

SAN CATALDO (LECCE, ITALY): THE HISTORICAL EVOLUTION OF THE COASTAL LANDSCAPE

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Abstract – San Cataldo (Lecce, Italy) is located on the Adriatic sea coast, about 10 km east from Lecce, in Apulia (Puglia) region. Since ancient times it was an important departure and landing place for trades and travels between the two shores of the Adriatic Sea. A clear evidence of it is the presence of a Roman pier, whose remains are currently partially visible. They were studied by recent multidisciplinary researches, outlining their technical-construction features and the ancient topography of the surrounding area.

Starting from the analysis of San Cataldo coastal landscape in ancient ages, this contribution is firstly focused to illustrate the evolution of the port in medieval times, when the resuming of long-haul commercial traffic led the port to be an important landing place for the Adriatic routes again. At this time, the old Roman pier was restored and protected by a coastal tower.

After a long period of abandon, the document analyses the transformations occurred between the 19th and 20th centuries, when it was built: a lighthouse, a new pier, close to the old one, a tramway. This ensured a fast connection between Lecce and its seashore. In the second half of the 20th century, a new tourist vocation finally replaced the commercial one for San Cataldo, leading to overbuilding events that characterise the current coastal landscape.

Introduction

San Cataldo (Lecce, Italy) is located along the Adriatic seaside, about 10 km east of Lecce: since ancient times has played an important role as a starting and landing point for trade and sea travels between the two shores of the Adriatic Sea (fig. 1). This document aims to illustrate the current coastal morphology, defining the changes occurred over time by natural events and anthropic action. The coastal landscape evolution is closely linked to Lecce history and to the appeal on its port by: construction of infrastructures, encouraging its use, enhancing the commercial and touristic role.

Materials and Methods

University of Salento “*Portus Lupiae*” project by Ancient Topography and Photogrammetry Laboratory (LabTAF), represents an important part on San Cataldo studies. The multidisciplinary researches of this project have been carried out in the area

surrounding the ancient Roman pier, assisted by bibliographic and archival investigation. Between 2004 and 2007, the results showed a detailed graphic documentation of the mainland remains of the pier (fig. 2), obtaining a better definition of the ancient construction technique and its peculiarities (thanks also to the lithological analysis of the building materials). The underwater surveys defined the extension of the submerged part of the pier, while topographical surveys were carried out in the portion of the territory, between the city of Lecce and San Cataldo, supported by aerial surveys with low-altitude flights [29]. Thanks to the collected data, it was possible to develop a photo interpretation study, integrated and compared with the recovery and analysis of the aerial historical pictures from the 1940s and 1950s. Furthermore, several geophysical prospections on the current Piazza Adriano, documented the extension of the pier structures below the road level, for a length of about 40 m [24].



Figure 1 - San Cataldo (Lecce, Italy): A) Aerial photo from southwest (LabTAF, 2013); B) Location in southern Italy.

Based on the results obtained in 2013, an archaeological excavation campaign was planned to light a new portion of the pier, 20 metres long near Piazza Adriano. Underwater cleaning operations on the opposite end revealed the last surviving line of the northern front wall for a length of about 70 metres.

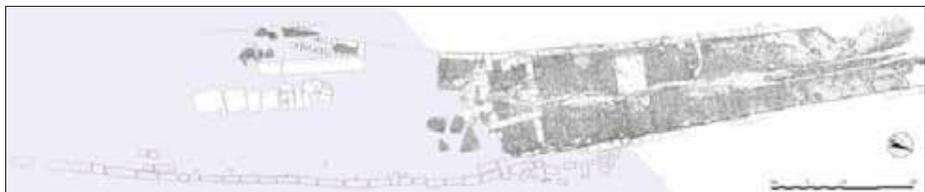


Figure 2 -San Cataldo (Lecce, Italy): plan of the Roman pier ruins (by dr. Silvia Marchi).

All of these results outlined the coastal landscape in antiquity by 3D reconstructions [19, 17], and to understand its historical evolution in relation to San Cataldo level of importance, as a commercial port over time. In fact, the historical sources attest the resuming of the port activity between the medieval age and the modern one: an information confirmed by the archaeological data, which provides evidence of an increase of settlements in the area. Another research aspect included a study of historical maps, useful to define the coast aspect from a naturalistic point of view, indicate the presence of structures, that especially during the 19th century, led to the revaluation of San Cataldo as a tourist destination.



Figure 3 - San Cataldo (Lecce, Italy): Roman and 20th-century piers ruins aerial view (LabTAF, 2013).

Results

Data obtained from the surveys completed in the area of San Cataldo and its hinterland during the years, show how the transformation of the coastal landscape was influenced primarily by the decision to build a harbour since ancient times: a strategic choice for the city of Lecce, induced by commercial and military reasons. The element that most characterizes history of San Cataldo was the persistent will to realize a commercial place in a coastal site, but became less and less appropriate: in fact, cover-up and swamping events hindered the port development on several occasions. For this reason was considered unsafe for its purpose. After the Roman age, this goal was implemented in the medieval age and between the 19th and 20th centuries, with the construction of the new pier, the lighthouse and the tramway, connecting to Lecce. First bathing establishments were built in these last periods, which during the 20th century contributed to give to San Cataldo the tourist vocation that still distinguishes it.

The commercial vocation of San Cataldo ended a few years after the modern pier construction, immediately destroyed by the sea and reduced to ruins. Swamps draining works and reforestation gave way to the urbanization and soil cementation events, which heavily modified the coastal landscape, especially in recent decades.

Discussion

San Cataldo site represents, with its Roman pier, one of the most tangible examples of anthropic modification of the coast: a strategic infrastructure for the city of *Lupiae*, with economical and commercial implications [20] (fig. 3). The ancient remains are currently visible south of the lighthouse, near Piazza Adriano. Data collected during recent archaeological investigations made possible to determine the extent of the surviving structures: they occupy a linear surface of about 140 metres, half of which are submerged.

The construction technique of the pier consists in two walls of local limestone square blocks - usually placed with the long side exposed -, linked by transverse square block chains over different levels. Blocks have a length between 0.50 metres and 3.10 metres, an average width of 1 metre and an average height of 0.80 metres: the nucleus in Roman concrete is between the walls, made up of various and irregular sized stones mixed with lime mortar and brick fragments.

The pier ruins plan shows how the gap between the two walls, towards the submerged part, goes from 13 metres in the north end to 18 metres in the south one: this allows us to speculate about the quay width increase in the actual lost portion. Two prominent blocks with a 33 cm vertical circular hole diameter - plus traces of other two - are placed edgewise on the south wall: they are explained as mooring rings or as supports for lifting machines. Based on the overall dimensions, the pier was meant to dock small and medium-sized ships [15, 16, 17].

Among the ancient literary sources, Pausania mentions that port of San Cataldo is dating back to the Hadrian age; however is probable that a first equipped coastal landing was already present in the Augustan age, within the complex urbanization programme which characterized Roman city of *Lupiae* in that period. Traces of an ancient road axis near the pier can be ascribed to the connection between the city and the port in Roman age [28] (fig. 4).



Figure 4 - 3D reconstruction of San Cataldo Roman pier.

The anthropic presence on the coastal stretch is also associated to the remains of two republican age kilns, for the production of amphorae at Masseria Ramanno, surely linked to the activities of the nearby port of San Cataldo. Transport containers ceramic fragments and an anchor are attested near the Roman pier. At about 2 km south, in a place called San Giovanni, there are Late Republican and Imperial age wall structures, and a

series of pools for the production of salt. Furthermore, there are some building blocks alignments and a structure, having several rooms carved in the submerged rock in shallow water, that can suggest a fish farming complex. Near Cesine wetland, even more south, were identified similar structures referring to the Late Republican - early Imperial age, probably concerning the business activities linked to San Cataldo [7, 31, 4].

From this premises, it can be deduced how the coastal landscape in antiquity had a more advanced coastline than the current one. It was filled by various productions, gravitating around the port affairs and in natural environment that favoured their settlement.

The port of San Cataldo was probably functional to a series of small Byzantine settlements and two rock crypts, dating from the 8th and 10th centuries. Topographical surveys identified those in the area between Lecce and its coast [2, 3]: disappearance of productions activities on the coast, was a sign of the commercial traffic decreasing.

From the 12th to the 14th century, the area of San Cataldo became a small landing place, part of a desolate coast, with a partially impassable seabed caused by a shoal, called “Planca de Licze” in 13th-century sources. Furthermore, a large marshy area was extended close to the coast, surrounded by Mediterranean maquis and a vast wooded area called “foresta di Lecce (Lecce forest)”, extended from Otranto to Brindisi [22, 23].



Figure 5 - Detail of the “Carta Rilievi delle Coste dell’Adriatico dal fiume Tronto a Gagliano del Capo di S.ta Maria di Leuca” (1830-1835), indicating the tower/castle of San Cataldo and the coastal natural landscape (IGM Archive).

In the 14th century, Lecce became one of the major trading centres in Terra d'Otranto thanks to its important role, played within the Apulian trade fair circuit, the contextual reborn of a flourishing long-range maritime commercial traffic [27, 14]. San Cataldo returned to be one of the main port for the Adriatic Sea routes. It was fortified with the construction of a coastal tower in defence of the pier [34, 33], also used as a storage for merchants goods [23].

During the 16th century, the threat of invasions and looting by the Ottoman and more generally piracy in the Mediterranean sea, forced king Charles V to build a series of defensive structures along the coast of ViceKingdom of Naples: the old tower of San Cataldo became part of this great project and was restored in the middle of the century [10], with the pier as well [32]. The insecurity period induced the population to abandon many scattered farmhouses and to move towards the cities. At the same time there was a coastal natural landscape change, with a progressive stagnation of rainwater, caused by sandy dunes which stopped their path towards the sea: these large wetlands are outlined in the historical cartographies; they were extended for a width of about 5 km from the coast to the hinterland [11]. The tower of San Cataldo - also called castle - was later part of the 26 Kingdom of Naples marine strongholds, also shown in historical maps [5, 9] (fig. 5). From those maps it's possible to identify its location close right to the Roman pier [30]: currently the tower it doesn't exists anymore, probably destroyed by an English mine in the 19th century [4].

In the following centuries, San Cataldo's trade continued to flourish and numerous shops of Genoese, Florentine, Neapolitan, Greek and Venetian merchants settled in the city of Lecce. There were many goods in the centre of import-export business: timber, glass, iron, wine, cereals, sugar, coffee, fabrics but above all, Terra d'Otranto's lamp oil. Despite these aspects, port was considered less and less safe over time for various reasons, such as the old pier declining structural conditions, the tower scarce armaments and dangers due to the shallows. The commercial traffic of the port stopped in the first half of the 18th century: the pier was abandoned and the erosion of the sea contributed to the destruction of the most exposed structures, while those on the ground were buried by sand dunes [18].

San Cataldo renaissance occurred at the end of the 19th century, when the construction of a series of infrastructures aimed to get rid of the decline of trade in the territory, supporting the economical and touristic seaport development (fig. 6).



Figure 6 - Panoramic view of San Cataldo from the lighthouse, 19th century beginning (Cartelli 1981).

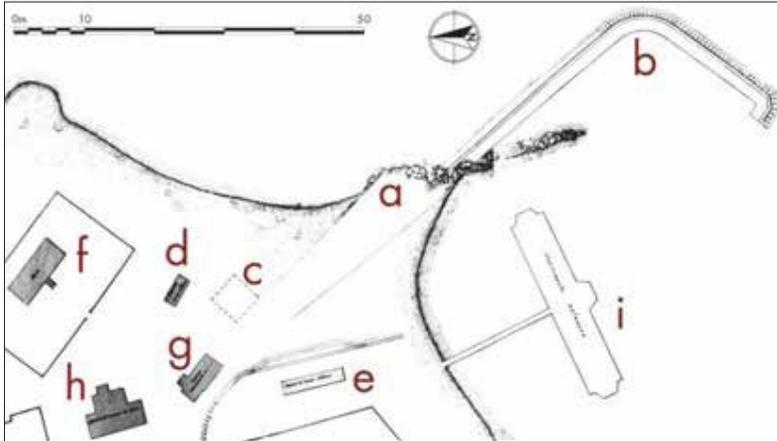


Figure 7 - Detail elaboration from “Planimetria del Progetto di massima per la sistemazione del Porto di San Cataldo presso Lecce” (1898 - Municipality of Lecce Archive) indicating: a) Roman pier ruins; b) Planimetric project of the new pier; c) Lost tower/castle site; d) Church of St. Cataldo; e) Tramway station; f) Lighthouse; g) Customs office; h) Hotel; i) Bathhouse on stilts.

It was built a tramway for a fast connection between Lecce and San Cataldo [11], a lighthouse [8] and a new pier - close to the ancient Roman one [29], that was partially demolished for construction material recycling -. As clear from the historical photos of that time, a tramway station, a small church dedicated to St. Cataldo, a customs office and a marine hospice completed the skyline of the coast, together with accommodation facilities such as an hotel [12], a restaurant and a bathhouse on stilts [6] (fig. 7). Coastal landscape of the period was very conditioned by a deforestation perpetrated over the centuries in favour of cultivated areas. However, in 1904 began the first reforestation of San Cataldo’s area, followed by an integral reclamation of the marshy areas, which ended during the first half of the 20th century [21].

In the early decades of the same century, the tramway and the church were removed, while the new pier was immediately affected by marine erosion, making it unusable. However, new bathing establishments were built and San Cataldo became a real tourist place, with new commercial activities and private homes linked to summer tourism. This caused deep changes in the naturalistic sector, due to excessive urbanization and coastal cementing events, which heavily modified the coastal landscape. In fact, San Cataldo’s coastline is the most affected one by coastal works done for recreational-tourist purposes. In addition with the creation of a series of coast modifications, useful for an artificial beach nourishment [13] (fig. 8).

Currently, the coast runs with a curvilinear trend for about 2 km up to Punta delle Cesine. The width of the beach is linked to the tides and can vary from a few tens of metres in the central portion - where the bathing establishments are, south-west of the lighthouse - to less than 5 m near the extremities. The ruins of the Roman and 20th-century piers retain

significant quantities of sand and algae on the sea currents exposed side, which leave amounts of variable materials on the shore. The strong soil consolidation cancelled all the rest of coastal dunes, which until a few decades ago were along the entire coast: an exception is represented by a modest dune belt, yet preserved in the north part of San Cataldo. The lithographic analysis of San Cataldo coast attested a sand deposit over a Plio-Pleistocene chalky rock, having a typical Salento's light sands alternation, with dark sands (coming from the volcanic deposits of Vulture Mount, transported by Ofanto River to Barletta on the Adriatic Sea and then south by the currents). The coast has shallow waters, with regular bathymetries that rapidly deepen below 100 m; it is affected by mostly perpendicular to the coast line winds and with the prevalence of a Sirocco current [1, 25].



Figure 8 - San Cataldo (Lecce, Italy): satellite view (SIT Puglia - 2008).

In conclusion, the geographical framework of San Cataldo coastal strip was significantly different from the current one at the beginning of the historical age. Studies have shown that in Greek-Roman Age the sea level was probably lower of about 3 m

compared to nowadays: its rise has therefore strongly set back the coast line [26, 31]. On the contrary, Roman pier area went through covering events, facilitated by the same ruins which at that point emphasized the coast line advancement. In the Middle Ages environment has changed with the formation of swampy areas and a progressive deforestation, solved only in the last century with drainage and reforestation works. Gave this fact, San Cataldo changed from a commercial port to a tourist destination (fig. 9).



Figure 9 - San Cataldo (Lecce, Italy): north aerial view (LabTAF, 2013).

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