognition and insertion in the artistic area by critics; criticism that specifically proposed a clear distinction between artistic manifestos, considered a minor art, because they are linked to an industrial client, and commercial ones that with serial reproductions for practical purposes were not worthy of critical analysis. In this sense, the paper wants to disseminate the outcome of the research project among the dAD Department of the Polytechnic School in Genova and the Club for UNESCO of Canelli (AT) aim to catalogue and disseminate the first “professional oenological advertisements” at the Italian level.

The project, financed with the funds of the Piedmont Region’s Call for the Promotion of Book and Archival Heritage, Publishing and Cultural Institutes, provides for a first general census of advertising posters of wine cellars produced between the 20s and early 60s of the last century through the filing and digitisation of these works.

ID 058 *The wild garden inside: the universal everlasting dream of capturing nature and bringing it into our lives*

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In the Enlightenment period, the *natura naturans* concept was a value in the lifestyle of aristocracy. Jean-Jacques Rousseau, after his theory on the good savage, has written an epistolary novel *Julie ou la Nouvelle Héloïse* where there is the description of an enclosed wild garden, the *Elysée*, where the main character, Julie, does not allow any gardener to enter the precinct and touch the natural evolution of the vegetation and animal species.

Since modern movement, the same desire presides either to the design of parks and green areas in the cities that may counterbalance the defects of life in over-industrialised countries.

Even nowadays, everyone seems to aspire to that same nostalgic return to nature, under a paradisiac scope of view, even in a time when the planet is in utter danger, due to climate change phenomena or other impending menaces. There is the utopian search for the last redoubts of “untouched” nature in certain geographical regions in the choice of touristic destinations. The *Elysée* only exists in our minds and hearts, for we have lost its key.

ID 059 *Solar Metamorphosis Architectural Design*

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Solar Metamorphosis Architectural Design is an innovative building solution that crosses mutable forms of artistic expression with forms of technological content. This concept results from the combination of Philosophy + Art + Technology, creating new morphologies for small and medium Skyscrapers, and can also be applied to existing buildings retrofit. Through kinetic principles and solar energy, it creates a building envelope with infinite metamorphosis. The technology consists of a mechanical computerized motion system and of modular grid-panels envelope that through movement produces more efficient energy (active) and by its shading and natural ventilation system (passive) takes advantage of the existing climate. The modular grid-panels envelope can be used as a second facade for shading and natural ventilation that improves bi-climatic, aesthetic, formal and functional aspects. The modular grid-panels are designed with decorative patterns, inspired by traditional mushrabiyyas and fractal geometry. The panels contain photovoltaic cells, sun tracking sensors, which formally and functionally improve common photovoltaic solutions. The system has the capability to provide the building with the energy and redirect the unused energy to the local net. This integrated system goes beyond conventional static architecture, creating a smart and transformer building - aesthetically appealing, energetically self-sufficient and user-guided. By addressing the aesthetic and comfort criteria, the project proposes the technology, not as its final aim but as a vehicle for reaching better living conditions.

ID 060 *Metaverse: the architectural speech of digital representation*

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In 1997 Nirvana, a film by Gabriele Salvatore, imagines a world parallel to real life, completely digital, in which the characters of the film moved, alternating between virtual and real life.

The first real MUVE, multi-user virtual environment, was Second Life, created in 2003, by the American company Linden Lab. It consists of a digital platform, equipped with a virtual currency, with applications for entertainment, art, education, music, architecture etc., in which to lead a life parallel to the real one.

In 2020, Mark Zuckerberg wants Facebook to become a Metaverse company. On this platform, land is being sold to create virtual buildings, urban environments and meeting places between users are planned, digital representation will certainly play an important role in the Metaverse, given that the creators of the most powerful virtual reality engine, Unreal, has decided to invest one billion dollars in this platform and experiment with new technologies for the three-dimensional digital representation of living environments.

Therefore, all the space of the Metaverse must be designed.

Will architects and urban planners be ready to represent their virtual architectural creations in the Metaverse?

In this paper we want to investigate the state of the art of digital representation as a bridge between the virtual world of the Metaverse and the physical world of reality, analyzing solutions that interface the possible virtual architectural scenarios in the Metaverse to “test drive” unbuilt buildings.

ID 061 *Exploring representation tools for mapping historical landscapes evolution*

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Climate changes are impacting the landscape in many different ways. In the ecological transition era new locations, particularly localized in the so-called “in-between” landscapes, are emerging for outdoor recreation as new tourist destinations, because of their historical and cultural values, high quality of the open spaces, but also for their current evolution in terms of vegetation, land types or land uses (e.g. transformation of a vineyard or grassland into the wood). In this framework, new methods and digital techniques are required, in the field of visual representation, to recognize and map the ancient features of the landscape (historical maps), their spatial-temporal evolution, compared to the actual configuration. The European program named Copernicus for Earth observation is a great resource of geo-information for monitoring historical landscapes, which are the result of a strong interrelationship between natural components and man-made interventions, over the centuries. By matching different representation tools such as historical maps, cadasters and time-series of satellite imagery, landscape changes, which strongly influence the visual perception in a cultural heritage environment, can be detected. By the analysis of specific case studies, correlations between climate changes and historical landscapes will be investigated.

ID 062 *Safety begins with knowledge: a BIM approach for monitoring built heritage*

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Carla GIORDANO

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The seismic events of recent years and the need to cope with the analysis of the damage caused by them poses a problem of a social nature as well as a more technical one. The historical organization based on synthetic but reliable tools such as Aedes (Agibilità e danno in emergenza sismica - Suitability and damage in seismic emergency) and FAST (Fabbricati per l'Agibilità Sintetica post-Terremoto - Synthetic suitability for post-earthquake buildings) sheets might not be sufficient in the future. In fact, intervening with limited elements of assessment, when the earthquake has already produced its effects, makes rescue and safety operations complicated. Knowing a building in its complexity and the interventions that have been carried out over time allows to provide competent answers based on certain evaluation' elements. Therefore, this contribution aims to analyse the possible relationships that can be established between the damage detection, prompt intervention and suitability sheets for ordinary buildings in post-seismic emergency and the Building Information Modelling methodology.

ID 063 *Design additions for building a truly sustainable model in the eyewear industry*

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Francesca FILIPPI

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Jurji FILIERI

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The beginning of an organic reflection on sustainable development is conventionally traced back to the report Our Common Future, better known as the Brundtland Report, published in 1987, in which the concept of sustainability is defined as: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

Over thirty years have passed since this definition, but there is still some confusion about these concepts which, precisely because of their complexity, are sometimes manipulated or trivialized to the point of often generating inadequate design practices, which lead to the creation of partially “sustainable” products, in relation to some limited and circumstantial aspects of their life cycle.

This work focuses on assessing the environmental impact of an apparently simple product like the frame for ophthalmic lenses and solar filters and it tries to highlight, through significant case studies, which actions are today implemented in this sector in relation to the acquisition of raw materials, design, production processes and the use and disposal of products. The article also intends to highlight the importance of design in terms of the circularity of the system, as it can influence the entire life cycle of the product.

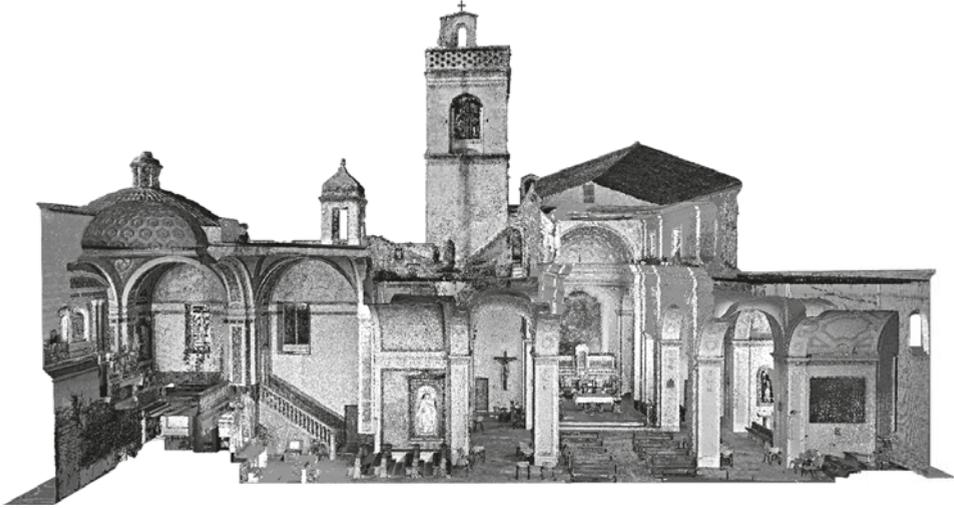
The article also aims to highlight the importance of design in terms of global system circularity, as it can affect the entire life cycle of the product.

ID 064 *Historical Transition of North Korean Commercial Art (1945-2019)*

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As discussed in this paper, the historical transition of North Korean commercial art/design, which is a barren area of research due to the limitations in collecting data on North Korea, was accurately recorded. As a result of examining representative commercial artworks by applying the seven-stage chronological classification presented in this author's previous study, the ways creative intentions have changed in the social environment and political background was identified. Through the investigation, verification, and analysis of the empirical literature data published in North Korea, the trademark, packaging, and advertisement designs of commercial art were divided by period to organize the characteristics of graphic designs. The results of this study are expected to be shared as primary data that enable utilizing new points of contact and various academic perspectives on North Korean commercial art.



ID 065 *Integrated 3D survey techniques for historical architecture. The Church of S.Maria Veterana in Triggiano (Italy)*

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As part of the preservation and enhancement of Cultural Heritage, the faithful reproduction of historical buildings and archaeological sites, is a complex task that makes use of constantly evolving technologies and processes, which are based on the 3D digital survey, as a support to the documentation query and storage.

Architectural survey techniques - based on active (LiDAR) and passive (digital cameras) sensors - and digital modeling, allow the object scanning and its fruition as point clouds and correlated 3D models, featured by a realistic perception and a high metric and morphological quality at the same time.

The aim of this research is to experiment with an integrated survey workflow using data acquired by terrestrial laser scanning (TLS) and aerial photogrammetry (UAV), recorded by means of Iterative Closest Point (ICP) algorithms, in order to achieve a complete hybrid point cloud that can provide reliable support to further parametric modeling processes in HBIM environment.

For the survey of the Santa Maria Veterana church - built in 1580 on the ruins of a pre-existing medieval church in the town of Triggiano near Bari (southern Italy) - multi-sensor registration has been implemented for different purposes. Range-based data have been used to reconstruct the internal and external environments, while image-based to detect the roofs and fill the gaps in the point cloud determined by the laser ground stations, visible on the external walls.

ID 066 *Preservation and enhancement of masonry arch bridges: restoration strategies*

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Domenico BRUNO

Renato S. OLIVITO

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In the last decades, masonry constructions have received great attention from many researchers both from a theoretical and a practical point of view. This owing to the complex behavior of the masonry material and the structural modeling problem of real constructions.

Furthermore, this type of construction represents the vast majority of historical and monumental constructions in the world, in terms of historical buildings, masonry arch bridges and monuments. The Romans were the first to realize arch bridge constructions, and since then, and up to the nineteenth century, many masonry arch bridges were built to aid the development of transport infrastructure in Europe, where many thousands of masonry arch bridges still remain. However, these constructions are deteriorating over time after being subjected to a prolonged exposure to unfavorable environmental conditions, and extreme natural events. It therefore becomes important to plan their strengthening in order to preserve these cultural heritages. To define reliable methods for the assessment and restoration of existing masonry structures it is important to develop advanced approaches other than those related to design codes, which require a deep understanding of the structural behavior of masonry constructions. Furthermore, the main objective of the restoration process should be to keep the intervention work to a minimum. On the basis and in the spirit of the above, the main frequent structural problems of historical masonry arch bridges are discussed; in addition, a review of the structural restoration is provided along with several application examples.

ID 067 *A new sustainable food delivery platform*

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In recent years, the food delivery business has expanded with great success and during the last months, pandemic have contributed to the growth of online food delivery.

Consequently, with this fast growth of the online food delivery commerce, it's important to analyze its environmental effects.

Infact, the downside is represented by the enormous volume of waste produced by this market, consisting of packaging mostly made with materials such as paper, cardboard, plastic, and aluminum; a problem which, in relation to the volume of orders and the limits of separate collection that is not always efficient, leads to a quantity of unmanaged waste.

This study aims to assess the impact of urban food delivery service packaging on the environment, taking the city of Palermo (Italy) as a place of investigation to promote the reasonable use of resources and confirm the ecological transition in the in the field of food delivery. The goal of this article is to create a service to be included in a new online food delivery platform that reduces the environmental impact and therefore differentiates it from other platforms on the market.

Therefore, with the strategic design and systemic design approach, we will try to sensitize the players in the food delivery chain to the use of a separate collection system that will improve the disposal of food delivery waste and will lead us towards a circular economy.

ID 068 *The Principle of Minimum Interventions and Case Study of the World Heritage in Serbia in the Context of Ecological Transition*

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In the field of modern protection of architectural heritage, there is a tendency towards freer and more extensive interventions on architectural monuments. It is, to some extent, a forced process in order to reach a compromise between the existing monumental heritage and the growing need for urban and rural development of society.

If it is not the case of the world cultural heritage and exceptional national cultural monuments, the repertoire of ideas, techniques and materials for the restoration and reconstruction of architectural heritage become wider and more creative.

This principle is especially important when observed in modern conditions when the need for conservation and sustainability is increasingly emphasized. During its historical development, the principle of minimal conservation was primarily related to preserving the authenticity of materials, construction and historical value of architectural heritage. In modern conditions, it changed, as our case study of WH located in Serbia on the historical city of Bac reveal.

Successful application of the principle of minimal intervention is achieved by taking into account all the values of architectural heritage, all other influential factors, including the final decision on whether a cultural monument will be in use or just presented.



ID 069 *Chan Chan Archaeological Park: looming threats and suggested remedies*

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Chan Chan, the largest city on the American continent built in adobe, was the capital of the Chimor Empire, developed on the north coast of Peru between the third and fifteenth centuries of our era. Included in the UNESCO WHL in 1986, was then the subject of an extensive management plan approved by the Peruvian Government in the year 2000 and known as Plan Maestro. The MIPE (Italian Mission in Peru) of the ISPC (Istituto di Scienze del Patrimonio Culturale), from the year 2002 has been working for the realization of the Plan Maestro in close collaboration with the Ministry of Culture. This is carried out through the documentation of architectural structures and urban settlement, the regularization of the boundaries of the core and the buffer zone and the enhancement of the archaeological complex through modern visualization technologies. The natural threats recorded in recent years (floods due to phenomenon of Niño, wind erosion, groundwater level and rising humidity) often also caused by an incorrect human behaviour, have even more harmful effects on a material such as that of raw earth. The poor management of the core zone, crossed by a driveway, and the lack of legislative regularization of buffer zones cause increased air pollution and devastation of the historical landscape. The MIPE has therefore activated a project for the evaluation of threats and the verification of vulnerabilities of the site even with support of traditional and ancient practices.

ID 070 *The experience of the limit*

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“The present humanity is in struggle with the cosmos-material for the purpose of domination [...]. In this way man ends up, according to Hegel’s logic, by becoming a slave to what he intended to dominate: matter and machine”.

But as A.L. Huxley: “Experience is not what happens to a man. It is what a man does with what happens to him”. In our relationship with nature we can say that we have reached the point that Karl Jasper defines as “limit situations” where the limit is understood both as the limit of our experience and as the limit that is within our experience, if we refer to the permanent pandemic crisis, which dominates us and which we cannot dispose of. In redefining and imagining the relationships with the element of nature, where the whole is more than the sum of the parts, creatives are called into question by Ursula von der Leyen in the definition of a New European Bauhaus to disseminate new interpretations and give concreteness to responsible development.

ID 071 *A possible sustainability in the conservation of the material heritage: examples in the port of Genoa*

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Is it possible to preserve historic buildings, pass on their memory, make their history understood and at the same time give them new functions? How much can the new demands of life and work be reconciled with the maintenance of historical structures? How much in carrying out conservation projects can one count on political will, on popular participation? How can we intervene to help a change of mentality: from transformation and destruction to conservation and respect? Is it possible to achieve sustainability in a heritage conservation project? These are some of the questions that have been focused on in recent years. For this purpose, it was decided to present a research project on an area rich in history and transformations: the area of the ancient port of Genoa. The project is part of a broader research plan already started some years ago in cooperation with the Universidad del Pais Vasco- Facultad de Letras, and CISAPSI-of Switzerland. In this essay we want in particular to address the issue of warehouses serving the port; medieval warehouses, transformed several times in different eras. Today, in many cases, they are faced with yet another change. In particular, the methodology applied for the Salt Warehouse in the Molo District will be illustrated. In this case a detailed historical analysis was carried out in various city archives. This first part of the research was accompanied by a complex archaeological high level analysis. Thanks to the latter analysis, it was possible to identify the first nucleus of the building and the subsequent modifications of the 17th-18th centuries. An urban research has reconstructed the district of the Molo, in the different eras.



ID 072 *On the Margins of the Anthropocene. Landscape, architecture and sustainability*

Simona CALVAGNA

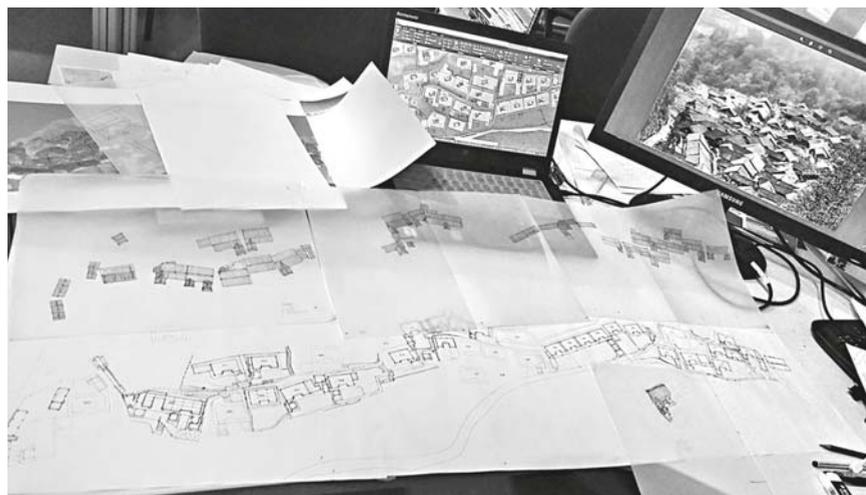
Fabio Agatino REALE

Andrea TORNABENE

University of Catania, Italy

In the age of Anthropocene, landscapes, which are expression of the human glance of the planet, all too often reflect the galloping of uncontrolled transformations that give rise to continuous anthropised spaces, polarised around increasingly populated urban areas. In these huge extents of continuous human settlements (cities, agricultural and industrial areas), the fragile natural balances are compromised, highlighting the importance of new marginal territories of no current interest to man. They are not only reservoirs of nature and forgotten heritages to be protected, but also, at the same time, opportunities for experimenting with new settlement methods inspired by the principles of ecological transition.

In the first phase, the research questions the spatialisation of the Anthropocene, trying to define, by subtraction, all those spaces that escape, to varying degrees, human control, proposing a classification inspired by Gilles Clément's concept of Tiers Paysage. Subsequently, exploring the condition of margin as an opportunity to recover a dialogue of profitable coexistence and symbiosis between architecture and nature, the contribution focuses on marginal, transitory and/or hybrid spaces in eastern Sicily, in which innovative inter-scalar and inter-disciplinary design strategies based on a landscape approach are able to combine nature, minor or forgotten heritage elements and new human activities, pursuing sustainability objectives referable to the UNSDGs of Agenda 2030.



ID 073 *Best drawing for best conservation of Dawan Chinese village*

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When I had the opportunity to deal with the survey of a Chinese village of Miao ethnicity - Dawan village is located in the Chinese province of Guizhou, the poorest Chinese province - in order to offer the support for a proposal for the improvement of the quality of the places, where a slow process of transformation was taking place. I immediately realized that in terms of the planning proposals of the interventions, it would have been necessary to deal with offering a different management model of the community, assuming a strategy that had aimed on the one hand at the conservation of the peculiar characteristics of this village, essentially a peasant village, with the notation of belonging to a Miao ethnic community, and that it would allow its development with the protection of the minority and the historical culture of the place. The landscape offers significant areas of interest and for this reason a transformation of a tourist type is developing from a mainly agricultural activity. Dawan village does not have mineral resources, is away from the main routes of the country and is characterized by an orography with high mountainousness and is nothing more than an agglomeration of just over a hundred houses all made entirely of wood and with roof tiles. We stayed in this place for less than a week and we dedicated ourselves to interpreting the places with metric surveying activities, photographic and film shooting as well as with sketches on paper and textual annotations.

ID 074 *The talking garden. Distant dialogue with San Lorenzo ad Septimum*

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Marco RUSSO

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The nineteenth-century garden of San Lorenzo ad Septimum in Aversa become the background for new didactic and promotional pavilions.

The starting module is sized on a grid of 3x3 m, and its duplication in several directions generates an incomplete wooden framework. These "captive objects" configure a relational community dedicated to meeting, studying, exchanging. Around the cubic composition, raised on a platform, an irregular route connects the eighteenth-century garden to the "comfort zone", activating original relations with the old building. It is the place of shared knowledge in the garden of slow and inspiring rest. It is the concentrated center of a cellular origin from whose perimeter the "rooms" of voluntary isolation radiate, freeing themselves from the rule of the quadrangular grid.

ID 075 *The role of the UNESCO Chair in the strategies for the enhancement of Cultural Heritage. An overview between Garda Lake and Mincio river*

Federico BUCCI

Elena FIORETTO

Nora LOMBARDINI

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The UNESCO Chair in Architectural Preservation and Planning in World Heritage Cities is caring about the problem of enhancing the architectural and archaeological heritage even in critical terms that show a renewed attention to the sustainability of the project, under the aegis of the 2030 Agenda.

“The future as eternal present” means a new awareness of the existing heritage, the only one capable of guaranteeing the correct transmission of Cultural Heritage to future generations.

This attitude can be summed up in the correct interpretation of the concept of authenticity. With reference to the 2000 Krakow Charter, “Authenticity means the sum of substantial, historically ascertained characteristics: from the original up to the current state, as an outcome of the various transformations that have occurred over time”.

The process of enhancement must consider every factor that interferes with the object, without setting limits of time and space, demonstrating the ability of a correct analysis of the object itself, with a specific focus on its economic, social, and environmental conditions, also with a view to optimizing resources and paying attention to the sustainability of the project.

Through the perception of the “legacy of the past as an economic value”, the paper intends to investigate, with an overview between Garda Lake and Mincio river, the work that the UNESCO Chair is carrying out as a support to the enhancement strategies of Cultural Heritage.

ID 076 *Per-Albin-Hansson Siedlung/Vienna, a post-war housing estate. The renovation of an unpopular heritage in times of ecological transition*

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Besides its characteristic 19th century core city, Vienna has a type of urban heritage that has only recently found its way into historic preservation debates. In the three decades after World War II, the municipality built large-scale public housing estates on the eastern and southern edges of the city. Designed according to modernist principles, these districts stand out completely from the compact 19th century city with its perimeter block layout. As a material testimony to the era of the so-called 'Economic Miracle', they now constitute cultural heritage in their own right. The Per-Albin-Hansson housing estate in the south of Vienna is considered as a prototype of 'social urbanism' propagated in Vienna after 1945; its oldest section (1947-51) is listed as cultural heritage. While the social-democratic city government is gradually renovating the housing estate, it is also striving to sensitise the general public to this unpopular heritage: The area is part of the International Building Exhibition Vienna 2022 entitled 'How will we live tomorrow?', which pays special attention to climate and energy-related aspects of renovation.

This paper analyses preservation and renovation of Vienna's post-war housing estates against the backdrop of ecological transition, using the Per-Albin-Hansson unit as an example. At the same time, it shows how post-war heritage should be integrated into collective memory using the argument of sustainable renovation.

ID 077 *The semantic of the drawing between digital evolution and archetypal codes*

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The issue about an aware and efficient digital approach moves through different considerations, and cannot be discussed with a homogeneous manner in the international level. On the one hand, the considerations concerning the role of the drawing in its main meaning, i.e., the primary form of communication and transmission of knowledge and human ideas, concern every culture and country, on the other hand, the total participation in a digital management in the so-called AEC industry (Architecture, Engineering and construction), particularly for the Heritage, should keep to into an full aware social context, as today both the 'level of maturity' than the reference regulatory system about the digital conversion is still variable in many different countries. The meaning of this expression (level of maturity) corresponds to the level of a full and clear awareness in the field of digital graphic and of the data management, that has main important above all for the training and scientific research, but also for professional activities where the need of a univocal code for information understanding is essential. In addition, the legal, social and cultural matters connected to the course of the professional activity of Architect and Engineer, are not always unitary and determine a clear separation between different countries. A total and unconditional recourse to digitization in the AEC field, more necessary in the aim of the greater knowledge and management capacity of cultural heritage, contemporary architecture and, generally, of the building stock, offers new starting points in the direction of the exchange of informations, not only from a technical and management way but also by an innovative semantic point of view.

ID 080 *New procedure for timber in heritage buildings - the case study of Castle Friedenstein, Gotha (Germany)*

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A 370-year-old castle Friedenstein, Gotha (Germany) is expected to get listed on tentative World Heritage list similar to several other Thuringian castles. Timber takes a huge part in its structure and therefore requires additional but also different kinds of attention according to the current trends. Within the framework of ecological transition, new procedures for the timber assessment are developed as reflection of new values given to the preservation of structure. Ecological transition added importance to preservation of as-much-as-possible-of the available material, not only for the sake of authenticity but, even more, for ecological reasons. Nowadays it is preferred to preserve timber if possible, instead of replacing it with concrete or steel. In the past two decades, the general assessment of existing timber constructions and the determination of material quality increasingly have become the focus of research and standardization at the international level. Unless the state of material is known, it cannot be used any further. The goal is to achieve more precise determination of the material properties using as little invasive methods as possible. In this case, the method was tested on timber for the floor of castle Friedenstein. We described the procedure which reveals dedication to ecological transition with particular attention to details of timber structure. Rule of minimum interventions refers inter alia to the amount of new material which is used, even when that material is identical with the existing. Built World Heritage is expected to serve as an example regarding values which must be cultivated in the future, and also in this specific context WH should carry the torch.

ID 081 *Conservation of built heritage, ecological and technological transition.
Some research experiences*

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Research in the field of restoration of built heritage (architectural and archaeological one) is currently facing the issues of digital and ecological transition, environmental sustainability and human development that increasingly involve and interest the field of conservation of cultural heritage. Considering the aspects related to the digital transition, the fundamental development guidelines in the field of research for the redevelopment of historic architectures and cities, involve technological innovation both for the improvement of knowledge of the historical architecture and for the expansion of use by of the Heritage Community (Faro Convention, 2008). In the first case we have to deal with an articulated field of action that aims to improve the tools and technologies to implement the levels of knowledge of the historical asset: just think of the opportunities for surveying and restoring the built using 3d laser scanners and drones, or innovations in the fields of diagnostics, home automation and HBIM. In the second case, we are involved with new technologies consisting of instruments and applications aimed at expanding the use of cultural heritage thanks to the implementation of digital humanities. The proposed paper aims to illustrate, through some interdisciplinary research experiences, conducted by the Federico University in collaboration with other universities and industrial partners, the potential and development prospects of the interaction between new technologies and own tools the conservation intervention of the built heritage, especially archaeological ones, which is able to bring human development back to the center of the processes of innovation and digitization, fundamental for the economic and social recovery of our country.

ID 082 *From “villa” landscape to industrial landscape. And now?*

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At a time when questions are being asked about how to safeguard the environment, the city, its history and its transformations are the focus of attention. While cities have undergone a whirlwind development over the last century, new scenarios are now opening up that confront us with two distinct realities: on the one hand, new housing models are being proposed in an attempt to reduce their impact on the environment; on the other hand, people are persisting in experimenting with grandiose, futuristic settlements that continue to disrupt territories that are still not very anthropised.

The first scenario is the one that characterises much of the western world (which experienced the uncontrolled developments of the 20th century); the second is the one that seems to be found in the middle-eastern (and eastern) world, which is now going through an unprecedented phase of urban development.

Models of cities built using sophisticated building technologies; urban layouts designed in absolute freedom: this is the scenario that seems to disregard attention to the environment and our planet. Projects for eco-sustainable buildings, but also attempts to give cities back spaces that have finally been freed from overbuilding, summarise the typical attitudes of a scenario that aims to respect the environment with the ultimate goal of safeguarding the future of our planet.

In this context there are excellent opportunities - often untapped - to recover the urban dimension that has characterised our cities for centuries and that has always been in harmony with the environment.

ID 083 *Cyclic wetting–drying ageing test: some experimental results from Salé city (Morocco)*

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EI Mahjoub CHAKIR

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Salé city, a territory rich in its building and cultural heritage, reflects the national identity and the history of the dynasties that ruled the Moroccan kingdom. However, severe deterioration and soiling of different materials due to air pollution are evident, in particular, at the surrounding wall of Salé city, and seriously endangers such cultural heritage. With reference to calcarenite stone frequently employed in constructions in the ramparts of Salé city, a series of experiments on grey and yellow stones with different porosity were undertaken in an attempt to better understand the wetting and drying weathering process. Samples were subjected to wet-dry cycles using different solutions. Our attempt was focused on the ageing test that helps to understand the relationship between imbibition, degradation and reduced mechanical performance of the stone samples. The obtained results showed an aggressive forms of salt crystallization which affected the weathered samples, and porosity as the physical property played a key role in the water imbibition capacity of the studied stones.

ID 085 *New urban communities and the strategic value of knowledge. How networks are changing the urban future by offering an emergency way out*

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The thematic articulation of the following research work is based on the awareness that a new urban cycle is now at the gates, and that the urban planning discipline is faced with a double challenge, which on the one hand requires mobilizing resources intellectuals available to analyze in depth the radical changes that are taking place, or that will mature in the near future also as a result of the very recent health emergency, on the other hand it requires to insert the relationship between public policies and the plan design in a finally coherent and long-term framework. We intend to provide a working hypothesis and a contribution of ideas. The study of problems, increasingly evident in the current government of cities, has now become such a delicate and important phenomenon, so much so that it defines the century that opens the third millennium, the century of cities. Complexity conditions the urban phenomenon, in which the architecture of cities and the human factor that consume their existence in them interact.

ID 087 *A Theoretical Contribution To Improve The Formation
In The Historical Lisbon School Of Architecture - The
Forgotten Dimension of the Technological Perspective*

António MORAIS

A. BASTO DIOGO

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This article approaches the problem of the absence of the technology in the didactics of the Architecture's Design, in the course of School of Architecture of Lisbon, as the subtitle of the article suggests - the forgotten dimension of the technological perspective. Despite of the course contemplates a relevant technological component, however, does not reflect, much less exponent the creative act of the Project. This is first of all a result of the organization, didactics and contents of the Project classes, and not so much, a lack of knowledge provided to the student in the technological disciplines, which are present in quantity in the curricular structure. The situation, analysed in this article, is a consequence of a blocking of the Project classes to the technology ones, which do not promote, nor allow, the necessary transdisciplinary articulation and integration between the act of designing and the application of technological knowledge, which is fundamental and intrinsic to the act of thinking and conceiving Architecture. The CAD / CAE / CAM digital tools have not only highlighted the fragility of this didactic process in the didactic context of the current teaching, but, in view of the potential of its operative process, impose the future reformulation of the Project's cognitive practice, integrating the component technology in the Design Methodology of the architect's teaching and praxis.

ID 088 *The amphitheatre of Dyrrachium*

Dominik LENGYEL

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Albania is located in the heart of the ancient world. Nevertheless, the perception of the common European legacy of antiquity does not have the same status in Albania as in most other Central European countries. A particularly prominent building of antiquity was the amphitheatre in Dyrrachium, now Dyrrachium. On the one hand, because there were only a very modest number of amphitheatres on the eastern coast of the Adriatic Sea compared to the western coast anyway, but on the other

hand, because Dyrrachium forms one of the two bridgeheads on the main trade route between the centre of the Western Roman Empire and the Eastern Roman Empire, between Rome and Byzantium.

Coming from Rome via the Via Appia, the amphitheatre, well and widely visible from the sea, formed the continuation of a range of hills on this legendary road in the Balkans and the beginning of the Via Egnatia. But this is not its decisive unique feature. For unlike practically all other amphitheatres of antiquity, the building did not use the topography symmetrically. It did make use of the slope in order to reduce the cost of the new structures to be created and to place the cavea on the slope. But unlike

usual, it was placed in the slope in such a way that neither construction nor development could be symmetrical. This is already conveyed by the few preserved finds. Funded by the private Gerda Henkel Foundation for Humanities, the project brings together the results of more than ten years of archaeological research.

ID 089 *Mosul Unesco heritage site.
Rebuilding the Al Nouri complex and cultural center*

Riccardo RENZI
University of Florence, Italy

This proposal focus on Contemporary architecture as answer for post-war urban and rural places and is inserted in Contemporary Architectural and Urban design relationship with tradition and identity of Places research carried out by the author. This objective is pursued working on architecture of museum typology, its variation over time, and with both theoretical and operative aspects.

Some of the Places that have been investigated by the research have as a common condition of postwar sites and some of them have been recognized and protected by UNESCO in the Near East including Aleppo, Baghdad, Bamyian, Kandahar and Mosul.

This proposal, prized with first honorary mention and exposed during Venice Biennale in 2021, presents the project for the reconstruction of the Al Nouri cultural and religious center in Mosul, promoted by an international competition started by Unesco in 2020. The process that drove the design team is the core of this essay. Research work have been carried out trying to establish a deep bond with this far away and high emotional Place recognized as cultural heritage context.

That part of the research has been focus on critical redraw of places and its main built architectures, in order to learn and understand natural and anthropic rules and traditions, to discover hidden metrical rules and space declinations, to unearth stratigraphy proportions and traces of landscape identity.

ID 090 *Urban heat island phenomenon and ecological indicators: the case study of the historical town center of Aversa (CE)*

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Climate change has reinforced the importance of the green component, especially in its thermal mitigation functions. The theme of the renaturalization of the city, through initiatives of structural integration of greenery with the anthropized environment, represents an important objective of urban and territorial planning. It is necessary to assign to green, functions capable of satisfying real needs; in fact, if the Grey Infrastructures constitute the built capital of our cities and are necessary for the economic development of a territory, the Green Infrastructures, represent its natural capital and are necessary to guarantee environmental sustainability. In the case of the compact city, where the urban form is largely established, it is difficult to create significant green spaces. Green infrastructure represents a new approach to the problem: street trees, green construction along railway lines, green roofs and facades are seen as solutions that are easy to implement and suitable for building links with nearest green spaces. There is therefore a need in the drafting of urban planning instruments to plan actions aimed at counteracting the effects of climate change. To this end, it is important to analyze the experiences of cities that, through the introduction of regulations and planning indications, have succeeded in limiting effects of overbuilding and the urban heat island, and the urban heat island, identifying shared solutions between public administrations and citizens, who, synergically, contribute to the reintroduction, management and maintenance of new green areas within the city.

ID 091 *Philosophy physics and math in architecture*

Giuseppe D'ANGELO

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*University of Campania
'Luigi Vanvitelli', Italy*

The scientists studied the effects of technology in the social field, in the possibilities offered by new technologies and in the setting of knowledge.

The architect must demand an extremely precise and meticulous attention in the composition of each image, in the meticulous definition of the details, in the choice of objects, light and atmosphere to get to the desired vagueness.

The way of globalization and standardization leads to an impoverishment of forms of life, because it is necessary to take into account the great diversity of forms of living and places of life, in order to enhance their environmental specificities, anthropological and artistic in a new perspective capable of creating a deep bond between the richness of local singularities and the meaning of universal values.

The future of planet earth is linked to our ability to respond to global challenges, to the now unliveable of many cities, to resources depletion and to the ever faster loss of biological and cultural diversity, the pollution and overheating of the planet itself.

In this paper we study the classification of architectural styles from great scale to ordinary scale and the three laws of the structural order characterize historic buildings around the world through more than four millennia of civilization until the 20th century.

ID 092 *Energy as a paradigm of urban planning. Towards an ecological transition*

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The debate in recent years has been characterized by the experimentation of a different form of piano in its various choices and denominations. It is no longer a question of regulating urban expansion but there is a need to address new needs of the urban system such as: limiting urban expansion to safeguard the soil as a resource; guarantee the environmental compatibility of the choices relating to the settlement and infrastructural system; principles of environmental improvement to the new urban transformations defining at the same time the rules of; avoiding the consumption of renewable resources, obviously including water and energy. Today there is the necessity to intervene to achieve the sustainability of local territorial system. This means that the municipal land is the unity on which to intervene with appropriate planning instruments to support sustainable actions. It's not enough deal energy issues only at the sectoral level, but is necessary that is an integral part of the Municipal Structural Plan from the phase of settlement's knowledge resources, environmental and infrastructure to the implementation of policies. This approach allows of to structure a new urban system based on the integration of the different segments that determine the energy self-sufficiency. The only way to ensure sustainability in urban development policy focused on the enhancement is the optimization of energy resources.

ID 095 *New Results of Industrial Noise Monitoring and Reduction on the Example of Samara Region of Russia*

Andrey VASILYEV

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Presently industrial noise in town's conditions is growing with every year. Serious problems of increased industrial noise impact are caused by power plants (compressors, pumps, ventilation systems, combustion engines etc.) generating high levels of low frequency noise.

Methods of analysis of industrial noise in Russia are considered. New results of industrial noise monitoring and reduction in conditions of Samara region of Russia are presented. Measurements of low frequency noise in day and night time are showing that for the number of points of urban territory the results of measurements are not fitting to the normative requirements. Measurement results of noise characteristic directly in the territories of industrial enterprises are showing that the main noise sources, especially in low frequency range, are power plants. According to results of experimental researches of acoustical characteristic of opposed piston compressor in real industrial conditions it is possible to conclude, that maximal values of sound pressure level were measured in low frequency range. On the main frequency of compressor operation 125 Hz sound pressure level is maximal.

Methods and technical solutions of industrial noise reduction are discussed. Several new technical solutions of industrial noise reduction were developed. One of them is combined device of power plants low frequency noise and pressure oscillations reduction.

ID 096 *Environmental Control of Toxicity of Water Reservoirs During Pollution by Toxic Substances*

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Toxicity is one of the most dangerous sources of pollutions of urban territories, especially of water reservoirs. Analysis of kinds and sources of toxicity of urban territories shows that the main of them are different waste components, especially oily waste.

Methods of control of toxicity of urban territories are considered. Main stages of complex estimation of toxicological pollutions of the biosphere are described. Peculiarity of suggested approach to environmental control of toxicity in comparison with existing methods is complex consideration of the main toxicological values of toxicants (e.g. oily waste) on the basis of it point-rating ranging.

Directions for further improvement of methods and approaches to estimation and improvement of environmental control of toxicity of oil and oily wastes are suggested, including the investigation of the territory of Volga basin of Russian Federation with the purposes of identification of the nature, scale and levels of pollution of Volga basin by oil and oil-containing waste, arrangement of ground-based ecological expeditions for study of ecological parameters in the areas of the oil and gas fields development etc.

In total, implementation of the system of complex ecological monitoring and estimation of negative impact of the oil and oil-containing waste to the man and biosphere will allow to reduce their negative impact, to reduce ecological risk for territories and water objects, to improve the state of environment and the health of population.

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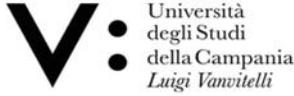


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