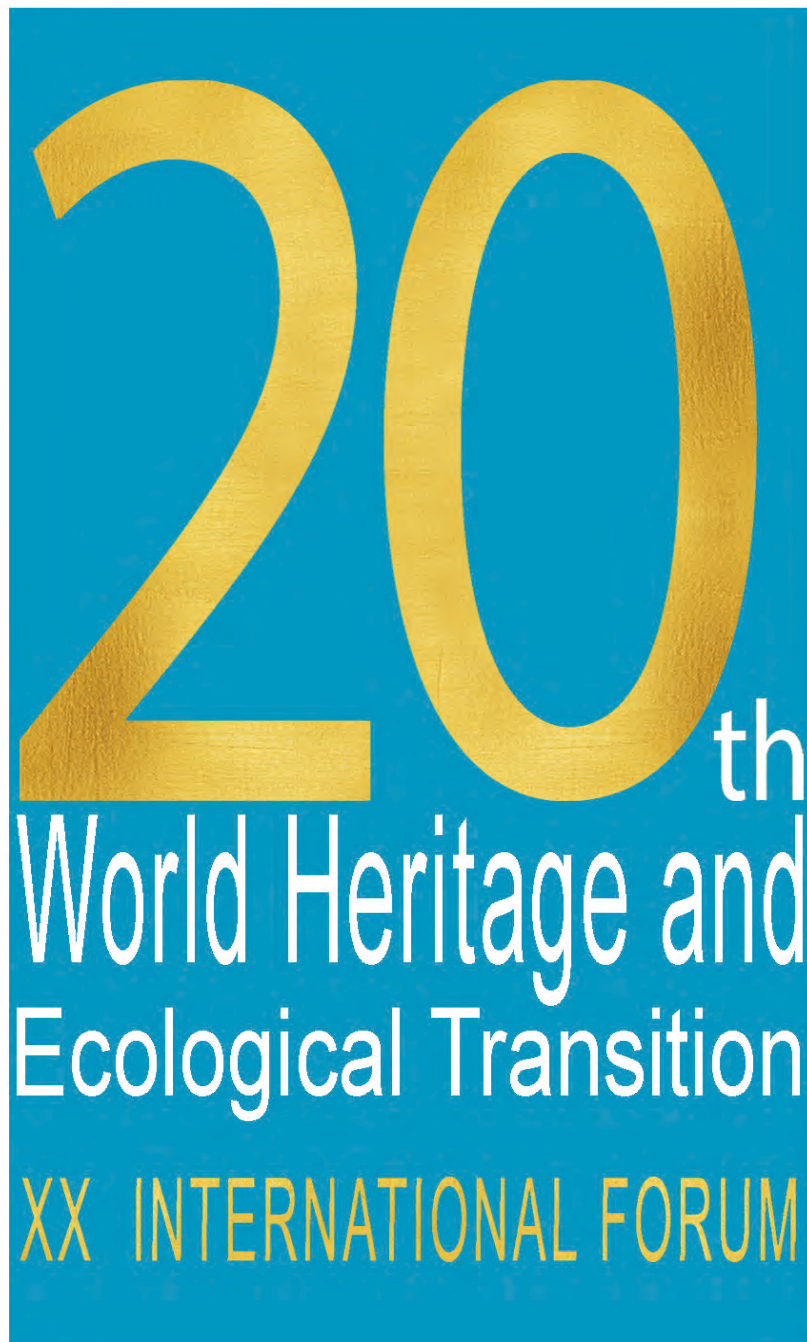


ARCHITECTURE HERITAGE and DESIGN

Carmine Gambardella

XX INTERNATIONAL FORUM

Le Vie dei  
Mercanti



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Carmine Gambardella  
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Le Vie dei Mercanti  
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# WORLD HERITAGE and ECOLOGICAL TRANSITION

**Le Vie dei Mercanti**

**XX International Forum**

Naples | Capri

8 - 9 - 10 September 2022

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### **Peer review**

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 Eco-geometry 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  
General Chair XX Forum 'World Heritage and Ecological Transition'  
President and CEO of the Benecon University Consortium  
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.

Prof. Carmine Gambardella  
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## From “villa” landscape to industrial landscape. And now?

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### Abstract

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: industrial development has distorted landscapes characterised by villas and gardens that have now lost their identity and are in search of a new urban, territorial and environmental balance.

**Keywords:** Urban Transformations, Urban Landscape, Representation, Cartography

### 1. The years of great transformation.

The decades between the end of the nineteenth century and the beginning of the twentieth century strongly influenced the transformation of cities. Industries were at the height of their development and communication routes were discovering new means and new roads. Throughout the western world there was an unprecedented demographic increase that radically transformed the city and the lives of its inhabitants. Everywhere, the 'human scale' dimension that had always guided the urban development of places was lost: the roads were suddenly inadequate for the new means of transport and the environment was compromised by the pollution induced by the new industries.

Renewed housing needs, combined with the use of new technologies and new construction materials (first and foremost the use of iron for buildings), generated cities that were completely transformed in terms of shape and image. In the first decades of the twentieth century, in America, extraordinarily tall buildings were constructed, while everywhere the lack of urban living space was responded to by building large blocks of flats. At times, historical centres (or parts of them) were sacrificed to make room for new buildings, due to an ever more pressing progress that suggested new forms of urbanisation. [1] In those years we witnessed the beginning of the great urban transformations that would leave a legacy of modern cities in which every link with the identity of the place was lost. This process began in the great European capitals such as Paris, London and Berlin, but it soon affected cities across the Atlantic. This process involved above all the cities affected by emigration from the ports of England, Italy and Spain, thanks to the increasingly efficient trans-oceanic routes that were able to move millions of people

in the space of a few years. Between 1880 and 1915, some 9 million emigrants arrived in the United States, almost half of them from Italy. [2]

## 1.2 Genoese Ponente's case

The great transformations involved all cities affected by industrial progress: every city, in fact, after having based its development for centuries on commerce and artisan production, had to face new needs dictated by the continuous development of industrial activities. The response to this need was to build factories and industrial sheds of ever greater dimensions (thanks also to the habitual use of iron structures), taking ever larger areas from the territory and finding solutions to develop urban agglomerations destined exclusively for workers' housing.

In this context, Genoa finds itself playing a role of primary importance for several reasons: the first is linked to the presence of a port that for centuries had been among the most important (if not the most important) in the Mediterranean and that in those decades found itself hosting an immense traffic of goods, but also of migratory flows towards the Americas. Another reason is still linked to the port and in particular to the fact that it was the natural outlet to the sea for the industries that were developing in the meantime in the plain behind it and, in particular, in Turin and Milan.

All this led to a rapid urban development that irrevocably transformed the city. Starting from the second half of the 19th century, also as a result of the construction of the first railway lines and the intensification of transport flows, the city had to be "rethought", adapting it to the emerging needs: new road axes were designed, parts of the old medieval city were erased, and the port basins were enlarged, taking advantage of an orographic structure that already defined rather wide and distinctive natural boundaries. The last wall, built in the first half of the 17th century, clearly defined the city's limits, marking the two ridges that descend from Mount Peralto towards the sea, protecting the city from the Bisagno and Polcevera valleys and enclosing the entire Gulf of Genoa. [3]

The transformations that affected the Ligurian capital in these years also involved some neighbouring municipalities of the immediate west, elements of connection towards the French coast. The first act of these transformations started in 1842, with the construction of the new "National Road" wanted by the Kingdom of Sardinia to connect Genoa to the port of Nice through the municipalities of Sanpiero and Cornigliano located on both sides of the Polcevera valley, west of the city.

This was only the first step in a series of transformations that would turn these two towns, which until then had been considered peaceful seaside resorts with a long, continuous beach, into industrial centres serving the great city of Genoa.

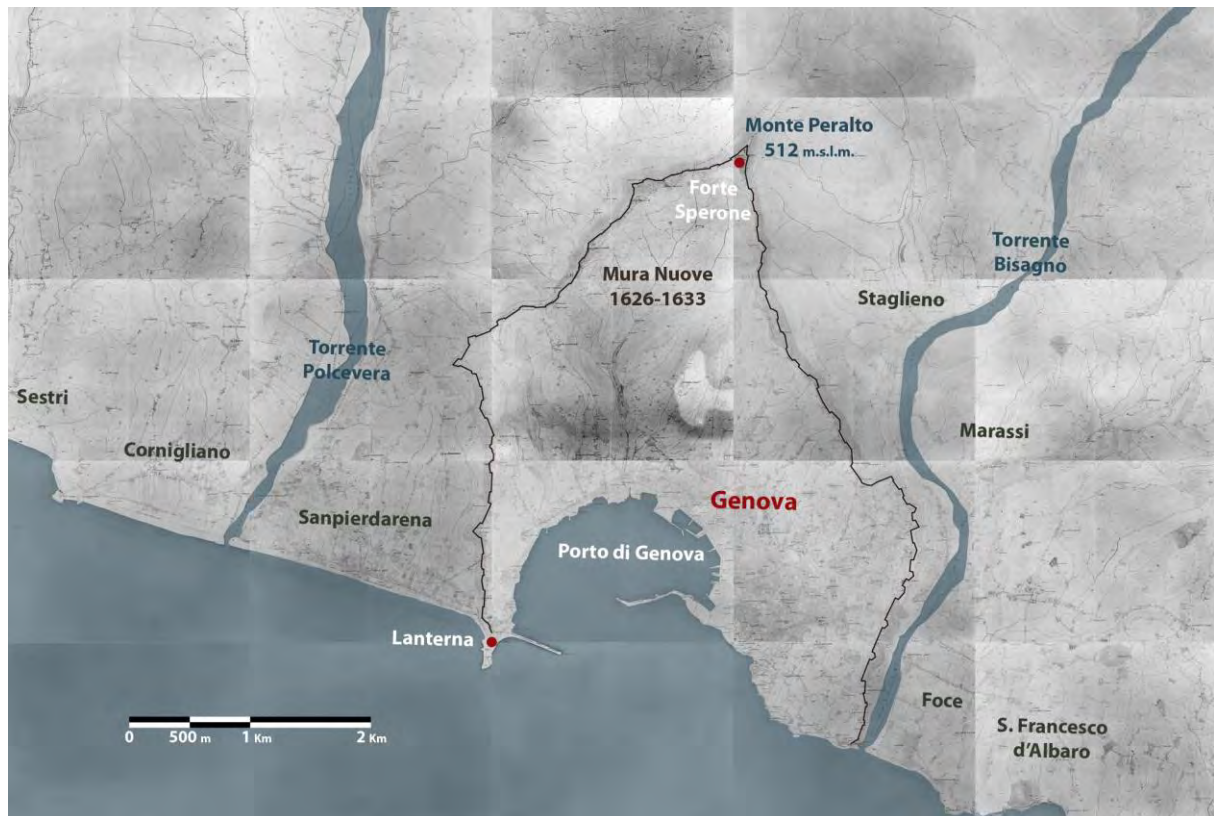


Fig. 1: Analysis of the Genoa area; elaboration of cartography by Ignazio porro (19th century)



### 1.3 From Villa landscape to industrial city

The name of Sanpierdarena, an ancient fishing and farming village annexed only in 1926 to "Greater Genoa", derives from the ancient church of San Pietro dell'Arena. The original name evidently referred both to San Pietro (who, according to legend, landed in that place) and to the sandy shore, i.e. the long sandy beach along the coast. This beach, of which now only photographic and iconographic documentation remains, continued uninterrupted even beyond the mouth of the Polcevera, along the coast of the adjacent town of Cornigliano.

They were both villages of fishermen and farmers who drew their resources from the sea and the plain of the river. From the end of the 15th century, these pleasant places were chosen by the most important Genoese noble families as holiday resorts on which to build magnificent examples of Renaissance villas. The villas were built at the foot of the hills, a few hundred metres from the beach, from which they were separated by a succession of gardens, orchards and citrus groves. This building process, which went on for two centuries, helped to strengthen the identity of these places, which were enriched with splendid examples of architecture in full respect of the territory and its peculiarities.

Cornigliano continued to maintain a close link with the sea until the dawn of the 20th century, managing to preserve the landscape values that had made the town particularly popular with Genoese families and well known throughout Europe.

If between 1842 and 1853, first with the construction of the National Road, then with the construction of the coastal railway line, the link with the sea began to be lost, with the imposition of conspicuous breaks in the territory (long elevated stretches of the new straight road and the entire elevated route of the railway line), it was with the expansion of industrial activities that the layout of these places was definitively changed.



**Fig. 2:** Views of the Cornigliano gardens and the route of the National Road (Gustavo Dufour, c. 1870 and early 20th century photograph).

Initially, the nascent industries replaced the crops that had characterised the plain along the banks of the river for centuries, and also took over part of the gardens of some of the villas. At the same time, even the villas along the original road axis (Via del Borgo) had to give up part of their land to the demand for housing imposed by the increasing use of labour in the industrial plants. The number of inhabitants of Cornigliano doubled in just twenty years: they went from 4700 in 1881 to over 9139 in 1901, imposing a radical transformation of the urban fabric. [4]

Despite the fact that these major transformations were radically changing the town's urban layout, at the dawn of the 20th century the main industries still remained confined to the banks of the Polcevera and left the town's tourist vocation almost intact. Following the fashion of the time, as was the case on the Riviera and on the nearby Côte d'Azur, numerous bathing establishments and splendid hotels were built in those years and were even mentioned in the guides of the time. [5]

## **2. Saturation of the urban fabric**

The first decades of the twentieth century were a period of great expansion for all cities. In those years, following the important nineteenth-century layouts, a continuous process of building growth began that would seamlessly complete the fabric that was developing in the outlying areas. These were the years in which large blocks of flats were built, concentrating many residences in single high buildings. These buildings were generally conceived in groups which replicated sequences of built volumes and empty spaces with a repetitive scansion, generally following straight street axes. In places characterised by a complex orography (in general like that of the Ligurian territory), the result of these constructions is the loss of the identity elements of the place itself. In this way, the ancient routes, which sinuously followed the contours of the land, are often cancelled out by rectilinear routes which also aim to "level out" differences in height by means of excavations and embankments.

Cities expand far beyond the boundaries of their historical fabric and annex their surroundings, turning them into new peripheral areas of the city and new neighbourhoods.

What happened in Genoa is emblematic of what was happening in large cities. If until 1874 the municipal territory of the city of Genoa coincided with the urban area within the seventeenth-century city walls, the so-called Mura Nuove, according to a subdivision into six districts ("sestieri"), with the significant increase in population, having saturated all the spaces within the medieval city, an urban expansion plan was drawn up that led to the redefinition of the city's boundaries to make room for new infrastructures and residential areas for the middle class.

In particular, the Genoese administration aimed at incorporating the neighbouring municipalities of the lower Bisagno valley where there were already infrastructures serving the city (such as Staglieno, where the monumental cemetery had been completed a few years earlier, but also Marassi, San Fruttuoso, San Martino and San Francesco d'Albaro and the Foce).

In those years, expansion towards the west was not contemplated, also because of the presence of a hilly structure that still represented a difficult limit to cross. The hill of San Benigno, in fact, quickly reaches 100 metres in height and closes the city with a particularly steep slope that continues as far as the Lanterna rock, making any crossing towards the west difficult.

Although the municipalities in the western part of Genoa had not yet been incorporated into the nearby capital, they were playing an important strategic role in the industrialisation process of the whole country. The Sanpierdarena and Cornigliano shipyards and steelworks were expanded and during the First World War production was used to meet the needs of the war.

In 1926, in the midst of the Fascist regime, the "Greater Genoa" was established: the City incorporated other municipalities in the immediate vicinity, including the municipalities of Sanpierdarena and Cornigliano, which formally became the industrial area of the Greater City. In this way, a further process was set in motion that guided the expansive logic of the two districts throughout the 20th century, which were definitively dedicated to industry. The Cornigliano steelworks became the largest Italian centre for the production and processing of steel, while the nearby Sanpierdarena shipyards were dedicated to the manufacture and assembly of the final products. Ships, battleships, locomotives, but also cars, aeroplane parts and industrial machinery were produced in this part of the territory, which had now abandoned its old vocation as a "holiday resort" and was losing its physiognomy and original identity.

### **2.2 The loss of identity**

If for centuries the landscape of the western part of Genoa remained almost unchanged, it took only a few decades between the end of the 19th century and the beginning of the 20th century to irreparably change the urban and landscape structure of the area. With the advent of the Second World War, the steel and shipbuilding centre between Sanpierdarena and Sestri Ponente had become increasingly large and important for the economy not only of Genoa, but of the entire nation. The characteristics that for centuries had made this area an enchanting holiday resort, were also particularly suitable for the development of industrial activities: the river plain at the mouth of the Polcevera was in fact the ideal

place for the establishment and development of factories and plants, while the presence of the coast represented an important element of connection with the nearby port of Genoa.

The only existing border between Genoa and the Ponente was the hill of San Benigno, which, however, a few years after the establishment of the Grande Genova, was eliminated by excavating its end. The work lasted five years and led to the creation of a large flat area for the future business centre of the port. These works were also necessary for the opening of two important roads: the new road towards the Ponente (west) and the opening of the Camionale road which was to be the first section of the Genoa-Milan motorway. The earthworks were imposing and radically changed the perception of the city, which suddenly found an outlet (not only on the road, but also visually) towards Sanpierdarena. The enormous quantity of material obtained from the demolition of the hill was used to fill in the new piers in front of Sampierdarena. A new city was being designed that was completely different from the existing one, a city that imposed itself on the site and radically transformed it.



**Fig. 3:** View of the Colle di San Benigno from Genoa towards the west. Comparison between a current photograph and one taken by Alfred Noack at the end of the 19th century.

Within twenty years those places completely lost their relationship with the sea: the coastline of Cornigliano advanced by 800 metres and the new fill was used for the expansion of Cornigliano's steel industries, shipyards and port activities (in the Sanpierdarena area), while the stretch of water in front of Sestri Ponente soon gave way to the new aeronautical yards and, later, the airport.

The large-scale urban development projects of the twentieth century, made necessary by the impressive industrial development, radically transformed the area of western Genoa between Sanpierdarena and Sestri, moving the inhabited areas away from the sea to make room for the industrial plants. In the process, some valuable buildings had to be sacrificed and, above all, the original landscape was completely erased.

### **2.3 A worrying comparison**

It took only a few decades to radically transform this part of the territory, which had remained virtually unchanged for centuries. The first settlements were small villages scattered along the road leading to Genoa or along the hill or coastal roads; villages of peasants and fishermen which were only joined by the prestigious Genoese noble villas at the end of the 15th century. These splendid constructions did not alter the territorial structure and characterised the landscape even more with their elegant volumes covered with "pavilion" roofs covered in slate. The villas, with their vegetable gardens and gardens that descended to the beach, were the connotative element of these places until the last years of the 19th century.

We are witnessing a particularly rapid and devastating evolutionary process that today appears disturbing: the orography of the territory is now illegible and the built environment seems to have developed without any connection with it. It is enough to compare a twentieth-century map with one from the end of the nineteenth century to see how the transformations have distorted an entire territory, completely erasing its identity.

As part of a research project entitled *La Rappresentazione per le trasformazioni del Paesaggio Urbano* (University Research Project, FRA 2020, for which the author is scientific director and whose results are presented here), a historical cartography was drawn up using contemporary graphic techniques. The aim of the research is to facilitate the comparison between the phases of the evolutionary process of



the city by means of works that use the same graphic language and that are thus perfectly superimposable and comparable.

It was decided, therefore, to translate with a photo-realistic language (characteristic of ortho-photogrammetric surveys) different ancient cartographies describing the territory at significant historical moments. For the study of the evolution of the Western Ligurian area, and in particular of Cornigliano, the cartography made by Ignazio Porro around 1835 was used.

There are basically two reasons for using this cartographic material and its graphic elaboration. The first is linked to the period in which the survey was carried out, i.e. the 1830s. In those years, in fact, the great transformations that would affect every city from the mid-nineteenth century had not yet been initiated; the railway line had not yet been planned and the sharp industrial development would begin only a few decades later.

The second reason is linked to the surveying method used by the surveyor. Ignazio Porro, in fact, carried out the survey with the help of the officers and soldiers of the Zappatori battalion, using optical instruments and adopting for the graphic rendering (on a scale of 1:2000) the system of isohypses, i.e. contour lines, which was particularly innovative at the time, since the "sfumino" technique was generally used to represent the surveys. [6]

Porro's cartography appeared to be particularly accurate and allowed for a perfect superimposition with the current one, which was undoubtedly made with more performing tools.

The main differences between the two maps concern only the graphic technique used to draw them and, naturally, the (substantial) difference in the built fabric.

Fortunately, there are quite a few buildings present in both maps and it is precisely these elements that have been used as "cornerstones" to superimpose the two drawings. Cornigliano, in particular, still has a heritage of more than thirty villas, mostly built between the 15th and 17th centuries, in full respect of the architectural canons of the Genoese Renaissance villas. In addition to these, there are also some religious buildings and fragments of the ancient settlements which, together with the villas, allow the original settlement layout to be interpreted.

In order to translate the graphic language of nineteenth-century cartography, made up of line drawings, into photo-realistic terms, reference was made to a wealth of iconographic and photographic documentation that made it possible to visualise this territory in its three-dimensionality.

The result is an elaborate work composed of superimposed levels that retrace the evolution of the place from its origins to the present day.

The simple comparison of the two extreme steps, i.e. 1835, before the great transformations, and the current state, offers an immediate vision of how much has been lost and how much, on the other hand, remains despite having completely lost its identity.



**Fig. 4:** Cornigliano. Comparison between the current aerial photogrammetric cartography and the cartography of Ignazio Porro (1835 ca.) reworked according to a photorealistic graphic language. (University research, FRA 2020 Project, entitled: "Representation for Urban Landscape Transformations", scientific responsible Massimo Malagugini).

This is particularly the case for the villas and the coastal strip. The villas that had sprung up along the ancient route were part of a complex system generated by the sequence of the building with the gardens, the vegetable gardens and the annexed crops that developed as far as the sandy shore. The cutting of

the road axis (the National Road built a few years after the Porro survey) marked the first major caesura in this landscape and triggered a process of building unrelated to the territory itself.

The extraordinary beach was the source of livelihood for fishermen and locals for centuries and made Cornigliano an extraordinary holiday resort. It has now completely disappeared and given way to a fill that covers some 700,000 square metres.

The filling up of the stretch of water in front of Cornigliano (completed in the 1950s) has completely changed the landscape and the relationship that the place had always had with the sea, but it has also made most of the old buildings detached from their context. There is no trace of some of them, as they were demolished together with the landscape context on which they were built and for which they were conceived.



**Fig. 5:** Cornigliano. Superimposition and tessellation of current cartography and graphic elaboration of Porro's cartography (1835 ca.)

An emblematic case is the castle built by Count Edilio Raggio at the end of the 19th century on the Sant'Andrea rock, where there was a powder magazine built for military purposes on the remains of the almost thousand-year-old church of Sant'Andrea Apostolo.

The project was entrusted to architect Luigi Rovelli, who conceived a sumptuous residence inspired by the eclectic Miramare Castle built in Trieste at the behest of Archduke Maximilian of Habsburg and designed by Austrian engineer Carl Junker.

The castle was inaugurated in 1892, on the occasion of the celebrations for the fourth centenary of the discovery of America, with an event that involved the main authorities of the Kingdom of Italy and brought Cornigliano to the height of beauty and tourist interest at the end of the 19th century. [7]

The extraordinary position of the castle, built overlooking the sea on the small island that had been connected to the beach over time, and its imposing and elegant architecture, made it the symbol of the



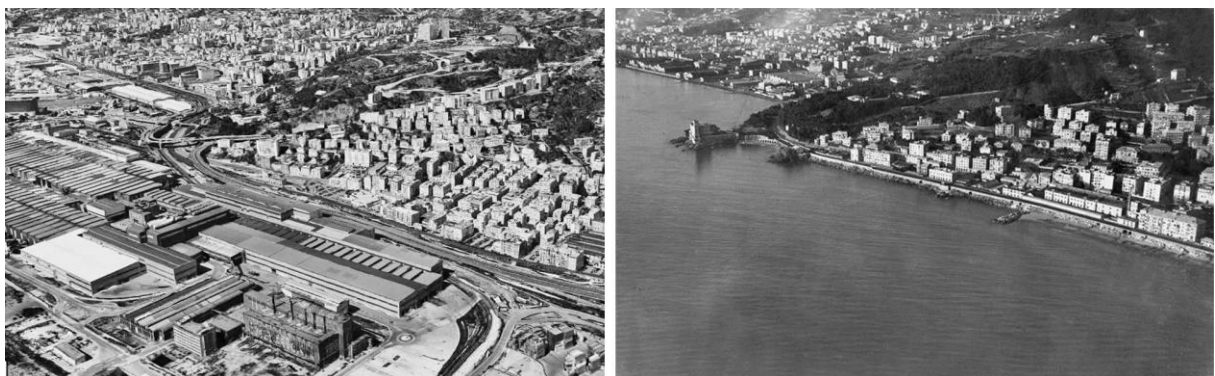
place for half a century. Its early abandonment by its owners and subsequent destruction during the war turned the splendid building into a ruin that would soon be demolished along with the island on which it stood to make way for the steel industry.

This took place in April 1951 and marked the last stage of a transformation that has made an enchanting place unrecognisable.

Comparison of the two maps gives an incredible insight into the evolution of this place and makes it possible to identify exactly the site of the building and the position of the natural rock on which it stood, where the main traffic artery with its road junctions now runs.



**Fig. 6:** Sant'Andrea's rock. Transparency superimposition of the situation in the first half of the 19th century with the current one.



**Fig. 7:** Castello Raggio on the Sant'Andrea rock. Comparison between an aerial image from the 1930s and a current one. The position of the castle at the end of the ridge between Cornigliano and Sestri Ponente is clearly visible.



### 3. Future of the city

The expansion of the steel industry in the western part of Genoa since the end of the 19th century proceeded in alternating phases. During the Second World War, under the impetus of the Fascist regime, the entire production was dedicated to the needs of war, but with the end of the conflict it was necessary to think about a reconversion of the entire integrated steel cycle. This happened in the years of post-war recovery, when Cornigliano further increased its industrial fabric, increasingly linked to the nearby shipbuilding, port and aeronautical activities. In the 1960s the motorway link connecting Genoa to Ventimiglia was built, and the two mountainsides between Sanpierdarena and Cornigliano were connected by an imposing viaduct (known as the Morandi bridge) built with an innovative reinforced concrete structural system. In addition to the importance that the viaduct had for Genoa and for the entire nation as a link with France, it is unfortunately even more famous that the viaduct will come to an end with the tragic collapse in 2018.

After the recovery and increase in industrial activity, which reached its peak between the 1960s and 1970s, the 21st century opened as another period of change and transformation linked, however, to the progressive reduction in industrial activities and related production. These are years in which the factories appear oversized and in part now unused, offering new opportunities for the entire city.

In 2002, the coking plant was closed and in July 2005, as a result of the agreement between the Riva Group and the institutions, hot production was completely shut down. Following these changes, about 350,000 square metres of free areas where the plants had once stood were returned to the public institutions and the city. The industrial plan envisaged the expansion of "cold" activities and the employment of the 650 or so laid-off workers in public service projects promoted by the local authorities, such as the protection of green spaces, maintenance and so on.

Although the assumptions were good and gave hope for the redevelopment of the entire western part of Genoa, a few years later the results of these operations do not seem to have succeeded in restoring dignity to these places.

On 31 March 2022, work was completed on the redevelopment of the main road through Cornigliano (the historic National Road, which later became the Provincial Road), which has now been freed of traffic that has been diverted onto a new road axis along the lost coastal strip. The project included new plantings, a cycle path and resurfacing, with the aim of increasing the liveability of the entire neighbourhood. The project certainly improves the environmental quality of Cornigliano, but it does not have the necessary strength to give the place back its original identity.

In recent years, a large area in front of the gardens of Villa Bombrini has also become available, freed from the two gasometers that for several decades had "suffocated" the villa and its gardens. The gasometers, the largest of which was 98 metres high, were demolished in 2008 and have freed up the entire area, which until the beginning of the twentieth century was occupied by the fields and crops opposite the Cornigliano beach.

The proposed projects are causing a lot of discussion, but none of them aims to reclaim what for centuries have been large green spaces. The area freed from industry could represent for Cornigliano - and for the entire city - a precious opportunity to experiment with a new way of converting areas freed from industry: not new buildings and shopping centres, but open spaces that can be dedicated to green areas. Not flowerbeds and small plantings, but large spaces that can really become the green lung of an area that until the end of the nineteenth century had been a popular holiday and tourist destination for centuries. This should be the first step towards the conversion of other spaces that will become available in the meantime, with the final objective of safeguarding the precious heritage of the villas of Cornigliano and Sanpierdarena and rediscovering those environmental characteristics that industrialisation has perhaps irretrievably erased.



**Fig. 7:** Via Cornigliano redevelopment project. Overall views of the main road redevelopment, works completion March 2022





**Fig. 9:** Comparison between the original urban layout of the Villa Bombrini area and its gardens and the current one; the space in front of the garden was cleared of gasometers in 2008 and is now awaiting a new layout.



**Fig. 10:** Photo of the proposed project for a sports hall in front of Villa Bombrini. The proposed building would further erase the prestigious architectural and landscape heritage of Cornigliano and would be the umpteenth renunciation of the identity of that place.

### 3.2 Search for a new identity

What was for centuries a holiday resort, at the dawn of the twentieth century became an industrial site; today many of those industries have been closed down and the western part of Genoa has the opportunity to rediscover its identity. It is no longer the outlet to the sea of the industrial triangle made up of Milan, Turin and, precisely, Genoa, but a place that could rediscover a strong landscape and

environmental identity that could represent a direct view of the sea for the inestimable historical, artistic and cultural heritage of all of northern Italy.

In recent years it has been realised that Genoa's "waterfront" has incredible potential; Renzo Piano imagined it in his first "fresco" and recently specified it in the master plan for the "East waterfront". In it, the architect succeeds in maintaining the union between the peculiarities of the landscape, which for years have been forgotten (and erased), and the needs of shipbuilding activities, which are constantly expanding.

In the light of recent changes, it would also be necessary to think in a unified way of a "west Waterfront" that would be capable of redesigning the layout of that part of the city that has been most tampered with by urban development, but which still retains some of the peculiarities that for centuries have made it a pleasant and coveted place.

### **3.3 A tool for learning about the history of the place and planning its future**

The final objective of the research carried out by reading the cartographic and iconographic representations of this area is to clearly visualise the history of the place and its transformations in order to identify the key points on which to base a recovery plan for the entire area. It is not just a question of thinking about new residential or infrastructural interventions to reconvert the areas that have become available, but of trying to imagine an entire area in which new interventions can restore the identity of a place that has transformed its urban, landscape and environmental characteristics in just a few decades. Only by knowing the history of the place and appreciating its lost greatness will it be possible to refine the design awareness and sensitivity that every architect should have. The graphic designs that are being prepared are intended to be an integral part of a necessary tool, made up of images and maps, which can offer food for thought and from which to start any future work.

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## **CARMINE GAMBARDELLA**

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